Programming Manual

Original Instructions

PowerFlex 750-Series AC Drives

Firmware Revisions 1.xxx…13.xxx

Allen-Bradley • Rockwell Software

Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

IMPORTANT Identifies information that is critical for successful application and understanding of the product.

Labels may also be on or inside the equipment to provide specific precautions.

SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.

BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

Preface

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Notes:

The purpose of this manual is to provide you with the basic information required to install, start-up, and troubleshoot PowerFlex® 750-Series Adjustable Frequency AC Drives. This manual is intended for qualified personnel. You must be able to program and operate Adjustable Frequency AC Drive devices. In addition, you must have an understanding of the parameter settings and functions. The PowerFlex 750-Series AC Drives Quick Start, publication 750-QS001, is designed to provide only basic start-up information.

Summary of Changes

This manual contains new and updated information as indicated in the following table.

Topic	Page
Added parameter 41, [Common Mode Type].	52
Updated the default value of bit 6 "VCmdPhShftEn" in parameter 80 {PM Cfg].	58
Added parameter 365 [FS Brk Lvl], parameter 366 [FS Brk Time], and parameter 367 [FS ZSpd Thresh].	89
Updated the Read-Write value of parameters 759…761 to RO.	135
Updated the description of bit 4 "Accelerating" in parameter 935 [Drive Status 1].	154
Updated the description of bit 3 "Preload" in parameter 1100 [Trq Prove Cfg].	174
Updated the information associated with event numbers 10137…10338 in Table 12.	324
Updated the parameter number associated with parameter [FB1 SSI Cfg] in Table 14.	525

Product Certification

Product Certifications and Declarations of Conformity are available on the Internet at:
http://www.rockwellautomation.com/global/certification/overview.page.

Manual Conventions

- In this manual we refer to PowerFlex 750-Series Adjustable Frequency AC Drives as: drive, PowerFlex 750, PowerFlex 750 drive, or PowerFlex 750 AC drive.
- Specific drives within the PowerFlex 750-Series can be referred to as:
  - PowerFlex 753, PowerFlex 753 drive, or PowerFlex 753 AC drive
  - PowerFlex 755, PowerFlex 755 drive, or PowerFlex 755 AC drive
- To help differentiate parameter names and LCD display text from other text, the following conventions are used.
  - Parameter names will appear in [brackets] after the parameter number.
    For example: parameter 308 [Direction Mode].
  - Display text appears in "quotes." For example: "Enabled."

General Precautions

Qualified Personnel

ATTENTION: Only qualified personnel familiar with adjustable frequency AC drives and associated machinery must plan or implement the installation, startup, and subsequent maintenance of the system. Failure to comply can result in personal injury and equipment damage.

Personal Safety

ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before servicing.

Frames 1…7: Measure the DC bus voltage at the power terminal block by measuring between the +DC and -DC terminals or between the +DC and -DC test point sockets if equipped. Also measure between the +DC terminal or test point and the chassis, and between the -DC terminal or testpoint and the chassis. The voltage must be zero for all three measurements.

Frames 8…10: Measure the DC bus voltage at the DC+ and DC- TESTPOINT sockets on the front of the power module.

See the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001, for terminal and testpoint socket locations.

ATTENTION: Hazard of personal injury or equipment damage exists when using bipolar input sources. Noise and drift in sensitive input circuits can cause unpredictable changes in motor speed and direction. Use speed command parameters to help reduce input source sensitivity.

ATTENTION: Risk of injury or equipment damage exists. DPI™ or SCANport™ host products must not be directly connected together via 1202 cables. Unpredictable behavior can result if two or more devices are connected in this manner.

ATTENTION: The drive start/stop/enable control circuitry includes Solid-state components. An additional hardwired stop circuit can be required to remove the AC line to the drive if either of the following hazards exist:

- Accidental contact with moving machinery
- Unintentional flow of liquid, gas, or solids

An auxiliary braking method can be required.

ATTENTION: Hazard of personal injury or equipment damage due to unexpected machine operation exists if the drive is configured to issue a Start or Run command automatically. Do not use these functions without considering applicable local, national, and international codes, standards, regulations, or industry guidelines.

Product Safety

⚠ **ATTENTION:** An incorrectly applied or installed drive can result in component damage or a reduction in product life. Wiring or application errors such as under sizing the motor, incorrect or inadequate AC supply, or excessive surrounding air temperatures can result in malfunction of the system.

ATTENTION: This drive contains ESD (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing or repairing this assembly. Component damage can result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference Guarding Against Electrostatic Damage, publication 8000-4.5.2 or any other applicable ESD protection handbook.

ATTENTION: Configuring an analog input for 0…20 mA operation and driving it from a voltage source could cause component damage. Verify proper configuration before you apply input signals.

ATTENTION: A contactor or other device that routinely disconnects and reapplies the AC line to the drive to start and stop the motor can cause drive hardware damage. The drive is designed to use control input signals that start and stop the motor. If an input device is used, operation must not exceed 1 cycle per minute or drive damage can occur.

ATTENTION: Drive must not be installed in an area where the ambient atmosphere contains volatile or corrosive gas, vapors, or dust. If the drive is not going to be installed immediately, it must be stored in an area where it is not exposed to a corrosive atmosphere.

Class 1 Light-emitting Diode Product

⚠ **ATTENTION:** Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into module ports or fiber-optic cable connectors.

Additional Resources

The recommended documentation that is listed in this section is available online at http://www.rockwellautomation.com/literature.

The following publications provide general drive information.

Title	Publication
Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives	DRIVES-IN001
Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control	SGI-1.1
Guarding Against Electrostatic Damage	8000-4.5.2

The following publications provide specific PowerFlex 750-Series information on drive installation, features, specifications, and service.

Title	Publication
PowerFlex 750-Series AC Drive Installation Instructions	750-IN001
PowerFlex 750-Series AC Drives Technical Data	750-TD001
Enhanced PowerFlex 7-Class Human Interface Module (HIM) User Manual	20HIM-UM001
PowerFlex 750-Series Safe Torque Off User Manual	750-UM002
Safe Speed Monitor Option Module for PowerFlex 750-Series AC Drives Reference Manual	750-RM001
PowerFlex 750-Series AC Drives Hardware Service Manual (Frame 8 and Larger)	750-TG001
Dynamic Braking Resistor Calculator	PFLEX-AT001
DeviceLogix™ User Manual	RA-UM003

The following publications provide specific Network Communications information.

Title	Publication
PowerFlex 755 Drive Embedded EtherNet/IP Adapter	750COM-UM001
PowerFlex 750-Series Drive DeviceNet Option Module	750COM-UM002
PowerFlex 20-750-CNETC Coaxial ControlNet Option Module	750COM-UM003

The following publications provide necessary information when applying the Logix Processors.

Title	Publication
Logix5000™ Controllers Common Procedures	1756-PM001
Logix5000 Controllers General Instructions	1756-RM003
Logix5000 Controllers Process Control and Drives Instructions	1756-RM006

The following publications provide information that is useful when planning and installing communication networks.

Title	Publication
ContolNet Coax Tap Installation Instructions	1786-IN007
ControlNet Cable System Planning and Installation Manual	1786-6.2.1
ContolNet Fiber Media Planning and Installation Guide	CNET-IN001

To order paper copies of technical documentation, contact your local Allen-Bradley distributor or sales representative.

To find your local Allen-Bradley distributor, visit www.rockwellautomation.com/locations.

Notes:

Chapter 1

Startup

This chapter provides the information that is required to start up the PowerFlex® 750-Series drive.

Topic	Page
Start-Up Check List	13
Start-Up Menu	15
Drive Status Indicators	16
Establishing A Connection With EtherNet/IP	17

Start-Up Check List

- This check list supports the Start-Up menu option.
- A Human Interface Module (HIM) is required to run the Start-Up routine.

  For detailed information on by using the HIM, refer to the Enhanced PowerFlex 7-Class Human Interface Module (HIM) User Manual, publication 20HIM-UM001.
- The Start-Up routine can modify parameter values for Analog and Digital I/O.

⚠ **ATTENTION:** Power must be applied to the drive to perform the following start-up procedure. Some of the voltages present are at incoming line potential. To avoid electric shock hazard or damage to equipment, it is recommended that only qualified service personnel perform the following procedure. Thoroughly read and understand the procedure before beginning.

Prepare For Initial Drive Startup

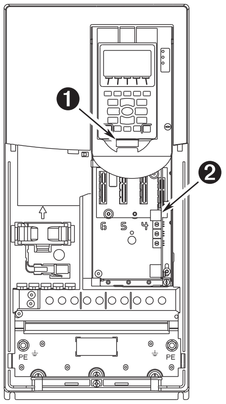
☐ **1.** Confirm that drive has been installed according to the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001.

☐ **2.** Confirm that all inputs are connected to the correct terminals and are secure.

☐ **3.** Verify that AC line power at the disconnect device is within the rated value of the drive.

☐ **4.** Verify that control power voltage is correct.

☐ **5.** The remainder of this procedure requires that a Human Interface Module (HIM) is connected to DPI™ Port 1 or 2.



☐ **6.** Apply AC power and control voltages to the drive.

If any digital inputs are configured to Stop – CF, Run, or Enable, verify that signals are present or the drive does not start. See Chapter 6 for a list of potential digital input conflicts.

If the STS light-emitting diode is not flashing green, refer to Drive Status Indicators on page 16.

☐ **7.** When prompted, select a display language. The Start-Up Screen automatically displays for drives that have not been previously configured.

If the Start-Up screen is not displayed, press the Enter key.

☐ **8.** Press the Enter key to display the Start-Up Menu.

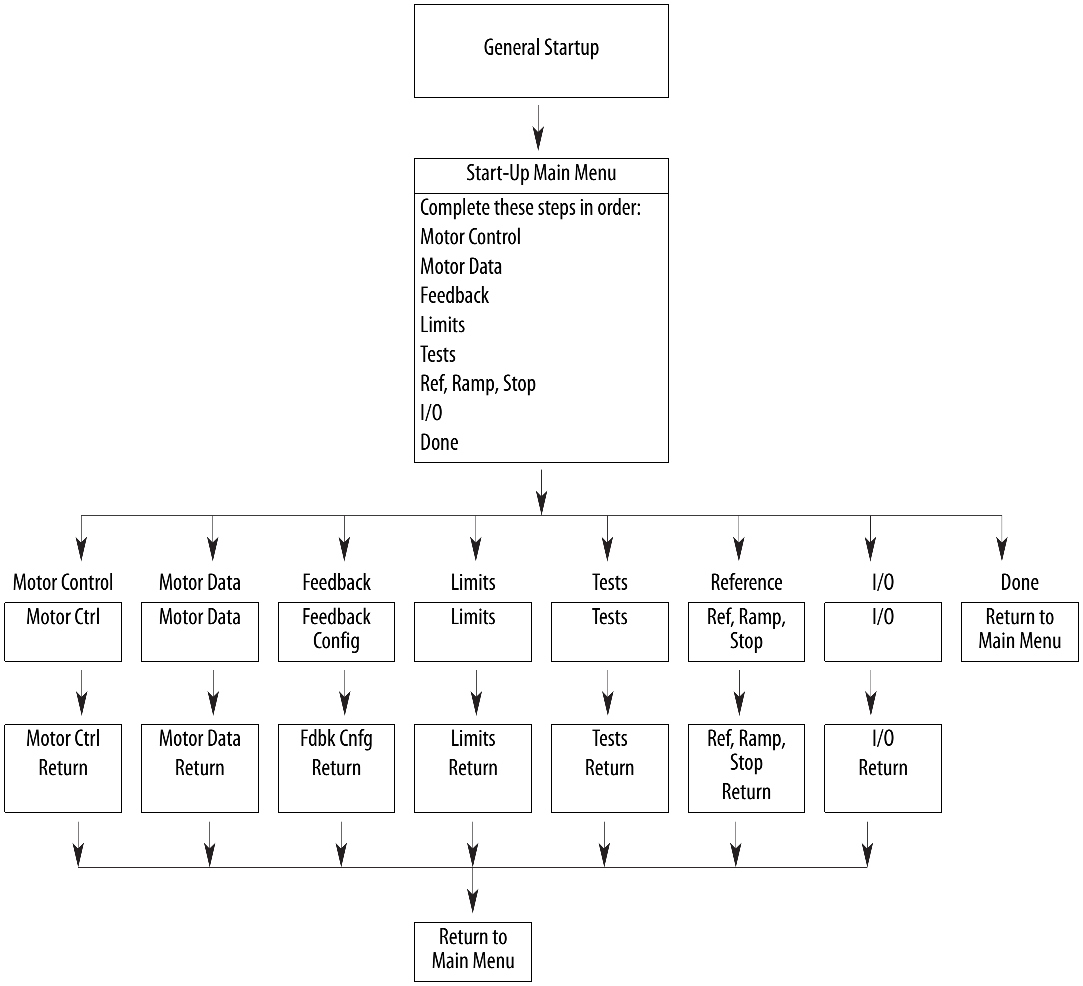
☐ **9.** Use the Up/Down Arrow keys to highlight “2. Basic.”

☐ **10.** Press the Enter key. Follow the menu by using the Enter key, which steps you through the Start-Up routine.

The Start-Up routine asks simple questions and prompts you to input required information.

Start-Up Menu

The Human Interface Module (HIM) displays the General Start-Up menu by default upon initial power-up of the drive. To navigate to the Start-Up menu after the initial powerup of the drive, press the 🗁 (Folders) key.



IMPORTANT If a start-up routine is initiated, but must be terminated before the routine is completed, be sure to press the Abort soft key to exit the routine.

Drive Status Indicators

Table 1 - PowerFlex 753 Status Indicator Descriptions

Name	Color	State	Description
STS (Status)	Green	Flashing	Drive ready but not running, and no faults are present.
		Steady	Drive running, no faults are present.
	Yellow	Flashing	Drive is not running, a start inhibit condition exists and the drive cannot be started. See parameter 933 [Start Inhibits].
		Steady	A type 1 (user configurable) alarm exists. A stopped drive cannot start until the alarm condition is cleared. A running drive continues to run but cannot restart until the alarm condition is cleared. See parameters 959 [Alarm Status A] and 960 [Alarm Status B].
	Red	Flashing	A major fault has occurred. The drive stops and cannot be started until the fault condition is cleared. See parameter 951 [Last Fault Code].
		Steady	A non-resettable fault has occurred.
	Red / Yellow	Flashing Alternately	A minor fault has occurred. When running, the drive continues to run. System is brought to a stop under system control. Fault must be cleared to continue. Use parameter 950 [Minor Flt Cfg] to enable. If not enabled, acts like a major fault.
	Yellow / Green	Flashing Alternately	When running, a type 1 alarm exists. See parameters 959 [Alarm Status A] and 960 [Alarm Status B].
	Green / Red	Flashing Alternately	Drive is flash updating.

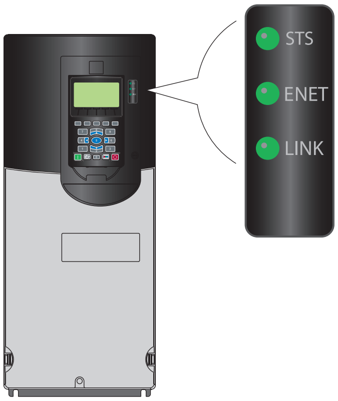


Table 2 - PowerFlex 755 Status Indicator Descriptions

Name	Color	State	Description
STS (Status)	Green	Flashing	Drive ready but not running, and no faults are present.
		Steady	Drive running, no faults are present.
	Yellow	Flashing	Drive is not running, a type 2 (non-configurable) alarm condition exists and the drive cannot be started. See parameter 961 [Type 2 Alarms].
		Steady	A type 1 (user configurable) alarm exists. A stopped drive cannot start until the alarm condition is cleared. A running drive continues to run but cannot restart until the alarm condition is cleared. See parameters 959 [Alarm Status A] and 960 [Alarm Status B].
	Red	Flashing	A major fault has occurred. The drive stops and cannot be started until fault condition is cleared. See parameter 951 [Last Fault Code].
		Steady	A non-resettable fault has occurred.
	Red / Yellow	Flashing Alternately	A minor fault has occurred. When running, the drive continues to run. System is brought to a stop under system control. Fault must be cleared to continue. Use parameter 950 [Minor Flt Cfg] to enable. If not enabled, acts like a major fault.
	Yellow / Green	Flashing Alternately	When running, a type 1 alarm exists. See parameters 959 [Alarm Status A] and 960 [Alarm Status B].
	Green / Red	Flashing Alternately	Drive is flash updating.
ENET	Unlit	Off	Embedded EtherNet/IP is not properly connected to the network or needs an IP Address.
	Red	Flashing	An EtherNet/IP connection has timed out.
		Steady	Adapter failed the duplicate IP Address detection test.
	Red / Green	Flashing Alternately	Adapter is performing a self-test.
	Green	Flashing	Adapter is properly connected but is not communicating with any devices on the network.
		Steady	Adapter is properly connected and communicating on the network.
LINK	Unlit	Off	Adapter is not powered or is not transmitting on the network.
	Green	Flashing	Adapter is properly connected and transmitting data packets on the network.
		Steady	Adapter is properly connected but is not transmitting on the network.

IMPORTANT	The Status Indicator light-emitting diodes on the HIM cradle do not indicate the status of an installed Communication Adapter option. If an optional Communication Adapter is installed, refer to the option module user manual for a description of light-emitting diode location and indication.

Establishing A Connection With EtherNet/IP

There are three methods for configuring the embedded EtherNet/IP adapter IP address:

- **Adapter Rotary Switches** – Use the switches when working on a simple, isolated network (for example, 192.168.1.xxx) that has other products with switches to set their IP addresses, does not need to be accessed from outside the network, and you prefer a simplified node addressing method. The three adapter switches are read when the drive powers up, and represent three decimal digits from top to bottom (see Figure 1). If set to a valid address (001…254), the adapter uses that value as the lower octet of its IP address (192.168.1.xxx, where xxx = rotary switch settings), along with a subnet mask of 255.255.255.0 and there a gateway is not configured. Also, the setting for adapter P36 [BOOTP] is automatically ignored.

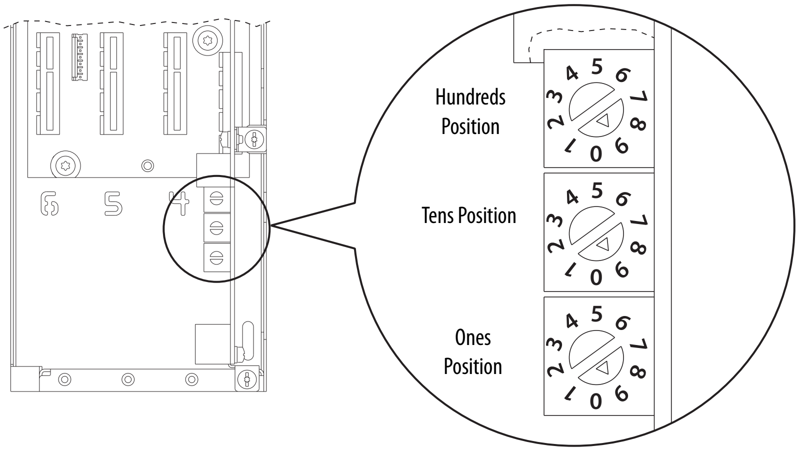
  See Figure 1 and its accompanying table for all possible switch settings and their related descriptions.

IMPORTANT	When using the adapter rotary switches, set the IP address before power is applied because the adapter uses the IP address it detects when it first receives power.

- **BOOTP Server** – Use BOOTP if you prefer to control the IP addresses of the devices by using a server. The IP address, subnet mask, and gateway addresses are provided by the BOOTP server.
- **Adapter Parameters** – Use adapter parameters when you want more flexibility in IP address configuration, or must communicate outside the control network by using a gateway. Use the adapter parameters to configure the IP address, subnet mask, and gateway addresses.

IMPORTANT	Regardless of the method that is used to set the adapter IP address, each node on the EtherNet/IP network must have a unique IP address. To change an IP address, you must set the new value and then remove and reapply power to (or reset) the adapter.

Figure 1 - Setting the IP Address Switches



Possible Settings	Description
000	Adapter uses, depending on P36 [BOOTP], the BOOTP setting, or the adapter parameter settings for the IP address.
001…254	Adapter uses the rotary switch settings for the IP address (192.168.1.xxx, where xxx = rotary switch settings).
255…887	Adapter uses, depending on P36 [BOOTP], the BOOTP setting, or the adapter parameter settings for the IP address.
888	Resets the adapter IP address function to factory defaults. Thereafter, the drive must be powered down, the switches set to a setting other than 888, and then the drive must be powered up again to accept the new address.
889…998	Adapter uses, depending on P36 [BOOTP], the BOOTP setting, or the adapter parameter settings for the IP address.
999 (default settings)	Disables the rotary switches. Adapter uses, depending on P36 [BOOTP], the BOOTP setting, or the adapter parameter settings for the IP address.

Parameter Organization

This chapter lists and describes the PowerFlex® 750-Series Port 0 drive parameters. The parameters can be programmed (viewed/edited) using a Human Interface Module (HIM). Refer to Enhanced PowerFlex 7-Class Human Interface Module (HIM) User Manual, publication 20HIM-UM001, for information on using the HIM to view and edit parameters. As an alternative, programming can also be performed using DriveTools™ software and a personal computer.

About Parameters

To configure a drive module to operate in a specific way, certain drive parameters may have to be configured appropriately. Three types of parameters exist:

- **Numeric Parameters**
  These parameters have a single numeric value (such as 1750.0 RPM).
- **ENUM Parameters**
  These parameters allow a selection from 2 or more items. The LCD HIM displays a text message for each item.
- **Indirect Parameters**
  These parameters, represented by a maximum value of 159999 or 159999.15, are used to create assignments or to select either a data source or destination. The first two digits are used to select a port. The next four digits select a parameter number. If applicable, the two digits following the decimal point select a bit. For example, to assign an I/O option module in port 4 using a run contact on digital input 0, parameter 163 [DI Run] is set to 040001.00.
- **Bit Parameters**
  These parameters have individual bits associated with features or conditions. If the bit is 0, the feature is off or the condition is false. If the bit is 1, the feature is on or the condition is true.

Table 3 shows how each parameter type is presented in this manual.

Table 3 - Table Explanation

❶			❷	❸			
		No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
MOTOR CONTROL	**Motor Data**	**28** ○	**Motor NP RPM** Motor Nameplate Revolutions Per Minute Rated RPM shown on the motor nameplate.	Units: Default: Min/Max:	RPM 1750.0 1.0 / 40000.0	RW	Real
	Vector Regulator	**107**	**Trq Adapt En** Torque Adaption Enable Enables or disables the adaptive torque calculation. This selection is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Options:	1 = “Enabled” 0 = “Disabled” 1 = “Enabled”	RW	32-bit Integer
FEEDBACK & I/O	**Digin Functions**	**164** ○	**DI Run Forward** Digital Input Run Forward Assigns a digital input used to run the drive (2 wire control) and command forward direction.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
	Digital Inputs	**220**	**753** **Digital In Sts** Digital Input Status Status of the digital inputs resident on the main control board (Port 0).			RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Digital In 2	Digital In 1	Digital In 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

No.	**Name** Description			**Read-Write**	**Data Type**
❶	File and Group organization				
	No. - Parameter Number				
	○ Parameter value cannot be changed until the drive is stopped.				
	⇄ Parameter cannot be set to DataLink In.				
❷	**Name** - Parameter name as it appears in the DriveExecutive software.				
	Description - Brief description of parameter function. The first line is the full text parameter name.				
	753 = Parameter or option is specific to PowerFlex 753 drives only. 755 = Parameter or option is specific to PowerFlex 755 drives only. 755 (8+) = Parameter or option is specific to PowerFlex 755 Frame 8 drives and larger only.				
❸	**Values** - Define the various operating characteristics of the parameter. *There are 3 types of Values.*				
	ENUM	Default:	Lists the value assigned at the factory.		
		Options:	Displays the selections available.		
	Bit	Default:	Lists the value assigned at the factory.		
		Options:	Displays the selections available.		
	Numeric	Default	Lists the value assigned at the factory.		
		Min/Max.	Displays lowest possible setting/Displays highest possible setting.		
	Indicates if parameter is read-write or read-only. **RW** = Read-Write **RO** = Read Only			RW RO	
	Indicates parameter data type (for example, integer, floating point, Boolean).				32-bit Integer

Parameter Access Level

Three parameter access level options are selectable by P301 [Access Level].

- Option 0 “Basic” is the most limited view that only displays commonly utilized parameters and options.
- Option 1 “Advanced” is an expanded view that may be required to access more advanced drive features.
- Option 2 “Expert” provides a comprehensive view of the drive’s entire parameter set.

How Drive Parameters are Organized

DriveExecutive™ programming software displays parameters in "Linear List" or "File Group Parameter" format. Viewing the parameters in "File Group Parameter" format simplifies programming by grouping parameters that are used for similar functions. There are eleven files. Each file is divided into multiple groups of parameters.

Drive (Port 0) parameter descriptions begin on page 47.

Basic Parameter View (Port 0)

Parameter 301 [Access Level] set to option 0 "Basic."

File	Group	Parameters							
Monitor	Metering	Output Frequency	1	Commanded Trq	4	Output Current	7	DC Bus Volts	11
		Commanded SpdRef	2	Torque Cur Fdbk	5	Output Voltage	8		
		Mtr Vel Fdbk	3	Flux Cur Fdbk	6	Output Power	9		
	Drive Data	Rated Volts	20	Rated Amps	21	Rated kW	22		
Motor Control	Motor Data	Motor NP Volts	25	Motor NP Hertz	27	Mtr NP Pwr Units	29	Motor Poles	31
		Motor NP Amps	26	Motor NP RPM	28	Motor NP Power	30		
	Mtr Ctrl Options	Motor Ctrl Mode	35	Maximum Freq	37	PWM Frequency	38	IPM Stc OfsTst K (1)	1660
		Maximum Voltage	36					(1) Frames 1…7 Only	
	Volts per Hertz	VHz Curve	65						
	Autotune	Autotune	70	IPM_Lg_50_pct	1631	IPM_Lg_100_pct	1633	IPM_Ld_0_pct	1635
		Autotune Torque	71	IPM_Lg_75_pct	1632	IPM_Lg_125_pct	1634	IPM_Ld_100_pct	1636
		IPM_Lg_25_pct	1630						
Feedback & I/O	Digin Functions	Digital In Cfg	150	DI Start	161	DI Jog 1 Reverse	168	DI Speed Sel 2	175
		DI Enable	155	DI Fwd Reverse	162	DI Jog 2	169	DI HOA Start	176
		DI Clear Fault	156	DI Run	163	DI Jog 2 Forward	170	DI Accel 2	179
		DI Aux Fault	157	DI Run Forward	164	DI Jog 2 Reverse	171	DI Decel 2	180
		DI Stop	158	DI Run Reverse	165	DI Manual Ctrl	172		
		DI Cur Lmt Stop	159	DI Jog 1	166	DI Speed Sel 0	173		
		DI Coast Stop	160	DI Jog 1 Forward	167	DI Speed Sel 1	174		
	Control Board IO^{755}	Digital In Sts	220						
	Digital Inputs^{753}	Digital In Sts	220	Dig In Filt Mask	222	Dig In Filt	223		
	Digital Outputs^{753}	Dig Out Sts	225	RO0 Level Sel	231	TO0 Sel	240	TO0 Level CmpSts	243
		Dig Out Invert	226	RO0 Level	232	TO0 Level Sel	241		
		RO0 Sel	230	RO0 Level CmpSts	233	TO0 Level	242		
	Motor PTC^{753}	PTC Cfg	250	PTC Status	251				
	Analog Inputs^{753}	Anlg In Type	255	Anlg In0 Value	260	Anlg In0 Hi	261	Anlg In0 Lo	262
	Analog Outputs^{753}	Anlg Out Type	270	Anlg Out0 Data	277	Anlg Out0 DataLo	279	Anlg Out0 Lo	281
		Anlg Out0 Sel	275	Anlg Out0 DataHi	278	Anlg Out0 Hi	280	Anlg Out0 Val	282
Drive Cfg	Preferences	Speed Units	300	Access Level	301	Language	302		
	Control Cfg	Voltage Class	305	Duty Rating	306	Direction Mode	308	SpdTrqPsn Mode A	309
	Auto Manual Ctrl	Logic Mask	324	Manual Cmd Mask	326	Alt Man Ref Sel	328	Alt Man Ref AnLo	330
		Auto Mask	325	Manual Ref Mask	327	Alt Man Ref AnHi	329	Manual Preload	331
	Braking Features	Stop Mode A	370	Bus Reg Mode B	373	DB Ext Watts	384	Dec Inhibit Actn	409
		Stop Mode B	371	DB Resistor Type	382	DB ExtPulseWatts	385		
		Bus Reg Mode A	372	DB Ext Ohms	383	Stop Dwell Time	392		

File	**Group**	**Parameters**							
Protection	Motor Overload	Motor OL Actn	410	Mtr OL Alarm Lvl	412	Mtr OL Hertz	414	MtrOL Reset Time	416
		Mtr OL at Pwr Up	411	Mtr OL Factor	413	Mtr OL Reset Lvl	415		
	Load Limits	Current Lmt Sel	421	Shear Pin Cfg	434	Shear Pin1 Level	436		
		Current Limit 1	422	Shear Pin 1 Actn	435	Shear Pin 1 Time	437		
	Power Loss	Power Loss Actn	449	Pwr Loss Mode A	450				
Speed Control	Speed Limits	Max Fwd Speed	520	Max Rev Speed	521	Min Fwd Speed	522	Min Rev Speed	523
	Speed Ramp Rates	Accel Time 1	535	Decel Time 1	537	Jog Acc Dec Time	539		
		Accel Time 2	536	Decel Time 2	538				
	Speed Reference	Spd Ref A Sel	545	Spd Ref B Stpt	551	MOP Init Select	566	Preset Speed 4	574
		Spd Ref A Stpt	546	Spd Ref B AnlgHi	552	MOP Init Stpt	567	Preset Speed 5	575
		Spd Ref A AnlgHi	547	Spd Ref B AnlgLo	553	Preset Speed 1	571	Preset Speed 6	576
		Spd Ref A AnlgLo	548	Jog Speed 1	556	Preset Speed 2	572	Preset Speed 7	577
		Spd Ref B Sel	550	Jog Speed 2	557	Preset Speed 3	573		
Torque Control	Torque Reference	Trq Ref A Sel	675	Trq Ref A AnlgLo	678	Trq Ref B Stpt	681	Trq Ref B Mult	684
		Trq Ref A Stpt	676	Trq Ref A Mult	679	Trq Ref B AnlgHi	682	Selected Trq Ref	685
		Trq Ref A AnlgHi	677	Trq Ref B Sel	680	Trq Ref B AnlgLo	683		
Communication	Comm Control	Port 1 Reference	871						
	DPI Datalinks	Data In A1	895	Data In C1	899	Data Out A1	905	Data Out C1	909
		Data In A2	896	Data In C2	900	Data Out A2	906	Data Out C2	910
		Data In B1	897	Data In D1	901	Data Out B1	907	Data Out D1	911
		Data In B2	898	Data In D2	902	Data Out B2	908	Data Out D2	912
Diagnostics	Status	Speed Ref Source	930	Last Stop Source	932	Last StrtInhibit	934	Drive Status 2	936
		Last StartSource	931	Start Inhibits	933	Drive Status 1	935	Condition Sts 1	937
	Fault/Alarm Info	Minor Flt Cfg	950	Last Fault Code	951	Fault Status A	952	Fault Status B	953

Advanced Parameter View (Port 0)

Parameter 301 [Access Level] set to option 1 “Advanced.”

File	Group	Parameters							
Monitor	Metering	Output Frequency	1	Flux Cur Fdbk	6	DC Bus Volts	11	Elpsd Mtr MWHrs	16
		Commanded SpdRef	2	Output Current	7	DC Bus Memory	12	Elpsd Rgn MWHrs	17
		Mtr Vel Fdbk	3	Output Voltage	8	Elapsed MWH	13	Elpsd Mtr kWHrs	18
		Commanded Trq	4	Output Power	9	Elapsed kWH	14	Elpsd Rgn kWHrs	19
		Torque Cur Fdbk	5	Output Powr Fctr	10	Elapsed Run Time	15		
	Drive Data	Rated Volts	20	Rated Amps	21	Rated kW	22		
Motor Control	Motor Data	Motor NP Volts	25	Motor NP Hertz	27	Mtr NP Pwr Units	29	Motor Poles	31
		Motor NP Amps	26	Motor NP RPM	28	Motor NP Power	30		
	Mtr Ctrl Options	Motor Ctrl Mode	35	Maximum Freq	37	Mtr Options Cfg	40	Flux Up Time	44
		Maximum Voltage	36	PWM Frequency	38	Common Mode Type	41	IPM Stc OfsTst K (1)	1660
						Flux Up Enable	43	(1) Frames 1…7 Only	
	Volts per Hertz	Start Acc Boost	60	Break Voltage	62	VHz Curve	65		
		Run Boost	61	Break Frequency	63				
	Autotune	Autotune	70	Flux Current Ref	75	IPM_Lg_50_pct	1631	IPM_Ld_0_pct	1635
		Autotune Torque	71	Total Inertia	76	IPM_Lg_75_pct	1632	IPM_Ld_100_pct	1636
		IR Voltage Drop	73	Inertia Test Lmt	77	IPM_Lg_100_pct	1633		
		Ixo Voltage Drop	74	IPM_Lg_25_pct	1630	IPM_Lg_125_pct	1634		
Feedback & I/O	Digin Functions	Digital In Cfg	150	DI Jog 1	166	DI MOP Dec	178	DI PID Hold	192
		DI Enable	155	DI Jog 1 Forward	167	DI Accel 2	179	DI PID Reset	193
		DI Clear Fault	156	DI Jog 1 Reverse	168	DI Decel 2	180	DI PID Invert	194
		DI Aux Fault	157	DI Jog 2	169	DI SpTqPs Sel 0	181	DI Torque StptA	195
		DI Stop	158	DI Jog 2 Forward	170	DI SpTqPs Sel 1	182	DI Fwd End Limit	196
		DI Cur Lmt Stop	159	DI Jog 2 Reverse	171	DI Stop Mode B	185	DI Fwd Dec Limit	197
		DI Coast Stop	160	DI Manual Ctrl	172	DI BusReg Mode B	186	DI Rev End Limit	198
		DI Start	161	DI Speed Sel 0	173	DI PwrLoss ModeB	187	DI Rev Dec Limit	199
		DI Fwd Reverse	162	DI Speed Sel 1	174	DI Pwr Loss	188	DI PHdwr OvrTrvl	200
		DI Run	163	DI Speed Sel 2	175	DI Precharge	189	DI NHdwr OvrTrvl	201
		DI Run Forward	164	DI HOA Start	176	DI Prchrg Seal	190		
		DI Run Reverse	165	DI MOP Inc	177	DI PID Enable	191		
	Control Board IO^{755}	Digital In Sts	220						
	Digital Inputs^{753}	Digital In Sts	220	Dig In Filt Mask	222	Dig In Filt	223		
	Digital Outputs^{753}	Dig Out Sts	225	RO0 Level Sel	231	RO0 Off Time	235	TO0 Level CmpSts	243
		Dig Out Invert	226	RO0 Level	232	TO0 Sel	240	TO0 On Time	244
		Dig Out Setpoint	227	RO0 Level CmpSts	233	TO0 Level Sel	241	TO0 Off Time	245
		RO0 Sel	230	RO0 On Time	234	TO0 Level	242		
	Motor PTC^{753}	PTC Cfg	250	PTC Status	251				
	Analog Inputs^{753}	Anlg In Type	255	Anlg In0 Value	260	Anlg In0 LssActn	263	Anlg In0 Filt BW	266
		Anlg In Sqrt	256	Anlg In0 Hi	261	Anlg In0 Raw Val	264		
		Anlg In Loss Sts	257	Anlg In0 Lo	262	Anlg In0 Filt Gn	265		
	Analog Outputs^{753}	Anlg Out Type	270	Anlg Out0 Stpt	276	Anlg Out0 DataLo	279	Anlg Out0 Val	282
		Anlg Out Abs	271	Anlg Out0 Data	277	Anlg Out0 Hi	280		
		Anlg Out0 Sel	275	Anlg Out0 DataHi	278	Anlg Out0 Lo	281		
	R0 Predict Main^{753}	RO PredMaint Sts	285	RO0 Load Amps	287	RO0 ElapsedLife	289	RO0 LifeEvntLvl	291
		RO0 Load Type	286	RO0 TotalLife	288	RO0 RemainLife	290	RO0 LifeEvntActn	292

File	Group	Parameters							
Drive Cfg	Preferences	Speed Units	300	Access Level	301	Language	302		
Drive Config	Control Cfg	Voltage Class	305	SpdTrqPsn Mode B	310	SLAT Err Stpt	314	Prchrg Err Cfg	323
		Duty Rating	306	SpdTrqPsn Mode C	311	SLAT Dwell Time	315		
		Direction Mode	308	SpdTrqPsn Mode D	312	Prchrg Control	321		
		SpdTrqPsn Mode A	309	Actv SpTqPs Mode	313	Prchrg Delay	322		
	Auto Manual Ctrl	Logic Mask	324	Manual Cmd Mask	326	Alt Man Ref Sel	328	Alt Man Ref AnLo	330
		Auto Mask	325	Manual Ref Mask	327	Alt Man Ref AnHi	329	Manual Preload	331
	Drive Memory	Reset Meters	336						
	Start Features	Start At PowerUp	345	Auto Rstrt Delay	349	Sleep Time	353	FS Brk Lvl	365
		PowerUp Delay	346	Sleep Wake Mode	350	Wake Level	354	FS Brk Time	366
		Auto Retry Fault	347	SleepWake RefSel	351	Wake Time	355	FS ZSpd Thresh	367
		Auto Rstrt Tries	348	Sleep Level	352	FlyingStart Mode	356		
	Braking Features	Stop Mode A	370	Bus Reg Level	375	Flux Braking En	388	DC Brake Time	395
		Stop Mode B	371	DB Resistor Type	382	Flux Braking Lmt	389	Brake Off Adj 1	402
		Bus Reg Mode A	372	DB Ext Ohms	383	Stop Dwell Time	392	Brake Off Adj 2	403
		Bus Reg Mode B	373	DB Ext Watts	384	DC Brake Lvl Sel	393	Dec Inhibit Actn	409
		Bus Reg Lvl Cfg	374	DB ExtPulseWatts	385	DC Brake Level	394		
Protection	Motor Overload	Motor OL Actn	410	Mtr OL Factor	413	Mtr OL Reset Lvl	415	Mtr OL Counts	418
Protection		Mtr OL at Pwr Up	411	Mtr OL Hertz	414	MtrOL Reset Time	416	Mtr OL Trip Time	419
		Mtr OL Alarm Lvl	412						
	Load Limits	Drive OL Mode	420	Current Rate Lmt	425	Shear Pin1 Level	436	Load Loss Action	441
		Current Lmt Sel	421	Regen Power Lmt	426	Shear Pin 1 Time	437	Load Loss Level	442
		Current Limit 1	422	Motor Power Lmt	427	Shear Pin 2 Actn	438	Load Loss Time	443
		Current Limit 2	423	Shear Pin Cfg	434	Shear Pin2 Level	439	OutPhaseLossActn	444
		Active Cur Lmt	424	Shear Pin 1 Actn	435	Shear Pin 2 Time	440	Out PhaseLossLvl	445
	Power Loss	Power Loss Actn	449	Pwr Loss A Time	452	Pwr Loss B Time	455	InPhase LossActn	462
		Pwr Loss Mode A	450	Pwr Loss Mode B	453	UnderVltg Action	460	InPhase Loss Lvl	463
		Pwr Loss A Level	451	Pwr Loss B Level	454	UnderVltg Level	461	DC Bus Mem Reset	464
	Ground Fault	Ground Warn Actn	466	Ground Warn Lvl	467				
	Predictive Main	PredMaint Sts	469	HSFan TotalLife	489	InFan EventLevel	499	MtrLubeEventActn	510
		PredMaintAmbTemp	470	HSFan ElpsdLife	490	InFan EventActn	500	MchBrngTotalLife	511
		PredMaint Rst En	471	HSFan RemainLife	491	InFan ResetLog	501	MchBrngElpsdLife	512
		PredMaint Reset	472	HSFan EventLevel	492	MtrBrngTotalLife	502	MchBrngRemainLif	513
		CbFan Derate $^{755 (8+)}$	481	HSFan EventActn	493	MtrBrngElpsdLife	503	MchBrngEventLvl	514
		CbFan TotalLife $^{755 (8+)}$	482	HSFan ResetLog (1)	494	MtrBrngRemainLif	504	MchBrngEventActn	515
		CbFan ElpsdLife $^{755 (8+)}$	483	InFan Derate	495	MtrBrngEventLvl	505	MchBrngResetLog	516
		CbFan RemainLife $^{755 (8+)}$	484	InFan TotalLife	496	MtrBrngEventActn	506	MchLubeElpsdHrs	517
		CbFan EventLevel $^{755 (8+)}$	485	InFan ElpsdLife	497	MtrBrng ResetLog	507	MchLube EventLvl	518
		CbFan EventActn $^{755 (8+)}$	486	InFan RemainLife	498	MtrLubeElpsdHrs	508	MchLubeEventActn	519
		HSFan Derate	488	(1) 755 Frames 1…7 only.		MtrLubeEventLvl	509		

File	Group	Parameters							
Speed Control Speed Control	Speed Limits	Max Fwd Speed	520	Min Rev Speed	523	Skip Speed 1	526	Skip Speed Band	529
		Max Rev Speed	521	Overspeed Limit	524	Skip Speed 2	527		
		Min Fwd Speed	522	Zero Speed Limit	525	Skip Speed 3	528		
	Speed Ramp Rates	Accel Time 1	535	Decel Time 1	537	Jog Acc Dec Time	539	S-curve Decel	541
		Accel Time 2	536	Decel Time 2	538	S-curve Accel	540		
	Speed Reference	Spd Ref A Sel	545	Spd Ref B AnlgLo	553	MOP High Limit	561	Preset Speed 1	571
		Spd Ref A Stpt	546	Spd Ref B Mult	554	MOP Low Limit	562	Preset Speed 2	572
		Spd Ref A AnlgHi	547	Spd Ref Scale	555	MOP Init Select	566	Preset Speed 3	573
		Spd Ref A AnlgLo	548	Jog Speed 1	556	MOP Init Stpt	567	Preset Speed 4	574
		Spd Ref A Mult	549	Jog Speed 2	557	DI ManRef Sel	563	Preset Speed 5	575
		Spd Ref B Sel	550	MOP Reference	558	DI ManRef AnlgHi	564	Preset Speed 6	576
		Spd Ref B Stpt	551	Save MOP Ref	559	DI ManRef AnlgLo	565	Preset Speed 7	577
		Spd Ref B AnlgHi	552	MOP Rate	560				
	Speed Trim	Trim Ref A Sel	600	Trim Ref B Sel	604	TrmPct RefA Sel	608	TrmPct RefB Sel	612
		Trim Ref A Stpt	601	Trim Ref B Stpt	605	TrmPct RefA Stpt	609	TrmPct RefB Stpt	613
		Trim RefA AnlgHi	602	Trim RefB AnlgHi	606	TrmPct RefA AnHi	610	TrmPct RefB AnHi	614
		Trim RefA AnlgLo	603	Trim RefB AnlgLo	607	TrmPct RefA AnLo	611	TrmPct RefB AnLo	615
	Slip/Droop Comp	Droop RPM at FLA	620	Slip RPM at FLA	621	Slip Comp BW	622		
	Speed Regulator	Spd Options Ctrl	635	Speed Reg Kp	645	Spd Reg Int Out	654	VHzSV Spd Reg Kp	663
		Speed Reg BW	636	Speed Reg Max Kp	646	Spd Reg Pos Lmt	655	VHzSV Spd Reg Ki	664
		Filtered SpdFdbk	640	Speed Reg Ki	647	Spd Reg Neg Lmt	656		
		Speed Error	641	Spd Loop Damping	653	SReg Output	660		
	Speed Comp	Speed Comp Sel	665	Speed Comp Gain	666	Speed Comp Out	667		
Torque Control Torque Control	Torque Limits	Pos Torque Limit	670	Neg Torque Limit	671				
	Torque Reference	Trq Ref A Sel	675	Trq Ref A Mult	679	Trq Ref B AnlgLo	683	Filtered Trq Ref	689
		Trq Ref A Stpt	676	Trq Ref B Sel	680	Trq Ref B Mult	684	Limited Trq Ref	690
		Trq Ref A AnlgHi	677	Trq Ref B Stpt	681	Selected Trq Ref	685		
		Trq Ref A AnlgLo	678	Trq Ref B AnlgHi	682	Torque Step	686		
	Inertia Comp [755]	Inertia CompMode	695	Inertia Dec Gain	697	Inertia Comp Out	699		
		Inertia Acc Gain	696	Inert Comp LPFBW	698	Ext Ramped Ref	700		
	Inertia Adaption [755]	InAdp LdObs Mode	704	InertiaAdaptGain	706	InertiaTrqAdd	708	InertAdptFltrBW	710
		Inertia Adapt BW	705	Load Estimate	707	IA LdObs Delay	709	Load Observer BW	711
	Friction Comp [755]	FrctnComp Mode	1560	FrctnComp Hyst	1562	FrctnComp Stick	1564	FrctnComp Rated	1566
		FrctnComp Trig	1561	FrctnComp Time	1563	FrctnComp Slip	1565	FrctnComp Out	1567

File	Group	Parameters							
Position Control	Position Cfg/Sts	PTP PsnRefStatus	720	Psn Selected Ref	722	Psn Reg Status	724	In Pos Psn Band	726
		Position Control	721	Psn Command	723	Zero Position	725	In Pos Psn Dwell	727
	Position Homing	Homing Status	730	DI Redefine Psn	733	Find Home Ramp	736		
		Homing Control	731	DI OL Home Limit	734	Actual Home Psn	737		
		DI Find Home	732	Find Home Speed	735	User Home Psn	738		
	Position Watch[755]	PsnWatch1 Select	745	PsnWatch1 Stpt	747	PsnWatch2 DtctIn	749		
		PsnWatch1 DtctIn	746	PsnWatch2 Select	748	PsnWatch2 Stpt	750		
	Interpolator[755]	Interp Control	755	Interp Vel Input	757	Interp Psn Out	759	Interp Trq Out	761
		Interp Psn Input	756	Interp Trq Input	758	Interp Vel Out	760		
	Direct	Psn Ref Select	765	Psn Direct Stpt	766	Psn Direct Ref	767		
	Point to Point	PTP Control	770	PTP Reference	776	PTP Decel Time	782	PTP Vel Override	788
		PTP Mode	771	PTP Feedback	777	PTP Speed FwdRef	783	PTP EGR Mult	789
		DI Indx Step	772	PTP Ref Scale	778	PTP Command	784	PTP EGR Div	790
		DI Indx StepRev	773	PTP Index Preset	779	PTP Fwd Vel Lmt	785		
		DI Indx StepPrst	774	PTP Setpoint	780	PTP Rev Vel Lmt	786		
		PTP Ref Sel	775	PTP Accel Time	781	PTP S-curve	787		
	Phase Lock Loop[755]	PLL Control	795	PLL Psn Stpt	800	PLL Rvls Input	805	PLL Enc Out Adv	810
		PLL Ext Spd Sel	796	PLL BW	801	PLL Psn Out Fltr	806	PLL EPR Output	811
		PLL Ext Spd Stpt	797	PLL LPFilter BW	802	PLL Speed Out	807	PLL Rvls Output	812
		PLL Ext SpdScale	798	PLL Virt Enc RPM	803	PLL Speed OutAdv	808		
		PLL Psn Ref Sel	799	PLL EPR Input	804	PLL Enc Out	809		
	Electronic Gear	Psn Ref EGR Out	815	Psn EGR Mult	816	Psn EGR Div	817		
	Position Offset	Psn Offset 1 Sel	820	Psn Offset 2 Sel	822	Psn Offset Vel	824		
		Psn Offset 1	821	Psn Offset 2	823				
	Ld Psn Fdbk Scal[755]	LdPsn Fdbk Mult	825	LdPsn Fdbk Div	826				
	Position Reg	Psn Error	835	Psn Reg Kp	839	PsnReg Spd Out	843	Psn Fdbk	847
		Psn Actual	836	PReg Pos Int Lmt	840	PReg Pos Spd Lmt	844	Psn Gear Ratio	848
		Psn Load Actual[755]	837	PReg Neg Int Lmt	841	PReg Neg Spd Lmt	845		
		Psn Reg Ki	838	PsnReg IntgrlOut	842	Psn Reg Droop	846		
Communication	Comm Control	Port 1 Reference	871	Port 5 Reference	875	Drive Logic Rslt	879	Drive Ref Rslt	883
		Port 2 Reference	872	Port 6 Reference	876	DPI Ref Rslt	880	Drive Ramp Rslt	884
		Port 3 Reference	873	Port13 Reference[755]	877	DPI Ramp Rslt	881		
		Port 4 Reference	874	Port14 Reference	878	DPI Logic Rslt	882		
	Security	Port Mask Act	885	Logic Mask Act	886	Write Mask Act	887	Write Mask Cfg	888
	DPI Datalinks	Data In A1	895	Data In C1	899	Data Out A1	905	Data Out C1	909
		Data In A2	896	Data In C2	900	Data Out A2	906	Data Out C2	910
		Data In B1	897	Data In D1	901	Data Out B1	907	Data Out D1	911
		Data In B2	898	Data In D2	902	Data Out B2	908	Data Out D2	912
	Owners	Stop Owner	919	Jog Owner	921	Clear Flt Owner	923	Ref Select Owner	925
		Start Owner	920	Dir Owner	922	Manual Owner	924		
Diagnostics	Status	Speed Ref Source	930	Last StrtInhibit	934	Drive OL Count	940	Drive Temp C	944
		Last StartSource	931	Drive Status 1	935	IGBT Temp Pct	941	At Limit Status	945
		Last Stop Source	932	Drive Status 2	936	IGBT Temp C	942	Safety Port Sts	946
		Start Inhibits	933	Condition Sts 1	937	Drive Temp Pct	943		
	Fault/Alarm Info	Minor Flt Cfg	950	Status1 at Fault	954	Fault Bus Volts	958	AlarmA at Fault	962
		Last Fault Code	951	Status2 at Fault	955	Alarm Status A	959	AlarmB at Fault	963
		Fault Status A	952	Fault Frequency	956	Alarm Status B	960		
		Fault Status B	953	Fault Amps	957	Type 2 Alarms	961		
	Peak Detection[755]	PkDtct Stpt Real	1035	PkDtct1PresetSel	1038	PeakDetect1 Out	1041	Peak2 Cfg	1044
		PkDtct Stpt DInt	1036	Peak1 Cfg	1039	PkDtct2 In Sel	1042	Peak 2 Change	1045
		PkDtct1 In Sel	1037	Peak 1 Change	1040	PkDtct2PresetSel	1043	PeakDetect2 Out	1046

File	Group	Parameters							
Applications	Process PID	PID Cfg	1065	PID Fdbk AnlgHi	1073	PID Upper Limit	1081	PID Status	1089
		PID Control	1066	PID Fdbk AnlgLo	1074	PID Lower Limit	1082	PID Ref Meter	1090
		PID Ref Sel	1067	PID FBLoss SpSel	1075	PID Deadband	1083	PID Fdbk Meter	1091
		PID Ref AnlgHi	1068	PID FBLoss TqSel	1076	PID LP Filter BW	1084	PID Error Meter	1092
		PID Ref AnlgLo	1069	PID Fdbk	1077	PID Preload	1085	PID Output Meter	1093
		PID Setpoint	1070	PID Fdbk Mult	1078	PID Prop Gain	1086		
		PID Ref Mult	1071	PID Output Sel	1079	PID Int Time	1087		
		PID Fdbk Sel	1072	PID Output Mult	1080	PID Deriv Time	1088		
	Torque Prove^{755}	Trq Prove Cfg	1100	Trq Lmt SlewRate	1104	Brk Set Time	1108	MicroPsnScalePct	1112
		Trq Prove Setup	1101	Speed Dev Band	1105	Brk Alarm Travel	1109	ZeroSpdFloatTime	1113
		DI FloatMicroPsn	1102	SpdBand Intgrtr	1106	Brk Slip Count	1110	Brake Test Torq^{755}	1114
		Trq Prove Status	1103	Brk Release Time	1107	Float Tolerance	1111		
	Fibers Function	Fiber Control	1120	Traverse Inc	1123	P Jump	1126		
		Fiber Status	1121	Traverse Dec	1124	DI Fiber SyncEna	1129		
		Sync Time	1122	Max Traverse	1125	DI Fiber TravDis	1130		
	Adjustable Vltg	Adj Vltg Config	1131	Adj Vltg Trim Lo	1138	Adj Vltg Preset3	1144	Adj Vltg Scurve	1150
		Adj Vltg Select	1133	Adj Vltg Command	1139	Adj Vltg Preset4	1145	Adj Vltg TrimPct	1151
		Adj Vltg Ref Hi	1134	Adj Vltg AccTime	1140	Adj Vltg Preset5	1146	Min Adj Voltage	1152
		Adj Vltg Ref Lo	1135	Adj Vltg DecTime	1141	Adj Vltg Preset6	1147	Dead Time Comp	1153
		Adj Vltg TrimSel	1136	Adj Vltg Preset1	1142	Adj Vltg Preset7	1148	DC Offset Ctrl	1154
		Adj Vltg Trim Hi	1137	Adj Vltg Preset2	1143	Adj Vltg RefMult	1149		
	Pump Jack	Rod Speed	1165	TorqAlarm Dwell	1170	Max Rod Speed	1175	PCP Pump Sheave	1180
		Rod Torque	1166	TorqAlarm Level	1171	Max Rod Torque	1176	Gearbox Limit	1181
		Rod Speed Cmd	1167	TorqAlm Timeout	1172	Min Rod Speed	1177	Gearbox Rating	1182
		TorqAlarm Action	1168	TorqAlarm TOActn	1173	Motor Sheave	1178	Gearbox Ratio	1183
		TorqAlarm Config	1169	Total Gear Ratio	1174	OilWell Pump Cfg	1179	Gearbox Sheave	1184
	Pump Off	Pump Off Config	1187	Set Top ofStroke	1193	Lift Torque	1199	Day Stroke Count	1205
		Pump Off Setup	1188	Torque Setpoint	1194	Pct Drop Torque	1200	DI PumpOff Disbl	1206
		Pump Off Action	1189	Pump Off Level	1195	Stroke Pos Count	1201	Pump OffSleepLvl	1207
		Pump Off Control	1190	Pump Off Speed	1196	Stroke Per Min	1202		
		Pump Off Status	1191	Pump Off Time	1197	Pump Off Count	1203		
		Pump Cycle Store	1192	Pct Cycle Torque	1198	PumpOff SleepCnt	1204		

File	**Group**	**Parameters**							
Applications	Profiling^{755}	Profile Status	1210	DI StrtStep Sel0	1222	Step 1, 2, 3…16 Type	1230, 1240, 1250…1380		
		Units Traveled	1212	DI StrtStep Sel1	1223	Step 1, 2, 3…16 Velocity	1231, 1241, 1251…1381		
		Profile Command	1213	DI StrtStep Sel2	1224	Step 1, 2, 3…16 Accel	1232, 1242, 1252…1382		
		Counts Per Unit	1215	DI StrtStep Sel3	1225	Step 1, 2, 3…16 Decel	1233, 1243, 1253…1383		
		ProfVel Override	1216	DI StrtStep Sel4	1226	Step 1, 2, 3…16 Value	1234, 1244, 1254…1384		
		Prof DI Invert	1217			Step 1, 2, 3…16 Dwell	1235, 1245, 1255…1385		
		DI Hold Step	1218			Step 1, 2, 3…16 Batch	1236, 1246, 1256…1386		
		DI Abort Step	1219			Step 1, 2, 3…16 Next	1237, 1247, 1257…1387		
		DI Abort Profile	1220			Step 1, 2, 3…16 Action	1238, 1248, 1258…1388		
		DI Vel Override	1221			Step 1, 2, 3…16 Dig In	1239, 1249, 1259…1389		
	Camming^{755}	PCAM Control	1390	PCAM Scale X	1397	PCAM Main Pt X 0, 1, 2…15	1407, 1409, 1411…1437		
		PCAM Mode	1391	PCAM Span Y	1398	PCAM Main Pt Y 0, 1, 2…15	1408, 1410, 1412…1438		
		PCAM Psn Select	1392	PCAM ScaleY Sel	1399	PCAM Aux EndPnt	1439		
		PCAM Psn Stpt	1393	PCAM ScaleYSetPt	1400	PCAM Aux Types	1440		
		PCAM Psn Ofst	1394	PCAM VelScaleSel	1401	PCAM Aux Pt X 1, 2, 3…15	1441, 1443, 1445…1469		
		PCAM PsnOfst Eps	1395	PCAM VelScaleSP	1402	PCAM Aux Pt Y 1, 2, 3…15	1442, 1444, 1446…1470		
		PCAM Span X	1396	PCAM Slope Begin	1403	PCAM Status	1471		
				PCAM Slope End	1404	PCAM Vel Out	1472		
				PCAM Main EndPnt	1405	PCAM Psn Out	1473		
				PCAM Main Types	1406	DI PCAM Start	1474		
	Roll Position^{755}	Roll Psn Config	1500	Roll Psn Preset	1504	RP Rvls Output	1508	RP Unit Out	1512
		Roll Psn Status	1501	Roll Psn Offset	1505	RP Unwind	1509		
		RP Psn Fdbk Stpt	1502	RP EPR Input	1506	RP Unit Scale	1510		
		RP Psn Fdbk Sel	1503	RP Rvls Input	1507	RP Psn Output	1511		
	Torque Boost^{755}	PsnTrqBst Ctrl	1515	PsnTrqBst UNWCnt	1519	PsnTrqBst Ps X4	1523	PsnTrqBst Trq Y4	1527
		PsnTrqBst Sts	1516	PsnTrqBst Ps X1	1520	PsnTrqBst Ps X5	1524	PsnTrqBst TrqOut	1528
		PsnTrqBst RefSel	1517	PsnTrqBst Ps X2	1521	PsnTrqBst Trq Y2	1525		
		PsnTrqBstPsnOfst	1518	PsnTrqBst Ps X3	1522	PsnTrqBst Trq Y3	1526		
	Variable Boost	VB Config	1535	VB Maximum	1540	VB Flux Thresh	1545	VB Cur Thresh	1550
		VB Status	1536	VB Accel Rate	1541	VB Flux Lag Freq	1546	VB Rate Lag Freq	1551
		VB Voltage	1537	VB Decel Rate	1542	VB Filt Flux Cur	1547		
		VB Time	1538	VB Frequency	1543	VB Current Rate	1548		
		VB Minimum	1539	VB Min Freq	1544	VB Current Hyst	1549		
	Spindle Orient^{755}	SO Config	1580	SO EPR Input	1584	SO Unit Scale	1588	SO Decel Time	1592
		SO Status	1581	SO Rvls Input	1585	SO Position Out	1589	SO Fwd Vel Lmt	1593
		SO Setpoint	1582	SO Rvls Output	1586	SO Unit Out	1590	SO Rev Vel Lmt	1594
		SO Offset	1583	SO Cnts per Rvls	1587	SO Accel Time	1591		
	Id Compensation^{755}	Id Comp Enbl	1600	Id Comp Mtrng 4	1607	IdCompRegen 1 Iq	1614	Id Comp Regen 5	1621
		Id Comp Mtrng 1	1601	IdCompMtrng 4 Iq	1608	Id Comp Regen 2	1615	IdCompRegen 5 Iq	1622
		IdCompMtrng 1 Iq	1602	Id Comp Mtrng 5	1609	IdCompRegen 2 Iq	1616	Id Comp Regen 6	1623
		Id Comp Mtrng 2	1603	IdCompMtrng 5 Iq	1610	Id Comp Regen 3	1617	IdCompRegen 6 Iq	1624
		IdCompMtrng 2 Iq	1604	Id Comp Mtrng 6	1611	IdCompRegen 3 Iq	1618		
		Id Comp Mtrng 3	1605	IdCompMtrng 6 Iq	1612	Id Comp Regen 4	1619		
		IdCompMtrng 3 Iq	1606	Id Comp Regen 1	1613	IdCompRegen 4 Iq	1620		

Expert Parameter View (Port 0)

Parameter 301 [Access Level] set to option 2 “Expert.”

File	Group	Parameters							
Monitor	Metering	Output Frequency	1	Flux Cur Fdbk	6	DC Bus Volts	11	Elpsd Mtr MWHrs	16
		Commanded SpdRef	2	Output Current	7	DC Bus Memory	12	Elpsd Rgn MWHrs	17
		Mtr Vel Fdbk	3	Output Voltage	8	Elapsed MWH	13	Elpsd Mtr kWHrs	18
		Commanded Trq	4	Output Power	9	Elapsed kWH	14	Elpsd Rgn kWHrs	19
		Torque Cur Fdbk	5	Output Powr Fctr	10	Elapsed Run Time	15		
	Drive Data	Rated Volts	20	Rated Amps	21	Rated kW	22		
Motor Control	Motor Data	Motor NP Volts	25	Motor NP Hertz	27	Mtr NP Pwr Units	29	Motor Poles	31
		Motor NP Amps	26	Motor NP RPM	28	Motor NP Power	30		
	Mtr Ctrl Options	Motor Ctrl Mode	35	Bus Utilization	42	Econ At Ref Ki	47	IPM V FB HP Filt	1648
		Maximum Voltage	36	Flux Up Enable	43	Econ AccDec Ki	48	IPM SpdEst Filt	1649
		Maximum Freq	37	Flux Up Time	44	Econ AccDec Kp	49	IPM SpdEst Kp	1650
		PWM Frequency	38	Flux Down Ki	45	Stability Filter	50	IPM SpdEst Ki	1651
		Mtr Options Cfg	40	Flux Down Kp	46	Stab Volt Gain	51	IPM SpdEst KiAdj	1652
		Common Mode Type	41			Stab Angle Gain	52	IPM Tran PWM	1653
								IPMTran PWM Hyst	1654
								IPM Tran Mode	1655
								IPM TranMod Hyst	1656
								IPM Tran Filt Lo	1657
								IPM Tran Filt Hi	1658
								IPM Tran Angle	1659
								IPM Stc OfsTst K	1660
								IPM Lq Cmd BW	1661
								Parameters 1648…1661 used by drive frames 1…7 only.	
	Volts per Hertz	Start Acc Boost	60	Break Voltage	62	SVC Boost Filter	64		
		Run Boost	61	Break Frequency	63	VHz Curve	65		
	Autotune	Autotune	70	Encdrlss VltComp	79	PM IR Voltage	87	IPM_Lg_50_pct	1631
		Autotune Torque	71	PM Cfg	80	PM IXq Voltage[755]	88	IPM_Lg_75_pct	1632
		IR Voltage Drop	73	PM PriEnc Offset	81	PM IXd Voltage[755]	89	IPM_Lg_100_pct	1633
		Ixo Voltage Drop	74	PM AltEnc Offset	82	PM Vqs Reg Kp	91	IPM_Lg_125_pct	1634
		Flux Current Ref	75	PM OfstTst Cur	83	PM Vqs Reg Ki	92	IPM_Ld_0_pct	1635
		Total Inertia	76	PM OfstTst CRamp	84	PM Dir Test Cur	93	IPM_Ld_100_pct	1636
		Inertia Test Lmt	77	PM OfstTst FRamp	85	PM IXqVoltage125	120	IPM PriOffstComp	1646
		Encdrlss AngComp	78	PM CEMF Voltage	86	IPM_Lg_25_pct	1630	IPM AltOffstComp	1647
	Vector Regulator	VCL Cur Reg BW	95	Flux Reg Enable	103	Trq Comp Regen	111	IPMVqFFwdLdIdWe[755]	1638
		VCL Cur Reg Kp	96	Flux Reg Ki	104	Slip Adapt Iqs	112	IPMVdFFwdLqIqWe[755]	1639
		VCL Cur Reg Ki	97	Flux Reg Kp	105	SFAdapt SlewLmt	113	IPM Max Cur[755]	1640
		VEncdls FReg Kp	98	Trq Adapt Speed	106	SFAdapt SlewRate	114	IPM Max Spd[755]	1641
		VEncdls FReg Ki	99	Trq Adapt En	107	SFAdapt CnvrgLvl	115	IPM TrqTrim Kp[755]	1642
		Slip Reg Enable	100	Phase Delay Comp	108	SFAdapt CnvrgLmt	116	IPM TrqTrim Ki[755]	1643
		Slip Reg Ki	101	Trq Comp Mode	109	IPM Bus Prot[755]	1629	IPM TrqTrim HLim[755]	1644
		Slip Reg Kp	102	Trq Comp Mtring	110	IPMVqFFwdCemf[755]	1637	IPM TrqTrim LLim[755]	1645

File	Group	Parameters							
Feedback & I/O	Feedback	Pri Vel Fdbk Sel	125	Alt Vel Feedback	130	Psn Fdbk Sel	135	Virtual EncDelay[755]	140
		Pri Vel FdbkFltr	126	Active Vel Fdbk	131	Load Psn FdbkSel[755]	136	Virtual Enc EPR[755]	141
		Pri Vel Feedback	127	Aux Vel Fdbk Sel	132	Open Loop Fdbk	137	Virtual Enc Psn[755]	142
		Alt Vel Fdbk Sel	128	Aux Vel FdbkFltr	133	Simulator Fdbk	138		
		Alt Vel FdbkFltr	129	Aux Vel Feedback	134	Delayed Spd Ref[755]	139		
	Digin Functions	Digital In Cfg	150	DI Jog 1	166	DI MOP Dec	178	DI PID Hold	192
		DI Enable	155	DI Jog 1 Forward	167	DI Accel 2	179	DI PID Reset	193
		DI Clear Fault	156	DI Jog 1 Reverse	168	DI Decel 2	180	DI PID Invert	194
		DI Aux Fault	157	DI Jog 2	169	DI SpTqPs Sel 0	181	DI Torque StptA	195
		DI Stop	158	DI Jog 2 Forward	170	DI SpTqPs Sel 1	182	DI Fwd End Limit	196
		DI Cur Lmt Stop	159	DI Jog 2 Reverse	171	DI Stop Mode B	185	DI Fwd Dec Limit	197
		DI Coast Stop	160	DI Manual Ctrl	172	DI BusReg Mode B	186	DI Rev End Limit	198
		DI Start	161	DI Speed Sel 0	173	DI PwrLoss ModeB	187	DI Rev Dec Limit	199
		DI Fwd Reverse	162	DI Speed Sel 1	174	DI Pwr Loss	188	DI PHdwr OvrTrvl	200
		DI Run	163	DI Speed Sel 2	175	DI Precharge	189	DI NHdwr OvrTrvl	201
		DI Run Forward	164	DI HOA Start	176	DI Prchrg Seal	190		
		DI Run Reverse	165	DI MOP Inc	177	DI PID Enable	191		
	Control Board IO[755]	Digital In Sts	220						
	Digital Inputs[753]	Digital In Sts	220	Dig In Filt Mask	222	Dig In Filt	223		
	Digital Outputs[753]	Dig Out Sts	225	RO0 Level Sel	231	RO0 Off Time	235	TO0 Level CmpSts	243
		Dig Out Invert	226	RO0 Level	232	TO0 Sel	240	TO0 On Time	244
		Dig Out Setpoint	227	RO0 Level CmpSts	233	TO0 Level Sel	241	TO0 Off Time	245
		RO0 Sel	230	RO0 On Time	234	TO0 Level	242		
	Motor PTC[753]	PTC Cfg	250	PTC Sts	251				
	Analog Inputs[753]	Anlg In Type	255	Anlg In0 Value	260	Anlg In0 LssActn	263	Anlg In0 Filt BW	266
		Anlg In Sqrt	256	Anlg In0 Hi	261	Anlg In0 Raw Val	264		
		Anlg In Loss Sts	257	Anlg In0 Lo	262	Anlg In0 Filt Gn	265		
	Analog Outputs[753]	Anlg Out Type	270	Anlg Out0 Stpt	276	Anlg Out0 DataLo	279	Anlg Out0 Val	282
		Anlg Out Abs	271	Anlg Out0 Data	277	Anlg Out0 Hi	280		
		Anlg Out0 Sel	275	Anlg Out0 DataHi	278	Anlg Out0 Lo	281		
	RO Predict Main[753]	RO PredMaint Sts	285	RO0 Load Amps	287	RO0 ElapsedLife	289	RO0 LifeEvntLvl	291
		RO0 Load Type	286	RO0 TotalLife	288	RO0 RemainLife	290	RO0 LifeEvntActn	292

File	Group	Parameters							
Drive Cfg	Preferences	Speed Units	300	Access Level	301	Language	302		
	Control Cfg	Voltage Class	305	SpdTrqPsn Mode B	310	SLAT Err Stpt	314	Prchrg Err Cfg	323
		Duty Rating	306	SpdTrqPsn Mode C	311	SLAT Dwell Time	315		
		Direction Mode	308	SpdTrqPsn Mode D	312	Prchrg Control	321		
		SpdTrqPsn Mode A	309	Actv SpTqPs Mode	313	Prchrg Delay	322		
	Auto Manual Ctrl	Logic Mask	324	Manual Cmd Mask	326	Alt Man Ref Sel	328	Alt Man Ref AnLo	330
		Auto Mask	325	Manual Ref Mask	327	Alt Man Ref AnHi	329	Manual Preload	331
	Drive Memory	Reset Meters	336						
	Start Features	Start At PowerUp	345	Sleep Wake Mode	350	Wake Time	355	FS Speed Reg Kp	360
		PowerUp Delay	346	SleepWake RefSel	351	FlyingStart Mode	356	FS Excitation Ki	361
		Auto Retry Fault	347	Sleep Level	352	FS Gain	357	FS Excitation Kp	362
		Auto Rstrt Tries	348	Sleep Time	353	FS Ki	358	FS Reconnect Dly	363
		Auto Rstrt Delay	349	Wake Level	354	FS Speed Reg Ki	359	FS Msrmnt CurLvl	364
	Braking Features	Stop Mode A	370	Bus Limit ACR Kp	379	Flux Braking Ki	390	DC Brk Vd Fltr	399
		Stop Mode B	371	Bus Reg Ki	380	Flux Braking Kp	391	Fast Braking Ki	400
		Bus Reg Mode A	372	Bus Reg Kp	381	Stop Dwell Time	392	Fast Braking Kp	401
		Bus Reg Mode B	373	DB Resistor Type	382	DC Brake Lvl Sel	393	Brake Off Adj 1	402
		Bus Reg Lvl Cfg	374	DB Ext Ohms	383	DC Brake Level	394	Brake Off Adj 2	403
		Bus Reg Level	375	DB Ext Watts	384	DC Brake Time	395	Dec Inhibit Actn	409
		Bus Limit Kp	376	DB ExtPulseWatts	385	DC Brake Ki	396		
		Bus Limit Kd	377	Flux Braking En	388	DC Brake Kp	397		
		Bus Limit ACR Ki	378	Flux Braking Lmt	389	DC Brk Vq Fltr	398		
Protection	Motor Overload	Motor OL Actn	410	Mtr OL Factor	413	MtrOL Reset Time	416		
		Mtr OL at Pwr Up	411	Mtr OL Hertz	414	Mtr OL Counts	418		
		Mtr OL Alarm Lvl	412	Mtr OL Reset Lvl	415	Mtr OL Trip Time	419		
	Load Limits	Drive OL Mode	420	Motor Power Lmt	427	Shear Pin Cfg	434	Load Loss Action	441
		Current Lmt Sel	421	Current Limit Kd	428	Shear Pin 1 Actn	435	Load Loss Level	442
		Current Limit 1	422	Current Limit Ki	429	Shear Pin1 Level	436	Load Loss Time	443
		Current Limit 2	423	Current Limit Kp	430	Shear Pin 1 Time	437	OutPhaseLossActn	444
		Active Cur Lmt	424	Id Lo FreqCur Kp	431	Shear Pin 2 Actn	438	Out PhaseLossLvl	445
		Current Rate Lmt	425	Iq Lo FreqCur Kp	432	Shear Pin2 Level	439		
		Regen Power Lmt	426	Jerk Gain	433	Shear Pin 2 Time	440		
	Power Loss	Power Loss Actn	449	Pwr Loss Mode B	453	PwrLoss RT BusKd	457	UnderVltg Level	461
		Pwr Loss Mode A	450	Pwr Loss B Level	454	PwrLoss RT ACRKp	458	InPhase LossActn	462
		Pwr Loss A Level	451	Pwr Loss B Time	455	PwrLoss RT ACRKi	459	InPhase Loss Lvl	463
		Pwr Loss A Time	452	PwrLoss RT BusKp	456	UnderVltg Action	460	DC Bus Mem Reset	464
	Ground Fault	Ground Warn Actn	466	Ground Warn Lvl	467				
	Predictive Main	PredMaint Sts	469	HSFan Derate	488	MtrBrngTotalLife	502	MchBrngTotalLife	511
		PredMaintAmbTemp	470	HSFan TotalLife	489	MtrBrngElpsdLife	503	MchBrngElpsdLife	512
		PredMaint Rst En	471	HSFan ElpsdLife	490	MtrBrngRemainLif	504	MchBrngRemainLif	513
		PredMaint Reset	472	HSFan RemainLife	491	MtrBrngEventLvl	505	MchBrngEventLvl	514
		CbFan Derate $^{755\ (8+)}$	481	HSFan EventLevel	492	MtrBrngEventActn	506	MchBrngEventActn	515
		CbFan TotalLife $^{755\ (8+)}$	482	HSFan EventActn	493	MtrBrng ResetLog	507	MchBrngResetLog	516
		CbFan ElpsdLife $^{755\ (8+)}$	483	HSFan ResetLog (1)	494	MtrLubeElpsdHrs	508	MchLubeElpsdHrs	517
		CbFan RemainLife $^{755\ (8+)}$	484	InFan Derate	495	MtrLubeEventLvl	509	MchLube EventLvl	518
		CbFan EventLevel $^{755\ (8+)}$	485	InFan TotalLife	496	MtrLubeEventActn	510	MchLubeEventActn	519
		CbFan EventActn $^{755\ (8+)}$	486	InFan ElpsdLife	497				
				InFan RemainLife	498				
				InFan EventLevel	499				
				InFan EventActn	500				
				InFan ResetLog (1)	501				

(1) 755 Frames 1…7 only.

File	Group	Parameters							
Speed Control	Speed Limits	Max Fwd Speed	520	Min Rev Speed	523	Skip Speed 1	526	Skip Speed Band	529
		Max Rev Speed	521	Overspeed Limit	524	Skip Speed 2	527		
		Min Fwd Speed	522	Zero Speed Limit	525	Skip Speed 3	528		
	Speed Ramp Rates	Accel Time 1	535	Decel Time 1	537	Jog Acc Dec Time	539	S Curve Decel	541
		Accel Time 2	536	Decel Time 2	538	S Curve Accel	540		
	Speed Reference	Spd Ref A Sel	545	Spd Ref Scale	555	DI ManRef AnlgLo	565	Spd Ref Filter	588
		Spd Ref A Stpt	546	Jog Speed 1	556	MOP Init Select	566	Spd Ref Fltr BW	589
		Spd Ref A AnlgHi	547	Jog Speed 2	557	MOP Init Stpt	567	Spd Ref FltrGain	590
		Spd Ref A AnlgLo	548	MOP Reference	558	Preset Speed 1	571	Spd Ref Sel Sts	591
		Spd Ref A Mult	549	Save MOP Ref	559	Preset Speed 2	572	Selected Spd Ref	592
		Spd Ref B Sel	550	MOP Rate	560	Preset Speed 3	573	Limited Spd Ref	593
		Spd Ref B Stpt	551	MOP High Limit	561	Preset Speed 4	574	Ramped Spd Ref	594
		Spd Ref B AnlgHi	552	MOP Low Limit	562	Preset Speed 5	575	Filtered Spd Ref	595
		Spd Ref B AnlgLo	553	DI ManRef Sel	563	Preset Speed 6	576	Speed Rate Ref	596
		Spd Ref B Mult	554	DI ManRef AnlgHi	564	Preset Speed 7	577	Final Speed Ref	597
	Speed Trim	Trim Ref A Sel	600	Trim Ref B Stpt	605	TrmPct RefA AnHi	610	TrmPct RefB AnLo	615
		Trim Ref A Stpt	601	Trim RefB AnlgHi	606	TrmPct RefA AnLo	611	SpdTrimPrcRefSrc	616
		Trim RefA AnlgHi	602	Trim RefB AnlgLo	607	TrmPct RefB Sel	612	Spd Trim Source	617
		Trim RefA AnlgLo	603	TrmPct RefA Sel	608	TrmPct RefB Stpt	613		
		Trim Ref B Sel	604	TrmPct RefA Stpt	609	TrmPct RefB AnHi	614		
	Slip/Droop Comp	Droop RPM at FLA	620	Slip RPM at FLA	621	Slip Comp BW	622	VHzSV SpdTrimReg	623
	Speed Regulator	Spd Options Ctrl	635	SpdReg AntiBckup	643	AltSpdErr FltrBW	651	SReg OutFltr BW	659
		Speed Reg BW	636	Spd Err Fltr BW	644	SReg Trq Preset	652	SReg Output	660
		SReg FB Fltr Sel	637	Speed Reg Kp	645	Spd Loop Damping	653	VHzSV Spd Reg Kp	663
		SReg FB FltrGain	638	Speed Reg Max Kp	646	Spd Reg Int Out	654	VHzSV Spd Reg Ki	664
		SReg FB Fltr BW	639	Speed Reg Ki	647	Spd Reg Pos Lmt	655	Active Vel Fdbk	131
		Filtered SpdFdbk	640	Alt Speed Reg BW	648	Spd Reg Neg Lmt	656		
		Speed Error	641	Alt Speed Reg Kp	649	SReg OutFltr Sel	657		
		Servo Lock Gain ^{755}	642	Alt Speed Reg Ki	650	SReg OutFltrGain	658		
	Speed Comp	Speed Comp Sel	665	Speed Comp Gain	666	Speed Comp Out	667		
Torque Control	Torque Limits	Pos Torque Limit	670	Neg Torque Limit	671				
	Torque Reference	Trq Ref A Sel	675	Trq Ref A Mult	679	Trq Ref B AnlgLo	683	Notch Fltr Freq	687
		Trq Ref A Stpt	676	Trq Ref B Sel	680	Trq Ref B Mult	684	Notch Fltr Atten	688
		Trq Ref A AnlgHi	677	Trq Ref B Stpt	681	Selected Trq Ref	685	Filtered Trq Ref	689
		Trq Ref A AnlgLo	678	Trq Ref B AnlgHi	682	Torque Step	686	Limited Trq Ref	690
	Inertia Comp ^{755}	Inertia CompMode	695	Inertia Dec Gain	697	Inertia Comp Out	699		
		Inertia Acc Gain	696	Inert Comp LPFBW	698	Ext Ramped Ref	700		
	Inertia Adaption ^{755}	InAdp LdObs Mode	704	InertiaAdaptGain	706	InertiaTrqAdd	708	InertAdptFltrBW	710
		Inertia Adapt BW	705	Load Estimate	707	IA LdObs Delay	709	Load Observer BW	711
	Friction Comp ^{755}	FrctnComp Mode	1560	FrctnComp Hyst	1562	FrctnComp Stick	1564	FrctnComp Rated	1566
		FrctnComp Trig	1561	FrctnComp Time	1563	FrctnComp Slip	1565	FrctnComp Out	1567

File	Group	Parameters							
Position Control	Position Cfg/Sts	PTP PsnRefStatus	720	Psn Selected Ref	722	Psn Reg Status	724	In Pos Psn Band	726
		Position Control	721	Psn Command	723	Zero Position	725	In Pos Psn Dwell	727
	Position Homing	Homing Status	730	DI Redefine Psn	733	Find Home Ramp	736		
		Homing Control	731	DI OL Home Limit	734	Actual Home Psn	737		
		DI Find Home	732	Find Home Speed	735	User Home Psn	738		
	Position Watch ^{755}	PsnWatch1 Select	745	PsnWatch1 Stpt	747	PsnWatch2 DtctIn	749		
		PsnWatch1 DtctIn	746	PsnWatch2 Select	748	PsnWatch2 Stpt	750		
	Interpolator ^{755}	Interp Control	755	Interp Vel Input	757	Interp Psn Out	759	Interp Trq Out	761
		Interp Psn Input	756	Interp Trq Input	758	Interp Vel Out	760		
	Direct	Psn Ref Select	765	Psn Direct Stpt	766	Psn Direct Ref	767		
	Point to Point	PTP Control	770	PTP Reference	776	PTP Decel Time	782	PTP Vel Override	788
		PTP Mode	771	PTP Feedback	777	PTP Speed FwdRef	783	PTP EGR Mult	789
		DI Indx Step	772	PTP Ref Scale	778	PTP Command	784	PTP EGR Div	790
		DI Indx StepRev	773	PTP Index Preset	779	PTP Fwd Vel Lmt	785		
		DI Indx StepPrst	774	PTP Setpoint	780	PTP Rev Vel Lmt	786		
		PTP Ref Sel	775	PTP Accel Time	781	PTP S Curve	787		
	Phase Lock Loop ^{755}	PLL Control	795	PLL Psn Stpt	800	PLL Rvls Input	805	PLL Enc Out Adv	810
		PLL Ext Spd Sel	796	PLL BW	801	PLL Psn Out Fltr	806	PLL EPR Output	811
		PLL Ext Spd Stpt	797	PLL LPFilter BW	802	PLL Speed Out	807	PLL Rvls Output	812
		PLL Ext SpdScale	798	PLL Virt Enc RPM	803	PLL Speed OutAdv	808		
		PLL Psn Ref Sel	799	PLL EPR Input	804	PLL Enc Out	809		
	Electronic Gear	Psn Ref EGR Out	815	Psn EGR Mult	816	Psn EGR Div	817		
	Position Offset	Psn Offset 1 Sel	820	Psn Offset 2 Sel	822	Psn Offset Vel	824		
		Psn Offset 1	821	Psn Offset 2	823				
	Ld Psn Fdbk Scal ^{755}	LdPsn Fdbk Mult	825	LdPsn Fdbk Div	826				
	Position Reg	PsnNtchFltrFreq	830	Psn Error	835	PReg Pos Int Lmt	840	PReg Neg Spd Lmt	845
		PsnNtchFltrDepth	831	Psn Actual	836	PReg Neg Int Lmt	841	Psn Reg Droop	846
		Psn Out Fltr Sel	832	Psn Load Actual ^{755}	837	PsnReg IntgrlOut	842	Psn Fdbk	847
		Psn Out FltrGain	833	Psn Reg Ki	838	PsnReg Spd Out	843	Psn Gear Ratio	848
		Psn Out Fltr BW	834	Psn Reg Kp	839	PReg Pos Spd Lmt	844		
Communication	Comm Control	DPI Pt1 Flt Actn	865	DPI Pt3 Flt Ref	870	Port 5 Reference	875	DPI Ref Rslt	880
		DPI Pt2 Flt Actn	866	Port 1 Reference	871	Port 6 Reference	876	DPI Ramp Rslt	881
		DPI Pt3 Flt Actn	867	Port 2 Reference	872	Port13 Reference ^{755}	877	DPI Logic Rslt	882
		DPI Pt1 Flt Ref	868	Port 3 Reference	873	Port14 Reference	878	Drive Ref Rslt	883
		DPI Pt2 Flt Ref	869	Port 4 Reference	874	Drive Logic Rslt	879	Drive Ramp Rslt	884
	Security	Port Mask Act	885	Logic Mask Act	886	Write Mask Act	887	Write Mask Cfg	888
	DPI Datalinks	Data In A1	895	Data In C1	899	Data Out A1	905	Data Out C1	909
		Data In A2	896	Data In C2	900	Data Out A2	906	Data Out C2	910
		Data In B1	897	Data In D1	901	Data Out B1	907	Data Out D1	911
		Data In B2	898	Data In D2	902	Data Out B2	908	Data Out D2	912
	Owners	Stop Owner	919	Jog Owner	921	Clear Flt Owner	923	Ref Select Owner	925
		Start Owner	920	Dir Owner	922	Manual Owner	924		
	ODK Datalinks	UserData Int 00…31	1700…1731			ScaleBlk Sel 00…07	1900, 1904,…1928		
		UserData Real 00…31	1800…1831			ScaleBlk Scal 00…07	1901, 1905,…1929		
						ScaleBlk Int 00…07	1902, 1906,…1930		
						ScaleBlk Real 00…07	1903, 1907,…1931		

File	Group	Parameters							
Diagnostics	Status	Speed Ref Source	930	Last StrtInhibit	934	Drive OL Count	940	Drive Temp C	944
		Last StartSource	931	Drive Status 1	935	IGBT Temp Pct	941	At Limit Status	945
		Last Stop Source	932	Drive Status 2	936	IGBT Temp C	942	Safety Port Sts	946
		Start Inhibits	933	Condition Sts 1	937	Drive Temp Pct	943		
	Fault/Alarm Info	Minor Flt Cfg	950	Status1 at Fault	954	Fault Bus Volts	958	AlarmA at Fault	962
		Last Fault Code	951	Status2 at Fault	955	Alarm Status A	959	AlarmB at Fault	963
		Fault Status A	952	Fault Frequency	956	Alarm Status B	960	MCB FPGA Actn	964
		Fault Status B	953	Fault Amps	957	Type 2 Alarms	961		
	Testpoints	Testpoint Sel 1	970	Testpoint Sel 2	974	Testpoint Sel 3	978	Testpoint Sel 4	982
		Testpoint Fval 1	971	Testpoint Fval 2	975	Testpoint Fval 3	979	Testpoint Fval 4	983
		Testpoint Lval 1	972	Testpoint Lval 2	976	Testpoint Lval 3	980	Testpoint Lval 4	984
	Peak Detection ^{755}	PkDtct Stpt Real	1035	PkDtct1PresetSel	1038	PeakDetect1 Out	1041	Peak2 Cfg	1044
		PkDtct Stpt DInt	1036	Peak1 Cfg	1039	PkDtct2 In Sel	1042	Peak 2 Change	1045
		PkDtct1 In Sel	1037	Peak 1 Change	1040	PkDtct2PresetSel	1043	PeakDetect2 Out	1046
Applications	Process PID	PID Cfg	1065	PID Fdbk AnlgHi	1073	PID Upper Limit	1081	PID Status	1089
		PID Control	1066	PID Fdbk AnlgLo	1074	PID Lower Limit	1082	PID Ref Meter	1090
		PID Ref Sel	1067	PID FBLoss SpSel	1075	PID Deadband	1083	PID Fdbk Meter	1091
		PID Ref AnlgHi	1068	PID FBLoss TqSel	1076	PID LP Filter BW	1084	PID Error Meter	1092
		PID Ref AnlgLo	1069	PID Fdbk	1077	PID Preload	1085	PID Output Meter	1093
		PID Setpoint	1070	PID Fdbk Mult	1078	PID Prop Gain	1086		
		PID Ref Mult	1071	PID Output Sel	1079	PID Int Time	1087		
		PID Fdbk Sel	1072	PID Output Mult	1080	PID Deriv Time	1088		
	Torque Prove ^{755}	Trq Prove Cfg	1100	Trq Lmt SlewRate	1104	Brk Set Time	1108	MicroPsnScalePct	1112
		Trq Prove Setup	1101	Speed Dev Band	1105	Brk Alarm Travel	1109	ZeroSpdFloatTime	1113
		DI FloatMicroPsn	1102	SpdBand Intgrtr	1106	Brk Slip Count	1110	Brake Test Torq ^{755}	1114
		Trq Prove Status	1103	Brk Release Time	1107	Float Tolerance	1111		
	Fibers Function	Fiber Control	1120	Traverse Inc	1123	P Jump	1126		
		Fiber Status	1121	Traverse Dec	1124	DI Fiber SyncEna	1129		
		Sync Time	1122	Max Traverse	1125	DI Fiber TravDis	1130		
	Adjustable Vltg	Adj Vltg Config	1131	Adj Vltg Trim Lo	1138	Adj Vltg Preset3	1144	Adj Vltg Scurve	1150
		Adj Vltg Select	1133	Adj Vltg Command	1139	Adj Vltg Preset4	1145	Adj Vltg TrimPct	1151
		Adj Vltg Ref Hi	1134	Adj Vltg AccTime	1140	Adj Vltg Preset5	1146	Min Adj Voltage	1152
		Adj Vltg Ref Lo	1135	Adj Vltg DecTime	1141	Adj Vltg Preset6	1147	Dead Time Comp	1153
		Adj Vltg TrimSel	1136	Adj Vltg Preset1	1142	Adj Vltg Preset7	1148	DC Offset Ctrl	1154
		Adj Vltg Trim Hi	1137	Adj Vltg Preset2	1143	Adj Vltg RefMult	1149		
	Pump Jack	Rod Speed	1165	TorqAlarm Dwell	1170	Max Rod Speed	1175	PCP Pump Sheave	1180
		Rod Torque	1166	TorqAlarm Level	1171	Max Rod Torque	1176	Gearbox Limit	1181
		Rod Speed Cmd	1167	TorqAlm Timeout	1172	Min Rod Speed	1177	Gearbox Rating	1182
		TorqAlarm Action	1168	TorqAlarm TOActn	1173	Motor Sheave	1178	Gearbox Ratio	1183
		TorqAlarm Config	1169	Total Gear Ratio	1174	OilWell Pump Cfg	1179	Gearbox Sheave	1184
	Pump Off	Pump Off Config	1187	Set Top ofStroke	1193	Pct Lift Torque	1199	Day Stroke Count	1205
		Pump Off Setup	1188	Torque Setpoint	1194	Pct Drop Torque	1200	DI PumpOff Disbl	1206
		Pump Off Action	1189	Pump Off Level	1195	Stroke Pos Count	1201	Pump OffSleepLvl	1207
		Pump Off Control	1190	Pump Off Speed	1196	Stroke Per Min	1202		
		Pump Off Status	1191	Pump Off Time	1197	Pump Off Count	1203		
		Pump Cycle Store	1192	Pct Cycle Torque	1198	PumpOff SleepCnt	1204		

File	Group	Parameters							
Applications	Profiling[755]	Profile Status	1210	DI Vel Override	1221	Step 1, 2, 3…16 Type	1230, 1240, 1250…1380		
		Units Traveled	1212	DI StrtStep Sel0	1222	Step 1, 2, 3…16 Velocity	1231, 1241, 1251…1381		
		Profile Command	1213	DI StrtStep Sel1	1223	Step 1, 2, 3…16 Accel	1232, 1242, 1252…1382		
		Counts Per Unit	1215	DI StrtStep Sel2	1224	Step 1, 2, 3…16 Decel	1233, 1243, 1253…1383		
		ProfVel Override	1216	DI StrtStep Sel3	1225	Step 1, 2, 3…16 Value	1234, 1244, 1254…1384		
		Prof DI Invert	1217	DI StrtStep Sel4	1226	Step 1, 2, 3…16 Dwell	1235, 1245, 1255…1385		
		DI Hold Step	1218			Step 1, 2, 3…16 Batch	1236, 1246, 1256…1386		
		DI Abort Step	1219			Step 1, 2, 3…16 Next	1237, 1247, 1257…1387		
		DI Abort Profile	1220			Step 1, 2, 3…16 Action	1238, 1248, 1258…1388		
						Step 1, 2, 3…16 Dig In	1239, 1249, 1259…1389		
	Camming[755]	PCAM Control	1390	PCAM Span X	1396	PCAM Main Pt X 0, 1, 2…15	1407, 1409, 1411…1437		
		PCAM Mode	1391	PCAM Scale X	1397	PCAM Main Pt Y 0, 1, 2…15	1408, 1410, 1412…1438		
		PCAM Psn Select	1392	PCAM Span Y	1398	PCAM Aux EndPnt	1439		
		PCAM Psn Stpt	1393	PCAM ScaleY Sel	1399	PCAM Aux Types	1440		
		PCAM Psn Ofst	1394	PCAM ScaleYSetPt	1400	PCAM Aux Pt X 1, 2, 3…15	1441, 1443, 1445…1469		
		PCAM PsnOfst Eps	1395	PCAM VelScaleSel	1401	PCAM Aux Pt Y 1, 2, 3…15	1442, 1444, 1446…1470		
				PCAM VelScaleSP	1402	PCAM Status	1471		
				PCAM Slope Begin	1403	PCAM Vel Out	1472		
				PCAM Slope End	1404	PCAM Psn Out	1473		
				PCAM Main EndPnt	1405	DI PCAM Start	1474		
				PCAM Main Types	1406				
	Roll Position[755]	Roll Psn Config	1500	Roll Psn Preset	1504	RP Rvls Output	1508	RP Unit Out	1512
		Roll Psn Status	1501	Roll Psn Offset	1505	RP Unwind	1509		
		RP Psn Fdbk Stpt	1502	RP EPR Input	1506	RP Unit Scale	1510		
		RP Psn Fdbk Sel	1503	RP Rvls Input	1507	RP Psn Output	1511		
	Torque Boost[755]	PsnTrqBst Ctrl	1515	PsnTrqBst UNWCnt	1519	PsnTrqBst Ps X4	1523	PsnTrqBst Trq Y4	1527
		PsnTrqBst Sts	1516	PsnTrqBst Ps X1	1520	PsnTrqBst Ps X5	1524	PsnTrqBst TrqOut	1528
		PsnTrqBst RefSel	1517	PsnTrqBst Ps X2	1521	PsnTrqBst Trq Y2	1525		
		PsnTrqBstPsnOfst	1518	PsnTrqBst Ps X3	1522	PsnTrqBst Trq Y3	1526		
	Variable Boost	VB Config	1535	VB Maximum	1540	VB Flux Thresh	1545	VB Cur Thresh	1550
		VB Status	1536	VB Accel Rate	1541	VB Flux Lag Freq	1546	VB Rate Lag Freq	1551
		VB Voltage	1537	VB Decel Rate	1542	VB Filt Flux Cur	1547		
		VB Time	1538	VB Frequency	1543	VB Current Rate	1548		
		VB Minimum	1539	VB Min Freq	1544	VB Current Hyst	1549		
	Spindle Orient[755]	SO Config	1580	SO EPR Input	1584	SO Unit Scale	1588	SO Decel Time	1592
		SO Status	1581	SO Rvls Input	1585	SO Position Out	1589	SO Fwd Vel Lmt	1593
		SO Setpoint	1582	SO Rvls Output	1586	SO Unit Out	1590	SO Rev Vel Lmt	1594
		SO Offset	1583	SO Cnts per Rvls	1587	SO Accel Time	1591		
	Id Compensation[755]	Id Comp Enbl	1600	Id Comp Mtrng 4	1607	Id Comp Regen 1	1613	Id Comp Regen 4	1619
		Id Comp Mtrng 1	1601	IdCompMtrng 4 Iq	1608	IdCompRegen 1 Iq	1614	IdCompRegen 4 Iq	1620
		IdCompMtrng 1 Iq	1602	Id Comp Mtrng 5	1609	Id Comp Regen 2	1615	Id Comp Regen 5	1621
		Id Comp Mtrng 2	1603	IdCompMtrng 5 Iq	1610	IdCompRegen 2 Iq	1616	IdCompRegen 5 Iq	1622
		IdCompMtrng 2 Iq	1604	Id Comp Mtrng 6	1611	Id Comp Regen 3	1617	Id Comp Regen 6	1623
		Id Comp Mtrng 3	1605	IdCompMtrng 6 Iq	1612	IdCompRegen 3 Iq	1618	IdCompRegen 6 Iq	1624
		IdCompMtrng 3 Iq	1606						

Inverter Common (Port 10)

Inverter Common parameters are only used by PowerFlex 755 Frame 8 and larger drives.

Parameter descriptions begin on page 212.

File	Group	Parameters							
Inverter Common	System Ratings	Sys Rated Amps	1	I1 Rated Amps	3	I3 Rated Amps	5		
		Sys Rated Volts	2	I2 Rated Amps	4				
	Status	Online Status	10	Fault Status	12	Alarm Status	13		
	Metering	Ground Current	18	Recfg Acknowledg	20	Effctv I Rating	21		
	Testpoints	Testpoint Sel 1	30	Testpoint Val 1	31	Testpoint Sel 2	32	Testpoint Val 2	33

Inverter *n* (Port 10)

Inverter *n* parameters are only used by PowerFlex 755 Frame 8 and larger drives.

Parameter descriptions begin on page 214.

File	Group	Parameters					
Inverter n	Status	I1 Fault Status	105	I2 Fault Status	205	I3 Fault Status	305
		I1 Alarm Status	107	I2 Alarm Status	207	I3 Alarm Status	307
	Metering	I1 U Phase Curr	115	I2 U Phase Curr	215	I3 U Phase Curr	315
		I1 V Phase Curr	116	I2 V Phase Curr	216	I32 V Phase Curr	316
		I1 W Phase Curr	117	I2 W Phase Curr	217	I3 W Phase Curr	317
		I1 Gnd Current	118	I2 Gnd Current	218	I3 Gnd Current	318
		I1 DC Bus Volt	119	I2 DC Bus Volt	219	I3 DC Bus Volt	319
		I1 Heatsink Temp	120	I2 Heatsink Temp	220	I3 Heatsink Temp	320
		I1 IGBT Temp	121	I2 IGBT Temp	221	I3 IGBT Temp	321
		I1 HSFan Speed	124	I2 HSFan Speed	224	I3 HSFan Speed	324
		I1 InFan 1 Speed	125	I2 InFan 1 Speed	225	I3 InFan 1 Speed	325
		I1 InFan 2 Speed	126	I2 InFan 2 Speed	226	I3 InFan 2 Speed	326
	Predictive Main	I1 PredMainReset	127	I2 PredMainReset	227	I3 PredMainReset	327
		I1 HSFanElpsdLif	128	I2 HSFanElpsdLif	228	I3 HSFanElpsdLif	328
		I1 InFanElpsdLif	129	I2 InFanElpsdLif	229	I3 InFanElpsdLif	329
	Testpoints	I1 Testpt Sel 1	140	I2 Testpt Sel 1	240	I3 Testpt Sel 1	340
		I1 Testpt Val 1	141	I2 Testpt Val 1	241	I3 Testpt Val 1	341
		I1 Testpt Sel 2	142	I2 Testpt Sel 2	242	I3 Testpt Sel 2	342
		I1 Testpt Val 2	143	I2 Testpt Val 2	243	I3 Testpt Val 2	343

Converter Common (Port 11)

Converter Common parameters are only used by AC input PowerFlex 755 Frame 8 and larger drives.

Parameter descriptions begin on page 217.

File	Group	Parameters					
Converter Common	System Ratings	Sys Rated Amps	1	C1 Rated Amps	3	C3 Rated Amps	5
		Sys Rated Volts	2	C2 Rated Amps	4		
	Status	Online Status	10	Fault Status	12	Alarm Status	13
	Configuration	Gnd Cur Flt Lvl	16	Converter Actn	17		
	Metering	L1 Phase Curr	20	L3 Phase Curr	22	SCR Temp	24
		L2 Phase Curr	21	Heatsink Temp	23	Gate Board Temp	25
	Testpoints	Testpoint Sel 1	30	Testpoint Sel 2	32		
		Testpoint Val 1	31	Testpoint Val 2	33		

Converter *n* (Port 11)

Converter *n* parameters are only used by AC input PowerFlex 755 Frame 8 and larger drives.

Parameter descriptions begin on page 220.

File	Group	Parameters					
Converter n	Status	C1 Fault Status1	105	C2 Fault Status1	205	C3 Fault Status1	305
		C1 Fault Status2	106	C2 Fault Status2	206	C3 Fault Status2	306
		C1 Alarm Status1	107	C2 Alarm Status1	207	C3 Alarm Status1	307
	Metering	C1 L1 Phase Curr	115	C2 L1 Phase Curr	215	C3 L1 Phase Curr	315
		C1 L2 Phase Curr	116	C2 L2 Phase Curr	216	C3 L2 Phase Curr	316
		C1 L3 Phase Curr	117	C2 L3 Phase Curr	217	C3 L3 Phase Curr	317
		C1 Gnd Current	118	C2 Gnd Current	218	C3 Gnd Current	318
		C1 DC Bus Volt	119	C2 DC Bus Volt	219	C3 DC Bus Volt	319
		C1 Heatsink Temp	120	C2 Heatsink Temp	220	C3 Heatsink Temp	320
		C1 SCR Temp	121	C2 SCR Temp	221	C3 SCR Temp	321
		C1 GateBoardTemp	122	C2 GateBoardTemp	222	C3 GateBoardTemp	322
		C1 AC Line Freq	123	C2 AC Line Freq	223	C3 AC Line Freq	323
		C1 L12 Line Volt	125	C2 L12 Line Volt	225	C3 L12 Line Volt	325
		C1 L23 Line Volt	126	C2 L23 Line Volt	226	C3 L23 Line Volt	326
		C1 L31 Line Volt	127	C2 L31 Line Volt	227	C3 L31 Line Volt	327
	Predictive Main	C1 PredMainReset	137	C2 PredMainReset	237	C3 PredMainReset	337
		C1 CbFanElpsdLif	138	C2 CbFanElpsdLif	238	C3 CbFanElpsdLif	338
	Testpoints	C1 Testpt Sel 1	140	C2 Testpt Sel 1	240	C3 Testpt Sel 1	340
		C1 Testpt Val 1	141	C2 Testpt Val 1	241	C3 Testpt Val 1	341
		C1 Testpt Sel 2	142	C2 Testpt Sel 2	242	C3 Testpt Sel 2	342
		C1 Testpt Val 2	143	C2 Testpt Val 2	243	C3Testpt Val 2	343

Precharge Common (Port 11)

Precharge Common parameters are only used by DC input PowerFlex 755 Frame 8 and larger drives.

Parameter descriptions begin on page 223.

File	Group	Parameters							
Precharge Common	System Ratings	Sys Rated Amps	1	P1 Rated Amps	3	P3 Rated Amps	5		
		Sys Rated Volts	2	P2 Rated Amps	4				
	Status	Online Status	10	Fault Status	12	Alarm Status	13		
	Metering	Gate Board Temp	25	Main DC Bus Volt	18				
	Testpoints	Testpoint Sel 1	30	Testpoint Val 1	31	Testpoint Sel 2	32	Testpoint Val 2	33

Precharge *n* (Port 11)

Precharge *n* parameters are only used by DC input PowerFlex 755 Frame 8 and larger drives.

Parameter descriptions begin on page 225.

File	Group	Parameters					
Precharge n	Status	P1 Board Status	104	P2 Board Status	204	P3 Board Status	304
		P1 Fault Status1	105	P2 Fault Status1	205	P3 Fault Status1	305
		P1 Fault Status2	106	P2 Fault Status2	206	P3 Fault Status2	306
		P1 Alarm Status1	107	P2 Alarm Status1	207	P3 Alarm Status1	307
	Metering	P1 DC Bus Volts	110	P2 DC Bus Volts	210	P3 DC Bus Volts	310
		P1 Main DC Volts	111	P2 Main DC Volts	211	P3 Main DC Volts	311
		P1 240VSplyVolts	112	P2 240VSplyVolts	212	P3 240VSplyVolts	312
		P1 GateBoardTemp	122	P2 GateBoardTemp	222	P3 GateBoardTemp	322
	Predictive Main	P1 PredMainReset	137	P2 PredMainReset	237	P3 PredMainReset	337
		P1 CbFanElpsdLif	138	P2 CbFanElpsdLif	238	P3 CbFanElpsdLif	338
	Testpoints	P1 Testpt Sel 1	140	P2 Testpt Sel 1	240	P3 Testpt Sel 1	340
		P1 Testpt Val 1	141	P2 Testpt Val 1	241	P3 Testpt Val 1	341
		P1 Testpt Sel 2	142	P2 Testpt Sel 2	242	P3 Testpt Sel 2	342
		P1 Testpt Val 2	143	P2 Testpt Val 2	243	P3 Testpt Val 2	343

Embedded EtherNet/IP (Port 13)

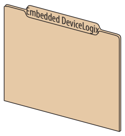
Parameter descriptions begin on page 230.

File	Group	Parameters							
Embedded EtherNet/IP Host Groups	N/A	DL From Net 01	1	Port Number	33	Flt Cfg DL 01	60	DLs Fr Peer Cfg	76
		DL From Net 02	2	DLs From Net Act	34	Flt Cfg DL 02	61	DLs Fr Peer Act	77
		DL From Net 03	3	DLs To Net Act	35	Flt Cfg DL 03	62	Logic Src Cfg	78
		DL From Net 04	4	BOOTP	36	Flt Cfg DL 04	63	Ref Src Cfg	79
		DL From Net 05	5	Net Addr Src	37	Flt Cfg DL 05	64	Fr Peer Timeout	80
		DL From Net 06	6	IP Addr Cfg 1	38	Flt Cfg DL 06	65	Fr Peer Addr 1	81
		DL From Net 07	7	IP Addr Cfg 2	39	Flt Cfg DL 07	66	Fr Peer Addr 2	82
		DL From Net 08	8	IP Addr Cfg 3	40	Flt Cfg DL 08	67	Fr Peer Addr 3	83
		DL From Net 09	9	IP Addr Cfg 4	41	Flt Cfg DL 09	68	Fr Peer Addr 4	84
		DL From Net 10	10	Subnet Cfg 1	42	Flt Cfg DL 10	69	Fr Peer Enable	85
		DL From Net 11	11	Subnet Cfg 2	43	Flt Cfg DL 11	70	Fr Peer Status	86
		DL From Net 12	12	Subnet Cfg 3	44	Flt Cfg DL 12	71	DLs To Peer Cfg	87
		DL From Net 13	13	Subnet Cfg 4	45	Flt Cfg DL 13	72	DLs To Peer Act	88
		DL From Net 14	14	Gateway Cfg 1	46	Flt Cfg DL 14	73	To Peer Period	89
		DL From Net 15	15	Gateway Cfg 2	47	Flt Cfg DL 15	74	To Peer Skip	90
		DL From Net 16	16	Gateway Cfg 3	48	Flt Cfg DL 16	75	To Peer Enable	91
		DL To Net 01	17	Gateway Cfg 4	49				
		DL To Net 02	18	Net Rate Cfg	50				
		DL To Net 03	19	Net Rate Act	51				
		DL To Net 04	20	Web Enable	52				
		DL To Net 05	21	Web Features	53				
		DL To Net 06	22	Comm Flt Action	54				
		DL To Net 07	23	Idle Flt Action	55				
		DL To Net 08	24	Peer Flt Action	56				
		DL To Net 09	25	Msg Flt Action	57				
		DL To Net 10	26	Flt Cfg Logic	58				
		DL To Net 11	27	Flt Cfg Ref	59				
		DL To Net 12	28						
		DL To Net 13	29						
		DL To Net 14	30						
		DL To Net 15	31						
		DL To Net 16	32						

Embedded DeviceLogix (Port 14)

Embedded DeviceLogix parameters are only used by PowerFlex 755 drives.

Parameter descriptions begin on page 239.

File	Group	Parameters							
Embedded DeviceLogix Host Groups  	Analog Outputs	DLX Out 01	1	DLX Out 05	5	DLX Out 09	9	DLX Out 13	13
		DLX Out 02	2	DLX Out 06	6	DLX Out 10	10	DLX Out 14	14
		DLX Out 03	3	DLX Out 07	7	DLX Out 11	11	DLX Out 15	15
		DLX Out 04	4	DLX Out 08	8	DLX Out 12	12	DLX Out 16	16
	Analog Inputs	DLX In 01	17	DLX In 05	21	DLX In 09	25	DLX In 13	29
		DLX In 02	18	DLX In 06	22	DLX In 10	26	DLX In 14	30
		DLX In 03	19	DLX In 07	23	DLX In 11	27	DLX In 15	31
		DLX In 04	20	DLX In 08	24	DLX In 12	28	DLX In 16	32
	Digital Inputs	DLX DIP 01	33	DLX DIP 05	37	DLX DIP 09	41	DLX DIP 13	45
		DLX DIP 02	34	DLX DIP 06	38	DLX DIP 10	42	DLX DIP 14	46
		DLX DIP 03	35	DLX DIP 07	39	DLX DIP 11	43	DLX DIP 15	47
		DLX DIP 04	36	DLX DIP 08	40	DLX DIP 12	44	DLX DIP 16	48
	Status & Cntl	DLX DigIn Sts	49	DLX DigOut Sts	50	DLX Prog Cond	52	DLX Operation	53
				DLX DigOut Sts2	51				
	Internal Regs	DLX Real SP1	54	DLX DINT SP1	70	DLX Real InSP1	82	DLX DINT InSP1	98
		DLX Real SP2	55	DLX DINT SP2	71	DLX Real InSP2	83	DLX DINT InSP2	99
		DLX Real SP3	56	DLX DINT SP3	72	DLX Real InSP3	84	DLX DINT InSP3	100
		DLX Real SP4	57	DLX DINT SP4	73	DLX Real InSP4	85	DLX DINT InSP4	101
		DLX Real SP5	58	DLX DINT SP5	74	DLX Real InSP5	86	DLX DINT OutSP1	102
		DLX Real SP6	59	DLX DINT SP6	75	DLX Real InSP6	87	DLX DINT OutSP2	103
		DLX Real SP7	60	DLX DINT SP7	76	DLX Real InSP7	88	DLX DINT OutSP3	104
		DLX Real SP8	61	DLX DINT SP8	77	DLX Real InSP8	89	DLX DINT OutSP4	105
		DLX Real SP9	62	DLX Bool SP1	78	DLX Real OutSP1	90		
		DLX Real SP10	63	DLX Bool SP2	79	DLX Real OutSP2	91		
		DLX Real SP11	64	DLX Bool SP3	80	DLX Real OutSP3	92		
		DLX Real SP12	65	DLX Bool SP4	81	DLX Real OutSP4	93		
		DLX Real SP13	66			DLX Real OutSP5	94		
		DLX Real SP14	67			DLX Real OutSP6	95		
		DLX Real SP15	68			DLX Real OutSP7	96		
		DLX Real SP16	69			DLX Real OutSP8	97		

How Option Module Parameters are Organized

Option module parameters are only available when that option is installed in a host drive. To view and edit option module parameters, select the port number of the device you want to access from the Status Screen.

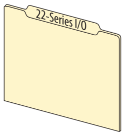
11-Series I/O Modules

Parameter descriptions begin on page 242.

File	Group	Parameters							
11-Series I/O Host Groups	Digital Inputs	Dig In Sts	1	Dig In Filt Mask	2	Dig In Filt	3		
	Digital Outputs	Dig Out Sts	5	R00 Sel	10	R01 Sel	20	T01 Sel	30
		Dig Out Invert	6	R00 Level Sel	11	T00 Sel	20	T01 Level Sel	31
		Dig Out Setpoint	7	R00 Level	12	R01 Level Sel	21	T01 Level	32
				R00 Level CmpSts	13	T00 Level Sel	21	T01 Level CmpSts	33
				R00 On Time	14	R01 Level	22	T01 On Time	34
				R00 Off Time	15	T00 Level	22	T01 Off Time	35
						R01 Level CmpSts	23		
						T00 Level CmpSts	23		
						R01 On Time	24		
						T00 On Time	24		
						R01 Off Time	25		
						T00 Off Time	25		
	Motor PTC	ATEX Sts	41						
	Analog Inputs	Anlg In Type	45	Anlg In0 Value	50				
		Anlg In Sqrt	46	Anlg In0 Hi	51				
		Anlg In Loss Sts	47	Anlg In0 Lo	52				
				Anlg In0 LssActn	53				
				Anlg In0 Raw Val	54				
				Anlg In0 Filt Gn	55				
				Anlg In0 Filt BW	56				
	Analog Outpts	Anlg Out Type	70	Anlg Out0 Sel	75				
		Anlg Out Abs	71	Anlg Out0 Stpt	76				
				Anlg Out0 Data	77				
				Anlg Out0 DataHi	78				
				Anlg Out0 DataLo	79				
				Anlg Out0 Hi	80				
				Anlg Out0 Lo	81				
				Anlg Out0 Val	82				
	Predictive Main	PredMaint Sts	99	R00 Load Type	100	R01 Load Type	110		
				R00 Load Amps	101	R01 Load Amps	111		
				R00 TotalLife	102	R01 TotalLife	112		
				R00 ElapsedLife	103	R01 ElapsedLife	113		
				R00 RemainLife	104	R01 RemainLife	114		
				R00 LifeEvntLvl	105	R01 LifeEvntLvl	115		
				R00 LifeEvntActn	106	R01 LifeEvntActn	116		

22-Series I/O Modules

Parameter descriptions begin on page 242.

File	**Group**	**Parameters**							
22-Series I/O Host Groups	Digital Inputs	Dig In Sts	1	Dig In Filt Mask	2	Dig In Filt	3		
	Digital Outputs	Dig Out Sts	5	RO0 Sel	10	RO1 Sel	20	TO1 Sel	30
		Dig Out Invert	6	RO0 Level Sel	11	TO0 Sel	20	TO1 Level Sel	31
		Dig Out Setpoint	7	RO0 Level	12	RO1 Level Sel	21	TO1 Level	32
				RO0 Level CmpSts	13	TO0 Level Sel	21	TO1 Level CmpSts	33
				RO0 On Time	14	RO1 Level	22	TO1 On Time	34
				RO0 Off Time	15	TO0 Level	22	TO1 Off Time	35
						RO1 Level CmpSts	23		
						TO0 Level CmpSts	23		
						RO1 On Time	24		
						TO0 On Time	24		
						RO1 Off Time	25		
						TO0 Off Time	25		
	Motor PTC	PTC Cfg	40	PTC Sts	41	PTC Raw Value	42		
	Analog Inputs	Anlg In Type	45	Anlg In0 Value	50	Anlg In1 Value	60		
		Anlg In Sqrt	46	Anlg In0 Hi	51	Anlg In1 Hi	61		
		Anlg In Loss Sts	47	Anlg In0 Lo	52	Anlg In1 Lo	62		
				Anlg In0 LssActn	53	Anlg In1 LssActn	63		
				Anlg In0 Raw Val	54	Anlg In1 Raw Val	64		
				Anlg In0 Filt Gn	55	Anlg In1 Filt Gn	65		
				Anlg In0 Filt BW	56	Anlg In1 Filt BW	66		
	Analog Outpts	Anlg Out Type	70	Anlg Out0 Sel	75	Anlg Out1 Sel	85		
		Anlg Out Abs	71	Anlg Out0 Stpt	76	Anlg Out1 Stpt	86		
				Anlg Out0 Data	77	Anlg Out1 Data	87		
				Anlg Out0 DataHi	78	Anlg Out1 DataHi	88		
				Anlg Out0 DataLo	79	Anlg Out1 DataLo	89		
				Anlg Out0 Hi	80	Anlg Out1 Hi	90		
				Anlg Out0 Lo	81	Anlg Out1 Lo	91		
				Anlg Out0 Val	82	Anlg Out1 Val	92		
	Predictive Main	PredMaint Sts	99	RO0 Load Type	100	RO1 Load Type	110		
				RO0 Load Amps	101	RO1 Load Amps	111		
				RO0 TotalLife	102	RO1 TotalLife	112		
				RO0 ElapsedLife	103	RO1 ElapsedLife	113		
				RO0 RemainLife	104	RO1 RemainLife	114		
				RO0 LifeEvntLvl	105	RO1 LifeEvntLvl	115		
				RO0 LifeEvntActn	106	RO1 LifeEvntActn	116		

Single Incremental Encoder Module

Parameter descriptions begin on page 263.

File	Group	Parameters							
Single Incremental Encoder Host Groups	N/A	Encoder Cfg	1	Fdbk Loss Cfg	3	Encoder Status	5	Phase Loss Count	7
		Encoder PPR	2	Encoder Feedback	4	Error Status	6	Quad Loss Count	8

Dual Incremental Encoder Module

Parameter descriptions begin on page 266.

File	Group	Parameters							
Dual Incremental Encoder Host Groups	Encoder 0	Enc 0 Cfg	1	Enc 0 FB Lss Cfg	3	Enc 0 Sts	5	Enc 0 PhsLss Cnt	7
		Enc 0 PPR	2	Enc 0 FB	4	Enc 0 Error Sts	6	Enc 0 QuadLssCnt	8
	Encoder 1	Enc 1 Cfg	11	Enc 1 FB Lss Cfg	13	Enc 1 Sts	15	Enc 1 PhsLss Cnt	17
		Enc 1 PPR	12	Enc 1 FB	14	Enc 1 Error Sts	16	Enc 1 QuadLssCnt	18
	Homing Cfg	Homing Cfg	20						
	Module Status	Module Sts	21						

Universal Feedback Module

Parameter descriptions begin on page 271.

File	Group	Parameters							
Universal Feedback Host Groups	Module	Module Sts	1						
		Module Err Reset	2						
	Feedback 0	FB0 Position	5	FB0 Cfg	8	FB0 Inc Cfg	16	FB0 SSI Turns	22
		FB0 Device Sel	6	FB0 Loss Cfg	9	FB0 Inc Sts	17	FB0 Lin CPR	25
		FB0 Identify	7	FB0 Sts	10	FB0 SSI Cfg	20	FB0 Lin Upd Rate	26
				FB0 IncAndSC PPR	15	FB0 SSI Resol	21	FB0 LinStahl Sts	27
	Feedback 1	FB1 Position	35	FB1 Cfg	38	FB1 Inc Cfg	46	FB1 SSI Turns	52
		FB1 Device Sel	36	FB1 Loss Cfg	39	FB1 Inc Sts	47	FB1 Lin CPR	55
		FB1 Identify	37	FB1 Sts	40	FB1 SSI Cfg	50	FB1 Lin Upd Rate	56
				FB1 IncAndSC PPR	45	FB1 SSI Resol	51	FB1 LinStahl Sts	57
	Encoder Out	Enc Out Sel	80	Enc Out FD PPR	82	Enc Out Z Offset	83		
		Enc Out Mode	81			Enc Out Z PPR	84		
	Registration	Rgsn Arm	90	Rgsn Latch1 Cfg	100	Rgsn Latch1 Psn	101	Rgsn Latch1 Time	102
		Rgsn In 0 Filter	91	Rgsn Latch2 Cfg	103	Rgsn Latch2 Psn	104	Rgsn Latch2 Time	105
		Rgsn In 1 Filter	92	Rgsn Latch3 Cfg	106	Rgsn Latch3 Psn	107	Rgsn Latch3 Time	108
		Rgsn HmIn Filter	93	Rgsn Latch4 Cfg	109	Rgsn Latch4 Psn	110	Rgsn Latch4 Time	111
		Rgsn Sts	94	Rgsn Latch5 Cfg	112	Rgsn Latch5 Psn	113	Rgsn Latch5 Time	114
				Rgsn Latch6 Cfg	115	Rgsn Latch6 Psn	116	Rgsn Latch6 Time	117
				Rgsn Latch7 Cfg	118	Rgsn Latch7 Psn	119	Rgsn Latch7 Time	120
				Rgsn Latch8 Cfg	121	Rgsn Latch8 Psn	122	Rgsn Latch8 Time	123
				Rgsn Latch9 Cfg	124	Rgsn Latch9 Psn	125	Rgsn Latch9 Time	126
				Rgsn Latch10 Cfg	127	Rgsn Latch10 Psn	128	Rgsn Latch10 Time	129

Safe Speed Monitor Module

Parameter descriptions begin on page 289.

File	Group	Parameters							
Safe Speed Monitor Host Groups	Security	Password	1	Reset Defaults	7	Password Command	17	Config Flt Code	70
		Lock State	5	Signature ID	10	Security Code	18		
		Operating Mode	6	New Password	13	Vendor Password	19		
	General	Cascaded Config	20	Reset Type	22	SS Out Mode	72		
		Safety Mode	21	OverSpd Response	24	SLS Out Mode	73		
	Feedback	Fbk Mode	27	Fbk 1 Type	28	Fbk 2 Units	34	Fbk Speed Ratio	39
				Fbk 1 Units	29	Fbk 2 Polarity	35	Fbk Speed Tol	40
				Fbk 1 Polarity	30	Fbk 2 Resolution	36	Fbk Pos Tol	41
				Fbk 1 Resolution	31	Fbk 2 Volt Mon	37	Direction Mon	42
				Fbk 1 Volt Mon	32	Fbk 2 Speed	38	Direction Tol	43
				Fbk 1 Speed	33				
	Stop	Safe Stop Input	44	Stop Mon Delay	46	Standstill Speed	48	Decel Ref Speed	50
		Safe Stop Type	45	Max Stop Time	47	Standstill Pos	49	Stop Decel Tol	51
	Limited Speed	Lim Speed Input	52	Enable SW Input	54	Safe Speed Limit	55	Speed Hysteresis	56
		LimSpd Mon Delay	53						
	Door Control	Door Out Type	57	DM Input	58	Lock Mon Enable	59	Door Out Mode	74
						Lock Mon Input	60		
	Max Speed	Max Speed Enable	61	Max Spd Stop Typ	63	Safe Accel Limit	65		
		Safe Max Speed	62	Max Accel Enable	64	Max Acc Stop Typ	66		
	Faults	Fault Status	67	Config Flt Code	70	SS Out Mode	72		
		Guard Status	68			SLS Out Mode	73		
		IO Diag Status	69			Door Out Mode	74		

Drive Port 0 Parameters

This chapter lists and describes the PowerFlex 750-Series Port 0 drive parameters. The parameters can be programmed (viewed/edited) using a Human Interface Module (HIM). Refer to Enhanced PowerFlex 7-Class Human Interface Module (HIM) User Manual, publication 20HIM-UM001, for information on using the HIM to view and edit parameters. As an alternative, programming can also be performed using DriveTools™ software and a personal computer.

Parameter File	Page
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Drive (Port 0) Monitor File

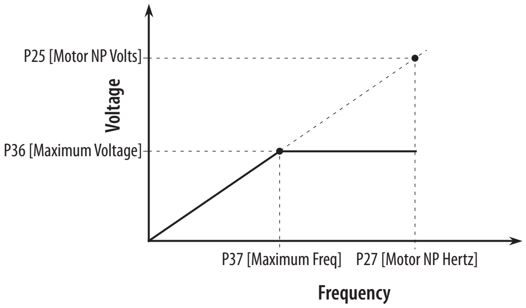
File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
MONITOR	Metering	1	**Output Frequency** Output Frequency Output frequency present at terminals T1, T2, and T3 (U, V & W)	Units: Default: Min/Max:	Hz 0.00 –/+650.00	RO	Real
		2	**Commanded SpdRef** Commanded Speed Reference Value of the active Speed/Frequency Reference. Displayed in Hz or RPM, depending on the value of P300 [Speed Units].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		3	**Mtr Vel Fdbk** Motor Velocity Feedback Estimated or actual motor speed, with feedback. Displayed in Hz or RPM, depending on the value of P300 [Speed Units].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		4	**Commanded Trq** Commanded Torque External torque regulation reference. Summation of Torque A Select Reference and Torque B Select Reference. Percent of motor rated torque. See Figure 21 on page 377 or Figure 61 on page 420.	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real
		5	**Torque Cur Fdbk** Torque Current Feedback Based on the motor, the amount of current that is in phase with the fundamental voltage component.	Units: Default: Min/Max:	Amps Based on Drive Rating –/+P21 [Rated Amps] x 2	RO	Real
		6	**Flux Cur Fdbk** Flux Current Feedback Amount of current that is out of phase with the fundamental voltage component.	Units: Default: Min/Max:	Amps Based on Drive Rating –/+P21 [Rated Amps] x 2	RO	Real
		7	**Output Current** Output Current The total output current present at terminals T1, T2, and T3 (U, V & W).	Units: Default: Min/Max:	Amps Based on Drive Rating 0.00 / P21 [Rated Amps] x 2	RO	Real
		8	**Output Voltage** Output Voltage Output voltage present at terminals T1, T2, and T3 (U, V & W).	Units: Default: Min/Max:	V AC Based on Drive Rating 0.00 / P20 [Rated Volts] x 1.15	RO	Real
		9	**Output Power** Output Power Output power present at terminals T1, T2, and T3 (U, V & W).	Units: Default: Min/Max:	kW 0.00 0.00 / 3000.00	RO	Real
		10	**Output Powr Fctr** Output Power Factor Output power factor.	Default: Min/Max:	0.00 0.00 / 1.00	RO	Real
		11	**DC Bus Volts** Direct Current Bus Volts DC bus voltage.	Units: Default: Min/Max:	V DC Based on Drive Rating 0.00 / P20 [Rated Volts] x 2	RO	Real
		12	**DC Bus Memory** Direct Current Bus Memory A six-minute average of P11 [DC Bus Volts] used to estimate the DC equivalent of the input voltage. Automatically initialized upon power-up or precharge, continually updated during normal operation, and is used to trigger a power loss condition. Use P464 [DC Bus Mem Reset] to reset this parameter.	Units: Default: Min/Max:	V DC Based on Drive Rating 0.00 / P20 [Rated Volts] x 2	RO	Real
		13	**Elapsed MWH** Elapsed Megawatt Hour Accumulated output energy of the drive. Use P336 [Reset Meters] to reset this parameter.	Units: Default: Min/Max:	MWh 0.000 0.000 / 4294967296.000	RO	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
MONITOR	Metering	**14**	**Elapsed kWH** Elapsed Kilowatt Hour Accumulated output energy of the drive. Use P336 [Reset Meters] to reset this parameter.	Units: Default: Min/Max:	kWh 0.000 0.000 / 4294967296.000	RO	Real
		15	**Elapsed Run Time** Elapsed Run Time Accumulated time drive is outputting power. Use P336 [Reset Meters] to reset this parameter.	Units: Default: Min/Max:	Hrs 0.000 0.000 / 220000000.000	RO	Real
		16	**Elpsd Mtr MWHrs** Elapsed Motor Megawatt Hours Accumulated output energy to the motor.	Units: Default: Min/Max:	MWh 0.0 0.0 / 220000000.0	RO	Real
		17	**Elpsd Rgn MWHrs** Elapsed Regenerated Motor Megawatt Hours Accumulated input energy from the motor.	Units: Default: Min/Max:	MWh 0.0 0.0 / 220000000.0	RO	Real
		18	**Elpsd Mtr kWHrs** Elapsed Motor Kilowatt Hours Accumulated output energy to the motor.	Units: Default: Min/Max:	kWh 0.0000 0.0000 / 220000000.0000	RO	Real
		19	**Elpsd Rgn kWHrs** Elapsed Regenerated Motor Kilowatt Hours Accumulated input energy from the motor.	Units: Default: Min/Max:	kWh 0.0000 0.0000 / 220000000.0000	RO	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
MONITOR	Drive Data	**20**	**Rated Volts** Rated Voltage Input voltage class (208, 240, 400 etc.) of the drive. This value may change depending on the setting of parameters 305 [Voltage Class] or 306 [Duty Rating].	Units: Default: Min/Max:	V AC Based on Drive Rating 0.00 / 690.00	RO	Real
		21	**Rated Amps** Rated Amperage Continuous current rating of drive. This value may change depending on the setting of parameters 305 [Voltage Class] or 306 [Duty Rating].	Units: Default: Min/Max:	Amps Based on Drive Rating 0.00 / Dependent on Frame Rating	RO	Real
		22	**Rated kW** Rated Kilowatts Continuous power rating of drive.	Units: Default: Min/Max:	kW Based on Drive Rating 0.00 / Dependent on Frame Rating	RO	Real

Drive (Port 0) Motor Control File

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
MOTOR CONTROL	Motor Data	25 ○	**Motor NP Volts** Motor Nameplate Volts Rated volts shown on the motor nameplate.	Units: Default: Min/Max:	V AC Based on Drive Rating and Voltage Class 0.10 x P25 [Motor NP Volts] / Based on Drive Rating and Voltage Class	RW	Real
		26 ○	**Motor NP Amps** Motor Nameplate Amps Rated full load amps shown on the motor nameplate.	Units: Default: Min/Max:	Amps Based on Drive Rating 0.01 x P21 [Rated Amps] / 14200.00	RW	Real
		27 ○	**Motor NP Hertz** Motor Nameplate Hertz Rated frequency shown on the motor nameplate.	Units: Default: Min/Max:	Hz Based on Drive Rating 2.00 / 650.00	RW	Real
		28 ○	**Motor NP RPM** Motor Nameplate Revolutions Per Minute Rated RPM shown on the motor nameplate. Note: The value of this parameter must reflect the slip speed of the motor. For example, for a 60 Hz, 4 pole motor, a value of 1800 is synchronous speed, and 1750 is slip speed.	Units: Default: Min/Max:	RPM Based on Drive Rating 1.0 / 40000.0	RW	Real
		29 ○ ⇄	**Mtr NP Pwr Units** Motor Nameplate Power Units Power units shown on the motor nameplate.	Default: Options:	Based on Drive Rating 0 – HP 1 – kW	RW	32-bit Integer
		30 ○	**Motor NP Power** Motor Nameplate Power Rated power shown on the motor nameplate.	Units: Default: Min/Max:	HP (P29 = 0) kW (P29 = 1) Based on Drive Rating 0.01 / 2000.00	RW	Real
		31 ○	**Motor Poles** Motor Poles Number of poles in the motor. $\text{Poles} = \frac{120 \text{ x } [\text{Motor NP Hertz}]}{[\text{Motor NP RPM}]}$	Units: Default: Min/Max:	Pole 4 2 / 200	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
MOTOR CONTROL	**Mtr Ctrl Options**	**35** ○	**Motor Ctrl Mode** Motor Control Mode Motor type and motor control mode. InductionVHz (0) – Induction motor, volts per Hertz control mode. **Note:** When using the Induction VHz (0) motor control mode, see the diagram for voltage and frequency in the Volts per Hertz group on page 56 for additional detail on the drive programming. Induction SV (1) – Induction motor, sensorless vector control mode. Induct Econ (2) – Induction motor, economize control mode. Induction FV (3) – Induction motor, flux vector control mode. PM VHz (4) – Permanent magnet motor, volts per Hertz control mode. PM SV (5) – Permanent magnet motor, sensorless vector control mode. PM FV (6) – Permanent magnet motor, flux vector control mode. SyncRel VHz (7) – Synchronous Reluctance motor, volts per Hertz control mode. SyncRel SV (8) – Synchronous Reluctance motor, sensorless vector control mode. Adj VltgMode (9) – Adjustable voltage control mode. IPM FV (10) – Interior permanent magnet motor, flux vector control mode.	Default: Options:	1 – Induction SV 0 – InductionVHz 1 – Induction SV 2 – Induct Econ 3 – Induction FV 4 – PM VHz 755 (1) 5 – PM SV 755 (1) 6 – PM FV 755 (1) 7 – SyncRel VHz 8 – SyncRel SV 9 – Adj VltgMode (2) 10 – IPM FV (1) See the table in P80 [PM Cfg] on page 58. (2) In the Adjustable control voltage mode, verify that P40 [Mtr Option Cfg] Bit 15 = 0 and P36 [Maximum Voltage] and 37 [Maximum Freq] ≠ 0.	RW	32-bit Integer
		36	**Maximum Voltage** Maximum Voltage The highest voltage the drive will output.	Units: Default: Min/Max:	V AC Based on Drive Rating and Voltage Class Based on Drive Rating and Voltage Class	RW	Real
		37 ○	**Maximum Freq** Maximum Frequency Determines the frequency where voltage limiting begins. Voltage limiting is either the corresponding voltage from the curve or the value of parameter 36 [Maximum Voltage]. Only active when parameter 35 [Motor Ctrl Mode] is set to 0 “InductionVHz.”  	Units: Default: Min/Max:	Hz Based on P27 [Motor NP Hertz] / P28 [Motor NP RPM] and Voltage Class 0.00016667 x P27 [Motor NP Hertz] / 650.00	RW	Real
		38 ○	**PWM Frequency** Pulse Width Modulation Frequency Pulse Width Modulated frequency (power transistor switching frequency). Drive derating may occur with increased values. See the PowerFlex 750-Series AC Drive Technical Data, publication 750-TD001, for derating guidelines.	Units: Default: Min/Max:	kHz Based on Drive Rating Based on Drive Rating	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**	Read-Write	Data Type
MOTOR CONTROL	Mtr Ctrl Options	40	**Mtr Options Cfg** Motor Options Configuration		RW	32-bit Integer

Configuration of motor control-related functions. For motors above 200 Hz, a carrier frequency of 8 kHz or higher is recommended. Consider drive derate and motor lead distance restrictions.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Jerk Select	Not Used	Common Mode	Xsistor Diag (1)	Elect Stab	DB WhileStop	PWM FreqLock	AsyncPWMLock	PWM Type Sel	RS Adaption	Reflect Wave	Mtr Lead Rev	EnclsTrqProv (2)	Trq ModeJog	Trq ModeStop	Zero TrqStop
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	1	1	0	0	1	1	1
Bit	32	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 753 drive default is 1 = Enabled.
755 drive default is 0 = Disabled.

(2) 755 drives only.

Bit 0 "Zero TrqStop" – Configures stopped condition when in torque mode. 0 = wait for zero speed before shutting off drive output, 1 = wait for zero torque before shutting off drive output.

Bit 1 "Trq ModeStop" – Configures stopping behavior when in torque mode. 0 = remain in torque mode, 1 = switch to speed mode

Bit 2 "Trq ModeJog" – Configures jogging behavior when in torque mode. 0 = remain in torque mode, 1 = switch to speed mode

Bit 3 "EnclsTrqProv" – Enables encoderless mode when using the torque prove function. 0 = Disabled, 1 = Enabled. Bits 0 and 1 of P1100 [Trq Prove Cfg] must also be set to use this mode.

Bit 4 "Mtr Lead Rev" – Reverses the phase rotation of the applied voltage, effectively reversing the motor leads. 0 = Not Reversed, 1 = Reversed

Bit 5 "Reflect Wave" – Enables reflected wave voltage protection for long motor cables. 0 = Disabled, 1 = Enabled

Bit 6 "RS Adaption" – Adapts for changes in motor stator resistance due to motor temperature. Active only in FV motor control mode with feedback. 0 = Disabled, 1 = Enabled

Bit 7 "PWM Type Sel" – Configures 3 Phase / 2 Phase switching of the power devices. 0 = 3 Phase modulation with auto switchover to 2 phase modulation. 1 = Full time 3 phase modulation (no switchover)

Bit 8 "AsyncPWMLock" – Configures Synchronous / Asynchronous switching of the power devices. 0 = Automatically changes between synchronous and asynchronous. 1 = Asynchronous switching only.

Bit 9 "PWM FreqLock" – Configures switching frequency of the power devices while in FV motor control mode without feedback. 0 = switching frequency automatically reduces to 2 kHz at low speeds (best performance), 1 = switching frequency does not reduce (setting used when switching frequency reduction is undesirable)

Bit 10 "DB WhileStop" – Enables operation of the dynamic brake transistor while the drive is stopped. 0 = Disabled, 1 = Enabled

Bit 11 "Elect Stab" – Enables stability control for Sensorless Vector and V/Hz motor control modes. 0 = Disabled, 1 = Enabled

Bit 12 "Xsistor Diag" – Enables power transistor diagnostic test at each start command. Recommended to set to Disabled if an output filter is installed with the drive. Refer to publication PFLEX-AT002 for additional information. 0 = Disabled, 1 = Enabled

Bit 13 "Common Mode" – Enables the common mode reduction feature. See Parameter 41, Common Mode Type, for common mode type selection.

Bit 15 "Jerk Select" – Limits the rate of change to the velocity reference for improved current limiting. This setting applies only to Sensorless Vector and V/Hz motor control modes. 0 = Disabled (0.0 second ramp time achievable), 1 = Enabled (0.0 second ramp time prevented)

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
MOTOR CONTROL	Mtr Ctrl Options	41 ○	**Common Mode Type** Common Mode Type CMV (0) – Reduces common mode voltage that degrades motor bearings and corrupts signals in control systems. It produces high DC bus ripple and reduces DC bus capacitor life. CMI (1) – Reduces common mode current within the drive that helps reduce the stress on the power components when the jumpers are disconnected on a solidly grounded network.	Default: Options:	0 – CMV 0 – CMV 1 – CMI	RW	32-bit Integer

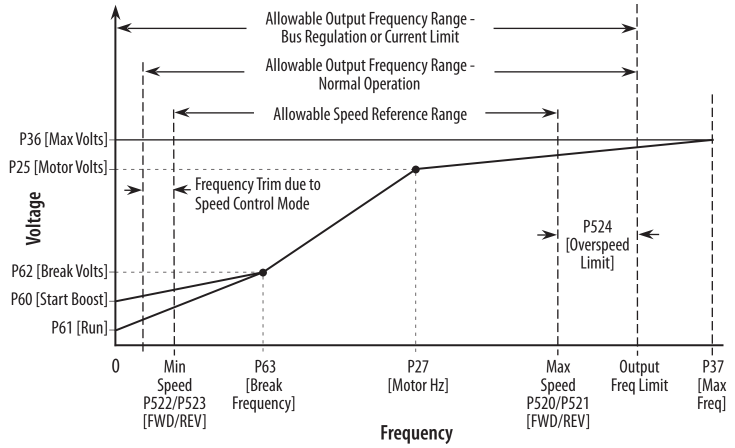
File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Mtr Ctrl Options	42	**Bus Utilization** Bus Utilization The maximum allowed bus voltage utilization for the Motor Control. Do not change this value without consulting Technical Support. Higher values may result in control instability or over-current faults.	Units: Default: Min/Max:	% 95.00 85.00 / 100.00	RW	Real
		43	**Flux Up Enable** Flux Up Enable Manual (0) – Flux is established for P44 [Flux Up Time] before initial acceleration. Automatic (1) – Flux is established for a calculated time period based on motor nameplate data before acceleration. P44 [Flux Up Time] is not used.	Default: Options:	1 – Automatic 0 – Manual 1 – Automatic	RW	32-bit Integer
		44	**Flux Up Time** Flux Up Time The amount of time the drive will use to try to achieve full motor stator flux. When a Start command is issued, DC current at P26 [Motor NP Amps] level is used to build stator flux before accelerating. This parameter cannot be changed unless P43 [Flux Up Enable] is set to 0 “Manual.”	Units: Default: Min/Max:	Secs 0.0000 0.0000 / 5.0000	RW	Real
		45	**Flux Down Ki** Flux Down Ki The integral term used in the voltage regulator which controls the removal of flux in the motor. Refer to the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001, for jumper locations and positions.	Default: Min/Max:	0.20 0.00 / 100.00	RW	Real
		46	**Flux Down Kp** Flux Down Kp The proportional term used in the voltage regulator which controls the removal of flux in the motor.	Default: Min/Max:	150.0 0.0 / 10000.0	RW	Real
		47	**Econ At Ref Ki** Economize At Reference Ki Integral gain that determines the response of the output voltage when P35 [Motor Ctrl Mode] option 2 “Induct Econ” is selected and the output frequency is at its reference.	Default: Min/Max:	305.0 0.0 / 100000.0	RW	Real
		48	**Econ AccDec Ki** Economize Acceleration/Deceleration Ki Integral gain that determines the response of the output voltage when P35 [Motor Ctrl Mode] option 2 “Induct Econ” is selected and the output frequency is either accelerating or decelerating to a reference.	Default: Min/Max:	200.0 0.0 / 100000.0	RW	Real
		49	**Econ AccDec Kp** Economize Acceleration/Deceleration Kp Proportional gain that determines the response of the output voltage when P35 [Motor Ctrl Mode] option 2 “Induct Econ” is selected and the output frequency is either accelerating or decelerating to a reference.	Units: Default: Min/Max:	V/A 100.0 0.0 / 1000000.0	RW	Real
		50	**Stability Filter** Stability Filter The filter time constant for the angle and voltage stability control.	Units: Default: Min/Max:	Secs 5162.22 0.00 / 1000000.00	RW	Real
		51	**Stab Volt Gain** Stability Voltage Gain The gain of the voltage stability control function. Not active when any FV motor control mode is selected with speed feedback.	Default: Min/Max:	5322.22 0.00 / 10000000.00	RW	Real
		52	**Stab Angle Gain** Stability Angle Gain The gain of the electrical angle stability control function. Not active when any FV motor control mode is selected in P35 [Motor Ctrl Mode] with speed feedback.	Default: Min/Max:	790.43 0.00 / 10000000.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Mtr Ctrl Options	**1648**	**IPM V FB HP Filt** IPM Voltage Feedback High Pass Filter High Pass Filter setting for the High Speed angle control. **Note:** This parameter is not used by Frame 8 drives and larger.	Default: Min/Max:	15.0 1.0 / 50.0	RW	Real
		1649	**IPM SpdEst Filt** IPM Speed Estimator Filter Bandwidth (BW) setting for the Speed Estimator filter. **Note:** This parameter is not used by Frame 8 drives and larger.	Units: Default: Min/Max:	R/S 1000.0 1.0 / 9999.9	RW	Real
		1650	**IPM SpdEst Kp** IPM Speed Estimator Kp Kp tuning value for the Speed Estimator. **Note:** This parameter is not used by Frame 8 drives and larger.	Default: Min/Max:	30.0 0.0 / 1000.0	RW	Real
		1651	**IPM SpdEst Ki** IPM Speed Estimator Ki Ki tuning value for the Speed Estimator. **Note:** This parameter is not used by Frame 8 drives and larger.	Default: Min/Max:	2500.0 0.0 / 25000.0	RW	Real
		1652	**IPM SpdEst KiAdj** IPM Speed Estimator Ki Adjust Step size used to adjust the Ki value of the Speed Estimator during no load conditions. **Note:** This parameter is not used by Frame 8 drives and larger.	Default: Min/Max:	75.0 0.0 / 500.0	RW	Real
		1653	**IPM Tran PWM** IPM Transition PWM Transition frequency where the PWM type is changed during deceleration. **Note:** This parameter is not used by Frame 8 drives and larger.	Units: Default: Min/Max:	Hz 8.0 3.0 / 30.0	RW	Real
		1654	**IPMTran PWM Hyst** IPM Transition PWM Hysteresis Hysteresis frequency used with P1653 [IPM Tran PWM] during acceleration. **Note:** This parameter is not used by Frame 8 drives and larger.	Units: Default: Min/Max:	Hz 2.0 0.0 / 10.0	RW	Real
		1655	**IPM Tran Mode** IPM Transition Mode Transition frequency where the control angle is changed during deceleration. **Note:** This parameter is not used by Frame 8 drives and larger.	Units: Default: Min/Max:	Hz 4.0 0.5 / 20.0	RW	Real
		1656	**IPM TranMod Hyst** IPM Transition Mode Hysteresis Hysteresis frequency used with P1655 [IPM Tran Mode] during acceleration. **Note:** This parameter is not used by Frame 8 drives and larger.	Units: Default: Min/Max:	Hz 3.0 0.0 / 10.0	RW	Real
		1657	**IPM Tran Filt Lo** IPM Transition Filter Low Bandwidth (BW) setting for the frequency used for Transition of angle and PWM during acceleration. **Note:** This parameter is not used by Frame 8 drives and larger.	Units: Default: Min/Max:	R/S 35.0 1.0 / 9999.0	RW	Real
		1658	**IPM Tran Filt Hi** IPM Transition Filter High Bandwidth (BW) setting for the frequency used for Transition of angle and PWM during deceleration. **Note:** This parameter is not used by Frame 8 drives and larger.	Units: Default: Min/Max:	R/S 1000.0 1.0 / 9999.0	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Mtr Ctrl Options	**1659**	**IPM Tran Angle** IPM Transition Angle Difference Threshold between High and Low angle control to allow transition. **Note:** This parameter is not used by Frame 8 drives and larger.	Units: Default: Min/Max:	Cnts 100.0 5.0 / 500.0	RW	Real
		1660 ○	**IPM Stc OfsTst K** IPM Static Offset Test Constant Reduction factor for Static Offset test pulses. **Note:** This parameter is not used by Frame 8 drives and larger.	Default: Min/Max:	1.00 0.10 / 9.00	RW	Real
		1661 ○	**IPM Lq Cmd BW** IPM Lq Command Bandwidth IqFddk Filter Bandwidth (BW) used to select the Active Lq for the IPM control. **Note:** This parameter is not used by Frame 8 drives and larger.	Units: Default: Min/Max:	R/S 10.0 1.0 / 999.9	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
MOTOR CONTROL	Volts per Hertz	**60**	**Start Acc Boost** Start/Acceleration Boost The voltage boost level for starting and acceleration when a "VHz" mode is selected, according to P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit].	Units: Default: Min/Max:	V AC Based on Drive Rating 0.00 / Based on Drive Rating and Voltage Class	RW	Real
		61	**Run Boost** Run Boost The boost level for steady state and deceleration when a "VHz" mode is selected, according to P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit].	Units: Default: Min/Max:	V AC Based on Drive Rating 0.00 / Based on Drive Rating and Voltage Class	RW	Real
		62	**Break Voltage** Break Voltage The voltage the drive will output at P63 [Break Frequency] when a "VHz" mode is selected, according to P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit].	Units: Default: Min/Max:	V AC Based on Drive Rating and Voltage Class 0.00 / P25 [Motor NP Volts] x 1.5	RW	Real
		63	**Break Frequency** Break Frequency The frequency the drive will output at P62 [Break Voltage] when a "VHz" mode is selected, according to P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit].	Units: Default: Min/Max:	Hz P27 [Motor NP Hertz] x 0.25 0.00 / P27 [Motor NP Hertz]	RW	Real

This diagram (with P65 set to Custom V/Hz) depicts the Voltage to Frequency ratio when using the Induction VHz (0) motor control mode.



File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
MOTOR CONTROL	Volts per Hertz	**64**	**SVC Boost Filter** SVC Boost Filter The voltage boost filter time constant when a "SVC" mode is selected, according to P35 [Motor Ctrl Mode].	Units: Default: Min/Max:	Secs 0.1000 0.0001 / 1000.0000	RW	Real
		65 ○	**VHz Curve** VHz Curve Selects either a predefined curve (for example Fan/Pump), or a custom curve when a "VHz" mode is selected, according to P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit]. See Motor Control Modes in the PowerFlex 750-Series AC Drives Reference Manual, publication 750-RM002, for more information on the Fan/Pump option.	Default: Options:	0 – Custom V/Hz 0 – Custom V/Hz 1 – Fan/Pump	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
MOTOR CONTROL	Autotune	**70** ○	**Autotune** Autotune Provides a manual or automatic method for setting P73 [IR Voltage Drop], P74 [Ixo Voltage Drop] and P75 [Flux Current Ref]. Valid only when parameter P35 [Motor Ctrl Mode] is set to 1 "Induction SV", 2 "Induct Econ", or 3 "Induction FV." Ready (0) – Parameter returns to this setting following a "Static Tune" or "Rotate Tune", at which time another start transition is required to operate the drive in normal mode. It also permits manually setting P73 [IR Voltage Drop], P74 [Ixo Voltage Drop] and P75 [Flux Current Ref]. Calculate (1) – Uses motor nameplate data to automatically set P73 [IR Voltage Drop], P74 [Ixo Voltage Drop], P75 [Flux Current Ref] and P621 [Slip RPM at FLA]. Static Tune (2) – A temporary command that initiates a non-rotational motor stator resistance test for the best possible automatic setting of P73 [IR Voltage Drop] in all valid modes and a non-rotational motor leakage inductance test for the best possible automatic setting of P74 [Ixo Voltage Drop] in a Flux Vector (FV) mode. A start command is required following initiation of this setting. Used when motor cannot be rotated. Rotate Tune (3) – A temporary command that initiates a "Static Tune" followed by a rotational test for the best possible automatic setting of P75 [Flux Current Ref]. In Flux Vector (FV) mode, with encoder feedback, a test for the best possible automatic setting of P621 [Slip RPM at FLA] is also run. A start command is required following initiation of this setting. **Important:** If using rotate tune for a Sensorless Vector (SV) mode, the motor should be uncoupled from the load or results may not be valid. With a Flux Vector (FV) mode, either a coupled or uncoupled load will produce valid results. ⚠ **ATTENTION:** Rotation of the motor in an undesired direction can occur during this procedure. To guard against possible injury and/or equipment damage, it is recommended that the motor be disconnected from the load before proceeding. Inertia Tune (4) – A temporary command that initiates an inertia test of the motor/load combination. The motor will ramp up and down while the drive measures the amount of inertia. This option only applies to FV modes selected in P35 [Motor Ctrl Mode]. Final test results should be obtained with load coupled to the motor.	Default: Options:	1 – Calculate 0 – Ready 1 – Calculate 2 – Static Tune 3 – Rotate Tune 4 – Inertia Tune	RW	32-bit Integer
		71 ○	**Autotune Torque** Autotune Torque The motor torque applied to the motor during the flux current and inertia tests.	Units: Default: Min/Max:	% 50.00 0.00 / 200.00	RW	Real
		73	**IR Voltage Drop** IR Voltage Drop Value of voltage drop across the resistance of the motor stator at rated motor current. Used only when P35 [Motor Ctrl Mode] is set to 1 "Induction SV", 2 "Induct Econ", or 3 "Induction FV." This parameter cannot be changed unless P70 [Autotune] is set to 0 "Ready."	Units: Default: Min/Max:	Volt Based on Drive Rating 0.00 / Based on Drive Rating and Voltage Class	RW	Real
		74 ○	**Ixo Voltage Drop** Ixo Voltage Drop Value of voltage drop across the leakage inductance of the motor at rated motor current. Used only when P35 [Motor Ctrl Mode] is set to 3 "Induction FV." This parameter cannot be changed unless P70 [Autotune] is set to 0 "Ready."	Units: Default: Min/Max:	V AC Based on Drive Rating and Voltage Class 0.00 / P25 [Motor NP Volts]	RW	Real
		75	**Flux Current Ref** Flux Current Reference Value of amps for full motor flux. This parameter cannot be changed unless P70 [Autotune] is set to 0 "Ready."	Units: Default: Min/Max:	Amps P21 [Rated Amps] x 0.35 0.00 / P21 [Rated Amps] x 0.995	RW	Real
		76	**Total Inertia** Total Inertia Time in seconds for a motor coupled to a load to accelerate from zero to base speed at rated motor torque. Calculated during auto-tune. Only use this parameter when P35 [Motor Ctrl Mode] is set to 3 "Induction FV."	Units: Default: Min/Max:	Secs 2.00 0.01 / 600.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Autotune	77 ○	**Inertia Test Lmt** Inertia Test Limit Maximum number of revolutions the motor rotates during the Inertia AutoTune test. When the value is zero, the limit is not active.	Units: Default: Min/Max:	Revs 0.0 0.0 / 65535.0	RW	Real
		78	**Encdrlss AngComp** Encoderless Angle Compensation Represents electrical angle compensation dependent on motor cable and PWM Frequency. Determined during autotuning when P35 [Motor Ctrl Mode] is set to one of the FV modes without speed feedback.	Units: Default: Min/Max:	Rad 0.0000 –/+6.2831	RW	Real
		79	**Encdrlss VltComp** Encoderless Voltage Compensation Represents voltage compensation dependent on motor cable and PWM Frequency. Determined during autotuning when P35 [Motor Ctrl Mode] is set to one of the FV modes without speed feedback.	Units: Default: Min/Max:	V AC Based on Drive Rating 0.00 / Based on Drive Rating and Voltage Class	RW	Real
		80 ○	**PM Cfg** Permanent Magnet Motor Configuration			RW	16-bit Integer

Mode	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7
PM with Absolute Feedback (Stegmann, SSI, Heidenhaim)		X						
PM with Incremental Encoder (Pulse, SIN/COS)	X	X						
PM without Feedback		X	X	X				
IPM with Absolute Feedback (Stegmann, SSI, Heidenhaim)						X		
IPM with Incremental Encoder (Pulse, SIN/COS)	X					X		
IPM without Feedback			X			X		

X = 1

This parameter also includes two options for PM FV mode selected by P35 [Motor Ctrl Mode].

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	IdsCmdFFwdEn[1]	VCmdPhShftEn	IPMTqTrmEn	IPM Vqs Disa	PMStabAnglEn	StaticTestEn	Vqs Reg En	AutoOfstTest
Default	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disable
1 = Enable

(1) 755 drives only.

Bit 0 “AutoOfstTest” – Enables the PM Offset test to be executed before the drive runs normally after a power cycle or drive reset. Required when the feedback device is not an absolute feedback device. Cannot be enabled if Bit 2 is enabled. Allow for up to 90° of shaft rotation. The value set in P83 [PM Ofst Tst Cur] may need to be increased to complete the test. If shaft rotation is not possible, set Bits 0 and 1 to perform a static test at every start.

Bit 1 “Vqs Reg En” – Enables the Vqs regulator.

Bit 2 “StaticTestEn” – Enables the Static test to be executed before the drive starts. Cannot be enabled if Bit 0 is enabled.

Bit 3 “PMStabAnglEn” – Enables the Permanent Magnet Stability Angle regulator. Used for PM FV Encoderless when P35 [Motor Ctrl Mode] = 6 “PM FV” and P125 [Pri Vel Fdbk Sel] = Open Loop.

Bit 4 “IPM Vqs Disa” – Disables Vqs regulator when P35 [Motor Ctrl Mode] = 10 “IPM FV.”

Bit 5 “IPMTqTrmEn” – Enables Torque Trim when P35 [Motor Ctrl Mode] = 10 “IPM FV.”

Bit 6 “VCmdPhShftEn” – Enables the enhancement function on the voltage command calculation in all control modes.

Bit 7 “IdsCmdFFwdEn” – Enables the feed forward term calculation for the Vqs regulator in PM with feedback mode.

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Autotune	81	**PM PriEnc Offset** Permanent Magnet Motor Primary Encoder Offset The amount of offset between the primary feedback encoder counts, and the rotor flux center position of the PM motor. A value of 1024 is equal to 360 electrical degrees. This parameter is updated during the PM Offset test which runs at the first start after a power cycle/ system reset (P80 [PM Cfg] Bit 0 = 1) and during autotune in PM FV mode.	Default: Min/Max:	0 0 / 1023	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Autotune	82	**PM AltEnc Offset** Permanent Magnet Motor Alternate Encoder Offset The amount of offset between the alternate feedback encoder counts, and the rotor flux center position of the PM motor. A value of 1024 is equal to 360 electrical degrees. This parameter is updated during the PM Offset test which runs at the first start after a power cycle/ system reset (P80 [PM Cfg] Bit 0 = 1) and during autotune in PM FV mode. Active only when Alternate Velocity Feedback is being used during Automatic Tach Switchover (see P635 [Spd Options Ctrl]).	Default: Min/Max:	0 0 / 1023	RW	32-bit Integer
		83 ○	**PM OfstTst Cur** Permanent Magnet Motor Offset Test Current Amplitude of the current command in percent of the motor rated current during the PM Offset Test, which is one of the auto tune tests in PM FV mode.	Units: Default: Min/Max:	% 40.00 0.00 / 200.00	RW	Real
		84 ○	**PM OfstTst CRamp** Permanent Magnet Motor Offset Test Current Ramp Ramp time of the current command during the PM Offset Test in PM FV mode, which is defined as ramp time to reach the P80 [PM Cfg] current command amplitude.	Units: Default: Min/Max:	Secs 3.00 0.00 / 100.00	RW	Real
		85 ○	**PM OfstTst FRamp** Permanent Magnet Motor Offset Test Frequency Ramp Defines the frequency ramp time of the current command during the PM Offset Test in PM FV mode, which is defined as ramp time in seconds from 0 to 3 Hz.	Units: Default: Min/Max:	Secs 60.00 0.00 / 1000.00	RW	Real
		86	**PM CEMF Voltage** Permanent Magnet Motor Counter Electro Motive Force Counter electromotive force (CEMF) voltage displayed in line-to-line rms value, which is normalized to the base motor speed. Updated after the completion of the auto tune in PM FV mode.	Units: Default: Min/Max:	Volt P25 [Motor NP Volts] x 0.0675 0.00 / P25 [Motor NP Volts] x 1.5	RW	Real
		87	**PM IR Voltage** Permanent Magnet Motor Stator Voltage Drop Voltage across the stator resistance of the PM motor at the rated motor current displayed in line-to-line rms value. Updated after the completion of the auto tune in PM FV mode.	Units: Default: Min/Max:	Volt Based on Drive Rating 0.00 / Based on Drive Rating and Voltage Class	RW	Real
		88	755 **PM IXq Voltage** Permanent Magnet Motor Q-Axis Stator Inductance Voltage Drop Voltage across the q-axis stator inductance of the PM motor at the rated motor current and the rated motor frequency displayed in line-to-line rms value. This parameter is updated after the completion of the auto tune in PM FV mode.	Units: Default: Min/Max:	Volt P25 [Motor NP Volts] x 0.0435 0.00 / P25 [Motor NP Volts] x 1.5	RW	Real
		89	755 **PM IXd Voltage** Permanent Magnet Motor D-Axis Stator Inductance Voltage Drop Voltage across the d-axis stator inductance of the PM motor at the rated motor current and the rated motor frequency displayed in line-to-line rms value. Updated after the completion of the auto tune in PM FV mode.	Units: Default: Min/Max:	Volt P25 [Motor NP Volts] x 0.0435 0.00 / P25 [Motor NP Volts] x 1.5	RW	Real
		91	**PM Vqs Reg Kp** Permanent Magnet Motor Vqs Regulator Proportional Gain Proportional gain of the vqs regulator in PM FV mode. When P80 [PM Cfg] Bit 1 = 1, the vqs regulator will be active either when the motor voltage exceeds the voltage limited by the DC bus voltage or when the motor voltage exceeds the value set by P36 [Maximum Voltage].	Default: Min/Max:	2.50 0.00 / 1000.00	RW	Real
		92	**PM Vqs Reg Ki** Permanent Magnet Motor Vqs Regulator Integral Gain Integral gain of the vqs regulator in PM FV mode.	Default: Min/Max:	0.50 0.00 / 1000.00	RW	Real
		93	**PM Dir Test Cur** Permanent Magnet Motor Direction Test Current Amount of current commanded during the direction test when P35 [Motor Ctrl Mode] option 6 “PM FV” is selected. When the Start-Up feature is used, this value is automatically set to 10% of the motor rated current.	Units: Default: Min/Max:	Amps P26 [Motor NP Amps]/10 0.00 / P26 [Motor NP Amps]	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
MOTOR CONTROL	Autotune	120	755 **PM IXqVoltage125** Permanent Magnet Motor Q-Axis Stator Inductance Voltage Drop 125% Voltage across the q-axis stator inductance of the PM motor at 125% rated motor current and the rated motor frequency displayed in line-to-line rms value. This parameter is updated after the completion of the auto tune in PM FV mode.	Units: Default: Min/Max:	Volt P25 [Motor NP Volts] x 0.0435 0.0000 / P25 [Motor NP Volts] x 1.5	RW	Real
		1630 ○	**IPM_Lq_25_pct** Lq for 25% Iq IPM Control Sets Lq at 25% current.	Units: Default: Min/Max:	mH 0.00 0.00 / 999990.00	RW	Real
		1631 ○	**IPM_Lq_50_pct** Lq for 50% Iq IPM Control Sets Lq at 50% current.	Units: Default: Min/Max:	mH 0.00 0.00 / 999990.00	RW	Real
		1632 ○	**IPM_Lq_75_pct** Lq for 75% Iq IPM Control Sets Lq at 75% current.	Units: Default: Min/Max:	mH 0.00 0.00 / 999990.00	RW	Real
		1633 ○	**IPM_Lq_100_pct** Lq for 100% Iq IPM Control Sets Lq at 100% current.	Units: Default: Min/Max:	mH 0.00 0.00 / 999990.00	RW	Real
		1634 ○	**IPM_Lq_125_pct** Lq for 125% Iq IPM Control Sets Lq at 125% current.	Units: Default: Min/Max:	mH 0.00 0.00 / 999990.00	RW	Real
		1635 ○	**IPM_Ld_0_pct** Ld for 0% Id IPM Control Sets Ld at 0% current.	Units: Default: Min/Max:	mH 0.00 0.00 / 999990.00	RW	Real
		1636 ○	**IPM_Ld_100_pct** Ld for 100% Id IPM Control Sets Ld at 100% current.	Units: Default: Min/Max:	mH 0.00 0.00 / 999990.00	RW	Real
		1646	**IPM PriOffstComp** IPM Primary Encoder Offset Compensation Primary Offset Compensation, AutoTune group.	Default: Min/Max:	0 0 / 512	RW	Real
		1647	**IPM AltOffstComp** IPM Alternate Encoder Offset Compensation Alternate Offset Compensation, AutoTune group.	Default: Min/Max:	0 0 / 512	RW	Real

File	**Group**	**No.**	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
MOTOR CONTROL	Vector Regulator	**95**	**VCL Cur Reg BW** Vector Closed Loop Current Regulator Bandwidth Sets the bandwidth of the current regulator by automatically adjusting the gains (P96 and P97) based on motor autotune results. When the value of bandwidth is zero (default) the current regulator gains can be manually adjusted. The default values for P95, P96, and P97 typically provide excellent performance, and do not normally need to be adjusted.	Units: Default: Min/Max:	R/S 0.0 0.0 / 9999.0	RW	Real
		96	**VCL Cur Reg Kp** Vector Closed Loop Current Regulator Proportional Gain Proportional gain of the current regulator. Can be adjusted when P95 is set to zero. The default values for P95, P96, and P97 typically provide excellent performance, and do not normally need to be adjusted.	Default: Min/Max:	1250.0 0.0 / 50000.0 753 0.0 / 50000.0 755	RW	Real
		97	**VCL Cur Reg Ki** Vector Closed Loop Current Regulator Integral Gain Integral gain of the current regulator. Can be adjusted when P95 is set to zero. The default values for P95, P96, and P97 typically provide excellent performance, and do not normally need to be adjusted.	Default: Min/Max:	60.0 0.0 / 50000.0 753 0.0 / 50000.0 755	RW	Real
		98	**VEncdls FReg Kp** Encoderless Vector Frequency Regulator Proportional Gain Represents electrical angle compensation dependent on motor cable and PWM Frequency. Determined during autotuning when P35 [Motor Ctrl Mode] is set to one of the FV modes without speed feedback.	Units: Default: Min/Max:	Hz/A 524.0 0.0 / 100000.0	RW	Real
		99	**VEncdls FReg Ki** Encoderless Vector, Frequency Regulator Integral Gain Determined during autotuning when P35 [Motor Ctrl Mode] is set to one of the FV modes without speed feedback. Represents voltage compensation dependent on motor cable and PWM Frequency.	Units: Default: Min/Max:	Hz/A 9080.0 0.0 / 100000.0	RW	Real
		100	**Slip Reg Enable** Slip Regulator Enable Enables or disables the slip frequency regulator. This selection is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV") and encoder feedback is used.	Default: Options:	1 = "Enabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer
		101	**Slip Reg Ki** Slip Regulator Integral Gain Integral gain for the slip frequency regulator.	Default: Min/Max:	10.00 0.00 / 10000.00	RW	Real
		102	**Slip Reg Kp** Slip Regulator Proportional Gain Proportional gain for the slip frequency regulator.	Default: Min/Max:	0.50 0.00 / 10000.00	RW	Real
		103	**Flux Reg Enable** Flux Regulator Enable Enables or disables the flux regulator. This selection is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Options:	1 – Enabled 0 – Disabled 1 – Enabled	RW	32-bit Integer
		104	**Flux Reg Ki** Flux Regulator Integral Gain Integral gain for the flux regulator.	Default: Min/Max:	30.00 0.00 / 10000.00	RW	Real
		105	**Flux Reg Kp** Flux Regulator Proportional Gain Proportional gain for the flux regulator.	Default: Min/Max:	1.00 0.00 / 10000.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Vector Regulator	106	**Trq Adapt Speed** Torque Adaption Speed Operating frequency (speed) at which the adaptive torque control regulators become active as a percent of motor nameplate frequency. As frequency (speed) increases, the torque adapter turns on at a value that is 10 % higher than the value set in this parameter. However, as frequency (speed) decreases, the torque adapter turns off at the value set in this parameter. For example: If this parameter is set to 10.00, as the frequency (speed) increases, the adapter turns on when the value of this parameter reaches 20.00. As the frequency (speed) decreases, the adapter turns off when the value of this parameter reaches 10.00. This selection is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Units: Default: Min/Max:	% 10.00 0.00 / 100.00	RW	Real
		107	**Trq Adapt En** Torque Adaption Enable Enables or disables the adaptive torque control. This selection is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Options:	1 – Enabled 0 – Disabled 1 – Enabled	RW	32-bit Integer
		108	**Phase Delay Comp** Phase Delay Compensation Used to adjust the sample delay compensation gain for the current feedback. The gain compensation is scaled to the sample time (for example, +1.0 would be a compensation of positive 1 sample time).	Default: Min/Max:	0.00 –/+100.00	RW	Real
		109	**Trq Comp Mode** Torque Compensation Mode Automatic: Updates the torque compensation gains (P110 [Trq Comp Mtring] and P111 [Torque Comp Regen]) after autotune.	Default: Options:	1 – Auto 0 – Manual 1 – Auto	RW	32-bit Integer
		110	**Trq Comp Mtring** Torque Compensation Motoring Motor torque compensation applied to the torque command for motoring power. This parameter can be set manually or determined automatically during autotune. (See P109 [Trq Comp Mode].) In manual mode, a value of 5% will increase the commanded torque by 5% (gain of 1.05). This is used for flux vector motor control mode (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Units: Default: Min/Max:	% 0.00 –/+50.00	RW	Real
		111	**Trq Comp Regen** Torque Compensation Regeneration Motor torque compensation applied to the torque command for regenerating torque. This parameter can be set manually or determined automatically during autotune. (See P109 [Trq Comp Mode].) In manual mode, a value of -3% will decrease the commanded torque by 3% (gain of 0.97). This is used for flux vector motor control modes (P35 [Motor Ctrl Mode]).	Units: Default: Min/Max:	% 0.00 –/+50.00	RW	Real
		112	**Slip Adapt Iqs** Slip Adaption Iqs Level of per unit Iqs at which the adaptive slip frequency regulator becomes active. Active when P35 [Motor Ctrl Mode] = 3 "Induction FV."	Default: Min/Max:	0.05 0.00 / 1.00	RW	Real
		113	**SFAdapt SlewLmt** Slip and Flux Adaption Slew Limit Time that the slip, flux, and torque regulators are allowed to converge before the regulators are turned on after the motor speed reaches the level set in P106 [Trq Adapt Speed]. Active when P35 [Motor Ctrl Mode] = 3 "Induction FV."	Units: Default: Min/Max:	Secs 0.00 0.00 / 60.00	RW	Real
		114	**SFAdapt SlewRate** Slip and Flux Adaption Slew Rate Rate that the slip and flux regulators can converge before the regulators are enabled. Active when P35 [Motor Ctrl Mode] = 3 "Induction FV."	Default: Min/Max:	0.005 0.00001 / 1.000000	RW	Real
		115	**SFAdapt CnvrgLvl** Slip and Flux Adaption Converge Level Slip and flux regulator error level that indicates convergence. Active when P35 [Motor Ctrl Mode] = 3 "Induction FV."	Default: Min/Max:	0.01 0.00001 / 1.000000	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Vector Regulator	116	**SFAdapt CnvrgLmt** Slip and Flux Adaption Converge Limit Duration of convergence before the adaption regulators are enabled after the error has decreased below the level set in P115 [SFAdapt CnvrgLvl]. Active when P35 [Motor Ctrl Mode] = 3 "Induction FV."	Default: Min/Max:	0.500 0.000 / 5.000	RW	Real
		120	See page 60.				
		1629 ○	**IPM Bus Prot** IPM Bus Protection Sets the maximum value for P1641 [IPM Max Spd].	Units: Default: Min/Max:	Hz 60 0 / 39000	RW	Real
		1637	**IPMVqFFwdCemf** IPM Vq Feed Forward CEMF Sets the percentage of the CEMF component of the feed forward voltage in Vq reference when P35 [Motor Ctrl Mode] = 10 "IPM FV."	Units: Default: Min/Max:	% 100.0 0.0 / 100.0	RW	Real
		1638	**IPMVqFFwdLdIdWe** IPM Vq Feed Forward LdIdwe Sets the percentage of the (Ld x Id x we) component of the feed forward voltage in Vq reference when P35 [Motor Ctrl Mode] = 10 "IPM FV."	Units: Default: Min/Max:	% 100.0 0.0 / 100.0	RW	Real
		1639	**IPMVdFFwdLqIqWe** IPM Vd Feed Forward LqIqwe Sets the percentage of the (Lq x Iq x we) component of the feed forward voltage in Vd reference when P35 [Motor Ctrl Mode] = 10 "IPM FV."	Units: Default: Min/Max:	% 100.0 0.0 / 100.0	RW	Real
		1640 ○	**IPM Max Cur** IPM Maximum Current Sets the current trip level.	Units: Default: Min/Max:	% 200.0 0.0 / 400.0	RW	Real
		1641 ○	**IPM Max Spd** IPM Maximum Speed Sets maximum speed limit from AutoTune.	Units: Default: Min/Max:	Hz 60 0.00 / 324	RW	Real
		1642	**IPM TrqTrim Kp** Torque Trim Kp Gain for IPM Control Sets the Kp term for Torque Trim function.	Default: Min/Max:	0.10 0.00 / 100.00	RW	Real
		1643	**IPM TrqTrim Ki** Torque Trim Ki Gain for IPM Control Sets the Ki term for Torque Trim function.	Default: Min/Max:	1.00 0.00 / 100.00	RW	Real
		1644	**IPM TrqTrim HLim** Torque Trim Hi Limit for IPM Control Sets the high limit for Torque Trim function.	Default: Min/Max:	0.20 0.00 / 2.00	RW	Real
		1645	**IPM TrqTrim LLim** Torque Trim Lo Limit for IPM Control Sets the low limit for Torque Trim function.	Default: Min/Max:	-0.20 -2.00 / 0.00	RW	Real

Drive (Port 0) Feedback & I/O File

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
FEEDBACK & I/O	**Feedback**	**125** ○ ⇄	**Pri Vel Fdbk Sel** Primary Velocity Feedback Select Selects the source of the P3 [Mtr Vel Fdbk] and P131 [Active Vel Fdbk] that will be used when the drive is in operation without an Automatic Tach Switchover. Possible selections include: Port 0 – Open Loop Fdbk, Port 0 – Simulator Fdbk, and any Port that contains a feedback module (for example, Encoder). The Disabled and Open Loop Fdbk selections are functionally equivalent, with Open Loop being the default setting. Open Loop velocity feedback is estimated based on P1 [Output Frequency] and P5 [Torque Cur Fdbk], adjusted using P621 [Slip RPM at FLA]. Simulator Fdbk is available in the Flux Vector selections for P35 [Motor Ctrl Mode]. Simulator velocity feedback is calculated based on P690 [Limited Trq Ref] and P76 [Total Inertia]. This selection is useful for drive operational checkout and test when motor movement is undesired. In simulation mode, gating of the power inverter section of the drive is disabled. Selection of any option module port that contains an encoder module results in P3 [Mtr Vel Fdbk] based on a measured value. Data obtained from the selected feedback module will be used to determine motor velocity feedback. Primary feedback refers to the Automatic Feedback Loss Switchover option. This option will automatically switch from the primary to the alternate feedback source upon loss of the primary feedback source. If this option is not being used, then the primary feedback will always be the active feedback source. The active feedback source is typically the primary feedback.	Default: Min/Max:	137 1 / 159999	RW	32-bit Integer
		126	**Pri Vel FdbkFltr** Primary Velocity Feedback Filter Adjusts a filter setting that is applied to the motor velocity feedback source that is selected by P125 [Pri Vel Fdbk Sel]. The purpose of this filter is to reduce the level of noise in the feedback signal. Make a selection for a value that is higher than the value in parameter 636 [Speed Reg BW]. This is moving average type filter that has a delay setting of N, where N is an integer number (0, 1, 2 . . .). A setting of zero provides no filtering and no delay. Larger values of N result in more filtering and more delay. The best setting for this filter depends on the level of noise in the feedback signal and the bandwidth setting of the velocity regulator. In the Flux Vector selections for P35 [Motor Ctrl Mode], setting P636 [Speed Reg BW] to a non-zero setting places the drive in an automatic gain/filter adjustment mode. When the drive is in this automatic adjustment mode, the value of P666 [Speed Comp Gain] and possibly P644 [Spd Err Fltr BW] are adjusted, based on the setting of P126 [Pri Vel FdbkFltr]. The automatic setting of P644 [Spd Err Fltr BW] becomes independent of the feedback filter setting when P704 [InAdp LdObs Mode] is set to 1 “InertiaAdapt.”	Default: Options:	3 – 50R/S Noise 0 – 190R/S Noise 1 – 160R/S Noise 2 – 100R/S Noise 3 – 50R/S Noise 4 – 25R/S Noise 5 – 12R/S Noise 6 – 6R/S Noise 7 – 3R/S Noise	RW	32-bit Integer
		127	**Pri Vel Feedback** Primary Velocity Feedback Output of the Primary Velocity Feedback Delay filter, in units of Hz or RPM, depending on the value of P300 [Speed Units]. Adjustment of the delay filter is made using P126 [Pri Vel FdbkFltr]. The Primary Velocity Feedback is used when the drive is operating without an Automatic Tach Switchover.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM] x 8	RO	Real
		128 ○ ⇄	**Alt Vel Fdbk Sel** Alternate Velocity Feedback Select Selects the source of the P3 [Mtr Vel Fdbk] and P131 [Active Vel Fdbk] to be used when the drive is in operation with an Automatic Tach Switchover. See P635 [Spd Options Ctrl], bit 7 “Auto Tach SW.” Alternate feedback refers to the Automatic Feedback Loss Switchover option. This option will automatically switch from the primary to the alternate feedback source upon loss of the primary feedback source. If this option is not being used, then the primary feedback will always be the active feedback source. The active feedback source is typically the primary feedback.	Default: Min/Max:	137 1 / 159999	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Feedback	129	**Alt Vel FdbkFltr** Alternate Velocity Feedback Filter Adjusts a filter setting that is applied to the motor velocity feedback source that is selected by P128 [Alt Vel Fdbk Sel]. The purpose of this filter is to reduce the level of noise in the feedback signal. Filter adjustment and operation is similar to P126 [Pri Vel FdbkFltr]. Make a selection for a value that is higher than the value in parameter 648 [Alt Speed Reg BW].	Default: Options:	3 – 50R/S Noise 0 – 190R/S Noise 1 – 160R/S Noise 2 – 100R/S Noise 3 – 50R/S Noise 4 – 25R/S Noise 5 – 12R/S Noise 6 – 6R/S Noise 7 – 3R/S Noise	RW	32-bit Integer
		130	**Alt Vel Feedback** Alternate Velocity Feedback Output of the Alternate Velocity Feedback Delay filter, displayed in units of Hz or RPM, depending on the value of P300 [Speed Units]. Adjustment of the delay filter is made using P126 [Pri Vel FdbkFltr]. The Alternate Velocity Feedback is used when the drive is operating with an Automatic Tach Switchover.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM] x 8	RO	Real
		131	**Active Vel Fdbk** Active Velocity Feedback Active motor velocity feedback value that used by the Flux Vector control's velocity regulator or the V/Hz and Sensorless Vector velocity regulator. This value in use is the result of the Primary/Alternate feedback selection. When the drive is operating without an Automatic Tach Switchover, then P127 [Pri Vel Feedback] is selected. When the drive is operating with an Automatic Tach Switchover, then the P130 [Alt Vel Feedback] will be selected. Status Bit 5 "FdbkLoss SwO" will become set in P936 [Drive Status 2] when an Automatic Tach Switchover has occurred. When operation in a non-vector control mode (V/Hz or Sensorless Vector) with open loop feedback, the Active Velocity Feedback parameter value will track the value in P597 [Final Speed Ref].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM] x 8	RO	Real
		132 ○ ⇄	**Aux Vel Fdbk Sel** Auxiliary Velocity Feedback Select Selects the source of the drive's P134 [Aux Vel Feedback]. Possible selections are the same as for P125 [Pri Vel Fdbk Sel]. Auxiliary feedback source is made available as a speed reference selection. It can be used when the drive's speed reference source needs to be an encoder.	Default: Min/Max:	137 1 / 159999	RW	32-bit Integer
		133	**Aux Vel FdbkFltr** Auxiliary Velocity Feedback Filter Adjusts a filter setting that is applied to the P134 [Aux Vel Feedback] that is selected by P132 [Aux Vel Fdbk Sel]. The purpose of this filter is to reduce the level of noise present in the feedback signal. Filter adjustment and operation is similar to P126 [Pri Vel FdbkFltr].	Default: Options:	3 – 50R/S Noise 0 – 190R/S Noise 1 – 160R/S Noise 2 – 100R/S Noise 3 – 50R/S Noise 4 – 25R/S Noise 5 – 12R/S Noise 6 – 6R/S Noise 7 – 3R/S Noise	RW	32-bit Integer
		134	**Aux Vel Feedback** Auxiliary Velocity Feedback Output of the Auxiliary Velocity Feedback Delay filter, in units of Hz or RPM, depending on the value of P300 [Speed Units]. Adjustment of the delay filter is made using P126 [Pri Vel FdbkFltr]. Typically used as a speed reference source. This selection is available in P545 [Spd Ref A Sel] and P550 [Spd Ref B Sel].	Units Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM] x 8	RO	Real
		135 ○ ⇄	**Psn Fdbk Sel** Position Feedback Select Selects the source of P847 [Psn Fdbk]. Possible selections include: Port 0 – Simulator Fdbk, and any Port that contains a feedback module (for example, Encoder). Open Loop Feedback is not available as a Position feedback source. The default setting is P138 [Simulator Fdbk]. This is a test mode where position feedback is calculated based on P690 [Limited Trq Ref] and P76 [Total Inertia]. When position control is used, a valid position feedback source must be selected.	Default: Min/Max:	138 1 / 159999	RW	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Feedback	136 ○ ⇄	755 **Load Psn FdbkSel** Load Position Feedback Select Selects a position load feedback source for the position control. The position load feedback P847 [Psn Fdbk] indicates the selected position feedback value. The value forms the primary feedback for the position regulator integration channel.	Default: Min/Max:	847 1 / 159999	RW	32-bit Integer
		137	**Open Loop Fdbk** Open Loop Feedback An estimated motor feedback source that is available to any of the Velocity Feedback Selection parameters – P125 [Pri Vel Fdbk Sel], P128 [Alt Vel Fdbk Sel], and P132 [Aux Vel Fdbk Sel]. Open Loop Feedback is not available as a Position feedback source. The Open Loop Feedback's parameter value has units of encoder counts as established by P141 [Virtual Enc EPR]. Open Loop feedback is estimated based on P1 [Output Frequency] and P5 [Torque Cur Fdbk], adjusted using P621 [Slip RPM at FLA].	Default: Options:	0 –2147483648 / 2147483647	RO	32-bit Integer
		138	**Simulator Fdbk** Simulator Feedback Simulator Feedback is a calculated motor feedback source. It can be used when operating in any of the Flux Vector control modes that are selected in P35 [Motor Ctrl Mode]. Simulator Feedback is available to any of the Velocity Feedback Selection parameters: P125 [Pri Vel Fdbk Sel], P128 [Alt Vel Fdbk Sel], and P132 [Aux Vel Fdbk Sel]. Simulator Feedback is also available as a Position feedback source as selected by P135 [Psn Fdbk Sel]. The Simulator Feedback's parameter value has units of encoder counts, as established by P141 [Virtual Enc EPR]. Simulator velocity feedback is calculated based on P690 [Limited Trq Ref] and P76 [Total Inertia]. This selection is useful for drive operational checkout and test when motor movement is undesired. In simulation mode, gating of the power inverter section of the drive is disabled.	Default: Options:	0 –2147483648 / 2147483647	RO	32-bit Integer
		139	755 **Delayed Spd Ref** Delayed Speed Reference One sample period delayed output of P594 [Ramped Spd Ref]. Used in some applications to synchronize the speed reference value when controlling multiple drives. In these applications, the drive that supplies the master speed reference would use the [Delayed Spd Ref] value. Setting P635 [Spd Options Ctrl] Bit 8 "Delayed Ref" will select the delayed reference in the master drive. P594 [Ramped Spd Ref] would then be transmitted to the slave drives over a communication link.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM] x 8	RO	Real
		140	755 **Virtual EncDelay** Virtual Encoder Delay One sample period delayed output of P142 [Virtual Enc Psn]. Used in some applications to phase synchronize position reference though a drive communications link. The master is delayed one sample while the downstream drives update their position references – then all drives sample position simultaneously. The downstream drives do not select a delay. The selection of the delayed or non-delayed position reference is made by choosing the desired parameter in P766 [Psn Direct Stpt].	Default: Options:	0 –2147483648 / 2147483624	RO	32-bit Integer
		141	755 **Virtual Enc EPR** Virtual Encoder Edges Per Revolution Equivalent Edges Per Revolution (EPR) or line count of a virtual encoder. A virtual encoder is a position reference whose input is derived from the speed reference. It accumulates pulses at the same rate as a real encoder of identical Pulses Per Revolution (PPR). Enter the equivalent PPR. For example, enter 1024 PPR to match an encoder with 1024 EPR.	Default: Min/Max:	4096 10 / 67108864	RW	32-bit Integer
		142	755 **Virtual Enc Psn** Virtual Encoder Position A 32 bit pulse accumulator of the virtual encoder. The accumulated pulse count is equivalent to the hardware accumulator of a real encoder. It accumulates at a rate of 4x the value placed in P141 [Virtual Enc EPR]. The accumulator starts at zero upon position enable.	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	**Digin Functions**	**150** ○	**Digital In Cfg** Digital Input Configure Defines operation for DI Run type parameters. Run Edge (0) – Control function requires a rising edge (open to close transition) in order for the drive to run. Run Level (1) – Provides a run level input. Does not require a transition for enable or fault, but a transition is required for a stop. When set to 1 "Run Level" the absence of a run command is indicated as a stop asserted and parameter 935 [Drive Status 1] Bit 0 will be low.	Default: Options:	0 – Run Edge 0 – Run Edge 1 – Run Level	RW	32-bit Integer
		155 ○ ⇄	**DI Enable** Digital Input Enable Assigns a digital input used to enable the drive.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		156 ○ ⇄	**DI Clear Fault** Digital Input Clear Fault Assigns a digital input used to clear faults.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		157 ○ ⇄	**DI Aux Fault** Digital Input Auxiliary Fault Assigns a digital input used to force an external auxiliary fault.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		158 ○ ⇄	**DI Stop** Digital Input Stop Assigns a digital input used to issue a stop command.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		159 ○ ⇄	**DI Cur Lmt Stop** Digital Input Current Limit Stop Assigns a digital input used to perform a current limited stop.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		160 ○ ⇄	**DI Coast Stop** Digital Input Coast Stop Assigns a digital input used to perform a coast-to-stop.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		161 ○ ⇄	**DI Start** Digital Input Start Assigns a digital input used to start the drive (3-wire control).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		162 ○ ⇄	**DI Fwd Reverse** Digital Input Forward Reverse Assigns a digital input used to command reverse direction.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		163 ○ ⇄	**DI Run** Digital Input Run Assigns a digital input used to run the drive (2-wire control).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		164 ○ ⇄	**DI Run Forward** Digital Input Run Forward Assigns a digital input used to run the drive (2 wire control) and command forward direction.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

⚠ **ATTENTION:** Equipment damage and/or personal injury may result if this parameter is used in an inappropriate application. Do not use this function without considering applicable local, national and international codes, standards, regulations, or industry guidelines.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	**Digin Functions**	**165** ○ ⇄	**DI Run Reverse** Digital Input Run Reverse Assigns a digital input used to run the drive (2 wire control) and command reverse direction.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		166 ○ ⇄	**DI Jog 1** Digital Input Jog 1 Assigns a digital input used to jog the drive at the speed of P556 [Jog Speed 1].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		167 ○ ⇄	**DI Jog 1 Forward** Digital Input Jog 1 Forward Assigns a digital input used to jog the drive in the forward direction at the speed of P556 [Jog Speed 1].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		168 ○ ⇄	**DI Jog 1 Reverse** Digital Input Jog 1 Reverse Assigns a digital input used to jog the drive in the reverse direction at the speed of P556 [Jog Speed 1].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		169 ○ ⇄	**DI Jog 2** Digital Input Jog 2 Assigns a digital input used to jog the drive at the speed of P557 [Jog Speed 2].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		170 ○ ⇄	**DI Jog 2 Forward** Digital Input Jog 2 Forward Assigns a digital input used to jog the drive in the forward direction at the speed of P557 [Jog Speed 2].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		171 ○ ⇄	**DI Jog 2 Reverse** Digital Input Jog 2 Reverse Assigns a digital input used to jog the drive in the reverse direction at the speed of P557 [Jog Speed 2].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		172 ○ ⇄	**DI Manual Ctrl** Digital Input Manual Control Assigns a digital input used to command manual control. Start, jog, and direction are under the digital input's exclusive control. P563 [DI ManRef Sel] is the source of the speed reference unless overwritten by P328 [Alt Man Ref Sel].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		173 **174** **175** ○ ⇄	**DI Speed Sel 0** **DI Speed Sel 1** **DI Speed Sel 2** Digital Input Speed Select *n* Assigns digital inputs used to select between speed references as follows:	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

Input Status (1 = Input Actuated)			Auto Reference Source (Parameter)
DI Speed Sel 2	DI Speed Sel 1	DI Speed Sel 0	
0	0	0	Reference A (P545)
0	0	1	Reference A (P545)
0	1	0	Reference B (P550)
0	1	1	Preset Speed 3 (P573)
1	0	0	Preset Speed 4 (P574)
1	0	1	Preset Speed 5 (P575)
1	1	0	Preset Speed 6 (P576)
1	1	1	Preset Speed 7 (P577)

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
		176 ○ ⇄	**DI HOA Start** Digital Input Hand-Off-Auto Start A start for a hand-off-auto configuration. A delay filter allows the start and stop signals to come from the same circuit.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
FEEDBACK & I/O	**Digin Functions**	**177** ○ ⇎	**DI MOP Inc** Digital Input Motor Operated Potentiometer Increment Assigns a digital input used to increment the MOP speed reference.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		178 ○ ⇎	**DI MOP Dec** Digital Input Motor Operated Potentiometer Decrement Assigns a digital input used to decrement the MOP speed reference.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		179 ○ ⇎	**DI Accel 2** Digital Input Acceleration 2 Assigns a digital input used to activate P536 [Accel Time 2].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		180 ○ ⇎	**DI Decel 2** Digital Input Deceleration 2 Assigns a digital input used to activate P538 [Decel Time 2].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		181 **182** ○ ⇎	**DI SpTqPs Sel 0** **DI SpTqPs Sel 1** Digital Input Speed Torque Position Select *n* Assigns digital inputs used to select between speed, torque, and position modes. Refer to position B5 in the block diagram on page 420 for details.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

Auto Reference Source (Parameter)	Input Status (1 = Input Actuated)	
	DI Speed Sel 0	DI Speed Sel 1
P309	0	0
P310	0	1
P311	1	0
P312	1	1

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
FEEDBACK & I/O	**Digin Functions**	**185** ○ ⇎	**DI Stop Mode B** Digital Input Stop Mode B Assigns a digital input used to activate P371 [Stop Mode B].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		186 ○ ⇎	**DI BusReg Mode B** Digital Input Bus Regulation Mode B Assigns a digital input used to activate P373 [Bus Reg Mode B].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		187 ○ ⇎	**DI PwrLoss ModeB** Digital Input Power Loss Mode B Assigns a digital input used to activate P453 [Pwr Loss Mode B].	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		188 ○ ⇎	**DI Pwr Loss** Digital Input Power Loss Assigns a digital input used to force a power loss condition.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		189 ○ ⇎	**DI Precharge** Digital Input Precharge This input is useful only on common bus inverters (DC input drives). It indicates when the drive is disconnected and connected to the DC bus. Its purpose is to avoid large inrush currents that would normally occur if the drive were connected to the DC bus without being in the precharge state. Resetting (de-energizing) the input, indicates that the drive is disconnected from the DC bus. When the input is reset, the drive enters the precharge state and performs a coast to stop. Setting (energizing) the input indicates that the drives is connected to the DC bus. When the input is set, the drive returns to its normal precharge state and start/run control.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
FEEDBACK & I/O	Digin Functions	190 ○ ⇄	**DI Prchrg Seal** Digital Input Precharge Seal Assigns a digital input used to force a unique fault when an external precharge circuit opens.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		191 ○ ⇄	**DI PID Enable** Digital Input Proportional Integral Derivative Enable Assigns a digital input used to activate the Process PID control.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		192 ○ ⇄	**DI PID Hold** Digital Input Proportional Integral Derivative Hold Assigns a digital input used to hold the Process PID integrator.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		193 ○ ⇄	**DI PID Reset** Digital Input Proportional Integral Derivative Reset Assigns a digital input used to reset the Process PID integrator.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		194 ○ ⇄	**DI PID Invert** Digital Input Proportional Integral Derivative Invert Assigns a digital input used to invert the output of the Process PID control.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		195 ○ ⇄	**DI Torque StptA** Digital Input Torque Setpoint A Assigns a digital input used to force P676 [Trq Ref A Stpt] as the source for Torque Reference A, regardless of the setting in P675 [Trq Ref A Sel]. Used when the drive is in a mode that is commanding torque (see P309…P312).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		196 ○ ⇄	**DI Fwd End Limit** Digital Input Forward End Limit Assigns a digital input used to trigger a Forward End Limit. The resulting action depends on whether the drive is operating as a speed, torque or position regulator. The mode of operation is indicated by parameter 935 [Drive Status 1] Bit 21 "Speed Mode," Bit 22 "PositionMode," and Bit 23 "Torque Mode." When the drive is operating as a speed regulator, the resulting action is to execute a "Fast Stop" command. After the drive stops in this case, it will only restart in the opposite direction (if given a new start command). This function is usually used with a limit switch near the point at which the drive should stop. When the drive is operating as a torque regulator, the resulting action is to execute a "Fast Stop" command. After the drive stops in this case, it will restart and continue operation (if given a new start command). When the drive is operating as a position regulator, the resulting action is to execute a "Fast Stop" command. After the drive stops in this case, it will restart and continue to move towards the position reference (if given a new start command).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		197 ○ ⇄	**DI Fwd Dec Limit** Digital Input Forward Deceleration Limit Assigns a digital input used to trigger a Forward Decel Limit. The resulting action depends on whether the drive is operating as a speed, torque or position regulator. The mode of operation is indicated by parameter 935 [Drive Status 1] Bit 21 "Speed Mode," Bit 22 "PositionMode" and Bit 23 "Torque Mode." When the drive is operating as a speed regulator, the resulting action is to override the speed reference and decelerate to Preset Speed 1. This function is usually used with a limit switch and initiates the slowing down process prior to encountering the End Limit. When the drive is operating as a torque regulator, the drive ignores this signal and continues operating at its torque reference. When the drive is operating as a position regulator, the drive ignores this signal and continues moving towards its position reference.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
FEEDBACK & I/O	**Digin Functions**	**198** ○ ⇄	**DI Rev End Limit** Digital Input Reverse End Limit Assigns a digital input used to trigger a Reverse End Limit. The resulting action depends on whether the drive is operating as a speed, torque or position regulator. The mode of operation is indicated by parameter 935 [Drive Status 1] Bit 21 “Speed Mode,” Bit 22 “PositionMode” and Bit 23 “Torque Mode.” When the drive is operating as a speed regulator, the resulting action is to execute a “Fast Stop” command. After the drive stops in this case, it will only restart in the opposite direction (if given a new start command). This function is usually used with a limit switch near the point at which the drive should stop. When the drive is operating as a torque regulator, the resulting action is to execute a “Fast Stop” command. After the drive stops in this case, it will restart and continue operation (if given a new start command). When the drive is operating as a position regulator, the resulting action is to execute a “Fast Stop” command. After the drive stops in this case, it will restart and continue to move towards the position reference (if given a new start command).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		199 ○ ⇄	**DI Rev Dec Limit** Digital Input Reverse Deceleration Limit Assigns a digital input used to trigger a Reverse Decel Limit. The resulting action depends on whether the drive is operating as a speed, torque or position regulator. The mode of operation is indicated by parameter 935 [Drive Status 1] Bit 21 “Speed Mode,” Bit 22 “PositionMode” and Bit 23 “Torque Mode.” When the drive is operating as a speed regulator, the resulting action is to override the speed reference and decelerate to Preset Speed 1. This function is usually used with a limit switch and initiates the slowing down process prior to encountering the End Limit. When the drive is operating as a torque regulator, the drive ignores this signal and continues operating at its torque reference. When the drive is operating as a position regulator, the drive ignores this signal and continues moving towards its position reference.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		200 ○ ⇄	**DI PHdwr OvrTrvl** Digital Input Positive Hardware Over Travel Assigns a digital input used to trigger a Positive Hardware Over-travel. The resulting action is to immediately fault and produce zero torque. After the drive is stopped, the condition will need to be cleared and the fault will need to be reset. The drive will restart (if given a new start command), and continue operation. It will follow any speed reference, position reference or torque reference. The drive’s direction is not modified or limited after the restart.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		201 ○ ⇄	**DI NHdwr OvrTrvl** Digital Input Negative Hardware Over Travel Assigns a digital input used to trigger a Negative Hardware Over-travel. The resulting action is to immediately fault and produce zero torque. After the drive is stopped, the condition will need to be cleared and the fault will need to be reset. The drive will restart (if given a new start command), and continue operation. It will follow any speed reference, position reference or torque reference. The drive’s direction is not modified or limited after the restart.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Control Board IO	220	755 **Digital In Sts** Digital Input Status Status of the digital input resident on the main control board (Port 0).	0 = Condition False 1 = Condition True	RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Digital In 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Digital Inputs	220	753 **Digital In Sts** Digital Input Status Status of the digital inputs resident on the main control board (Port 0).	0 = Condition False 1 = Condition True	RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Digital In 2	Digital In 1	Digital In 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Digital Inputs	222 ○	753 **Dig In Filt Mask** Digital Input Filter Mask Filters the selected digital input. **Important:** Only used by the PowerFlex 753 main control board.	0 = Condition False 1 = Condition True	RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Input 2	Input 1	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Digital Inputs	223 ○	753 **Dig In Filt** Digital Input Filter Sets the amount of filtering on the digital inputs. **Important:** Only used by the PowerFlex 753 main control board.	Units: mS Default: 4 Min/Max: 2 / 10	RW	Real

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>FEEDBACK & I/O</td><td>Digital Outputs</td><td>225</td><td>753 Dig Out Sts
Digital Output Status
Status of the digital outputs.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 0</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = Condition False
1 = Condition True</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>226</td><td>753 Dig Out Invert
Digital Output Invert
Inverts the selected digital output.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 0</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = Condition False
1 = Condition True</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>227</td><td>753 Dig Out Setpoint
Digital Output Setpoint
Controls Relay or Transistor Outputs when chosen as the source. Can be used to control outputs from a communication device using DataLinks.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 0</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = Condition False
1 = Condition True</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>230</td><td>753 RO0 Sel
Relay Output 0 Select
Selects the source that will energize the relay output.
Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] Bit 7 “Faulted.”</td><td>Default: 0
Min/Max: 0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>231</td><td>753 RO0 Level Sel
Relay Output 0 Level Select
Selects the source of the level that will be compared.</td><td>Default: 0
Min/Max: 0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>232</td><td>753 RO0 Level
Relay Output 0 Level
Sets the level compare value.</td><td>Default: 0.0
Min/Max: –/+1000000.0</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	**Digital Outputs**	**233**	753 **RO0 Level CmpSts** Relay Output 0 Level Compensation Status Status of the level compare, and a possible source for a relay or transistor output. Relay Output *n* Select or Transistor Output *n* Select must have this selected to energize the output. Can be used without a physical output as status information only.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	AbsGrtThanEq	Abs Less Than	Grt Than Equ	Less Than	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Condition False 1 = Condition True
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	

Bit 0 “Less Than” – Level source is less than the level value.
Bit 1 “Grt Than Equ” – Level source is greater than or equal to the level value.
Bit 2 “Abs Less Than” – Absolute value of the level source is less than the absolute value of the level value.
Bit 3 “AbsGrtThanEq” – Absolute value of the level source is greater than or equal to the absolute value of the level value.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
		234	753 **RO0 On Time** Relay Output 0 On Time Sets the “ON Delay” time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay.	Units: Default: Min/Max:	Secs 0.00 0.00 / 600.00	RW	Real
		235	753 **RO0 Off Time** Relay Output 0 Off Time Sets the “OFF Delay” time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay.	Units: Default: Min/Max:	Secs 0.00 0.00 / 600.00	RW	Real
		240	753 **TO0 Sel** Transistor Output 0 Select Selects the source that will energize the relay or transistor output. Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] Bit 7 “Faulted.”	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		241	753 **TO0 Level Sel** Transistor Output 0 Level Select Selects the source of the level that will be compared.	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
		242	753 **TO0 Level** Transistor Output 0 Level Sets the level compare value.	Default: Min/Max:	0.0 –/+1000000.0	RW	Real
		243	753 **TO0 Level CmpSts** Transistor Output 0 Level Compensation Status Status of the level compare, and a possible source for the transistor output. Transistor Output 0 Select must have this selected to energize the output. Can be used without a physical output as status information only.			RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	AbsGrtThanEq	Abs Less Than	Grt Than Equ	Less Than	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Condition False 1 = Condition True
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	

Bit 0 “Less Than” – Level source is less than the level value.
Bit 1 “Grt Than Equ” – Level source is greater than or equal to the level value.
Bit 2 “Abs Less Than” – Absolute value of the level source is less than the absolute value of the level value.
Bit 3 “AbsGrtThanEq” – Absolute value of the level source is greater than or equal to the absolute value of the level value.

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
FEEDBACK & I/O	**Digital Outputs**	**244**	753 **T00 On Time** Transistor Output 0 On Time Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay or transistor.	Units: Default: Min/Max:	Secs 0 0 / 159999	RW	32-bit Integer
		245	753 **T00 Off Time** Transistor Output 0 Off Time Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay or transistor.	Units: Default: Min/Max:	Secs 0.0 –/+1000000.0	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
FEEDBACK & I/O	**Motor PTC**	**250**	753 **PTC Cfg** Positive Temperature Coefficient Configuration Sets the action that will be taken when the PTC is indicating over temperature. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 – Ignore 0 – Ignore 1 – Alarm 2 Flt Minor 3 FltCoastStop 4 Flt RampStop 5 Flt CL Stop	RW	32-bit Integer
		251	753 **PTC Sts** Positive Temperature Coefficient Status Status of the PTC.			RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Over Temp	Reserved	PTC Ok
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "PTC Ok" – PTC is within the acceptable temperature range.
Bit 2 "Over Temp" – PTC is indicating over temperature

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
FEEDBACK & I/O	**Analog Inputs**	**255**	753 **Anlg In Type** Analog Input Type Status of the analog input mode set by Jumper J4 on the main control board. Refer to the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001, for jumper locations and positions.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Voltage Mode
1 = Current Mode

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	**Analog Inputs**	**256**	753 **Anlg In Sqrt** Analog Input Square Root Enables/disables the square root function for each input.	0 = Square Root Disabled 1 = Square Root Enabled	RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
		257	753 **Anlg In Loss Sts** Analog Input Loss Status Status of the analog input loss.	0 = Loss not Present 1 = Loss Present	RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Loss 0	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
		260	753 **Anlg In0 Value** Analog Input 0 Value Value of the Analog input after filter, square root, and loss action.	Units: Default: Min/Max:	Volt mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real
		261	753 **Anlg In0 Hi** Analog Input 0 High Sets the highest input value to the analog input scaling block.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		262	753 **Anlg In0 Lo** Analog Input 0 Low Sets the lowest input value to the analog input scaling block.	Units Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		263	753 **Anlg In0 LssActn** Analog Input 0 Loss Action Selects drive action when an analog signal loss is detected. Signal loss is defined as an analog signal less than 1V or 2mA. The signal loss event ends and normal operation resumes when the input signal level is greater than or equal to 1.5V or 3mA. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop. "Hold Input" (6) – Holds input at last value. "Set Input Lo" (7) – Sets input to P262 [Anlg In0 Lo]. "Set Input Hi" (8) – Sets input to P261 [Anlg In0 Hi].	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop" 6 = "Hold Input" 7 = "Set Input Lo" 8 = "Set Input Hi"	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
FEEDBACK & I/O	**Analog Inputs**	**264**	753 **Anlg In0 Raw Val** Analog Input 0 Raw Value Raw Value of the analog input.	Units:	Volt	RO	Real
					mA		
				Default:	0.000 Volts		
					0.000 mA		
				Min/Max:	–/+10.000 Volts		
					0.000 / 20.000 mA		
		265	753 **Anlg In0 Filt Gn** Analog Input 0 Filter Gain Sets the analog input filter gain. The default setting represents no filtering.	Default:	1.00	RW	Real
				Min/Max:	–/+5.00		
		266	753 **Anlg In0 Filt BW** Analog Input 0 Filter Bandwidth Sets the analog input filter bandwidth. The default setting represents no filtering.	Default:	0.0	RW	Real
				Min/Max:	0.0 / 500.0		

File	Group	No.	**Display Name** Full Name Description	**Values**	Read-Write	Data Type
FEEDBACK & I/O	**Analog Outputs**	**270**	753 **Anlg Out Type** Analog Output Type Select the analog output mode for each analog output.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog Out 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Voltage Mode
1 = Current Mode

		271	753 **Anlg Out Abs** Analog Output Absolute Selects whether the signed value or absolute value of a parameter is used before being scaled to drive the analog output.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog Out 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Signed
1 = Absolute

		275	753 **Anlg Out0 Sel** Analog Output 0 Select Selects the source for the analog output.	Default:	3	RW	32-bit Integer
				Min/Max:	0 / 159999		
		276	753 **Anlg Out0 Stpt** Analog Output 0 Setpoint A possible source for an analog output. Can be used to control an analog output from a communication device using a DataLink. Not affected by analog output scaling.	Units:	Volt	RW	Real
					mA		
				Default:	0.000 Volts		
					0.000 mA		
				Min/Max:	–10/20 Volts		
					0.000 / 20.000 mA		
		277	753 **Anlg Out0 Data** Analog Output 0 Data Displays the value of the source selected by P275 [Anlg Out0 Sel].	Default:	0	RO	Real
				Min/Max:	–/+100000		
		278	753 **Anlg Out0 DataHi** Analog Output 0 Data High Sets the high value for the data range of analog out scale.	Units:	pu	RW	Real
				Default:	1.00		
				Min/Max:	–/+214748000.00		

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
FEEDBACK & I/O	**Analog Outputs**	**279**	753 **Anlg Out0 DataLo** Analog Output 0 Data Low Sets the low value for the data range of analog out scale.	Default:	0.00	RW	Real
				Min/Max:	–/+214748000.00		
		280	753 **Anlg Out0 Hi** Analog Output 0 High Sets the high value for the analog output value when the data value is at its maximum.	Units:	Volt mA	RW	Real
				Default:	10.000 Volts 20.000 mA		
				Min/Max:	–/+10.000 Volts 0.000 / 20.000 mA		
		281	753 **Anlg Out0 Lo** Analog Output 0 Low Sets the low value for the analog output value when the data value is at its minimum.	Units:	Volt mA	RW	Real
				Default:	0.000 Volts 0.000 mA		
				Min/Max:	–/+10.000 Volts 0.000 / 20.000 mA		
		282	753 **Anlg Out0 Val** Analog Output 0 Value Displays the analog output value.	Units:	Volt mA	RO	Real
				Default:	10.000 Volts 20.000 mA		
				Min/Max:	–/+10.000 Volts 0.000 / 20.000 mA		

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
FEEDBACK & I/O	**R0 Predict Main**	**285**	753 **RO PredMaint Sts** Relay Output Predictive Maintenance Status Status of relay 0 predictive maintenance. When the condition of the bit = 1, the predicted relay life has elapsed.			RO	16-bit Integer

Options	Master	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Relay Out 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
		286	753 **RO0 Load Type** Relay Output 0 Load Type Sets the type of load that will be applied to the relay. Must be properly set for the Predictive Maintenance function to predict the relay life.	Default: Options:	1 = "DC Inductive" 0 = "DC Resistive" 1 = "DC Inductive" 2 = "AC Resistive" 3 = "AC Inductive"	RW	32-bit Integer
		287	753 **RO0 Load Amps** Relay Output 0 Load Amps Load current that will be applied to the relay contacts. Must be properly set for the Predictive Maintenance function to approximate the relay life.	Units: Default: Min/Max:	Amps 2.000 0.000 / 2.000	RW	Real
		288	753 **RO0 TotalLife** Relay Output 0 Total Life Total life cycles of the relay based on programmed load type and amps.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		289	753 **RO0 ElapsedLife** Relay Output 0 Elapsed Life Non-resettable, total accumulated cycles of the relay.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		290	753 **RO0 RemainLife** Relay Output 0 Remaining Life The difference between the Total Life and the Elapsed Life.	Units: Default: Min/Max:	Cycl 0 –/+2147483647	RO	32-bit Integer
		291	753 **RO0 LifeEvntLvl** Relay Output 0 Life Event Level Sets the percentage of relay life cycles before action is taken.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		292	753 **RO0 LifeEvntActn** Relay Output 0 Life Event Action Sets the action that will be taken when the percentage of relay life cycles has been reached. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer

Drive (Port 0) Cfg File

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
DRIVE CFG	**Preferences**	**300** ○ ⇄	**Speed Units** Speed Units Selects the units to be used for all speed related parameters. This parameter is only reset when Set Defaults “All” (not recommended) is executed.	Default: Options:	Current Selection 0 = “Hz” 1 = “RPM”	RW	32-bit Integer
		301 ⇄	**Access Level** Access Level Sets the access level for parameters and option choices. “Basic” (0) – Provides the smallest, simplest, and most user friendly view. “Advanced” (1) – May be required to use advanced features. “Expert” (2) – Not normally recommended (makes the list very long), and shows extra parameters that should rarely be required. When the access level is changed, PC-based tools (for example Drive Tools and Drive Explorer) will require a reconnect. This parameter is only reset when Set Defaults “All” (not recommended) is executed.	Default: Options:	Current Selection 0 = “Basic” 1 = “Advanced” 2 = “Expert”	RW	32-bit Integer
		302	**Language** Language Select display language. This parameter is only reset when Set Defaults “All” (not recommended) is executed.	Default: Options:	0 = “Not Selected” 0 = “Not Selected” 1 = “English” 2 = “French” 3 = “Spanish” 4 = “Italian” 5 = “German” 6 = “Japanese” 7 = “Portuguese” 8 = “Chinese” 9 = “Reserved” 10 = “Reserved” 11 = “Korean”	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
DRIVE CFG	Control Cfg	**305** ○ ⇄	**Voltage Class** Voltage Class Selects the voltage class operation of the drive. For 400 / 480V drives "Low Voltage" = 400V and "High Voltage" = 480V. This setting affects how the drive will appear as a node on a system (400V or 480V), and also affects the drive's current rating, parameter 21 [Rated Amps]. If the setting of this parameter is changed, check the setting of P422 [Current Limit 1] and 423 [Current Limit 2]. This parameter is only reset (to original factory setting) when Set Defaults "All" (not recommended) is executed.	Default: Options:	0 = Based on Factory Setting 0 = "Low Voltage" 1 = "High Voltage"	RW	32-bit Integer
		306 ○ ⇄	**Duty Rating** Duty Rating Selects the continuous and overload capacity of the drive. "Normal Duty" (0) – Provides the highest continuous rating, but smaller overload ratings (110% for 60 seconds, 150% for 3 seconds). "Heavy Duty" (1) – Provides a smaller continuous rating, but larger overload ratings (150% for 60 seconds, 180% for 3 seconds). "Light Duty" (2) – Only used by Frame 8 drives and larger, provides an overload rating of 110% for 60 seconds. If the setting of this parameter is changed, check the setting of P422 [Current Limit 1] and 423 [Current Limit 2]. This parameter is only reset when Set Defaults "All" (not recommended) is executed. For Frame 2 drives rated under 7.5 kW (10 Hp) this parameter only displays the normal duty rating but will have heavy duty overload ratings. Changing the setting of this parameter will limit the motor current rating so the drive can supply this overload for the motor.	Default: Options:	0 = "Normal Duty" 0 = "Normal Duty" 1 = "Heavy Duty" 2 = "Light Duty" 755 (8+)	RW	32-bit Integer
		308 ○	**Direction Mode** Direction Mode Selects method for changing direction.	Default: Options:	0 = "Unipolar" 0 = "Unipolar" 1 = "Bipolar" 2 = "Rev Disable"	RW	32-bit Integer

Mode	Direction Change
Unipolar	Drive Logic (Forward/Reverse bit.)
Bipolar	Sign of Reference
Rev Disable	Not Changeable

⚠ **ATTENTION:** Enabling the Bipolar Direction Mode can cause unexpected direction changes. Equipment damage and/or personal injury can result if this parameter is used in an inappropriate application. Do Not use this function without considering all applicable local, national, and international codes standards, regulations, or industry guidelines.

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
DRIVE CFG	**Control Cfg**	**309** **310** **311** **312**	**SpdTrqPsn Mode A** **SpdTrqPsn Mode B** **SpdTrqPsn Mode C** **SpdTrqPsn Mode D** Speed Torque Position Mode A, B, C, D Applies only to the Flux Vector control modes in P35 [Motor Ctrl Mode], options 3 "Induction FV," 6 "PM FV," and 10 "IPM FV." It selects between speed regulation, torque regulation, or position regulation operation of the drive. The source of P685 [Selected Trq Ref] will be determined by the selection in this parameter when P181 [DI SpTqPs Sel 0] and P182 [DI SpTqPs Sel 1] have selected "Disabled" or selected bits that are logic low. In P935 [Drive Status 1] three bits are provided that indicate the regulation mode of the drive when it is running. Bit 21 "Speed Mode" will become set when the drive is running with the speed regulator active. Similarly, Bit 22 "PositionMode" and Bit 23 "Torque Mode" indicate when their respective regulation modes are active. Under some conditions, the active torque mode may be forced into speed mode regardless of the setting of Speed/Torque/Position. The P313 [Actv SpTqPs Mode] parameter will indicate this and will reflect the mode selection that is in use. Possible selections for Speed/Torque/Position are: "Zero Torque" (0) – Drive operates as a torque regulator with P685 [Selected Trq Ref] forced to a constant value of zero torque. "Speed Reg" (1) – Drive operates as a speed regulator. P685 [Selected Trq Ref] comes from P660 [SReg Output] plus P699 [Inertia Comp Out]. "Torq Reg" (2) – Drive operates as a torque regulator. P685 [Selected Trq Ref] comes from P4 [Commanded Trq]. Under some conditions such as jogging or performing a ramp to stop operation, the drive will automatically bypass this selection and temporarily switch to speed regulation mode. "SLAT Min" (3) – Drive operates in "Speed Limited Adjustable Torque – Minimum select" mode. This is a special mode of operation used primarily in web handling applications. The drive will typically operate as a torque regulator, provided that the P4 [Commanded Trq] value is algebraically smaller in value than the speed regulator's output. The drive may automatically enter speed regulation mode, based on conditions within the speed regulator and the magnitude of the speed regulator's output relative to the torque reference. "SLAT Max" (4) – Drive operates in "Speed Limited Adjustable Torque – Maximum select" mode. This is a special mode of operation used primarily in web handling applications. The drive will typically operate as a torque regulator, provided that the P4 [Commanded Trq] value is algebraically larger in value than the speed regulator's output. The drive may automatically enter speed regulation mode, based on conditions within the speed regulator and the magnitude of the speed regulator's output relative to the torque reference. "Sum" (5) – Drive operates as a speed regulator. P685 [Selected Trq Ref] comes from P660 [SReg Output] plus torque adders summed with P4 [Commanded Trq]. "Profilier" (6) – Drive uses the Speed Profiler / Position Indexer function. The drive operates as either a speed or position regulator. Mode of operation will depend on the configuration of the Step Types in the Profiler / Indexer table. See page 413. "Psn PTP" (7) – Drive operates as a position regulator. P685 [Selected Trq Ref] has the same source as in Sum mode. The position control is active in Point-to-Point mode and uses its Point-to-point position reference. To jog in the Position mode, set P635 [Spd Options Ctrl] Bit 6. "Psn Camming" (8) – Drive operates as a position regulator. P685 [Selected Trq Ref] has the same source as in Sum mode. The position control is active in Position CAM mode and uses its PCAM Planner position and speed reference. "Psn PLL" (9) – Drive operates as a position regulator. P685 [Selected Trq Ref] has the same source as in Sum mode. The position control is active in Position Phase Lock Loop mode and uses its PLL Planner position and speed reference. "Psn Direct" (10) – Drive operates as a position regulator. P685 [Selected Trq Ref] has the same source as in Sum mode. The position control is active in Direct mode and uses its Direct Position Reference. "Psn SpdlOrnt" (11) – Drive operates in the positioning mode to position the load side of a machine to P1582 [SO Setpoint]	Default: Options:	1 = "Speed Reg" 0 = "Zero Torque" 1 = "Speed Reg" (1) 2 = "Torque Reg" 3 = "SLAT Min" 4 = "SLAT Max" 5 = "Sum" 6 = "Profilier" 755 7 = "Psn PTP" 8 = "Psn Camming" 755 9 = "Psn PLL" 755 10 = "Psn Direct" 11 = "Psn SpdlOrnt" 755 (1) All options, except "Speed Reg," require the drive to be set to a Flux Vector motor control mode. See P35 [Motor Ctrl Mode].	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
DRIVE CFG	Control Cfg	313	**Actv SpTqPs Mode** Active Speed Torque Position Mode Displays the Speed, Torque, Position Mode that is active, based on the dynamic selection of modes A, B, C, and D, per P309. . . P312, and digital input conditions programmed via P181 and P182. In some cases, such as operation in the SLAT min/max modes, the final regulation mode may be forced into Speed Regulation. Refer to the Speed, Torque, and Position mode bits in P935 [Drive Status 1] that indicate the final regulation mode of the drive when it is running.	Default: Options:	1 = “Speed Reg” 0 = “Zero Torque” 1 = “Speed Reg” 2 = “Torque Reg” 3 = “SLAT Min” 4 = “SLAT Max” 5 = “Sum” 6 = “Profilier” 755 7 = “Psn PTP” 8 = “Psn Camming” 755 9 = “Psn PLL” 755 10 = “Psn Direct” 11 = “Psn SpdlOrnt” 755	RO	32-bit Integer
		314	**SLAT Err Stpt** Speed Limited Adjustable Torque, Error Setpoint Sets the magnitude of P641 [Speed Error] at which the SLAT function will release its Forced Speed Mode signal. This condition must exist for the time specified by P315 [SLAT Dwell Time]. Once released, the drive can operate as a torque regulator, depending on the relative levels of P660 [SReg Output] and P4 [Commanded Trq]. This parameter will be entered in units of Hz or RPM, depending on the value of P300 [Speed Units].	Units: Default: Min/Max:	Hz RPM 0.00 0.00 / P27 [Motor NP Hertz] 0.00 / P28 [Motor NP RPM]	RW	Real
		315	**SLAT Dwell Time** Speed Limited Adjustable Torque, Dwell Time Sets the time period that P641 [Speed Error] must exceed the P314 [SLAT Err Stpt] magnitude in order to return to min/max torque mode.	Units: Default: Min/Max:	Secs 0.00 0.00 / 2.00	RW	Real
		321	**Prchrg Control** Precharge Control When disabled, the drive will stay in the precharge mode and will not be able to run. When enabled, the normal precharge operation is run. This parameter allows programmable control of the completion of the precharge function and may be used to coordinate the precharge of a system of drives or to reset P12 [DC Bus Memory] in the drive.	Default: Options:	1 = “Enabled” 0 = “Disabled” 1 = “Enabled”	RW	32-bit Integer
		322	**Prchrg Delay** Precharge Delay Adjustable delay between the time all other precharge conditions have been met and the time the drive leaves the precharge state. This can be used to control the sequences of precharge completion in a drive system.	Units: Default: Min/Max:	Secs 0.50 0.10 / 30.00	RW	Real
		323	**Prchrg Err Cfg** Precharge Error Confirguration Selects the action to take when P190 [DI Prchrg Seal] is used to indicate that an external precharge circuit has opened.	Default: Options:	3 = “FltCoastStop” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
DRIVE CFG	**Auto Manual Ctrl**	**324** ○	**Logic Mask** Logic Mask Enables/disables ports to control the logic command (such as start and direction). Does not mask Stop commands.		RW	16-bit Integer

Options	Reserved	Port 14	Port 13	Reserved	Port 11 [1]	Port 10 [1]	Port 9	Port 8	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

(1) 755 Frame 8 drives and larger only.

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
		325 ○	**Auto Mask** Automatic Mask Enables/disables ports to control the logic command (such as start and direction), while in Auto mode. Does not mask Stop commands.		RW	16-bit Integer

Options	Reserved	Port 14	Port 13 [1]	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

(1) 755 drives only.

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
		326 ○	**Manual Cmd Mask** Manual Command Mask Relinquishes exclusive control and allows other ports to begin jogging or to change direction while the port is in the Manual mode.		RW	16-bit Integer

Options	Reserved	Port 14	Port 13 [1]	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

(1) 755 drives only.

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
		327 ○	**Manual Ref Mask** Manual Reference Mask Enables/disables ports to control the speed reference while in Manual Mode. When a port is commanding manual mode, the reference is forced to the commanding port if the respective bit in this parameter is set. If an alternate speed reference source is desired, use P328 [Alt Man Ref Sel] to select the source.		RW	16-bit Integer

Options	Reserved	Port 14	Port 13	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
		328 ○	**Alt Man Ref Sel** Alternate Manual Reference Select Provides a way to select a speed reference source when in manual mode, that is different than the port which is actuating the manual request. Specifies the port to be used for the reference. The default setting (0) results in the actuating port being the one that is used for the manual reference.	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
DRIVE CFG	**Auto Manual Ctrl**	**329**	**Alt Man Ref AnHi** Alternate Manual Reference Analog High Hi scale for the alternate manual speed reference when P328 [Alt Man Ref Sel] is connected to an Analog Input.	Units: Default: Min/Max:	Hz RPM P520 P521 / P520	RW	Real
		330	**Alt Man Ref AnLo** Alternate Manual Reference Analog Low Lo scale for the alternate manual speed reference when P328 [Alt Man Ref Sel] is connected to an Analog Input.	Units: Default: Min/Max:	Hz RPM 0 P521 / P520	RW	Real
		331	**Manual Preload** Manual Preload Enables/disables automatic preloading of the “Auto” speed reference into a HIM when the HIM has been granted Manual control while in Auto mode. See P935 [Drive Status 1] Bit 9 “Manual” to verify the operating condition of the drive. **Important:** Preload will only occur if the transfer from auto to manual is done while the drive is running.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 3	Port 2	Port 1	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
DRIVE CFG	**Drive Memory**	**336**	**Reset Meters** Reset Meters Resets selected meters to zero. The value will automatically be returned to 0. “MWH and kWh” (1) – Resets P13 [Elapsed MWH], P14 [Elapsed kWH], P16 [Elpsd Mtr MWHrs], P17 [Elpsd Rgn MWHrs], P18 [Elpsd Mtr kWHrs], and P19 [Elpsd Rgn kWHrs]. “Elapsed Time” (2) – Resets P15 [Elapsed Run Time].	Default: Options:	0 = “Ready” 0 = “Ready” 1 = “MWH and kWh” 2 = “Elapsed Time”	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
DRIVE CFG	**Start Features**	**345** ○	**Start At PowerUp** Start At Power Up Enables/disables a feature to issue a Run command and automatically resume running at commanded speed after drive input power is restored. Requires a digital input, P163 [DI Run], P164 [DI Run Forward], or P165 [DI Run Reverse], is configured for Run and a valid start contact. ⚠ **ATTENTION:** Equipment damage and/or personal injury may result if this parameter is used in an inappropriate application. Do not use this function without considering applicable local, national and international codes, standards, regulations or industry guidelines.	Default: Options:	0 = “Disabled” 0 = “Disabled” 1 = “Enabled”	RW	32-bit Integer
		346	**PowerUp Delay** Power Up Delay Defines the programmed delay time, in seconds, before a start command is accepted after power up.	Units: Default: Min/Max:	Secs 0.00 0.00 / 10800.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
DRIVE CFG	Start Features	347	**Auto Retry Fault** Automatic Retry Fault Enables Retries Exhausted fault action. If the fault condition remains after the amount of time specified in P348 [Auto Rstrt Tries] elapses, an F33 "AuRsts Exhausted" fault occurs.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	AttmpsExhstd
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
DRIVE CFG	Start Features	348	**Auto Rstrt Tries** Automatic Restart Tries Sets the maximum number of times the drive attempts to reset a fault and restart.	Default: 0 (Disabled) Min/Max: 0 / 9	RW	32-bit Integer

ATTENTION: Equipment damage and/or personal injury may result if this parameter is used in an inappropriate application. Do not use this function without considering applicable local, national and international codes, standards, regulations or industry guidelines.

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
DRIVE CFG	Start Features	349	**Auto Rstrt Delay** Automatic Restart Delay Sets the time between restart attempts when 348 [Auto Rstrt Tries] is set to a value other than zero.	Units: Secs Default: 1.00 Min/Max: 0.50 / 30.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	350 ○	**Sleep Wake Mode** Sleep Wake Mode Enables/disables the Sleep/Wake function. **Important:** When enabled, the following conditions must be met: • A proper value must be programmed for 352 [Sleep Level] and 354 [Wake Level]. • A sleep / wake reference must be selected in 351 [SleepWake RefSel]. • At least one of the following must be programmed (and input closed) in P155 [DI Enable], P158 [DI Stop], P163 [DI Run], P164 [DI Run Forward], or P165 [DI Run Reverse].	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Direct" (Enabled) 2 = "Invert" (Enabled) (7)	RW	32-bit Integer

ATTENTION: Enabling the Sleep/Wake function can cause unexpected machine operation during the Wake mode. Equipment damage and/or personal injury can result if this parameter is used in an inappropriate application. Do Not use this function without considering the information below. In addition, all applicable local, national, and international codes, standards, regulations, or industry guidelines must be considered.

Conditions Required to Start Drive (1) (2) (3)

Input	After Power-Up	After a Drive Fault		After a Stop Command
		Reset by HIM or Software "Stop"	Reset by HIM, Network/Software, or Digital Input "Clear Faults"	HIM, Network/Software or Digital Input "Stop"
Stop(4)	Stop Closed Wake Signal New Start or Run Cmd.(5)	Stop Closed Wake Signal New Start or Run Cmd.(5)	Stop Closed Wake Signal	Stop Closed Direct Mode: SleepWake RefSel Signal > Sleep Level(7) Invert Mode: SleepWake RefSel Signal < Sleep Level(8) New Start or Run Command(5)
Enable	Enable Closed Wake Signal	Enable Closed Wake Signal New Start or Run Cmd.(5)	Enable Closed Wake Signal	Enable Closed Direct Mode: SleepWake RefSel Signal > Sleep Level(7) Invert Mode: SleepWake RefSel Signal < Sleep Level(8) New Start or Run Command(5)
Run Run Fwd Run Rev	Run Closed Wake Signal	New Run Cmd.(6) Wake Signal	Run Closed Wake Signal	New Run Command Direct Mode: SleepWake RefSel Signal > Sleep Level(7) Invert Mode: SleepWake RefSel Signal < Sleep Level(8)

(1) When power is cycled, if all conditions are present after power is restored, restart will occur.
(2) If all conditions are present when [Sleep-Wake Mode] is "enabled," the drive will start.
(3) The active speed reference. The Sleep/Wake function and the speed reference may be assigned to the same input.
(4) Cannot use P159 [DI Cur Lmt Stop] or P160 [DI Coast Stop] as the only Stop Input. This will cause the drive to go into a Sleep Cfg Alarm - Event No. 161.
(5) Command must be issued from HIM, terminal block, or network.
(6) Run Command must be cycled.
(7) SleepWake Ref Sel signal does not need to be greater than the wake level.
(8) SleepWake Ref Sel signal does not need to be less than the wake level.

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	351 ○ ⇄	**SleepWake RefSel** Sleep Wake Reference Select Selects the source of the input controlling the Sleep-Wake function.	Default: Min/Max:	0 (Disabled) 0 / 159999	RW	32-bit Integer
		352	**Sleep Level** Sleep Level Defines the analog input level that will stop the drive.	Units: Default: Min/Max:	Volt, P351 = 0 (Disabled) Volt or mA, P351 = not 0 (Port Device Jumper Setting) 5.00 Volt (P351 = 0) 5.00 Volt / 0.00 mA (Port *n* Device Jumper Setting) 0.00 / 10.00 Volt 0.00 / 20.00 mA	RW	Real
		353	**Sleep Time** Sleep Time Defines the amount of time at or below 352 [Sleep Level] before a Stop is issued.	Units: Default: Min/Max:	Secs 0.00 0.00 / 64800	RW	Real
		354	**Wake Level** Wake Level Defines the analog input level that will start the drive.	Units: Default: Min/Max:	Volt, P351 = 0 (Disabled) Volt or mA, P351 = not 0 (Port *n* Device Jumper Setting) 6.00 Volt (P351 = 0) 6.00 Volt / 12.00 mA (Port *n* Device Jumper Setting) 0.00 / 10.00 Volt 0.00 / 20.00 mA	RW	Real
		355	**Wake Time** Wake Time Defines the amount of time at or above 354 [Wake Level] before a Start is issued.	Units: Default: Min/Max:	Secs 0.00 0.00 / 64800	RW	Real
		356	**FlyingStart Mode** Flying Start Mode Enables/disables the function which reconnects to a spinning motor at actual RPM when a start command is issued. Functional in all motor control modes. "Enhanced" (1) – This advanced mode performs the reconnect function quickly. "Sweep" (2) – This frequency sweep mode is used with output sine filters.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Enhanced" 2 = "Sweep" (1) (1) Frames 1…7 only	RW	32-bit Integer
		357	**FS Gain** Flying Start Gain P356 [FlyingStart Mode] = 1 "Enhanced": Proportional term used in the current regulator which controls the reconnect function. P356 [FlyingStart Mode] = 2 "Sweep": Time required for the speed detection signal to remain at the programmed level (P360). Units of 50 µs.	Default: Min/Max:	1200.0 0.0 / 10000.0	RW	Real
		358	**FS Ki** Flying Start Intergal Gain P356 [FlyingStart Mode] = 1 "Enhanced": Integral term used in the current regulator which controls the reconnect function. P356 [FlyingStart Mode] = 2 "Sweep": Integral term used in the voltage recovery to the normal V/Hz level.	Default: Min/Max:	60.0 0.0 / 1000.0	RW	Real
		359	**FS Speed Reg Ki** Flying Start Speed Regulator Integral Gain P356 [FlyingStart Mode] = 1 "Enhanced": Integral term used in the speed regulator which controls the reconnect function. P356 [FlyingStart Mode] = 2 "Sweep": Time to sweep frequency in one direction. Units of 10 µs.	Default: Min/Max:	100.0 0.0 / 10000.0	RW	Real
		360	**FS Speed Reg Kp** Flying Start Speed Regulator Proportional Gain P356 [FlyingStart Mode] = 1 "Enhanced": Proportional term used in the speed regulator which controls the reconnect function. P356 [FlyingStart Mode] = 2 "Sweep": Programmed level for the speed detection signal. The monitored signal needs to drop below this level to indicate motor speed.	Default: Min/Max:	75.0 0.0 / 100000.0	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	**361**	**FS Excitation Ki** Flying Start Excitation Integral Gain P356 [FlyingStart Mode] = 1 "Enhanced": Integral term used in the current regulator which controls the excitation function when the need is determined by the reconnect function. P356 [FlyingStart Mode] = 2 "Sweep": Integral term used to control initial output voltage.	Default: Min/Max:	60.0 0.0 / 32767.0	RW	Real
		362	**FS Excitation Kp** Flying Start Excitation Proportional Gain P356 [FlyingStart Mode] = 1 "Enhanced": Proportional term used in the current regulator which controls the excitation function when the need is determined by the reconnect function. P356 [FlyingStart Mode] = 2 "Sweep": Proportional term used to control initial output voltage.	Default: Min/Max:	1200.00 0.0 / 32767.0	RW	Real
		363	**FS Reconnect Dly** Flying Start Reconnect Delay Delay time used between the issued start command and the start of the reconnect function.	Units: Default: Min/Max:	mSec 50.00 0.10 / 10000.00	RW	Real
		364	**FS Msrmnt CurLvl** Flying Start Measurement Current Level P356 [FlyingStart Mode] = 1 "Enhanced": Level of the current used during the measurement stage of the reconnect function. P356 [FlyingStart Mode] = 2 "Sweep": Adjustment for the V/Hz end point. Used to change the slope of the V/Hz curve during the frequency sweep. Note: A value of 4096 is equal to drive rated current.	Default: Min/Max:	44.97 0.00 / 4096.00	RW	Real
		365	**FS Brk Lvl** Flying Start Break Level Enter the level of DC braking current that the drive can use for the Flying Start function. The Flying Start function will apply DC brake current to the motor when it determines the motor is spinning near zero speed. It can do this to bring the motor to a complete stop before attempting to restart it.	Units: Default: Min/Max:	Amps Same as P394 Same as P394	RW	Real
		366	**FS Brk Time** Flying Start Break Time Enter the amount of time the drive can apply the DC braking current for the Flying Start function. The DC braking will be applied on every start when this time is not zero, even is flying start is not enabled.	Units: Default: Min/Max:	Secs 0.00 0.00 / 1800.00	RW	Real
		367	**FS ZSpd Thresh** Flying Start Zero Spd Threshold Enter a value to set the threshold the Flying Start function uses for zero speed detection. The Flying Start function uses this for DC braking.	Units: Default: Min/Max:	Secs 200.00 0.00 / 10000.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
DRIVE CFG	Braking Features	**370** **371**	**Stop Mode A** **Stop Mode B** Stop Mode A, B Method of stopping the drive when a stop command is given. Normal Stop command and the RUN input changing from true to false will command a Normal Stop. When using TorqProve, parameter 1100 [Trq Prove Cfg] Bit 0 "TP Enable" = 1, the stop mode must be set to option 1 "Ramp." "Coast" (0) – Power removed from motor, motor coasts to zero. "Ramp" (1) – Decelerates to zero speed at the decel rate. Power is removed when zero speed is reached. "Ramp to Hold" (2) – Decelerates to zero speed at the decel rate, followed by DC braking until the next start sequence. "DC Brake" (3) – DC braking is immediately applied (does not follow programmed decel ramp). May have to adjust parameter 397 [DC Brake Kp]. "DCBrkAutoOff" (4) – Applies DC braking until zero speed is reached or DC brake time is reached, whichever is shorter. "Current Lmt" (5) – Max torque / current applied until zero speed. "Fast Brake" (6) – High slip braking for maximum braking performance above base speed.	Default Options:	1 = "Ramp" 0 = "Coast" 0 = "Coast" 1 = "Ramp" 2 = "Ramp to Hold" 3 = "DC Brake" 4 = "DCBrkAutoOff" 5 = "Current Lmt" 6 = "Fast Brake"	RW	32-bit Integer
		372 **373**	**Bus Reg Mode A** **Bus Reg Mode B** Bus Regulation Mode A, B Method and sequence of the DC bus regulator voltage. Choices are dynamic brake, frequency adjust or both. Sequence is determined by programming or digital input to the terminal block. Using options 1, 3, or 4, may result in extended decel times. Typically, only P372 [Bus Reg Mode A] is used. P373 [Bus Reg Mode B] is only used when P187 [DI PwrLoss ModeB] is programmed and its corresponding input is high. Dynamic Brake Setup If a dynamic brake resistor is connected to the drive, both of these parameters must be set to either option 2, 3 or 4. When using any of the dynamic braking settings increase P426 [Regen Power Lmt] from its default setting of 50%. A setting of 200% will result in more effective braking.	Default: Options:	1 = "Adjust Freq" 4 = "Both-Frq 1st" 0 = "Disabled" 1 = "Adjust Freq" 2 = "Dyn Brake" 3 = "Both DB 1st" 4 = "Both Frq 1st"	RW	32-bit Integer

ATTENTION: The drive does not offer protection for externally mounted brake resistors. A risk of fire exists if external braking resistors are not protected. External resistor packages must be self-protected from over-temperature or the protective circuit shown in Figure 4 on page 356 (or equivalent) must be supplied.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
DRIVE CFG	Braking Features	**374**	**Bus Reg Lvl Cfg** Bus Regulation Level Configuration Selects the reference used to determine the bus voltage regulation level for the bus voltage regulator and the reference used for the dynamic brake. "Bus Memory" (0) – References are determined based on P12 [DC Bus Memory]. "BusReg Level" (1) – References are determined based on the voltage set in the bus regulator level parameter P375 [Bus Reg Level]. If coordinated operation of the dynamic brakes of a common bus system is desired, use this selection and set the P375 [Bus Reg Level] to coordinate the brake operation of the common bus drives.	Default: Options:	0 = "Bus Memory" 0 = "Bus Memory" 1 = "BusReg Level"	RW	32-bit Integer
		375	**Bus Reg Level** Bus Regulation Level Sets the "turn-on" bus voltage level for the bus voltage regulator and the dynamic brake.	Units: Default: Min/Max:	V DC P20 < 252V DC: 375 P20 = 252…503V DC: 750 P20 = 504…629V DC: 937 P20 > 629V DC: 1076 P20 < 252V DC: 375/389 P20 = 252…503V DC: 750/779 P20 = 504…629V DC: 937/974 P20 > 629V DC: 1076/1118	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
DRIVE CFG	Braking Features	376	**Bus Limit Kp** Bus Limit Proportional Gain Not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	A/V 1170.0 0.0 / 1000000.0	RW	Real
		377	**Bus Limit Kd** Bus Limit Derivative Gain Not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Secs 152.0 0.0 / 1000000.0	RW	Real
		378	**Bus Limit ACR Ki** Bus Limit Active Current Regulator Integral Gain Not functional when any of the FV motor control modes are selected.	Default: Min/Max:	2045.0 0.0 / 50000.0	RW	Real
		379	**Bus Limit ACR Kp** Bus Limit Active Current Regulator Proportional Gain Not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Hz/A 524.0 0.0 / 100000.0	RW	Real
		380	**Bus Reg Ki** Bus Regulator Integral Gain Integral gain for the bus voltage regulator. Sets the responsiveness of the bus voltage regulator.	Default: Min/Max:	100.000 0.000 / 65535.000	RW	Real
		381	**Bus Reg Kp** Bus Regulator Proportional Gain Proportional gain for the bus voltage regulator. Sets the responsiveness of the bus voltage regulator.	Default: Min/Max:	10.000 0.000 / 65535.000	RW	Real
		382	**DB Resistor Type** Dynamic Brake Resistor Type Selects whether the internal or external DB protection will be used. **Important:** Only one DB resistor can be connected to Frame 2 drives. If an external dynamic brake is used with a Frame 2 drive, the internal dynamic brake resistor must be disconnected. Connecting both an internal and external resistor is likely to cause drive damage. If a dynamic brake resistor is connected to the drive, P372 [Bus Reg Mode A] and P373 [Bus Reg Mode B] must be set to either option 2, 3, or 4; otherwise the dynamic brake will not turn on.	Default: Options:	0 = "Internal" 0 = "Internal" 1 = "External"	RW	32-bit Integer

ATTENTION: Equipment damage may result if a drive mounted (internal) resistor is installed and this parameter is set to "External." Thermal protection for the internal resistor will be disabled, resulting in possible device damage.

ATTENTION: The drive does not offer protection for externally mounted brake resistors. A risk of fire exists if external braking resistors are not protected. External resistor packages must be self-protected from over-temperature or the protective circuit shown in Figure 4 on page 356 (or equivalent) must be supplied.

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
DRIVE CFG	Braking Features	383	**DB Ext Ohms** Dynamic Brake External Ohms Used to calculate the maximum negative torque available from the dynamic brake and is used for the external resistor dynamic brake protection.	Units: Default: Min/Max:	Ohms Based on Drive Rating Internal / 10000.00	RW	Real
		384	**DB Ext Watts** Dynamic Brake External Watts Sets the continuous rated power reference for the external dynamic brake resistor. Only valid when an external dynamic brake resistor is selected (P382 [DB Resistor Type] = 1 "External"). The DB continuous watts are used in the dynamic brake thermal protection algorithm. **Important:** If customer-supplied protection is to be used in place of the drive's calculated resistor thermal protection, set the [DB Ext Watts] to its maximum value.	Units: Default: Min/Max:	Watt 100.00 1.00 / 500000.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
		385	**DB ExtPulseWatts** Dynamic Brake External Pulse Watts Sets the thermal transient response of the external dynamic brake resistor defined by the maximum allowable power to the dynamic brake resistor for 1 second without exceeding the resistor's element temperature. This parameter is only valid when an external dynamic brake resistor is selected (P382 [DB Resistor Type] = 1 "External"). If this value is not available from the resistor vendor it can be approximated by 1 or 2 below: 1. [DB ExtPulseWatts] = 75,000 x weight (lb), where weight is the weight of the resistor wire in pounds (not the weight of the entire resistor). 2. [DB ExtPulseWatts] = Time Constant x Brake Watts, where the Time Constant equals the amount of time to reach 63% of its rated temperature while the maximum power is applied to the resistor and Brake Watts is the maximum continuous power rating of the resistor. Many external resistor pulse watts settings are provided in the PowerFlex Dynamic Braking Resistor Calculator, publication PFLEX-AT001, or consult the resistor manufacturer for this specification. Note: If the value of this parameter is set equal to the value of P384 [DB Ext Watts], an F5 "Overvoltage" fault can occur. **Important:** If customer supplied protection is to be used in place of the drive's calculated resistor thermal protection, set the [DB ExtPulse Watts] to its maximum value. This information may show up on your resistor in Joules or Watt-seconds. Use that value in this parameter. Contact the resistor manufacturer if that information is not provided.	Units: Default: Min/Max:	Watt 2000.00 1.00 / 100000000.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
DRIVE CFG	Braking Features	**388**	**Flux Braking En** Flux Braking Enable Enables/disables flux braking. Functional in all motor control modes. Does not work with permanent magnet motors. Flux braking is enabled during decel.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer
		389	**Flux Braking Lmt** Flux Braking Limit Sets the limit on the desired motor voltage during flux braking as a percent of P25 [Motor NP Volts]. Functional in all motor control modes.	Units: Default: Min/Max:	% 125.00 100.00 / 250.00	RW	Real
		390	**Flux Braking Ki** Flux Braking Integral Gain Flux braking controller integral gain Functional in all motor control modes.	Default: Min/Max:	10000.0 0.0 / 1000000.0	RW	Real
		391	**Flux Braking Kp** Flux Braking Proportional Gain Flux braking controller proportional gain. Functional in all motor control modes.	Units: Default: Min/Max:	V/A 100.0 0.0 / 1000000.0	RW	Real
		392	**Stop Dwell Time** Stop Dwell Time Stop dwell sets an adjustable delay time between detecting zero speed and disabling the speed and torque regulators, when responding to a stop command.	Default: Min/Max:	0 0 / 60	RW	Real
		393 ○ ⇄	**DC Brake Lvl Sel** DC Brake Level Select Sets link to source used for P394 [DC Brake Level]. Functional in all motor control modes.	Default: Min/Max:	394 1 / 159999	RW	32-bit Integer
		394	**DC Brake Level** DC Brake Level Defines the DC brake current level injected into the motor when P370/371 [Stop Mode *n*] = 3 "DC Brake." This also sets the braking current level when 6 "Fast Stop" is selected. The DC braking voltage used in this function is created by a PWM algorithm and may not generate the smooth holding force needed for some applications. Functional in all motor control modes.	Units: Default: Min/Max:	Amps [Rated Amps] P21 [Rated Amps] x 0.01 / Based on Drive Rating	RW	Real

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ATTENTION: If a hazard of injury due to movement of equipment or material exists, an auxiliary mechanical braking device must be used.

ATTENTION: This feature should not be used with synchronous or permanent magnet motors. Motors may be demagnetized during braking.

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
DRIVE CFG	Braking Features	395	**DC Brake Time** DC Brake Time Sets the amount of time DC brake current is "injected" into the motor. When the active stop mode, P370/371 [Stop Mode *n*] = 2 "Ramp to Hold," this parameter is ignored and DC braking is applied continuously. Functional in all motor control modes.	Units: Default: Min/Max:	Secs 0.00 0.00 / 90.00	RW	Real
		396	**DC Brake Ki** DC Brake Integral Gain Sets the integral term used in the current regulator which controls the DC Brake function. Functional in all motor control modes.	Default: Min/Max:	10.0 0.0 / 1000.0	RW	Real
		397	**DC Brake Kp** DC Brake Proportional Gain Sets the proportional term used in the current regulator which controls the DC Brake function.	Default: Min/Max:	1000.0 0.0 / 10000.0	RW	Real
		398	**DC Brk Vq Fltr** DC Brake Vq Filter Sets the level of filtering used on the Vq signal when the active stop mode P370/371 [Stop Mode *n*] = 4 "DCBrkAutoOff."	Default: Min/Max:	250.0 50.0 / 2000.0	RW	Real
		399	**DC Brk Vd Fltr** DC Brake Vd Filter Sets the level of filtering used on the Vd signal when the active stop mode P370/371 [Stop Mode *n*] = 4 "DCBrkAutoOff."	Default: Min/Max:	250.0 50.0 / 2000.0	RW	Real
		400	**Fast Braking Ki** Fast Braking Integral Gain Sets the integral term used in the speed regulator which controls the Fast Braking function. Functional in all motor control modes.	Default: Min/Max:	0.10 0.00 / 10.00	RW	Real
		401	**Fast Braking Kp** Fast Braking Proportional Gain Sets the proportional term used in the speed regulator which controls the Fast Braking function. Functional in all motor control modes.	Default: Min/Max:	0.0015 0.0000 / 10.0000	RW	Real
		402	**Brake Off Adj 1** Brake Off Adjustment 1 When Fast Braking is the selected Stop Mode, this parameter sets the power sensitivity to transition from Fast Braking to DC Brake. When DC Brake w/Auto ShutOff is selected, this parameter sets the level sensitivity for shut off.	Default: Min/Max:	1.00 0.01 / 5.00	RW	Real
		403	**Brake Off Adj 2** Brake Off Adjustment 2 When Fast Braking is the selected Stop Mode, this parameter sets the frequency sensitivity to transition from Fast Braking to DC Brake. When DC Brake w/Auto ShutOff is selected, this parameter sets the time sensitivity for shut off.	Default: Min/Max:	1.00 0.01 / 5.00	RW	Real
		409	**Dec Inhibit Actn** Deceleration Inhibit Action Configures the response to a Decel Inhibit condition, which occurs when the drive is not decelerating. One possible cause could be bus voltage regulation. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop.	Default: Options:	3 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop"	RW	32-bit Integer

Drive (Port 0) Protection File

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PROTECTION	Motor Overload	**410**	**Motor OL Actn** Motor Overload Action Configures the response to a motor overload condition. If "Flt Minor" (2) is selected, enable P950 [Minor Flt Cfg] Bit 0. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	3 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		411	**Mtr OL at Pwr Up** Motor Overload At Power Up Selects the mode to use for initial value of the motor overload counter, upon drive power-up. "Assume Cold" (0) – P418 [Mtr OL Counts] will be reset to zero the next time the drive is powered up. "UseLastValue" (1) – The value of P418 [Mtr OL Counts] will be retained at power down and restored the next time the drive is powered up. "RealTimeClk" (2) – The value of P418 [Mtr OL Counts] begins to decrease at drive power down, reflecting the cooling of the motor, and stops at drive power-up or when zero is reached. This option is only available when the real time clock is active on the drive.	Default: Options:	0 = "Assume Cold" 0 = "Assume Cold" 1 = "UseLastValue" 2 = "RealTimeClk"	RW	32-bit Integer
		412	**Mtr OL Alarm Lvl** Motor Overload Alarm Level Sets the level of P418 [Mtr OL Counts] for which a motor overload alarm will occur. Useful to provide warning prior to the drive taking action that is selected by P410 [Motor OL Actn]. This alarm level is different than, and independent of, the "Alarm" action selected by P410 [Motor OL Actn].	Units: Default: Min/Max:	% 0.00 0.00 / 100.00	RW	Real
		413	**Mtr OL Factor** Motor Overload Factor Sets the minimum level of current (in percent or P26 [Motor NP Amps]) that causes the motor overload counter to increment. Current levels below this value will decrement the overload counter. For example, a service factor of 1.15 implies continuous operation up to 115% of nameplate motor current.	Default: Min/Max:	1.00 0.20 / 2.00	RW	Real
		414	**Mtr OL Hertz** Motor Overload Hertz Selects the output frequency below which the motor operating current is derated (more sensitive) to account for the reduced self-cooling capability of typical motors, operating at slower speeds. For motors with extra low speed cooling capacity (for example 10:1 or blower cooled), reduce this setting to take full advantage of the motor being used.	Units: Default: Min/Max:	Hz 20.00 0.00 / 4096.00	RW	Real
		415	**Mtr OL Reset Lvl** Motor Overload Reset Level Sets the level that resets a motor overload condition, and allows a fault (if selected as the motor overload action) to be manually reset.	Units: Default: Min/Max:	% 0.00 0.00 / 100.00	RW	Real
		416	**MtrOL Reset Time** Motor Overload Reset Time Displays the time it will take to restart the drive after a motor overload fault has occurred and the value in P418 [Mtr OL Counts] is less than the P415 [Mtr OL Reset Lvl].	Units: Default: Min/Max:	Secs 0.00 –/+99999.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
PROTECTION	Motor Overload	**418**	**Mtr OL Counts** Motor Overload Counts Accumulated percentage of motor overload. Continuously operating the motor over 100% of the motor overload setting will increase this value to 100% and cause the action selected in P410 [Motor OL Actn] to be taken.	Units: Default: Min/Max:	% 0.00 0.00 / 100.00	RO	Real
		419	**Mtr OL Trip Time** Motor Overload Trip Time Displays the inverse of the motor overload time, equal to the number of seconds before P418 [Mtr OL Counts] reaches 100%, and the motor overload action is taken.	Units: Default: Min/Max:	Secs 99999 0 / 99999	RO	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
PROTECTION	Load Limits	**420** ○	**Drive OL Mode** Drive Overload Mode Selects the action to take when the drive detects that it is being overloaded. Reducing current limit and / or PWM frequency may allow the drive to continue running without faulting. When using a sine wave output filter, set this parameter to 1 "Reduce CLmt" or 0 "Disabled."	Default: Options:	3 = "Both PWM 1st" 0 = "Disabled" 1 = "Reduce CLmt" 2 = "Reduce PWM" 3 = "Both PWM 1st"	RW	32-bit Integer
		421 ⇄	**Current Lmt Sel** Current Limit Select Selects the source for the current limit value. When the load is large enough to cause current that equals or exceeds this value, the output frequency will automatically adjust (increase or decrease, as required) to attempt limiting the output current to this value.	Default: Options:	422 1 / 159999	RW	32-bit Integer
		422 **423**	**Current Limit 1** **Current Limit 2** Current Limit *n* Constant values that can be used as sources for P421 [Current Lmt Sel]. The value of these parameters should be checked if changes have been made to P305 [Voltage Class] and/or P306 [Duty Rating].	Units: Default: Min/Max:	Amps Based on Drive Rating Based on Drive Rating	RW	Real
		424	**Active Cur Lmt** Active Current Limit Displays the current that is actively being used, including the automatic foldback effect from the drive overload function (see P420 [Drive OL Mode]).	Units: Default: Min/Max:	Amps 0.00 –/+P21 [Rated Amps] x 8	RO	Real
		425	**Current Rate Lmt** Current Rate Limit Sets the largest allowable rate of change for the torque producing current reference (Iq). This number is scaled in percent of rated motor current for every 250 microseconds.	Units: Default: Min/Max:	% 400.00 1.00 / 800.00	RW	Real
		426	**Regen Power Lmt** Regenerative Power Limit Sets the limit for power flow from the motor to the drive (regenerating). Only active in Flux Vector (FV) control modes.	Units: Default: Min/Max:	% –50.00 –800.00 / 0.00	RW	Real
		427	**Motor Power Lmt** Motor Power Limit Sets the limit for power flow from the drive to the motor (motoring). Only active in Flux Vector (FV) control modes.	Units: Default: Min/Max:	% 200.00 0.00 / 800.00	RW	Real
		428	**Current Limit Kd** Current Limit Derivative Gain Derivative gain for the current limit function. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Secs 760.0 0.0 / 1000000.0	RW	Real
		429	**Current Limit Ki** Current Limit Integral Gain Integral gain for the current limit function. This parameter is not functional when any of the FV motor control modes are selected.	Default: Min/Max:	680.0 0.0 / 10000.0	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PROTECTION	Load Limits	**430**	**Current Limit Kp** Current Limit Proportional Gain Proportional gain for the current limit function. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Hz/A 290.0 0.0 / 1000000.0	RW	Real
		431	**Id Lo FreqCur Kp** Id Low Frequency Current Kp Current limit proportional gain active at very low operating frequencies. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	V/A 50.0 0.0 / 100000.0	RW	Real
		432	**Iq Lo FreqCur Kp** Iq Low Frequency Current Kp Current limit proportional gain active at very low operating frequencies. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	V/A 50.0 0.0 / 100000.0	RW	Real
		433	**Jerk Gain** Jerk Gain Allows you to adjust the amount of S Curve or "Jerk" applied to the Accel/Decel rate.	Default: Min/Max:	5200.0 0.0 / 1000000000.0	RW	Real
		434	**Shear Pin Cfg** Shear Pin Configure Configures operation of the shear pin function.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Shear2NoAcc	Shear1NoAcc
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 "Shear1NoAcc" – 0 = Active during acceleration, 1 = Ignore during acceleration
Bit 1 "Shear2NoAcc" – 0 = Active during acceleration, 1 = Ignore during acceleration

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PROTECTION	Load Limits	**435** **438**	**Shear Pin 1 Actn** **Shear Pin 2 Actn** Shear Pin *n* Action Configures the action to take when the output current is greater than or equal to P436/439 [Shear Pin *n* Level] for the amount of time set in P437/440 [Shear Pin *n* Time]. These two independent shear pin functions can be set up to achieve the equivalent of external overloads that have "stall" and "jam" indication. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		436 **439**	**Shear Pin1 Level** **Shear Pin2 Level** Shear Pin *n* Level Sets the value of current which will activate the shear pin function (see P435/438 [Shear Pin *n* Actn]).	Units: Default: Min/Max:	Amps P21 [Rated Amps] 0.0 / P21 [Rated Amps] x 1.5	RW	Real
		437 **440**	**Shear Pin 1 Time** **Shear Pin 2 Time** Shear Pin *n* Time Sets the time associated with activation of the shear pin function (see P435/438 [Shear Pin *n* Actn]).	Units: Default: Min/Max:	Secs 0.00 0.00 / 30.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
PROTECTION	Load Limits	**441**	**Load Loss Action** Load Loss Action Configures the action to take when the load is less than or equal to P442 [Load Loss Level] for the amount of time set in P443 [Load Loss Time]. “Ignore” (0) – No action is taken. “Alarm” (1) – Type 1 alarm indicated. “Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. “FltCoastStop” (3) – Major fault indicated. Coast to Stop. “Flt RampStop” (4) – Major fault indicated. Ramp to Stop. “Flt CL Stop” (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer
		442	**Load Loss Level** Load Loss Level Sets the percentage of motor nameplate torque (absolute value) associated with activation of the load loss function, P441 [Load Loss Action]. See P5 [Torque Cur Fdbk] motor nameplate torque.	Units: Default: Min/Max:	% 200.00 0.00 / 800.00	RW	Real
		443	**Load Loss Time** Load Loss Time Sets the time associated with activation of the load loss function (see P441 [Load Loss Action]).	Units: Default: Min/Max:	Secs 0.00 0.00 / 300.00	RW	Real
		444	**OutPhaseLossActn** Output Phase Loss Action Selects action to take if output phase loss is detected. “Ignore” (0) – No action is taken. “Alarm” (1) – Type 1 alarm indicated. “Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. “FltCoastStop” (3) – Major fault indicated. Coast to Stop. “Flt RampStop” (4) – Major fault indicated. Ramp to Stop. “Flt CL Stop” (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer
		445	**Out PhaseLossLvl** Output Phase Loss Level Sets the threshold level which is used to determine an output phase loss condition. Each motor phase must exceed this value. Decreasing this parameter’s value lowers sensitivity.	Default: Min/Max:.	200 0 / 1000	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PROTECTION	Power Loss	**449**	**Power Loss Actn** Power Loss Action Configures the drive's response to a power loss timeout condition. Time is set in P452/455 [Pwr Loss *n* Time]. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop.	Default: Options:	1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop"	RW	32-bit Integer
		450 **453**	**Pwr Loss Mode A** **Pwr Loss Mode B** Power Loss Mode A, B Configures the drive's response to a loss of input power as sensed by a drop in bus voltage. The bus voltage drop is specified in P451/454 [Pwr Loss *n* Level] and compared to the bus voltage memory P12 [DC Bus Memory]. "Coast" (0) - When a power loss occurs, the drive stops modulating. Use this option on low inertia loads. "Decel" (1) - The drive will decelerate the motor to help maintain the bus voltage. Use this option on high inertia loads. "Continue" (2) - The drive will continue to run through a power loss. Improper use of this option can cause drive damage.	Default: Options:	0 = "Coast" 0 = "Coast" 1 = "Decel" 2 = "Continue"	RW	32-bit Integer
		451 **454**	**Pwr Loss A Level** **Pwr Loss B Level** Power Loss Mode A, B Level Sets the bus voltage level at which ride-through begins and modulation ends. When bus voltage falls below this level, the drive prepares for an automatic restart. Enter a percentage of the bus voltage derived from the high voltage setting for the voltage class. The trip level is calculated as: P7 [DC Bus Memory] - P451 [Pwr Loss A Level] or P454 [Pwr Loss B Level] For example: on a 400/480V drive, 0.3913 x 480 VAC x √2 = 265.62 VDC	Units: Default: Min/Max:	V DC P20 [Rated Volts] x 0.3913 0.0 / P20 [Rated Volts] x 1.41	RW	Real
		452 **455**	**Pwr Loss A Time** **Pwr Loss B Time** Power Loss Mode A, B Time Sets the time that the drive will remain in power loss mode before a fault is detected.	Units: Default: Min/Max:	Secs 2.00 0.00 / 60.00	RW	Real
		456	**PwrLoss RT BusKp** Power Loss Ride Through Bus Kp Proportional gain that adjusts the response of the bus regulator when power loss ride through is enabled and detected. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	A/V 585.0 0.0 / 1000000.0	RW	Real
		457	**PwrLoss RT BusKd** Power Loss Ride Through Bus Kd Derivative gain that adjusts the response of the bus regulator when power loss ride through is enabled and detected. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Secs 50.0 0.0 / 1000000.0	RW	Real
		458	**PwrLoss RT ACRKp** Power Loss Ride Through Active Current Regulator Kp Proportional gain that adjusts the response of the active current regulator portion of the bus regulator when power loss ride through is enabled and detected. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Hz/A 524.0 0.0 / 100000.0	RW	Real
		459	**PwrLoss RT ACRKi** Power Loss Ride Through Active Current Regulator Ki Integral gain that adjusts the response of the active current regulator portion of the bus regulator when power loss ride through is enabled and detected. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Hz/A 2045.0 0.0 / 50000.0	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PROTECTION	Power Loss	**460**	**UnderVltg Action** Under Voltage Action Configures the drive's response to an under voltage event configured in P461 [UnderVltg Level]. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	3 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		461	**UnderVltg Level** Under Voltage Level DC line voltage level below which an undervoltage event occurs.	Units: Default: Min/Max:	V DC Based on Drive Rating and Voltage Class 0.00 / Based on Drive Voltage (230, 460, and 960)	RW	Real
		462	**InPhase LossActn** Input Phase Loss Action Selects the action to take if an input phase loss is detected. The input phase loss function helps protect the drive bus capacitors from excessive bus ripple. The bus ripple threshold set by P463 [InPhase Loss Lvl]. "Ignore" (0) – No action is taken. **Important:** Operating in a phase loss condition will seriously degrade the reliability of the drive. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	3 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		463	**InPhase Loss Lvl** Input Phase Loss Level Sets the threshold at which the DC bus voltage ripple triggers an Input Phase Loss fault. Input phase loss is assumed when the DC bus voltage ripple exceeds the tolerance set by this parameter. Setting a larger value permits a higher bus voltage ripple without causing the drive to fault. The default value of 325 is equal to the expected ripple level for a full rated motor running at half load with single phase input.	Default: Min/Max:	325 10 / 32767	RW	32-bit Integer
		464	**DC Bus Mem Reset** Direct Current Bus Memory Reset Forces a manual update to P12 [DC Bus Memory], which is automatically initialized upon power-up or precharge and continually updated during normal operation. A transition from 0 to 1 will cause a bus memory update. However, the update will be ignored if the command cannot be acted upon within 30 seconds because the drive is regenerating or is firing the dynamic brake. A manual reset is rarely required, but may occur when input voltage is abnormally high or low for an extended period of time followed by a fast return to a nominal value.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
PROTECTION	Ground Fault	**466**	**Ground Warn Actn** Ground Warning Action Selects the action to take when a ground current event is detected. The Ground Warning feature detects a ground current that exceeds the level set in P467 [Ground Warn Lvl]. An alarm is displayed until the ground current falls below the level set in P467 [Ground Warn Lvl] while the drive continues to run. A fault will stop the drive. A fault cannot be cleared until the ground current is below the level set in P467 [Ground Warn Lvl]. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		467	**Ground Warn Lvl** Ground Warning Level Sets the level at which a ground warning alarm will occur.	Units: Default: Min/Max:	Amps 4.00 1.00 / 5.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
PROTECTION	Predictive Maintenance	**469**	**PredMaint Sts** Predictive Maintenance Status Status of predictive maintenance elapsed life relative to the programmed event level. A value of 1 = event level has been exceeded. Bit 15 is a master bit which = 1 when 1 or more individual bits = 1.			RO	16-bit Integer

Options	Master	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Mch Lube	Mch Bearing	Mtr Lube	Mtr Bearing	Internal Fan	Heatsink Fan
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
		470	**PredMaintAmbTemp** Predictive Maintenance Ambient Temperature Used to predict cooling fan life, and possibly the life of other temperature dependent components in the future. Changes to this parameter affect the total life and remaining life, meaning that only one temperature can be programmed for the entire life of the drive.	Units: Default: Min/Max:	DegC 50.00 0.00 / 50.00	RW	Real
		471 ○	**PredMaint Rst En** Predictive Maintenance Reset Enable Enables P472 [PredMaint Reset] to execute a reset of the selected elapsed life parameter. Any single reset in P472 [PredMaint Reset] will force this parameter back to 0 (disabled), so that only one elapsed life parameter can be reset at a time. This parameter is only reset when Set Defaults "All" (not recommended) is executed.	Default: Options:	Current Selection 0 = "Disable" 1 = "Enable"	RW	32-bit Integer
		472 ○	**PredMaint Reset** Predictive Maintenance Reset Resets predictive maintenance elapsed life parameters, one at a time. Enabled by P471 [PredMaint Rst En]. This parameter is only reset when Set Defaults "All" (not recommended) is executed.	Default: Options:	Current Selection 0 = "Ready" 1 = "HS Fan Life" (1) 2 = "In Fan Life" (1) 3 = "MtrBrng Life" 4 = "MtrLube Hrs" 5 = "MchBrng Life" 6 = "MchLube Hrs" (1) Frames 1…7 only.	RW	32-bit Integer
		481	755 (8+) **CbFan Derate** Cabinet Fan Derate Derating factor applied to P482 [CbFan TotalLife]. Used to adjust total fan life for poor air quality or vibration.	Default: Min/Max:	1.00 0.01 / 1.00	RW	Real
		482	755 (8+) **CbFan TotalLife** Cabinet Fan Total Life Total number of hours expected over the life of a single cabinet fan. Calculated as a function of fan manufacturer's life data (from frame rating table), P470 [PredMaintAmbTemp] and P481 [CbFan Derate].	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47 (31 bits)	RO	32-bit Integer
		483	755 (8+) **CbFan ElpsdLife** Cabinet Fan Elapsed Life Accumulated hours of cabinet fan run time. Frame 8 drives have a single converter, and therefore a single cabinet fan. The value of this parameter reflects the elapsed life of that fan. Frame 9 drives have two converters, and therefore two cabinet fans. Frame 10 drives have three converters, and therefore three cabinet fans. For frame 9 and 10 drives, the value of this parameter reflects the longest elapsed life of all the cabinet fans. Individual elapsed life values are available at parameters 138 [C1 CbFanElpsdLif], 238 [C2 CbFanElpsdLif], and 338 [C3 CbFanElpsLif] in port 11.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47 (31 bits)	RO	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PROTECTION	Predictive Maintenance	**484**	755 (8+) **CbFan RemainLife** Cabinet Fan Remaining Life Remaining number of hours until estimated end of life for cabinet fans, and is the difference between P482 [CbFan TotalLife] and P483 [CbFan ElpsdLife]. All negative values of this parameter need to be treated as excessive use (> 100%), and trigger the appropriate action chosen by P486 [CbFan EventActn]. Frame 8 drives have a single converter, and therefore have a single cabinet fan. The value of this parameter reflects the remaining life of that fan. Frame 9 drives have two converters, and therefore two cabinet fans. Frame 10 drives have three converters, and therefore three cabinet fans. For frame 9 and 10 drives, the value of this parameter reflects the shortest remaining life of all the cabinet fans.	Units: Default: Min/Max:	Hrs 0.00 –21474836.48 / 21474836.47	RO	32-bit Integer
		485	755 (8+) **CbFan EventLevel** Cabinet Fan Event Level Percent of total expected cabinet fan life for which an early warning alarm or fault can be programmed.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		486	755 (8+) **CbFan EventActn** Cabinet Fan Event Action Configures the response to a cabinet fan event, which occurs when P485 [CbFan EventLevel] is met or exceeded. “Ignore” (0) – No action is taken. “Alarm” (1) – Type 1 alarm indicated. “Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. “FltCoastStop” (3) – Major fault indicated. Coast to Stop. “Flt RampStop” (4) – Major fault indicated. Ramp to Stop. “Flt CL Stop” (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer
		488	**HSFan Derate** Heatsink Fan Derate Derating factor applied to P489 [HSFan TotalLife]. Used to adjust total fan life for poor air quality or vibration.	Default: Min/Max:	1.00 0.01 / 1.00	RW	Real
		489	**HSFan TotalLife** Heatsink Fan Total Life Total number of hours expected over the life of a single heatsink fan. Calculated as a function of fan manufacturer’s life data (from frame rating table), P470 [PredMaintAmbTemp] and P488 [HSFan Derate].	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47 (31 bits)	RO	32-bit Integer
		490	**HSFan ElpsdLife** Heatsink Fan Elapsed Life Accumulated hours of heatsink fan run time. Use P472 [PredMaint Reset] to reset this parameter. Frame 8 drives have a single inverter, and therefore have a single heatsink fan. The value of this parameter reflects the elapsed life of that fan. 755 (8+) Frame 9 drives have two inverters, and therefore two heatsink fans. Frame 10 drives have three inverters, and therefore three heatsink fans. For frame 9 and 10 drives, the value of this parameter reflects the longest elapsed life of all the heatsink fans. Individual elapsed life values are available at parameters 128 [I1 HSFanElpsdLif], 228 [I2 HSFanElpsdLif] and 328 [I3 HSFanElpsdLif] in port 10.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47 (31 bits)	RO	32-bit Integer

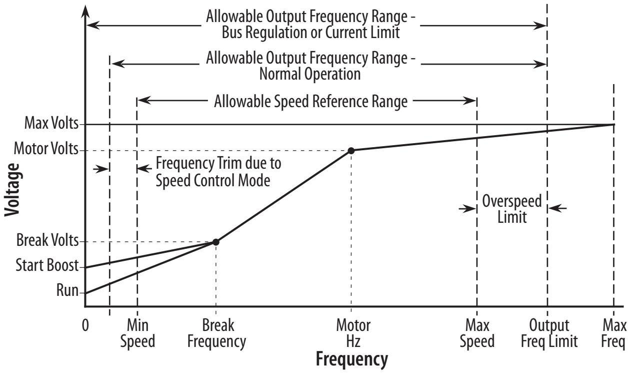
File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
PROTECTION	Predictive Maintenance	**491**	**HSFan RemainLife** Heatsink Fan Remaining Life Remaining number of hours until estimated end of life for heatsink fans, and is the difference between P489 [HSFan TotalLife] and P490 [HSFan ElpsdLife]. All negative values of this parameter need to be treated as excessive use (> 100%), and trigger the appropriate action chosen by P493 [HSFan EventActn]. Use P472 [PredMaint Reset] to reset this parameter. 755 (8+) Frame 8 drives have a single inverter, and therefore a single heatsink fan. The value of this parameter reflects the remaining life of that fan. Frame 9 drives have two inverters, and therefore two heatsink fans. Frame 10 drives have three inverters, and therefore three heatsink fans. For frame 9 and 10 drives, the value of this parameter reflects the shortest remaining life of all the heatsink fans.	Units: Default: Min/Max:	Hrs 0.00 –21474836.48 / 21474836.47	RO	32-bit Integer
		492	**HSFan EventLevel** Heatsink Fan Event Level Percent of total expected heatsink fan life for which an early warning alarm or fault can be programmed.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		493	**HSFan EventActn** Heatsink Fan Event Action Configures the response to a heatsink fan event, which occurs when P492 [HSFan EventLevel] is met or exceeded. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		494	**HSFan ResetLog** Heatsink Fan Reset Log Total number of resets performed on the P490 [HSFan ElpsdLife] parameter. **Note:** This parameter is not used by PowerFlex 755 Frame 8 drives and larger.	Default: Min/Max:	0 0 / 255 (unsigned 8 bits)	RO	32-bit Integer
		495	**InFan Derate** Internal Fan Derate Derating factor applied to P496 [InFan TotalLife]. Used to adjust total fan life for poor air quality or vibration.	Default: Min/Max:	1.00 0.01 / 1.00	RW	Real
		496	**InFan TotalLife** Internal Fan Total Life Total number of hours expected over the life of an internal fan. Calculated as a function of fan manufacturer's life data (from frame rating table), P470 [PredMaintAmbTemp] and P495 [InFan Derate]. 755 (8+) Total number of hours expected over the life of a single internal fan. Calculated as a function of fan manufacturer's life data (from frame rating table), P470 [PredMaintAmbTemp] and P495 [InFan Derate].	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47 (31 bits)	RO	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PROTECTION	Predictive Maintenance	**497**	**InFan ElpsdLife** Internal Fan Elapsed Life Accumulated hours of internal stirring fan run time. Note: Frames 6 and 7 run continuously, and frames 2…5 are controlled by firmware. Use P472 [PredMaint Reset] to reset this parameter. 755 (8+) Frame 8 drives have a single inverter, and therefore a single internal stirring fans. The value of this parameter reflects the elapsed life of that internal fan. Frame 9 drives have two inverters, and therefore two internal fans. Frame 10 drives have three inverters, and therefore three internal fans. For frame 9 and 10 drives, the value of this parameter reflects the longest elapsed life of the internal fans. Individual elapsed life values are available at parameters 129 [I1 InFanElpsdLif], 229 [I2 InFanElpsdLif], and 329 [I3 InFanElpsdLif] in port 10.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47 (31 bits)	RO	32-bit Integer
		498	**InFan RemainLife** Internal Fan Remaining Life Remaining number of hours until estimated end of life for internal stirring fans, and is the difference between P496 [InFan TotalLife] and P497 [InFan ElpsdLife]. All negative values of this parameter need to be treated as excessive use (> 100%), and trigger the appropriate action chosen by P500 [InFan EventActn]. Use P472 [PredMaint Reset] to reset this parameter. 755 (8+) Frame 8 drives have a single inverter, and therefore a single internal stirring fan. The value of this parameter reflects the remaining life of that internal fan. Frame 9 drives have two inverters, and therefore two internal fans. Frame 10 drives have three inverters, and therefore three internal fans. For frame 9 and 10 drives, the value of this parameter reflects the shortest remaining life of all the internal fans.	Units: Default: Min/Max:	Hrs 0.00 –21474836.48 / 21474836.47	RO	32-bit Integer
		499	**InFan EventLevel** Internal Fan Event Level Percent of total expected internal stirring fan life for which an early warning alarm or fault can be programmed.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		500	**InFan EventActn** Internal Fan Event Action Configures the response to an internal stirring fan event, which occurs when P499 [InFan EventLevel] is met or exceeded. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		501	**InFan ResetLog** Internal Fan Reset Log Total number of resets performed on the P497 [InFan ElpsdLife] parameter. **Note:** This parameter is not used by PowerFlex 755 Frame 8 drives and larger.	Default: Min/Max:	0 0 / 255 (unsigned 8 bits)	RO	32-bit Integer

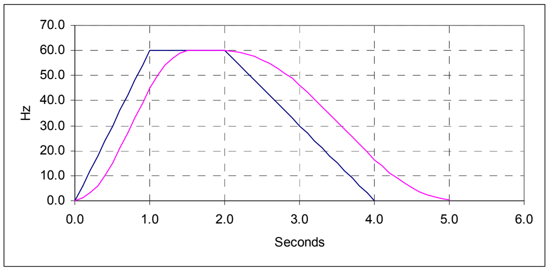
File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PROTECTION	Predictive Maintenance	**502** ○	**MtrBrngTotalLife** Motor Bearing Total Life Total number of hours expected over the life of the motor bearings.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47 (31 bits)	RW	32-bit Integer
		503	**MtrBrngElpsdLife** Motor Bearing Elapsed Life Accumulated hours of motor bearing run time. Hours are accumulated any time the drive is running greater than zero speed. Use P472 [PredMaint Reset] to reset this parameter.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47 (31 bits)	RO	32-bit Integer
		504	**MtrBrngRemainLif** Motor Bearing Remaining Life Remaining number of hours until estimated end of life for motor bearings, and is the difference between P502 [MtrBrngTotalLife] and P503 [MtrBrngElpsdLife]. Use P472 [PredMaint Reset] to reset this parameter.	Units: Default: Min/Max:	Hrs 0.00 –21474836.48 / 21474836.47	RO	32-bit Integer
		505	**MtrBrngEventLvl** Motor Bearing Event Level Percent of total expected motor bearing life for which an early warning alarm or fault can be programmed.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		506	**MtrBrngEventActn** Motor Bearing Event Action Configures the response to a motor bearing event, which occurs when P505 [MtrBrngEventLvl] is met or exceeded. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		507	**MtrBrng ResetLog** Motor Bearing Reset Log Total number of resets performed on the P503 [MtrBrngElpsdLife] parameter.	Default: Min/Max:	0 0 / 255 (unsigned 8 bits)	RO	32-bit Integer
		508	**MtrLubeElpsdHrs** Motor Lubricant Elapsed Hours Accumulated hours since the most recent lubrication of the motor bearings. Can be reset without restriction. Use P472 [PredMaint Reset] to reset this parameter.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47	RO	32-bit Integer
		509	**MtrLubeEventLvl** Motor Lubricant Event Level Number of hours between scheduled lubrications of the motor bearings. Used for an early warning alarm or fault according to P510 [MtrLubeEventActn]. Event is disabled when set to 0.	Units: Default: Min/Max:	Hrs 0.000 0.000 / 2147483648.000	RW	Real
		510	**MtrLubeEventActn** Motor Lubricant Event Action Configures the response to a motor bearing lubrication event, which occurs when P509 [MtrLubeEventLvl] is met or exceeded. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PROTECTION	Predictive Maintenance	**511** ○	**MchBrngTotalLife** Machine Bearing Total Life Total number of hours expected over the life of the machine bearings.	Units: Default: Min/Max:	Hrs Current Value 0.00 / 21474836.47	RW	32-bit Integer
		512	**MchBrngElpsdLife** Machine Bearing Elapsed Life Accumulated hours of machine bearing run time. Use P472 [PredMaint Reset] to reset this parameter.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47	RO	32-bit Integer
		513	**MchBrngRemainLif** Machine Bearing Remaining Life Remaining number of hours until estimated end of life for machine bearings, and is the difference between Machine Bearing Total Life and Machine Bearing Elapsed Life. Use P472 [PredMaint Reset] to reset this parameter.	Units: Default: Min/Max:	Hrs 0.00 –21474836.48 / 21474836.47	RO	32-bit Integer
		514	**MchBrngEventLvl** Machine Bearing Event Level Percent of total expected machine bearing life for which an early warning alarm or fault can be programmed.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		515	**MchBrngEventActn** Machine Bearing Event Action Configures the response to a machine bearing event, which occurs when P514 [MchBrngEventLvl] is met or exceeded. “Ignore” (0) – No action is taken. “Alarm” (1) – Type 1 alarm indicated. “Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. “FltCoastStop” (3) – Major fault indicated. Coast to Stop. “Flt RampStop” (4) – Major fault indicated. Ramp to Stop. “Flt CL Stop” (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer
		516	**MchBrngResetLog** Machine Bearing Reset Log Total number of resets performed on the P512 [MchBrngElpsdLife] parameter.	Default: Min/Max:	0 0 / 255	RO	32-bit Integer
		517	**MchLubeElpsdHrs** Machine Lubricant Elapsed Hours Accumulated machine hours since the most recent lubrication of the machine bearings. Can be reset without restriction. Use P472 [PredMaint Reset] to reset this parameter.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21474836.47	RO	32-bit Integer
		518	**MchLube EventLvl** Machine Lubricant Event Level Number of hours between scheduled lubrications of the machine bearings. Used for an early warning alarm or fault according to P519 [MchLubeEventActn]. Event is disabled when set to 0.	Units: Default: Min/Max:	Hrs 0.000 0.000 / 2147483648.000	RW	Real
		519	**MchLubeEventActn** Machine Lubricant Event Action Configures the response to a machine bearing lubrication event, which occurs when P518 [MchLube EventLvl] is met or exceeded. “Ignore” (0) – No action is taken. “Alarm” (1) – Type 1 alarm indicated. “Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. “FltCoastStop” (3) – Major fault indicated. Coast to Stop. “Flt RampStop” (4) – Major fault indicated. Ramp to Stop. “Flt CL Stop” (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer

Drive (Port 0) Speed Control File

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	**Speed Limits**	**520** ○	**Max Fwd Speed** Maximum Forward Speed Sets the forward speed high limit. Refer to P524 [Overspeed Limit].	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] P28 [Motor NP RPM] 650 / P27 [Motor NP Hertz] 78000 / P28 [Motor NP RPM] x P31 [Motor Poles]	RW	Real
		521 ○	**Max Rev Speed** Maximum Reverse Speed Sets the reverse speed high limit. Refer to P524 [Overspeed Limit].	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x –1.00 P28 [Motor NP RPM] x –1.00 - 650 / P27 [Motor NP Hertz] - 78000 / P28 [Motor NP RPM] x P31 [Motor Poles]	RW	Real
		522 ○	**Min Fwd Speed** Minimum Forward Speed Sets the low limit for speed reference after scaling is applied. Refer to P524 [Overspeed Limit].	Units: Default: Min/Max:	Hz RPM 0.00 650 / P27 [Motor NP Hertz] 78000 / P28 [Motor NP RPM] x P31 [Motor Poles]	RW	Real
		523 ○	**Min Rev Speed** Minimum Reverse Speed Sets the low limit for speed reference after scaling is applied. Refer to P524 [Overspeed Limit].	Units: Default: Min/Max:	Hz RPM 0.00 - 650 / P27 [Motor NP Hertz] - 78000 / P28 [Motor NP RPM] x P31 [Motor Poles]	RW	Real
		524 ○	**Overspeed Limit** Overspeed Limit Sets the incremental amount of the output frequency (above maximum speed: either P520 [Max Fwd Speed] or P521 [Max Rev Speed]) allowable for functions such as slip compensation. 	Units: Default: Min/Max:	Hz RPM Based on P27 [Motor NP Hertz]/P28 [Motor NP RPM] and Voltage Class 0.00 / P27 [Motor NP Hertz] 0.00 / (P28 [Motor NP RPM] / 3)	RW	Real
		525 ○	**Zero Speed Limit** Zero Speed Limit Establishes a band around zero speed that is used to determine when the drive considers the motor to be at zero speed.	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x 0.001 P28 [Motor NP RPM] x 0.001 Based on P27 [Motor NP Hertz]/P28 [Motor NP RPM] and Voltage Class	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	Speed Limits	**526** **527** **528**	**Skip Speed 1** **Skip Speed 2** **Skip Speed 3** Skip Speed *n* Sets a frequency at which the drive will not operate. Parameters are disabled if set to 0.	Units:	Hz RPM	RW	Real
				Default:	0.00		
				Min/Max:	P521 [Max Rev Speed] / P520 [Max Fwd Speed]		
		529	**Skip Speed Band** Skip Speed Band Sets the bandwidth around a skip speed. [Skip Speed Band] is split, applying 1/2 above and 1/2 below the skip speed. The same bandwidth applies to all skip speeds. Parameter is disabled if set to 0.	Units:	Hz RPM	RW	Real
				Default:	0.00		
				Min/Max:	0.00 / Based on P27 [Motor NP Hertz]/P28 [Motor NP RPM] and Voltage Class		

File	Group	No.	**Name** **Description**	**Values**		Read-Write	Data Type
SPEED CONTROL	Speed Ramp Rates	**535** **536**	**Accel Time 1** **Accel Time 2** Acceleration Time *n* Sets the acceleration rate for all speed changes. Defined as the time to accelerate from 0 to P27 [Motor NP Hertz] or P28 [Motor NP RPM], according to the setting in P300 [Speed Units]. Selection between Acceleration Time 1 and Acceleration Time 2 is controlled by a digital input function (see Digin Functions) or by Logic Command (sent over a communication network or DeviceLogix).	Units:	Secs	RW	Real
				Default:	10.00		
				Min/Max:	0.00 / 3600.00		
		537 **538**	**Decel Time 1** **Decel Time 2** Deceleration Time *n* Sets the deceleration rate for all speed changes. Defined as the time to decelerate from P27 [Motor NP Hertz] or P28 [Motor NP RPM] to 0, according to the setting in P300 [Speed Units]. Selection between Deceleration Time 1 and Deceleration Time 2 is controlled by a digital input function (see Digin Functions) or by Logic Command (sent over a communication network or DeviceLogix). Some stop modes (see P370 and P371) will cause the programmed decel time to be ignored during a stop command.	Units:	Secs	RW	Real
				Default:	10.00		
				Min/Max:	0.00 / 3600.00		
		539	**Jog Acc Dec Time** Jog Acceleration Deceleration Time Acceleration and deceleration rates while commanding jog (uses a jog speed reference).	Units:	Secs	RW	Real
				Default:	10.00		
				Min/Max:	0.00 / 3600.00		
		540	**S Curve Accel** S Curve Acceleration Sets the percentage of accel time applied to the ramp to soften (reduce jerk) the acceleration. Time is added, 1/2 at the beginning and 1/2 at the end of the ramp.  	Units:	%	RW	Real
				Default:	0.000		
				Min/Max:	0.000 / 100.000		
		541	**S Curve Decel** S Curve Deceleration Sets the percentage of decel time applied to the ramp to soften (reduce jerk) the deceleration. Time is added, 1/2 at the beginning and 1/2 at the end of the ramp.	Units:	%	RW	Real
				Default:	0.000		
				Min/Max:	0.000 / 100.000		

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	Speed Reference	**545** **550** ○ ⇄	**Spd Ref A Sel** **Spd Ref B Sel** Speed Reference A, B Select Selects the source for speed references while in "Auto" (typical) mode. When the drive is in "Manual" mode, these sources are overridden (see P327). [Spd Ref A Sel] is the drive's main speed reference. [Spd Ref B Sel] is an alternate speed reference. Selecting between Reference A and Reference B is controlled by a digital input function (see parameters 173**…**175 [DI Speed Sel *n*]) or by Logic Command bits 12…14 (sent over a communication network). When the speed reference is from a communication network, set this parameter to Port 0 and select parameter 874…877 [Port *n* Reference] as appropriate. If the speed reference is from an encoder, set this parameter to Port 0 and select parameter 134 [Aux Vel Feedback]. Configure parameter 132 [Aux Vel Fdbk Sel] to the appropriate encoder. To access these parameters, set P301 [Access Level] to option 2 "Expert."	Default: Min/Max:	871 551 0 / 159999	RW	32-bit Integer
		546 **551**	**Spd Ref A Stpt** **Spd Ref B Stpt** Speed Reference A, B Setpoint A constant speed value (similar to a preset speed) to be used as a possible source for P545 and P550.	Units: Default: Min/Max:	Hz RPM 0.0000 Hz −/+P27 [Motor NP Hertz] x 8 −/+P28 [Motor NP RPM] x 8	RW	Real
		547 **552**	**Spd Ref A AnlgHi** **Spd Ref B AnlgHi** Speed Reference A, B Analog High Used only when an analog input is selected as a speed reference according to P545/550 [Spd Ref *n* Sel]. Sets the speed that corresponds to P51/61 [Anlg In*n* Hi] on an I/O module. This establishes scaling throughout the range.	Units: Default: Min/Max:	Hz P520 [Max Fwd Speed] P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		548 **553**	**Spd Ref A AnlgLo** **Spd Ref B AnlgLo** Speed Reference A, B Analog Low Used only when an analog input is selected as a speed reference according to P545/550 [Spd Ref *n* Sel]. Sets the speed that corresponds to P51/61 [Anlg In*n* Lo] on an I/O module. This establishes scaling throughout the range.	Units: Default: Min/Max:	Hz 0.00 P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		549 **554**	**Spd Ref A Mult** **Spd Ref B Mult** Speed Reference A, B Multiplier Applies multipliers to speed references A and B respectively.	Default: Min/Max:	1.00 −/+22000.00	RW	Real
		555	**Spd Ref Scale** Speed Reference Scale Applies only in Flux Vector (FV) modes according to P35 [Motor Ctrl Mode]. Applies a multiplier to P595 [Filtered Spd Ref] after it has been offset by the PID function (P1093 [PID Output Meter]). The scaled result, once limited, will become the primary component of the value of P597 [Final Speed Ref].	Default: Min/Max:	1.000 0.000 / 1000.000	RW	Real
		556 **557**	**Jog Speed 1** **Jog Speed 2** Jog Speed *n* The speed used for jogging when the Jog 1 or Jog 2 function (respectively) is activated by a digital input function or by Logic Command (sent over a communication network).	Units: Default: Min/Max:	Hz Based on P27 [Motor NP Hertz]/P28 [Motor NP RPM] and Voltage Class −/+P27 [Motor NP Hertz] x 8 −/+P28 [Motor NP RPM] x 8	RW	Real
		558	**MOP Reference** Motor Operated Potentiometer Reference Value of the MOP (Motor Operated Potentiometer) Reference to be used as a possible source for P545/550 [Spd Ref *n* Sel]. The MOP Reference is activated (incremented or decremented) by digital input functions.	Units: Default: Min/Max:	% 0.00 −/+800.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	Speed Reference	**559**	**Save MOP Ref** Save Motor Operated Potentiometer Reference Enables/disables the feature that saves the present MOP Ref value at power down or stop.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	At Stop	At Pwr Down
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
		560	**MOP Rate** Motor Operated Potentiometer Rate Sets the rate of change of the MOP reference when an increasing or decreasing MOP signal is present.	Units: Default: Min/Max:	%/s 1.0000 0.0100 / 100.0000	RW	Real
		561	**MOP High Limit** Motor Operated Potentiometer High Limit Sets the upper limit for the MOP Reference.	Units: Default: Min/Max:	% 100.000 0.000 / 800.000	RW	Real
		562	**MOP Low Limit** Motor Operated Potentiometer Low Limit Sets the lower limit for the MOP Reference.	Units: Default: Min/Max:	% –100.000 –800.000 / 0.000	RW	Real
		563 ○ ⇄	**DI ManRef Sel** Digital Input Manual Reference Select Selects a speed reference to be used when a digital input activates Manual control, according to the operation described by P172 [DI Manual Ctrl].	Default: Min/Max:	872 1 / 159999	RW	32-bit Integer
		564	**DI ManRef AnlgHi** Digital Input Manual Reference Analog High High scale for the manual speed reference that is activated by a digital input when P563 [DI ManRef Sel] is connected to an Analog Input.	Units: Default: Min/Max:	Hz RPM P520 [Max Fwd Speed] P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		565	**DI ManRef AnlgLo** Digital Input Manual Reference Analog Low Used only when P563 [DI ManRef Sel] has selected an analog input as the source of the speed reference. Specifies the speed reference value that will be associated with the Analog In Lo parameter for the I/O Module. Example, P563 [DI ManRef Sel] has selected P50 [Anlg In0 Value] on an I/O Module. The P51 [Anlg In0 Hi] parameter on the I/O Module is set to -10 volts. P564 [DI ManRef AnlgHi] will specify the speed reference value that will correspond with a -10 volt analog input signal.	Units: Default: Min/Max:	Hz RPM 0.000 P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		566 ⇄	**MOP Init Select** Motor Operated Potentiometer Initialization Select Defines the initial MOP value when the MOP is not configured to start at the "At Power Down" or "At Stop" values selected in P559 [Save MOP Ref].	Default: Min/Max:	567 0 / 159999	RW	32-bit Integer
		567	**MOP Init Stpt** Motor Operated Potentiometer Initialization Setpoint A configurable set point to be used with the MOP initialization function.	Units: Default: Min/Max:	% 0 –/+8.00	RW	Real
		571 **572** **573** **574** **575** **576** **577**	**Preset Speed 1** **Preset Speed 2** **Preset Speed 3** **Preset Speed 4** **Preset Speed 5** **Preset Speed 6** **Preset Speed 7** Preset Speed *n* Discrete speed references that are activated by a digital input function (see Digin Functions) or by Logic Command (sent over a communication network or DeviceLogix).	Units: Default: Min/Max:	Hz RPM Based on P27 [Motor NP Hertz]/P28 [Motor NP RPM] and Voltage Class P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Reference	**588**	**Spd Ref Filter** Speed Reference Filter Selects the amount of filtering applied to the ramped speed reference (P594), and is only active in FV motor control modes (P35). When set to any of the custom settings (3, 4, or 5) the filter is configured using the values set in P589 [Spd Ref Fltr BW] and P590 [Spd Ref FltrGain]. Settings 4 and 5 initialize the values for light and heavy respectively.	Default: Options:	0 = "Off" 0 = "Off" 1 = "Light" 2 = "Heavy" 3 = "Custom" 4 = "SetCustLight" 5 = "SetCustHeavy"	RW	32-bit Integer
		589	**Spd Ref Fltr BW** Speed Reference Filter Bandwidth Sets the bandwidth of the speed reference filter when P588 [Spd Ref Filter] is set to one of the "Custom" settings (3, 4, or 5) A value of zero will disable (bypass) the filter.	Units: Default: Min/Max:	R/S 0.00 0.00 / 500.00	RW	Real
		590	**Spd Ref FltrGain** Speed Reference Filter Gain Sets the gain (kn) of the speed reference filter when P588 [Spd Ref Filter] is set to one of the "Custom" settings (3, 4, or 5). A gain value of zero results in a filter characteristic that behaves as a first order low pass. A gain value ranging between zero and one results in a lag type filter. A gain value greater than one results in a lead type filter. A gain value of one will disable (bypass) the filter. This is the default setting. This parameter has no units.	Default: Min/Max:	1.000 –/+5.000	RW	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
SPEED CONTROL	Speed Reference	**591**	**Spd Ref Sel Sts** Speed Reference Select Status		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Skip Band	End Lmt Sw	Decel Lmt Sw	Unipolar Ref	Rev Disable	Bipolar Ref	Sel Override	Manual	Preset Auto	Trim Ref	Trim Pct Ref	MicroPsnMult	Ref B Mult	Ref A Mult	Ref B Auto	Ref A Auto
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Displays the operating status of the speed referencing section of the drive. Individual bits are provided to represent the following conditions:

Bit 0 “Ref A Auto” – When set, the Reference A Auto path is active.

Control Logic has selected the Speed Reference source A. The exact origin of this speed reference is determined by the parameter specified in P545 [Spd Ref A Sel]. This parameter should also be reported in P930 [Speed Ref Source].

Bit 1 “Ref B Auto” – When set, the Reference B Auto path is active.

Control Logic has selected the Speed Reference source B. The exact origin of this speed reference is determined by the value specified in P550 [Spd Ref B Sel]. This parameter should also be reported in P930 [Speed Ref Source].

Bit 2 “Ref A Mult” – When set, speed reference A is being modified by P549 [Spd Ref A Mult]. When clear, either the multiplier is 1 or is not affecting the speed reference because the Ref A Auto path is inactive.

Bit 3 “Ref B Mult” – When set, the speed reference B is being modified by P554 [Spd Ref B Mult]. When clear, either the multiplier is 1 or is not affecting the speed reference because the “Ref B Auto” path is inactive.

Bit 4 “MicroPsnMult” – When set, P592 [Selected Spd Ref] is being multiplied by P1112 [MicroPsnScalePct].

Bit 5 “Trim Pct Ref” – When set, the speed reference is summed with a portion of the reference that results from multiplying the reference by the value of the parameter indicated in P616 [SpdTrimPrcRefSrc].

Bit 6 “Trim Ref” – When set, the speed reference is being offset by the value of the parameter indicated in P617 [Spd Trim Source].

Bit 7 “Preset Auto” – When set, Control Logic has selected a preset auto speed reference. The P930 [Speed Ref Source] parameter will indicate the source of this reference.

Bit 8 “Manual” – When set, the speed reference selection is in one of the Manual positions due to P879 [Drive Logic Rslt] Bit 6 “Manual” being set. When P879, Bit 6 is clear, the speed reference selection is in one of the Auto positions. The result of the Auto/Manual speed reference selection can be seen in P592 [Selected Spd Ref].

Bit 9 “Sel Override” – The Selected Speed Reference parameter has been overridden by another reference. Refer to P930 [Speed Ref Source] for the cause of the override.

Bit 10 “Bipolar Ref” – When set, P308 [Direction Mode] = 1 “Bipolar.” When in bipolar mode, the sign of the speed reference value will determine the direction of motor rotation.

Bit 11 “Rev Disable” – When set, P308 [Direction Mode] = 2 “Rev Disable.” When in reverse disable mode, negative speed reference values are rejected and a zero speed value is used in their place.

Bit 12 “Unipolar Ref” – When set, P308 [Direction Mode] = 0 “Unipolar.” When in unipolar mode, the sign of the speed reference value (and therefore direction of motor rotation) is determined by P879 [Drive Logic Rslt] Bit 4 “Forward” and Bit 5 “Reverse.”

Bit 13 “Decel Lmt Sw” – When set, the Torque Proving function’s control logic has detected a decel limit switch active and has selected P571 [Preset Speed 1] for the speed reference value.

Bit 14 “End Lim Sw” – When set, the Torque Proving function’s control logic has detected an end limit switch active and has selected zero speed for the speed reference value.

Bit 15 “Skip Band” – When set, the Skip Band function has modified P2 [Commanded SpdRef]. When clear, the Skip Band function has not changed P2 [Commanded SpdRef].

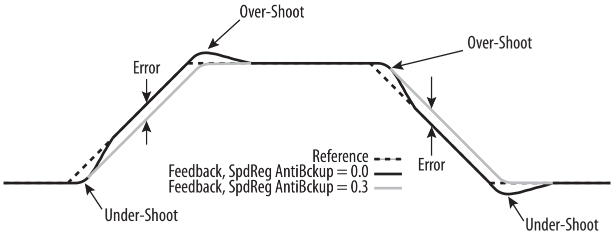
File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	Speed Reference	**592**	**Selected Spd Ref** Selected Speed Reference Displays the value of the active speed reference.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real
		593	**Limited Spd Ref** Limited Speed Reference Displays the value of the speed reference after the following limits have been applied: P520 [Max Fwd Speed], P521 [Max Rev Speed], P522 [Min Fwd Speed] and P523 [Min Rev Speed].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real
		594	**Ramped Spd Ref** Ramped Speed Reference Displays the output of the speed reference ramp and S-curve functions, but prior to any corrections added by slip comp, PI, etc.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real
		595	**Filtered Spd Ref** Filtered Speed Reference Displays the output of the filter that is applied by P588 [Spd Ref Filter].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real
		596	**Speed Rate Ref** Speed Rate Reference This parameter is shared by both the Inertia Compensation and Speed Compensation functions. These functions are only available in the Flux Vector selections for P35 [Motor Ctrl Mode]. A value shared by both the Inertia Compensation and Speed Compensation functions (active only in FV motor control modes), typically supplied by an external controller that is also providing a rate limited speed reference. The Speed Rate Reference corresponds to the derivative with respect to time of the speed reference signal. Units of time are in seconds. For example, if the controller provides a 10 second reference ramp, the controller would also supply a Speed Rate Ref value of 1 pu / 10 sec = 0.1 sec-1 while the reference is accelerating. When the reference is constant, Speed Rate Ref should be zero.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RW	Real
		597	**Final Speed Ref** Final Speed Reference Displays the speed reference value, after all reference modifications (including ramps), that is used as a final reference by the speed regulator. In Open Loop, Sensorless Vector mode, this value represents the anticipated motor operating speed, and may differ slightly from the output frequency value due to slip compensation.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	Speed Trim	**600** **604** ○ ⇄	**Trim Ref A Sel** **Trim Ref B Sel** Trim Reference A, B Select Selects a trim source (in Hz or RPM) for Speed Reference A or Speed Reference B, respectively. For trim in % instead of Hz or RPM, use P608/612 (TrimPct Ref*n* Sel).	Default: Min/Max:	P601 [Trim Ref A Sel] P605 [Trim Ref B Stpt] 0 / 159999	RW	32-bit Integer
		601 **605**	**Trim Ref A Stpt** **Trim Ref B Stpt** Trim Reference A, B Setpoint A digital value to be used as a possible trim source for P600 or P604, respectively	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM] x 8	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	**Speed Trim**	**602** **606**	**Trim RefA AnlgHi** **Trim RefB AnlgHi** Trim Reference A, B Analog High Used only when an analog input is selected as a trim source according to P600 or P604. Sets the amount of trim that corresponds to P51/61 [Anlg In*n* Hi] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	Hz RPM P520 [Max Fwd Speed] P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		603 **607**	**Trim RefA AnlgLo** **Trim RefB AnlgLo** Trim Reference A, B Analog Low Used only when an analog input is selected as a trim source according to P600/604 [Trim Ref *n* Sel]. Sets the amount of trim that corresponds to P52/62 [Anlg In*n* Lo] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	Hz RPM 0.00 P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		608 **612** ○ ⇄	**TrmPct RefA Sel** **TrmPct RefB Sel** Trim Percent Reference A, B Select Selects a trim source (in %) for Speed Reference A or Speed Reference B, respectively. For trim in Hz or RPM instead of %, use P600/604 [Trim Ref *n* Sel].	Default: Min/Max:	P609 [TrmPct RefA Stpt] P613 [TrmPct RefB Stpt] 0 / 159999	RW	32-bit Integer
		609 **613**	**TrmPct RefA Stpt** **TrmPct RefB Stpt** Trim Percent Reference A, B Setpoint A digital value to be used a possible trim source for P608 or P612, respectively.	Units: Default: Min/Max:	% 0.000 −/+800.000	RW	Real
		610 **614**	**TrmPct RefA AnHi** **TrmPct RefB AnHi** Trim Percent Reference A, B Analog High Used only when an analog input is selected as a percent trim source according to P608 or P612. Sets the amount of trim that corresponds to P51/61 [Anlg In*n* Hi] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	% 100.00 −/+800.00	RW	Real
		611 **615**	**TrmPct RefA AnLo** **TrmPct RefB AnLo** Trim Percent Reference A, B Analog Low Used only when an analog input is selected as a percent trim source according to P608 or P612. Sets the amount of trim that corresponds to P52/62 [Anlg In*n* Lo] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	% 0.00 −/+800.00	RW	Real
		616	**SpdTrimPrcRefSrc** Speed Trim Percent Reference Source Displays the source of Motor Speed Reference Trim Percent, in the format SSPPPP, where SS indicates the source port number other than Port 0 and PPPP indicates the source parameter number. A value of zero indicates that a source has not been assigned.	Default: Min/Max:	0 0 / 159999	RO	32-bit Integer
		617	**Spd Trim Source** Speed Trim Source Displays the source of Motor Speed Reference Trim, in the format SSPPPP, where SS indicates the source port number other than Port 0 and PPPP indicates the source parameter number. A value of zero indicates that a source has not been assigned.	Default: Min/Max:	0 0 / 159999	RO	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	Slip/Droop Comp	**620**	**Droop RPM at FLA** Droop Revolutions Per Minute at Full Load Amps Selects amount of droop that the speed reference is reduced when at full load torque. Zero disables the droop function.	Units: Default: Min/Max:	RPM 0.00 0.00 / 900.00	RW	Real
		621	**Slip RPM at FLA** Slip Revolutions Per Minute at Full Load Amps For open loop modes, this parameter sets the amount of slip (in rpm) that the motor is expected to experience at full load. A setting of zero disables slip compensation (not used in closed loop modes with encoder feedback). If the value of P70 [Autotune] is set to "Calculate", this value (in addition to others) is automatically calculated, and cannot be manually adjusted. This parameter cannot be changed unless P70 [Autotune] is set to 0 "Ready."	Units: Default: Min/Max:	RPM (P27 [Motor NP Hz] x 120) / (P31 [Motor Poles] – P28 [Motor NP RPM]) 0.00 / 1200.00	RW	Real
		622	**Slip Comp BW** Slip Compensation Bandwidth Adjusts the bandwidth of a low pass filter used for slip compensation. The response time of slip compensation will vary inversely with the setting of this filter.	Units: Default: Min/Max:	R/S 10.00 1.00 / 50.00	RW	Real
		623	**VHzSV SpdTrimReg** Volts per Hertz Sensorless Vector Speed Trim Regulator Displays the amount of trim that the slip compensation function dynamically adds (based on load) to final speed reference for improved open loop speed control. Not used in Flux Vector (FV) modes.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="2">SPEED CONTROL</td><td rowspan="2">Speed Regulator</td><td>635</td><td colspan="3">**Spd Options Ctrl**
Speed Options Control
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Delayed Ref</td><td>Auto Tach SW</td><td>Jog No Integ</td><td>SpdErrFilter</td><td>SpdRegIntHld</td><td>SpdRegIntRes</td><td>StpNoSCrvAcc</td><td>Ramp Disable</td><td>Ramp Hold</td><td rowspan="3">0 = False
1 = True</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
Configures options related to Speed Control as follows:
Bit 0 “Ramp Hold” – The output of the speed reference ramp will stop changing and hold its output constant while this bit is set. When this bit is clear, the ramp output will be allowed to change. If this bit becomes set while P594 [Ramped Spd Ref] is in the S Curve region, the S Curve will be allowed to complete before the output is held.
Bit 1 “Ramp Disable” – When set, the speed reference ramp will be bypassed. P594 [Ramped Spd Ref] will track the ramp input.
Bit 2 “StpNoSCrvAcc” – There are some conditions where the drive may continue to accelerate briefly following a request to stop. This will occur if the drive was in the process of accelerating on an S Curve when the stop request occurred. This bit enables an option to discontinue acceleration immediately when the stop request occurs. The S Curve profile that was in process will then change to a linear decel ramp.
Bit 3 “SpdRegIntRes” – When set, the P654 [Spd Reg Int Out] which is the output of the Vector mode speed regulator’s integral term will be forced to zero. The same result can be achieved by setting the regulator’s integral gain to zero.
Bit 4 “SpdRegIntHld” – When set, the P654 [Spd Reg Int Out] which is the output of the Vector mode speed regulator’s integral term will stop changing and be held constant. Other conditions in the drive such as a limit condition in P945 [At Limit Status] may have the same result.
Bit 5 “SpdErrFilter” – When set, the speed error filter in the drive’s Vector mode speed regulator will be configured for a single stage low pass filter. When clear, the error filter will be configured for a two stage low pass filter. The two stage configuration is the normal or default setting for the error filter.
Bit 6 “Jog No Integ” – When set, the P654 [Spd Reg Int Out] which is the output of the Vector mode speed regulator’s integral term will be forced to zero while jogging.
Bit 7 “Auto Tach SW” – This bit is used to enable the Automatic Tach Switchover feature. This feature is used to switch motor velocity feedback sources from the Primary (P125) to Alternate (P128) source in the event that the primary source fails. This switchover can take place while the drive is running. The P936 [Drive Status 2] Bit 5 “FdbkLoss SwO” will indicate clear when the Primary source is active and set when the alternate source is active.
• When using the Automatic Tach Switchover feature, the Feedback Loss Configuration parameter on the feedback module should be set to something other than fault.
• When using induction motors, clearing this bit when the alternate source is active will restore control to the Primary source, provided that the primary source is functioning.
• When using permanent magnet motors, cycling power to the drive will restore control to the Primary source, provided that the primary source is functioning. If this bit remains off, then the Automatic Tach Switchover feature will be disabled.
Important: The Primary feedback source uses the P126 [Pri Vel FdbkFltr] filter setting and tuning gains set in P636 [Speed Reg BW], P645 [Speed Reg Kp], and P647 [Speed Reg Ki]. The Alternate feedback sources uses the P129 [Alt Vel FdbkFltr] filter setting and tuning gains set in P648 [Alt Speed Reg BW], P649 [Alt Speed Reg Kp], and P650 [Alt Speed Reg Ki].
Bit 8 “Delayed Ref” – When this bit is set, an additional processor scan delay period is inserted between the P594 [Ramped Spd Ref] and the input to the Speed Reference filter. This delay is intended to be used in applications where multiple, coordinated drives are used. A drive that supplies the speed reference for use by other drives to follow would typically use this delay. The delay would allow time for the speed reference to reach the other units before it is acted upon by the sourcing unit, thereby synchronizing the speed reference among all units. When this bit is clear, no speed reference delay is inserted.
Bit 9 “NoSCrvSpdChg” – Set this bit to discontinue the S Curve acceleration/deceleration profile immediately when the actual speed reference changes while completing the desired S Curve. The S Curve profile restarts on the new acceleration/deceleration ramp.</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td>636</td><td>**Speed Reg BW**
Speed Regulator Bandwidth
Sets the speed loop bandwidth and determines the dynamic behavior of the speed loop. As bandwidth increases, the speed loop becomes more responsive and can track a faster changing speed reference. A change to this parameter will cause an automatic update of P645 [Speed Reg Kp], P647 [Speed Reg Ki] and P644 [Spd Err Fltr BW]. The configuration settings for Inertia Adaption (product dependent) will also be automatically selected when this feature is enabled. To disable the automatic gain and filter update, set this parameter to a value of zero.
The maximum allowable value of this parameter will be limited by the ratio of P646 [Speed Reg Max Kp] to P76 [Total Inertia], and the type of speed feedback source in use (encoder vs. open loop). For operation following an Automatic Tach Switchover, the bandwidth specified in P648 [Alt Speed Reg BW] will be used.</td><td>Units:
Default:
Min/Max:</td><td>R/S
Calculated
0.00 / Calculated</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Regulator	637	**SReg FB Fltr Sel** Speed Regulator Feedback Filter Select Selects the amount of filtering applied to the feedback channel of the speed regulator, and is only active in FV motor control modes (P35). When set to any of the custom settings (3, 4, or 5) the filter is configured using the values set in P638 [SReg FB FltrGain] and P639 [SReg FB Fltr BW]. Settings 4 and 5 initialize the values for light and heavy respectively.	Default: Options:	0 = "Off" 0 = "Off" 1 = "Light" 2 = "Heavy" 3 = "Custom" 4 = "SetCustLight" 5 = "SetCustHeavy"	RW	32-bit Integer
		638	**SReg FB FltrGain** Speed Regulator Feedback Filter Gain Sets the gain of the speed regulator feedback filter when P637 [SReg FB Fltr Sel] is set to one of the "Custom" settings (3, 4, or 5). A gain value of zero results in a filter characteristic that behaves as a first order low pass. A gain value ranging between zero and one results in a lag type filter. A gain value greater than one results in a lead type filter. A gain value of one will disable (bypass) the filter.	Default: Min/Max:	0.700 –5.000 / 20.000	RW	Real
		639	**SReg FB Fltr BW** Speed Regulator Feedback Filter Bandwidth Sets the bandwidth of the speed regulator feedback filter when P637 [SReg FB Fltr Sel] is set to one of the "Custom" settings (3, 4, or 5). A value of zero will disable (bypass) the filter.	Units: Default: Min/Max:	R/S 35.00 0.00 / 3760.00	RW	Real
		640	**Filtered SpdFdbk** Filtered Speed Feedback Displays the output of the filter that is applied by P637 [SReg FB Fltr Sel].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		641	**Speed Error** Speed Error Displays the error (difference) between the P597 [Final Speed Ref] (+) and the P640 [Filtered SpdFdbk] (–). This error signal is the primary input for the Vector control mode speed regulator.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		642	755 **Servo Lock Gain** Servo Lock Gain Sets the gain of an additional integrator in the Vector control mode speed regulator. The effect of Servo Lock is to increase stiffness of the speed response to a load disturbance. It behaves like a position regulator with velocity feed forward, but without the pulse accuracy of a true position regulator. Gain should normally be set to less than 1/3 speed regulator bandwidth, or for the desired response. A value of zero disables this feature.	Units: Default: Min/Max:	/Sec 0.000 0.000 / 300.000	RW	Real
		643	**SpdReg AntiBckup** Speed Regulator Anti-backup Allows control of over-shoot/under-shoot in the step response of the Vector control mode speed regulator. Over-shoot/under-shoot can be effectively eliminated with a setting of 0.3, which will remove backup of the motor shaft when zero speed is reached. This parameter has no affect on the drive's response to load changes. A value of zero disables this feature.  	Default: Min/Max:	0.0000 0.0000 / 0.5000	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	Speed Regulator	**644**	**Spd Err Fltr BW** Speed Error Filter Bandwidth Sets the bandwidth of a 2nd order Butterworth low pass filter that is located in the proportional gain section of the speed regulator (in FV motor control modes). It filters a signal that is derived from P641 [Speed Error]. The purpose of this filter is to reduce quantization noise. When P636 [Speed Reg BW] is set to a non-zero value, this filter will be automatically set. If P636 [Speed Reg BW] is set to zero, this filter setting must be manually adjusted. It is normally set to at least 3 to 5 times the value of P636 [Speed Reg BW]. A value of zero disables the filter. The rules that are used to set the error filter bandwidth in automatic mode are as follows: 1. If the primary motor velocity feedback is Open Loop, then the error filter is set to 5 times P636 [Speed Reg BW]. 2. If a primary motor velocity feedback device has been selected and P704 [InAdp LdObs Mode] = 1 "InertiaAdapt," then the error filter is set to 3 times P636 [Speed Reg BW]. 3. If a primary motor velocity feedback device has been selected and P704 [InAdp LdObs Mode] = 0 "Disabled" or 2 "LoadObserver" then the error filter is using a table look up value determined by the setting of P126 [Pri Vel FdbkFltr]. **Important:** When Auto Tach Switchover is enabled through P635 [Spd Options Ctrl], this filter adjustment applies only to the primary feedback source. The filter setting P651 [AltSpdErr FltrBW] is used for the alternate feedback source.	Units: Default: Min/Max:	R/S 50.00 0.00 / 8000.00	RW	Real
		645	**Speed Reg Kp** Speed Regulator Kp Sets the proportional gain of the speed regulator (in FV motor control modes). This value is automatically calculated based on the bandwidth setting in P636 [Speed Reg BW] and P76 [Total Inertia]. The proportional gain may be manually adjusted by setting P636 [Speed Reg BW] to a value of zero. Proportional gain has effective scaling of (per unit torque) / (per unit speed). The maximum allowable value of this parameter is limited by P76 [Total Inertia] and P646 [Speed Reg Max Kp].	Default: Min/Max:	20.00 0.00 / P646 [Speed Reg Max Kp]	RW	Real
		646	**Speed Reg Max Kp** Speed Regulator Maximum Kp Limits the maximum value of P645 [Speed Reg Kp] and P649 [Alt Speed Reg Kp]. When gains are automatically calculated, this parameter is necessary to limit the amplification of noise with increased inertia.	Default: Min/Max:	3000.00 0.00 / 3000.00	RW	Real
		647	**Speed Reg Ki** Speed Regulator Ki Sets the integral gain of the speed regulator (in FV motor control modes). This value is automatically calculated based on the bandwidth setting in P636 [Speed Reg BW], P645 [Speed Reg Kp] and P653 [Spd Loop Damping]. Integral gain may be manually adjusted by setting P636 [Speed Reg BW] to a value of zero. Integral gain has effective scaling of (per unit torque/seconds) / (per unit speed).	Units: Default: Min/Max:	/Sec 50.00 0.00 / 100000.00	RW	Real
		648	**Alt Speed Reg BW** Alternate Speed Regulator Bandwidth Provides an independent setting for the same function as P636 [Speed Reg BW], but is active only when Automatic Feedback Loss Switchover occurs (indicated by Bit 5 of P936 [Drive Status 2]). A change to this parameter will cause an automatic update of P649 [Alt Speed Reg Kp], P650 [Alt Speed Reg Ki] and P651 [AltSpdErr FltrBW]. See P636 for additional information regarding speed regulator bandwidth. Also see P635 [Spd Options Ctrl] to enable the Auto Tach Switchover feature.	Units: Default: Min/Max:	R/S 10.00 0.00 / Calculated	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Regulator	649	**Alt Speed Reg Kp** Alternate Speed Regulator Kp Provides an independent setting for the same function as P645 [Speed Reg Kp], but is active only when Automatic Feedback Loss Switchover occurs (indicated by Bit 5 of P936 [Drive Status 2]). This value is automatically calculated based on the bandwidth setting in P648 [Alt Speed Reg BW] and P76 [Total Inertia]. The proportional gain may be manually adjusted by setting P648 [Alt Speed Reg BW] to a value of zero.	Default: Min/Max:	20.00 0.00 / Calculated	RW	Real
		650	**Alt Speed Reg Ki** Alternate Speed Regulator Ki Provides an independent setting for the same function as P647 [Speed Reg Ki], but is active only when Automatic Feedback Loss Switchover occurs (indicated by Bit 5 of P936 [Drive Status 2]). This value is automatically calculated based on the bandwidth setting in P648 [Alt Speed Reg BW], P649 [Alt Speed Reg Kp] and P653 [Spd Loop Damping]. Integral gain may be manually adjusted by setting P648 [Alt Speed Reg BW] to a value of zero.	Default: Min/Max:	50.00 0.00 / 100000.00	RW	Real
		651	**AltSpdErr FltrBW** Alternate Speed Error Filter Bandwidth Provides an independent setting for the same function as P644 [Spd Err Fltr BW], but is active only when Automatic Feedback Loss Switchover occurs (indicated by Bit 5 of P936 [Drive Status 2]). When P648 [Alt Speed Reg BW] is set to a non-zero value, this filter setting will be automatically selected. If P648 [Alt Speed Reg BW] is set to zero, then this filter setting must be manually adjusted. An error filter value of 0 will disable the filter. This filter is normally set to at least 3 to 5 times the value of P648 [Alt Speed Reg BW]. Units for the error filter are radians/second (R/S). The rules that are used to set the error filter bandwidth in automatic mode are as follows: 1. If the alternate motor velocity feedback is Open Loop, then the error filter is set to 5 times P648 [Alt Speed Reg BW]. 2. If an alternate motor velocity feedback device has been selected and P704 [InAdp LdObs Mode] = 1 "InertiaAdapt," then the error filter is set to 3 times P648 [Alt Speed Reg BW]. 3. If an alternate motor velocity feedback device has been selected and P704 [InAdp LdObs Mode] 0 "Disabled" or 2 "LoadObserver" then the error filter is using a table look up value determined by the setting of P129 [Alt Vel FdbkFltr].	Units: Default: Min/Max:	R/S 50.00 0.00 / 8000.00	RW	Real
		652	**SReg Trq Preset** Speed Regulator Torque Preset Sets the initial value of P654 [Spd Reg Int Out]. This is the output of the vector speed regulator's integral channel, and will be present in P654 [Spd Reg Int Out] when the regulator is first enabled (for example, upon rise of start or jog). The normal, default setting for this parameter is zero. In some applications, it may be necessary to preset the speed regulator integrator to a non-zero setting. This will result in the regulator's output reaching its final steady state value sooner than it would if the integrator started from zero.	Units: Default: Min/Max:	% 0.00 –/+800.00	RW	Real
		653	**Spd Loop Damping** Speed Loop Damping Sets the damping factor of the vector speed loop's characteristic equation. Damping will affect the integral gain when a non-zero bandwidth has been entered. A damping factor of 1.0 is considered critical damping. Lowering the damping will produce faster load disturbance rejection, but may cause a more oscillatory response. When the speed regulator bandwidth is zero, gains are set manually and damping factor has no effect.	Default: Min/Max:	1.0000 0.5000 / 65.0000	RW	Real

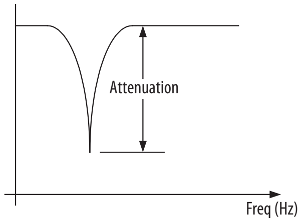
File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
SPEED CONTROL	**Speed Regulator**	**654**	**Spd Reg Int Out** Speed Regulator Integrator Output Displays the current value of the vector speed regulator's integral channel. A value of 100% represents rated motor torque.	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real
		655	**Spd Reg Pos Lmt** Speed Regulator Positive Limit Adjusts the upper limit of the vector speed regulator's output. A value of 100% represents rated motor torque.	Units: Default: Min/Max:	% 300.00 0.00 / 600.00	RW	Real
		656	**Spd Reg Neg Lmt** Speed Regulator Negative Limit Adjusts the lower limit of the vector speed regulator's output. A value of 100% represents rated motor torque.	Units: Default: Min/Max:	% –300.00 –600.00 / 0.00	RW	Real
		657	**SReg OutFltr Sel** Speed Regulator Output Filter Select Selects the amount of filtering applied to the vector speed regulator's output. When set to any of the custom settings (3, 4, or 5) the filter is configured using the values set in P658 [SReg OutFltrGain] and P659 [SReg OutFltr BW]. Settings 4 and 5 initialize the values for light and heavy respectively.	Default: Options:	0 = "Off" 0 = "Off" 1 = "Light" 2 = "Heavy" 3 = "Custom" 4 = "SetCustLight" 5 = "SetCustHeavy"	RW	32-bit Integer
		658	**SReg OutFltrGain** Speed Regulator Output Filter Gain Sets the gain of the vector speed regulator's output filter when P657 [SReg OutFltr Sel] is set to one of the "Custom" settings (3, 4, or 5). A gain value of zero results in a filter characteristic that behaves as a first order low pass. A gain value ranging between zero and one results in a lag type filter. A gain value greater than one results in a lead type filter. A gain value of one will disable (bypass) the filter.	Default: Min/Max:	1.000 –/+5.000	RW	Real
		659	**SReg OutFltr BW** Speed Regulator Output Filter Bandwidth Sets the bandwidth of the speed regulator's output filter when P657 [SReg OutFltr Sel] is set to one of the "Custom" settings (3, 4, or 5). A value of zero will disable (bypass) the filter.	Units: Default: Min/Max:	R/S 35.00 0.00 / 3760.00	RW	Real
		660	**SReg Output** Speed Regulator Output Displays the output of the vector speed regulator. This signal will be routed to the P685 [Selected Trq Ref] when P313 [Actv SpTqPs Mode] has selected the output of the speed regulator. A value of 100% represents rated motor torque.	Units: Default: Min/Max:	% 0.00 –/+ 800.00	RO	Real
		663	**VHzSV Spd Reg Kp** Volts per Hertz Sensorless Vector Speed Regulator Proportional Gain Adjusts the proportional gain of the Speed Regulator used in non-vector modes according to P35 [Motor Ctrl Mode]. The output of this regulator will adjust P623 [VHzSV SpdTrimReg] when P131 [Active Vel Fdbk] originates from a feedback device.	Default: Min/Max:	20.00 0.00 / 3000.00	RW	Real
		664	**VHzSV Spd Reg Ki** Volts per Hertz Sensorless Vector Speed Regulator Integral Gain Adjusts the integral gain of the Speed Regulator used in non-vector modes according to P35 [Motor Ctrl Mode]. The output of this regulator will adjust P623 [VHzSV SpdTrimReg] when P131 [Active Vel Fdbk] originates from a feedback device.	Units: Default: Min/Max:	/Sec 50.00 0.00 / 100000.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
SPEED CONTROL	Speed Comp	**665**	**Speed Comp Sel** Speed Compensation Select Configures the Speed Compensation function, which is used in Vector Control modes to create a feed forward compensation that is added into the speed reference. This helps compensate for position tracking errors during acceleration. These tracking errors are caused by the sample and hold process and delays caused by the position to velocity FIR filter. Speed Compensation will help reduce position error in position follower applications. Available settings for this parameter are: "Disabled" (0) – Function is disabled, speed compensation does not affect the speed reference. "Ramped Ref" (1) – Speed compensation function is enabled and uses an internally generated ramped speed reference signal. The rate of change (derivative) of the speed reference becomes the input to the Speed Compensation function. This is the most common setting when speed compensation is in use. "Rate Ref" (2) – Speed compensation function is enabled and uses an externally generated speed rate signal. The rate of change or derivative of the speed reference is supplied by P596 [Speed Rate Ref]. This signal is typically supplied by an external controller when the speed reference ramp is generated external to the drive.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Ramped Ref" 2 = "Rate Ref"	RW	32-bit Integer
		666	**Speed Comp Gain** Speed Compensation Gain Adjusts the magnitude of P667 [Speed Comp Out]. This gain can be either manually set or automatically determined as part of automatic gain mode for Vector speed control. Automatic mode can be activated by selecting a motor speed feedback device in P125 [Pri Vel Fdbk Sel] and setting a non-zero speed regulator bandwidth in P636 [Speed Reg BW]. In automatic mode, the gain is calculated internally using a table lookup from the interrupt times and delays of the speed feedback FIR filter. For any other case – non-vector control, open loop speed feedback, or zero bandwidth setting, the speed compensation gain must be manually adjusted.	Default: Min/Max:	−2.50 −/+32767.00	RW	Real
		667	**Speed Comp Out** Speed Compensation Output Displays the output of the Speed Compensation function. This value will be summed with the speed reference, following the application of P555 [Spd Ref Scale].	Units: Default: Min/Max:	Hz RPM 0.00 −/+P27 [Motor NP Hertz] x 8 −/+P28 [Motor NP RPM] x 8	RO	Real

Drive (Port 0) Torque Control File

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Torque Limits	670	**Pos Torque Limit** Positive Torque Limit Defines the torque limit for the positive torque reference value. The reference will not be allowed to exceed this value. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 200.00 0.00 / 800.00	RW	Real
		671	**Neg Torque Limit** Negative Torque Limit Defines the torque limit for the negative torque reference value. The reference will not be allowed to exceed this value. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% –200.00 –800.00 / 0.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Torque Reference	675 680 ○ ⇄	**Trq Ref A Sel** **Trq Ref B Sel** Torque Reference A, B Select Selects the source for a torque reference, used when the drive is configured to command torque according to P309…312 [SpdTrqPsn Mode *n*]. The values of the torque reference sources are added together to provide a single torque reference. Only active in Flux Vector (FV) motor control modes (P35).	Default: Min/Max:	676 681 0 / 159999	RW	32-bit Integer
		676 681	**Trq Ref A Stpt** **Trq Ref B Stpt** Torque Reference A, B Setpoint A digital torque value to be used as a possible source for P675 and P680 respectively. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 0.00 –/+800.00	RW	Real
		677 682	**Trq Ref A AnlgHi** **Trq Ref B AnlgHi** Torque Reference A, B Analog High Used only when an analog input is selected as a torque reference according to P676 or P681. Sets the torque value that corresponds to P51/61 [Anlg In*n* Hi] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 100.00 –/+800.00	RW	Real
		678 683	**Trq Ref A AnlgLo** **Trq Ref B AnlgLo** Torque Reference A, B Analog Low Used only when an analog input is selected as a torque reference according to P676 or P681. Sets the torque value that corresponds to P52/62 [Anlg In*n* Lo] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 0.00 –/+800.00	RW	Real
		679 684	**Trq Ref A Mult** **Trq Ref B Mult** Torque Reference A, B Multiplier A multiplier that is applied to the values referenced by P675 and P680 respectively. A value of 1 leaves the reference unaffected. Negative values invert the reference. Only active in Flux Vector (FV) motor control modes (P35).	Default: Min/Max:	1.000 –/+1000.000	RW	Real

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Torque Reference	685	**Selected Trq Ref** Selected Torque Reference Displays the torque value of the selected torque reference (dynamic selection according to P313 [Actv SpTqPs Mode]). This value will be summed with P686 [Torque Step]. The result is then applied to the input of the notch filter located in the Vector torque reference section. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real
		686	**Torque Step** Torque Step Defines the amount of torque reference step change to simulate a load disturbance, used to test the response. This value is added to the main torque reference P685 [Selected Trq Ref], and then applied to the input of the notch filter located in the Vector control torque reference section. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 0.00 –/+800.00	RW	Real
		687	**Notch Fltr Freq** Notch Filter Frequency The center frequency for the Notch filter located in the Vector control torque reference section. To disable, set to zero (0). Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	Hz 0.00 0.00 / 500.00	RW	Real
		688	**Notch Fltr Atten** Notch Filter Attenuation Sets the attenuation of the notch filter located in the Vector control torque reference section. Attenuation is the ratio of the notch filter input signal to its output at the P687 [Notch Fltr Freq]. An attenuation of 30 means that the notch output is 1/30th of the input at the specified frequency. Only active in Flux Vector (FV) motor control modes (P35). 	Default: Min/Max:	50.000 0.000 / 10000.000	RW	Real
		689	**Filtered Trq Ref** Filtered Torque Reference Displays the output of the notch filter defined by P687 and P688. If P704 [InAdp LdObs Mode] indicates that either the Inertia Adaption or Load Estimate functions are active, then the filtered torque reference will also be modified by these functions. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real
		690	**Limited Trq Ref** Limited Torque Reference Displays the torque reference value after filtering (P689), power limits, torque limits, and current limits have been applied. P945 [At Limit Status] indicates what limiting conditions are active. Motor power limits are set by P426 [Regen Power Lmt] and P427 [Motor Power Lmt]. Motor torque limits are set by P670 [Pos Torque Limit] and P671 [Neg Torque Limit]. Motor current limit is set by P422 [Current Limit 1] or P423 [Current Limit 2]. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
TORQUE CONTROL	**Inertia Comp**	**695**	755 **Inertia CompMode** Inertia Compensation Mode The inertia compensation function calculates a feed forward torque signal P699 [Inertia Comp Out]. Inertia compensation attempts to predict the motor torque required to accelerate and decelerate an inertial load. The P699 [Inertia Comp Out] signal is summed with P660 [SReg Output] and becomes an input available to the P313 [Actv SpTqPs Mode] selector. The inputs to the inertia comp function are the rate of change of motor speed reference and P76 [Total Inertia]. Only active in Flux Vector (FV) motor control modes (P35). This parameter enables the inertia comp function and selects possible sources of motor speed reference as follows: “Disabled” (0) – Inertia compensation function is disabled. P699 [Inertia Comp Out] is zero so the motor torque reference is not affected. “Int Ramp Ref” (1) – Inertia compensation is enabled. The function is configured to use the rate of change of P595 [Filtered Spd Ref]. This is the typical setting that should be used for inertia compensation on a stand-alone drive. “Ext Ramp Ref” (2) – Inertia compensation is enabled. The function is configured to use the rate of change of P700 [Ext Ramped Ref]. This setting is available for applications that supply a ramped speed reference external to the drive. “Spd Rate Ref” (3) – Inertia compensation is enabled. The function is configured to use the P596 [Speed Rate Ref]. This parameter should contain a value that represents the rate of change of the motor speed reference. This setting is available for applications that supply a ramped speed reference external to the drive.	Default: Options:	0 = “Disabled” 0 = “Disabled” 1 = “Int Ramp Ref” 2 = “Ext Ramp Ref” 3 = “Spd Rate Ref”	RW	32-bit Integer
		696	755 **Inertia Acc Gain** Inertia Acceleration Gain Sets the acceleration gain for the inertia compensation function. A value of 1 produces 100% compensation. Only active in Flux Vector (FV) motor control modes (P35).	Default: Min/Max:	1.0000 0.0000 / 2.0000	RW	Real
		697	755 **Inertia Dec Gain** Inertia Deceleration Gain Sets the deceleration gain for the inertia compensation function. A value of 1 produces 100% compensation. Only active in Flux Vector (FV) motor control modes (P35).	Default: Min/Max:	1.0000 0.0000 / 2.0000	RW	Real
		698	755 **Inert Comp LPFBW** Inertia Compensation Low Pass Filter Bandwidth Sets the bandwidth of a low pass filter for the inertia compensation function. The output of this filter supplies P699 [Inertia Comp Out].Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	R/S 35.00 0.00 / 2000.00	RW	Real
		699	755 **Inertia Comp Out** Inertia Compensation Output Displays the output of the inertia compensation function. The P699 [Inertia Comp Out] signal is summed with P660 [SReg Output] and becomes an input available to the P313 [Actv SpTqPs Mode] selector. Inertia compensation provides a torque feed forward signal during changes in motor speed reference.Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 0.00 −/+800.00	RO	Real
		700	755 **Ext Ramped Ref** External Ramped Reference This parameter is meant for an external motor speed ramp input signal. This signal will be used by the inertia compensation function when P695 [InertiaComp Mode] = 2 “Ext Ramp Ref.” This parameter will be entered in units of Hz or RPM, depending on the value of P300 [Speed Units].Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	Hz RPM 0.00 −/+P27 [Motor NP Hertz] x 8 −/+P28 [Motor NP RPM] x 8	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Inertia Adaption	**704**	755 **InAdp LdObs Mode** Inertia Adaption Load Observer Mode Used to enable operation of either Inertia Adaption or Load Observer. These System Control modes are only available in Vector Control mode when using a motor speed feedback device. The value of P76 [Total Inertia] must be valid in order for these features to work correctly. The P70 [Autotune] setting 4 “Inertia Tune” can be used to measure the System Inertia. Regardless of the Sys Control mode used, the parameter P707 [Load Estimate] is updated for monitoring purposes. Only active in Flux Vector (FV) motor control modes (P35). The possible settings for Sys Control Sel are: “Disabled” (0) – Both Inertia Adaption and Load Observer functions are disabled. P708 [InertiaTrqAdd] is zero so the motor torque reference is not affected. P707 [Load Estimate] is still valid, provided that the drive is in Vector Mode, using a motor speed feedback device, and a valid P76 [Total Inertia] is used. “InertiaAdapt” (1) – Inertia Adaption function is enabled. The Inertia Adaption function will provide enhanced stability, higher bandwidths and dynamic stiffness. Inertia Adaption is especially useful in systems with a gear-box that become, in effect, disconnected from the load. Inertia Adaption may also be used for motors with very little inertia that otherwise would lack dynamic stiffness, even at high bandwidths. The output of the Inertia Adaption function P708 [InertiaTrqAdd], will subtract from the motor torque reference. “LoadObserver” (2) – Load Observer function is enabled. The Load Observer function removes or greatly reduces the effects of load disturbances and provides quicker system response. The output of the Load Observer function is similar to P707 [Load Estimate], but has a filter setting determined by P711 [Load Observer BW]. The Load Observer’s output signal will add to the motor torque reference.	Default: Options:	0 = “Disabled” 0 = “Disabled” 1 = “InertiaAdapt” 2 = “LoadObserver”	RW	32-bit Integer
		705	755 **Inertia Adapt BW** Inertia Adapt Bandwidth Sets the bandwidth of a low pass filter located in the output of the Inertia Adaption function. This parameter should typically be set to match the bandwidth of the drive’s speed regulator. This matching setting is automatically made when the Inertia Adaption function is active and the speed regulator bandwidth (P636 [Speed Reg BW]), is set to a non-zero value. If the speed regulator bandwidth is set to zero, then this filter setting must be manually adjusted.Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	R/S 10.00 1.00 / 1000.00	RW	Real
		706	755 **InertiaAdaptGain** Inertia Adaption Gain Sets a multiplier of system inertia used when the Inertia Adaption function is selected P704 [InAdp LdObs Mode] = 1 “InertiaAdapt.” This gain has no effect on the parameter P707 [Load Estimate]. Higher gain values may cause high frequency ringing, while smaller values may cause fundamental load instability. This gain should typically range from 0.3 to 1.0 with 0.5 nominal best. The gain setting of 0.5 is automatically made when the speed regulator bandwidth (P636 [Speed Reg BW]), is set to a non-zero value. If the speed regulator bandwidth is set to zero, then this gain setting must be manually adjusted.Only active in Flux Vector (FV) motor control modes (P35).	Default: Min/Max:	0.500 0.300 / 1.000	RW	Real
		707	755 **Load Estimate** Load Estimate Displays an estimated load torque value for the drive. This value is only available in Vector Control mode when using a motor speed feedback device. The load estimate does not include any torque required to accelerate or decelerate the motor. In order to be accurate, the parameter P76 [Total Inertia] must contain a reasonably accurate value.Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real

File	**Group**	**No.**	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
TORQUE CONTROL	**Inertia Adaption**	**708**	755 **InertiaTrqAdd** Inertia Torque Adaption Displays the output of the Inertia Adaption function. This value will be subtracted from the motor torque reference, with the result displayed as P689 [Filtered Trq Ref]. The inertia adaption function will be active when operating in Vector Control mode with a motor speed feedback device and P704 [InAdp LdObs Mode] = 1 "InertiaAdapt." A value of 100% represents rated motor torque. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	% 0.00 −/+800.00	RO	Real
		709	755 **IA LdObs Delay** Inertia Adaption Load Observer Delay Adjusts a filter setting that is applied to the active motor velocity feedback source. The purpose of this filter is to reduce the level of noise present in the feedback signal. Note that this filter is the same type but separate from the filters used to provide P127 [Pri Vel Feedback] and P130 [Alt Vel Feedback]. The derivative of the Sys Control Delay filtered motor velocity signal will be a Motor Acceleration Feedback signal. The Motor Acceleration Feedback is applied to the Inertia Adaption and Load Observer/ Load Estimate functions. This is moving average type filter that has a delay setting of N, where N is an integer number (0, 1, 2 . . .). A setting of zero provides no filtering and no delay. Larger values of N result in more filtering and more delay. The best setting for this filter will depend on the level of noise present in the feedback signal and the bandwidth setting of the velocity regulator. Only active in Flux Vector (FV) motor control modes (P35).	Default: Options:	3 = "50R/S Noise" 0 = "190R/S Noise" 1 = "160R/S Noise" 2 = "100R/S Noise" 3 = "50R/S Noise" 4 = "25R/S Noise" 5 = "12R/S Noise" 6 = "6R/S Noise" 7 = "3R/S Noise"	RW	32-bit Integer
		710	755 **InertAdptFltrBW** Inertia Adaption Filter Bandwidth Sets the bandwidth of a low pass filter located in the output of the vector control speed regulator and used in connection with the Inertia Adaption function. The bandwidth of this filter should typically be set to five times the bandwidth of the speed regulator. This setting is automatically made when the Inertia Adaption function is active and the speed regulator bandwidth (P636 [Speed Reg BW]), is set to a non-zero value. If the speed regulator bandwidth is set to zero, then this filter setting must be manually adjusted. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	R/S 50.00 0.00 / 1000.00	RW	Real
		711	755 **Load Observer BW** Load Observer Bandwidth Sets the bandwidth of a low pass filter located in the output of the Load Observer function. Typical filter settings range from 10 radians/second to 150 radians/second with the higher values being more responsive to disturbances but with increased system noise. There is no nominal best setting, but 40 radians/second is a suggested starting point. This selection may not function well in sloppy geared systems. Only active in Flux Vector (FV) motor control modes (P35).	Units: Default: Min/Max:	R/S 40.00 1.00 / 1000.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Friction Comp	1560	755 **FrctnComp Mode** Friction Compensation Mode The friction compensation function calculates a feed forward torque signal P1567 [FrctnComp Out]. Friction compensation attempts to predict the motor torque required to counteract load friction. The [FrctnComp Out] signal is summed with P685 [Selected Trq Ref] and P686 [Torque Step]. This parameter enables the friction comp function and selects possible sources of motor speed reference as follows: “Disabled” (0) – Friction compensation function is disabled. P1567 [FrctnComp Out] is zero so the motor torque reference is not affected. “Int Ramp Ref” (1) – Friction compensation is enabled. The function is configured to use the P595 [Filtered Spd Ref] summed with the position reference speed feed forward. This is the typical setting that should be used for friction compensation on a stand-alone drive when operating in position or speed mode. “Ext Ramp Ref” (2) – Friction compensation is enabled. The function is configured to use P700 [Ext Ramped Ref]. This setting is available for applications that supply a ramped speed reference external to the drive. “Speed Fdbk” (3) – Friction compensation is enabled. The function is configured to use P640 [Filtered SpdFdbk]. A feedback device must be used – the speed feedback source cannot be open loop feedback. This setting should be used when operating in torque mode (min/max/torque).	Default: Options:	0 = “Disabled” 0 = “Disabled” 1 = “Int Ramp Ref” 2 = “Ext Ramp Ref” 3 = “Speed Fdbk”	RW	32-bit Integer
		1561 ○	755 **FrctnComp Trig** Friction Compensation Trigger Sets the starting speed or trigger speed at which the friction compensation will be applied when leaving the region near zero speed. The initial value for P1567 [FrctnComp Out] at this speed will be P1564 [FrctnComp Stick]. Friction compensation will remain active until the speed reference drops below the trigger speed minus P1562 [FrctnComp Hyst] speed. At these low speeds, 1567 [FrctnComp Out] returns to zero.	Units: Default: Min/Max:	Hz RPM 0.15 0.00 / 7.94	RW	Real
		1562 ○	755 **FrctnComp Hyst** Friction Compensation Hysteresis This parameter together with 1561 [FrctnComp Trig] establishes a speed band around zero speed. Friction compensation will be inactive (zero output) when the speed reference is inside this band and active when outside. The points at which friction comp becomes active and inactive differ by the amount of speed set in this parameter.	Units: Default: Min/Max:	Hz RPM 0.06 0.00 / 7.94	RW	Real
		1563 ○	755 **FrctnComp Time** Friction Compensation Time Sets the time interval that the stiction torque will be applied. When initially leaving the zero speed region, the value in P1564 [FrctnComp Stick] will be used for the non-viscous friction term. After the time period set in this parameter, the non-viscous friction will ramp down to the value set in P1565 [FrctnComp Slip]. For the remainder of the time that [FrctnComp Out] remains non-zero, the non-viscous friction will remain constant at the value of [FrctnComp Slip].	Units: Default: Min/Max:	mSec 6 0 / 18	RW	32-bit Integer
		1564 ○	755 **FrctnComp Stick** Friction Compensation Stiction Sets the level for the stiction or static friction torque. This is the torque level required to break away from zero speed. When initially leaving the zero speed region, this level will be used for the non-viscous friction term. After the time period set in P1563 [FrctnComp Time], the non-viscous friction will ramp down to the value set in P1565 [FrctnComp Slip].	Units: Default: Min/Max:	% 15.00 0.00 / 800.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Friction Comp	**1565** ○	755 **FrctnComp Slip** Friction Compensation Slip Sets the torque level that will be maintained at very low speed once "break away" has been achieved. This value should always be set less than the level in P1564 [FrctnComp Stick]. After the time period set in P1563 [FrctnComp Time], the non-viscous friction will ramp down to this value.	Units: Default: Min/Max:	% 10.00 0.00 / 800.00	RW	Real
		1566 ○	755 **FrctnComp Rated** Friction Compensation Rated Sets the torque level that will be output at rated motor speed. The friction compensation routine assumes a linear viscous component that varies in direct proportion to speed reference. The 1567 [FrctnComp Out] value will increase with speed and will equal the level set in this parameter at rated motor speed.	Units: Default: Min/Max:	% 20.00 0.00 / 800.00	RW	Real
		1567	755 **FrctnComp Out** Friction Compensation Output Displays the torque reference output of the Friction Compensation function. This value is summed with P660 [SReg Output] and P699 [Inertia Comp Out] in the torque control section of the drive.	Units: Default: Min/Max:	% 0.00 −/+800.00	RO	Real

Drive (Port 0) Position Control File

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Position Cfg/Sts	720	**PTP PsnRefStatus** Point-To-Point Position Reference Status		RO	16-bit Integer

Displays the current operating status of the Point-To-Point Position Planner in the Position Referencing.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	SpdFFRef En	PTP Int Hold	Ref Complete	ZeroFFSpdRef
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 “ZeroFFSpdRef” – Indicates the speed feed forward reference P783 [PTP Speed FwdRef] is zero.

Bit 1 “Ref Complete” – Indicates the position point-to-point feedback P777 [PTP Feedback] reaches the position point-to-point reference P784 [PTP Command], and the speed forward reference P783 [PTP Speed FwdRef] reaches zero.

Bit 2 “P2P Int Hold” – Indicates the position point-to-point planner integrator is holding. Read back of the point-to-point integral hold bit P770 [PTP Control] Bit 4 “Intgrtr Hold.”

Bit 3 “SpdFFRef En” – Indicates the speed feed forward reference P783 [PTP Speed FwdRef] is active.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Position Cfg/Sts	721	**Position Control** Position Control		RW	32-bit Integer

Sets bits to enable various position control functions.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Add Spd Ref	PsnWatch2Dir (1)	PsnWtch2Arm (1)	PsnWatch1Dir (1)	PsnWtch1Arm (1)	Intgrtr Hold	Zero Psn	OffsetVel En	Offset ReRef	Intgrtr En	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

0 = Disabled
1 = Enabled

Bit 1 “Intgrtr En” – Enables integrator operation. Resetting it resets the integrator.

Bit 2 “Offset ReRef” – Permits changing the value of position offsets without changing actual position. The position offsets are the values that are selected by P820 [Psn Offset 1 Sel] and P822 [Psn Offset 2 Sel]. The default position offsets are P821 [Psn Offset 1] and P823 [Psn Offset 2].

Bit 3 “OffsetVel En” – Uses the offset velocity P824 [Psn Offset Vel] for the position offset integrator. Sets the offset integrator bit, P724 [Psn Reg Status] Bit 0 “OffsetIntgtr” when this bit is on.

Bit 4 “Zero Psn” – Puts P836 [Psn Actual] in absolute mode (no differential) with zero position offset. P836 [Psn Actual] sets the value of P847 [Psn Fdbk] - the position P725 [Zero Position]. With Bit 4 “Zero Psn” disabled, P836 [Psn Actual] accumulates the difference in P847 [Psn Fdbk] at each position control scan. P836 [Psn Actual] and P847 [Psn Fdbk] are not always the same and therefore, P836 [Psn Actual] is reset. With Bit 4 “Zero Psn” set, P836 [Psn Actual] directly loads the raw value of P847 after subtracting P725 [Zero Position].

Bit 5 “Intgrtr Hold” – Holds the position integrator in present state.

Bit 6 “PsnWtch1Arm” – Enables the position watch 1. Resetting this bit clears the position watch 1 detection P724 [Psn Reg Status] Bit 9 “PsnW1Detect.”

Bit 7 “PsnWatch1Dir” – Causes the position watch 1 output to be set when P746 [PsnWatch1 DtctIn] is greater than a set-point selected by the position watch 1 selection P745 [PsnWatch1 Select]. Resetting this bit causes the position watch 1 output to be set when P746 [PsnWatch1 DtctIn] is less than a set-point selected by the position watch 1 selection P745 [PsnWatch1 Select].

Bit 8 “PsnWtch2Arm” – Enables the position watch 2. Resetting this bit clears the position watch 2 detection P724 [Psn Reg Status] Bit 10 “PsnW2Detect.”

Bit 9 “PsnWatch2Dir” – Causes the position watch 2 output to be set when P749 [PsnWatch2 DtctIn] is greater than a set-point selected by the position watch 2 selection P748 [PsnWatch2 DtctIn]. Resetting this bit causes the position watch 2 output to be set when P749 [PsnWatch2 DtctIn] is less than a set-point selected by the position watch 2 selection P748 [PsnWatch2 DtctIn].

Bit 10 “Add Spd Ref” – Adds the speed reference to the output of the position control, when in position control mode.

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Cfg/Sts	722	**Psn Selected Ref** Position Selected Reference Indicates output of the position referencing. When the Spd/Torq/Pos mode P313 [Actv SpTqPs Mode] is the position direct mode (Option 10), the value of the position direct reference P767 [Psn Direct Ref] appears on this parameter. When the Spd/Torq/Pos mode P313 [Actv SpTqPs Mode] is the position point-to-point mode (Option 7) or the speed/position profiler mode (Option 6), the position point-to-point reference P776 [PTP Reference] appears on this parameter.	Default: Min/Max:	0 −2147483648 / 2147483647	RO	32-bit Integer
		723	**Psn Command** Position Command Indicates final accumulated command to the position regulator. When the position regulator is not active, this parameter is initialized to P836 [Psn Actual].	Default: Min/Max:	0 −2147483648 / 2147483647	RO	32-bit Integer
		724	**Psn Reg Status** Position Regulator Status Indicates status of position control logic.			RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	InPsn Detect	PsnW2Detect (1)	PsnW1Detect (1)	Intgrtr Hold	Psn Reg Actv	Spd Lmt Hi	Spd Lmt Lo	Integ Lmt Hi	Integ Lmt Lo	Psn Intgrtr	Offset ReRef	OffsetIntgtr
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

0 = False
1 = True

Bit 0 “OffsetIntgtr” – Indicates the position offset Integrator is active with the position offset integrator bit P721 [Position Control] Bit 3 “OffsetVel En” is on.
Bit 1 “Offset ReRef” – Indicates the position offset re-referencing is active with the position offset re-referencing bit P721 [Position Control] Bit 2 “Offset ReRef” is on.
Bit 2 “Psn Intgrtr” – Indicates the position integrator is active with the position integrator bit P721 [Position Control] Bit 1 “Intgrtr En” is on.
Bit 3 “Integ Lmt Lo” – Indicates the position integrator is at the low limit.
Bit 4 “Integ Lmt Hi” – Indicates the position integrator is at the high limit.
Bit 5 “Spd Lmt Lo” – Indicates the position regulator output (speed) is at the low limit.
Bit 6 “Spd Lmt Hi” – Indicates the position regulator output (speed) is at the high limit.
Bit 7 “Psn Reg Actv” – Indicates the position regulator is active
Bit 8 “Intgrtr Hold” – Indicates the position Integrator is held in present state
Bit 9 “PsnW1Detect” – Indicates the position watch 1 has detected motor position equal to its setpoint, from the proper direction.
Bit 10 “PsnW2Detect” – Indicates the position watch 2 has detected motor position equal to its setpoint, from the proper direction.
Bit 11 “InPsn Detect” – Indicates P835 [Psn Error] is within the position band specified by the in-position band P726 [In Pos Psn Band]

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Cfg/Sts	725	**Zero Position** Zero Position Sets the absolute user zero position. When the zero position bit P721 [Position Control] Bit 4 “Zero Psn” is set, P836 [Psn Actual] accumulates the value of P847 [Psn Fdbk] - the P725 [Zero Position], and P836 [Psn Actual] becomes zero when P847 [Psn Fdbk] is at the zero position. The homing function also sets the value after homing process is completed.	Default: Min/Max:	0 −2147483648 / 2147483647	RW	32-bit Integer
		726	**In Pos Psn Band** In Positive Position Bandwidth Sets the overall bandwidth of the in position detector. The detector sets the in-position detect bit P724 [Psn Reg Status] Bit 11 “InPsn Detect” when P835 [Psn Error] is within this position band for a sufficient time specified by the in-position dwell time P727 [In Pos Psn Dwell]. A modest hysteresis count is added to the position bandwidth after the position error is within specified limits.	Default: Min/Max:	200 0 / 2147483647	RW	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Cfg/Sts	**727**	**In Pos Psn Dwell** In Positive Position Dwell Sets dwell time for the in position detector. Position error must be within the value specified by the in-position band P726 [In Pos Psn Band] for this amount of time before the in-position detector sets the in-position detect bit P724 [Psn Reg Status] Bit 11 "InPsn Detect." A momentary out-of-position indication will reset the internal timer and clear the in-position detect bit P724 [Psn Reg Status] Bit 11 "InPsn Detect."	Default: Min/Max:	0.0040 0.0001 / 10.0000	RW	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Position Homing	730	**Homing Status** Homing Status Indicates status of position control logic.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	At Home	Homing	Home Enabled	Home Request
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Home Request” – Indicates the homing function is requested. The homing function is requested by the homing configuration bits in P731 [Homing Control]. This bit turns off when homing is complete.

Bit 1 “Home Enabled” – Indicates the homing function is enabled. This bit is set when the homing function is requested and the drive starts.

Bit 2 “Homing” – Indicates the drive is heading to home position. This bit is set when the drive is running.

Bit 3 “At Home” – Indicates when the difference between P847 [Psn Fdbk] and P737 [Actual Home Psn] is less than P726 [In Pos Psn Band].

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Position Homing	731	**Homing Control** Homing Control Sets bits to configure the homing function.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Hold At Home	Home DI Inv	Homing Alarm	Psn Redefine	Return Home	Home Marker	Home DI	Find Home
Default	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Important: To enable the homing control, Bit 1 or Bit 2 (configuration bits) must be set to go into the Find Home mode. With the drive stopped, verify that a stop command has not been issued and toggle Bit 0 to 1. The drive will go to the home position at the ensuing startup.

Bit 0 “Find Home” – Puts the drive in the homing mode. Setting this bit requests the homing function and sets homing request bit P730 [Homing Status] Bit 0 “Home Request.” Toggle this bit with the drive stopped to reset the homing function. If the drive is issued a stop command while in Find Home mode, and before the At Home limit switch is reached, toggle this bit to put the drive back in Find Home mode. Once the At Home limit switch is hit, whether it is wired to the encoder option or a digital input, the drive will revert to mode selected by P313 [Actv SpTqPs Mode]. Movement may result.

Bit 1 “Home DI” – Configures the homing function to use a switch (digital input). When this bit is on and Bit 2 “Home Marker” is off, the homing function is configured as home switch mode. When this bit is on and Bit 2 “Home Marker” is on, the homing function is configured as home marker-switch mode.

Bit 2 “Home Marker” – Configures the homing function to use a marker input. When this bit is on and Bit 1 “Home DI” is off, the homing function is configured as home marker mode. When this bit is on and Bit 1 “Home DI” is on, the homing function is configured as home marker-switch mode. When using this function verify that the Z Channel of the encoder module is enabled (Bit 0 “Z Chan Enbl” = 1).

Bit 3 “Return Home” – Configures the homing function as return to home through software. The drive returns to the actual home position set by P737 [Actual Home Psn]. A start command is required to set this bit.

Same as other homing mode, the drive will resume normal operation after the return home procedure.

Bit 4 “Psn Redefine” – Sets the position feedback P847 [Psn Fdbk] to the actual home position P737 [Actual Home Psn].

Bit 5 “Homing Alarm” – Enables the home running alarm when the homing function is active.

Bit 6 “Home DI Inv” – Changes polarity of the switch input (digital input).

Bit 7 “Hold At Home” – Configures the drive to hold the home position after completing the homing function. A new start command is required for the drive to resume normal operation.

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Homing	**732** ○	**DI Find Home** Digital Input Find Home Sets a digital input port for the “Find Home” function. After P731 [Homing Control] Bit 0 “Find Home” is set, a start command is required.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		733 ○	**DI Redefine Psn** Digital Input Redefine Position Sets a digital input port for the redefine position function. The digital input assigned by this parameter is equivalent to P731 [Homing Control] Bit 4 “Psn Redefine.”	Units: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		734 ○	**DI OL Home Limit** Digital Input Open Loop Home Limit Sets a digital input port for the limit switch of open loop homing function. Polarity of digital input (rising or falling edge) is specified by P731 [Homing Control] Bit 6 “Home DI Inv.”	Units: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		735	**Find Home Speed** Find Home Speed Sets the speed and direction that are active when P731 [Homing Control] Bit 0 “Find Home” is active. The sign of the value defines direction (“+” = Forward, “–” = Reverse). If set to a negative value, verify that parameter 308 [Direction Mode] is set to 1 “Bipolar.”	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hz] x 0.1 P28 [Motor NP RPM] x 0.1 P27 [Motor NP Hz] x 0.5 P28 [Motor NP RPM] x 0.5	RW	Real
		736	**Find Home Ramp** Find Home Ramp Sets the rate of acceleration and deceleration of the Find Home moves.	Units: Default: Min/Max:	Secs 10.00 0.01 / 6554.00	RW	Real
		737	**Actual Home Psn** Actual Home Position Indicates actual home position after the homing function is complete. The value in this parameter displays the raw position feedback data at home position.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		738	**User Home Psn** User Home Position Sets user-defined home position. After the homing function is completed, the following parameters are updated with this parameter value; P723 [Psn Command], P815 [Psn Ref EGR Out], P836 [Psn Actual], P837 [Psn Load Actual].	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	Position Watch	**745** **748**	755 **PsnWatch1 Select** 755 **PsnWatch2 Select** Position Watch *n* Select Selects a position feedback source that is compared to the position watch detect-input P746 [PsnWatch1 DtctIn], P749 [PsnWatch2 DtctIn].	Default: Min/Max:	847 1 / 159999	RW	32-bit Integer
		746 **749**	755 **PsnWatch1 DtctIn** 755 **PsnWatch2 DtctIn** Position Watch *n* Detect Input Provides position feedback source for the position watch function. The position watch function is enabled and configured by the position control configuration P721 [Position Control]. The position watch function compares this value to the position watch set point P747 [PsnWatch1 Stpt], P750 [PsnWatch2 Stpt] when this parameter P746, P749 is selected by the position watch select P745 [PsnWatch1 Select], P748 [PsnWatch2 Select]. The position detect bit P724 [Psn Reg Status] Bit 9 "PsnW1Detect", Bit 10 "PsnW2Detect" is set when the appropriate condition is satisfied.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		747 **750**	755 **PsnWatch1 Stpt** 755 **PsnWatch2 Stpt** Position Watch *n* Setpoint Provides set point for the position watch function. The position watch function is enabled and configured by P721 [Position Control]. The position watch function compares this value to the position feedback source selected by the position watch select P745 [PsnWatch1 Select], P748 [PsnWatch2 Select]. The position detect bit P724 [Psn Reg Status] Bit 9 "PsnW1Detect", Bit 10 "PsnW2Detect" is set when the appropriate condition is satisfied.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	Interpolator	**755**	755 **Interp Control** Interpolator Control Reserved for future use.	Default: Options:	0 1 / 2147483647	RW	32-bit Integer
		756	755 **Interp Psn Input** Interpolator Position Input Input value to the Command Position fine interpolator.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		757	755 **Interp Vel Input** Interpolator Velocity Input Input value to the Command Velocity fine interpolator.	Units: Default: Min/Max:	Hz RPM 0.00 –/+1000000.00	RW	Real
		758	755 **Interp Trq Input** Interpolator Torque Input Input value to the Command Torque fine interpolator.	Default: Min/Max:	0.00 –/+1000000.00	RW	Real
		759	755 **Interp Psn Out** Interpolator Position Output Output value from the Command Position fine interpolator.	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		760	755 **Interp Vel Out** Interpolator Velocity Output Output value from the Command Velocity fine interpolator. When no Command Velocity signal is present when performing position control, this signal can be derived by scaling the Differential Position output value of the Command Position fine interpolator.	Units: Default: Min/Max:	Hz RPM 0.00 –/+1000000.00	RO	Real
		761	755 **Interp Trq Out** Interpolator Torque Output Command torque output from fine interpolator (if active) into torque input summing junction when configured for toque control.	Default: Min/Max:	0.00 –/+1000000.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	**Direct**	**765** ○ ⇄	**Psn Ref Select** Position Reference Select Selects a position reference to the position regulator when P313 [Actv SpTqPs Mode] is set to 10 "Psn Direct."	Default: Options:	766 1 / 159999	RW	32-bit Integer
		766	**Psn Direct Stpt** Position Direct Setpoint Provides a set point for the direct position reference and a position reference to the position regulator when P313 [Actv SpTqPs Mode] is set to 10 "Psn Direct" and P765 [Psn Ref Select] is set to this parameter.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		767	**Psn Direct Ref** Position Direct Reference Indicates the position direct reference selected by P765 [Psn Ref Select].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
POSITION CONTROL	Point to Point	770	**PTP Control** Point-To-Point Control Sets bits to configure the point-to-point position control.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Ref Sync	Ref Pause	Intgrtr Hold	Preset Psn	Reverse Move	Move	Vel Override
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 “Vel Override” – Applies the velocity override P788 [PTP Vel Override] to the forward velocity limit P785 [PTP Fwd Vel Lmt] and the reverse velocity limit P786 [PTP Rev Vel Lmt] as a gain. When the velocity override P788 [PTP Vel Override] is 1.1 and the forward velocity limit P785 [PTP Fwd Vel Lmt] is 30 Hz, the bit sets the maximum forward velocity to 33 Hz.

Bit 1 “Move” – Sets scaled point-to-point position reference to the point-to-point position command P784 [PTP Command]. When the point-to-point mode selection P771 [PTP Mode] is absolute mode (Option 0), the absolute position is set to the point-to-point position command P784 when the bit rises. When the point-to-point mode selection P771 [PTP Mode] is index mode (Option 1), the index position is set to the point-to-point position command P784 when the bit rises.

Bit 2 “Reverse Move” – Changes direction of the index position when the point-to-point mode selection P771 [PTP Mode] is index mode (Option 1). Set the direction with this bit, then set Bit 1 “Move” to 1 to move.

Bit 3 “Preset Psn” – Sets index preset P779 [PTP Index Preset] to the point-to-point position command P784 [PTP Command] when the point-to-point mode selection P771 [PTP Mode] is index mode (Option 1).

Bit 4 “Intgrtr Hold” – Holds integrator in the velocity control.

Bit 5 “Ref Pause” – Pauses functioning of the point-to-point control. The point-to-point speed forward reference becomes zero, and the position selected reference P722 [Psn Selected Ref] keeps current position.

Bit 6 “Ref Sync” – Sets initial value to the point-to-point feedback P777 [PTP Feedback]. When motor feedback reaches zero speed, P776 [PTP Reference] and P777 [PTP Feedback] are reset to P836 [Psn Actual].

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Point to Point	771	**PTP Mode** Point-To-Point Mode Selects point-to-point position mode. The point-to-point position control is configured with the following selections. “Absolute” (0) – Selects absolute position mode. When P770 [PTP Control] Bit 1 “Move” is set, the reference source, selected by P775 [PTP Ref Sel], is multiplied by P778 [PTP Ref Scale] and P784 [PTP Command] is set by the result. “Index” (1) – Selects index position mode. When P770 [PTP Control] Bit 1 “Move” is set, the reference source, selected by P775 [PTP Ref Sel], is multiplied by P778 [PTP Ref Scale] and P784 [PTP Command] is incremented by the result. “Immediate” (2) – Selects absolute immediate position mode. When P770 [PTP Control] Bit 1 “Move” is set, and the reference source selected by P775 [PTP Ref Sel] changes, P784 [PTP Command] is immediately set.	Default: Options:	0 = “Absolute” 0 = “Absolute” 1 = “Index” 2 = “Immediate”	RW	32-bit Integer
		772 ○	**DI Indx Step** Digital Input Index Step Sets a digital input port for the index position move. The digital input assigned by this parameter is equivalent to the point-to-point move bit P770 [PTP Control] Bit 1 “Move” when the point-to-point mode P771 [PTP Mode] is set to 0 “Absolute” or 1 “Index.”	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		773 ○	**DI Indx StepRev** Digital Input Index Step Reverse Sets a digital input port for the index position reverse move. The digital input assigned by this parameter is equivalent to the point-to-point reverse move bit P770 [PTP Control] Bit 2 “Reverse Move” when the point-to-point mode P771 [PTP Mode] is selected to the index position mode (Option 1).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		774 ○	**DI Indx StepPrst** Digital Input Index Step Preset Sets a digital input port for the index preset position. The digital input assigned by this parameter is equivalent to the point-to-point preset position bit P770 [PTP Control] Bit 3 “Preset Psn” when the point-to-point mode P771 [PTP Mode] is selected to the index position mode (Option 1).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Point to Point	775 ○ ⇄	**PTP Ref Sel** Point-To-Point Reference Select Selects a point-to-point reference source that applies to the point-to-point position control.	Default: Min/Max:	780 1 / 159999	RW	32-bit Integer
		776	**PTP Reference** Point-To-Point Reference Indicates output of the point-to-point position control as a reference of the position control. When the speed/torque/position mode P313 [Actv SpTqPs Mode] is selected to the point-to-point mode (Option 7) or the profiler mode (Option 6), this parameter value appears on the position selected reference P722 [Psn Selected Ref].	Default: Min/Max:	0 −2147483648 / 2147483647	RO	32-bit Integer
		777	**PTP Feedback** Point-To-Point Feedback Indicates position feedback in the point-to-point position control.	Default: Min/Max:	0 −2147483648 / 2147483647	RO	32-bit Integer
		778	**PTP Ref Scale** Point-To-Point Reference Scale Provides count per scale value for the point-to-point position reference. The value is a multiplier for the point-to-point reference source selected by the reference selection P775 [PTP Ref Sel].	Default: Min/Max:	1.00 −/+220000000.00	RW	Real
		779	**PTP Index Preset** Point-To-Point Index Preset Provides pre-set index value. The value sets to the point-to-point position command P784 [PTP Command] when the point-to-point mode is index mode P771 [PTP Mode] and the preset position bit P770 [PTP Control] Bit 3 "Preset Psn" is on.	Default: Min/Max:	0 −2147483648 / 2147483647	RW	32-bit Integer
		780	**PTP Setpoint** Point-To-Point Setpoint Provides set point for the point-to-point position control. The value applies to the point-to-point control when the point-to-point reference selection P775 [PTP Ref Sel] is P780.When P771 [PTP Mode] is set to 1 "Index," the value of this parameter represents the amount of index.	Default: Min/Max:	0 −2147483648 / 2147483647	RW	32-bit Integer
		781	**PTP Accel Time** Point-To-Point Acceleration Time Provides the ramp time for acceleration (time to go from zero to speed limit). The speed limit is set by P785 [PTP Fwd Vel Lmt] and P786 [PTP Rev Vel Lmt].	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real
		782	**PTP Decel Time** Point-To-Point Deceleration Time Provides the ramp time for deceleration (time to go from speed limit to zero). The speed limit is set by P785 [PTP Fwd Vel Lmt] and P786 [PTP Rev Vel Lmt].	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real
		783	**PTP Speed FwdRef** Point-To-Point Speed Forward Reference Indicates speed reference output from the point-to-point position control. Typically this parameter is used by the drive speed loop.	Units: Default: Min/Max:	Hz RPM 0.00 −/+P27 [Motor NP Hertz] x 8 −/+P28 [Motor NP RPM] x 8	RO	Real
		784	**PTP Command** Point-To-Point Command Indicates position command for the point-to-point position control. The source of the position command is selected by the speed/torque/position mode P313 [Actv SpTqPs Mode].	Default: Min/Max:	0 −2147483648 / 2147483647	RO	32-bit Integer
		785	**PTP Fwd Vel Lmt** Point-To-Point Forward Velocity Limit Provides the maximum forward speed reference limit from the PTP regulator.	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x 0.5 P28 [Motor NP RPM] x 0.5 0.00/P27 [Motor NP Hertz] 0.00/P28 [Motor NP RPM] x 8	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
POSITION CONTROL	**Point to Point**	**786**	**PTP Rev Vel Lmt** Point-To-Point Reverse Velocity Limit Provides the maximum reverse speed reference limit from the PTP regulator.	Units Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x 0.5 P28 [Motor NP RPM] x 0.5 - P27 [Motor NP Hertz] P28 [Motor NP RPM] x 8 / 0.00	RW	Real
		787	**PTP S Curve** Point-To-Point S Curve Provides the amount of time that is applied to the S Curve from the PTP regulator.	Units: Default: Min/Max:	Secs 0.500 0.000 / 4.000	RW	Real
		788	**PTP Vel Override** Point-To-Point Velocity Override Provides multiplier to both forward P785 [PTP Fwd Vel Lmt] and reverse P786 [PTP Rev Vel Lmt] speed limits. This parameter applies to the speed limits when the override bit P770 [PTP Control] Bit 0 "Vel Override" is on.	Default: Min/Max:	1.00 0.20 / 1.50	RW	Real
		789	**PTP EGR Mult** Point-To-Point Electronic Gear Ratio Multiply EGR multiplier (numerator) for position index output. The output applies to the point-to-point command P784 [PTP Command].	Default: Min/Max:	1 –/+2000000	RW	32-bit Integer
		790	**PTP EGR Div** Point-To-Point Electronic Gear Ratio Divide EGR divider (denominator) for position index output. The output applies to the point-to-point command P784 [PTP Command].	Default: Min/Max:	1 1 / 2000000	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
POSITION CONTROL	**Phase Lock Loop**	**795**	755 **PLL Control** Phase Locked Loop Control Sets bits to configure the phase locked loop control.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Prof Enable	PTP Enable	PCAM Enable	Accel Comp	Ext Vel FF	Velocity FF	PLL Enable
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 "PLL Enable" – enables the phase locked loop control.
Bit 1 "Velocity FF" – enables the velocity feed forward path.
Bit 2 "Ext Vel FF" – enables the external velocity feed forward through the PLL external speed reference selected by the PLL external speed selection P796 [PLL Ext Spd Sel].
Bit 3 "Accel Comp" – enables providing an element of acceleration compensation to the feed forward branch. This is not recommended for use with external inputs because of increased noise.
Bit 4 "PCAM Enable" – enables PCAM function with the PLL function.
Bit 5 "PTP Enable" – enables point-to-point function with the PLL function.
Bit 6 "Prof Enable" – enables profiler function with the PLL function.
Only bits 4, 5, and 6 allow associating with the PLL function.

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
POSITION CONTROL	**Phase Lock Loop**	**796** ○	755 **PLL Ext Spd Sel** Phase Locked Loop External Speed Select Selects an external speed reference source.	Default: Options:	797 1 / 159999	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	Phase Lock Loop	797	755 **PLL Ext Spd Stpt** Phase Locked Loop External Speed Setpoint Provides external speed reference. This parameter is a velocity feed forward input that is selected by the external speed select P796 [PLL Ext Spd Sel].	Default: Min/Max:	0.00 –/+220000000.00	RW	Real
		798	755 **PLL Ext SpdScale** Phase Locked Loop External Speed Scale Sets scale factor to the external speed reference selected by the external speed select P796 [PLL Ext Spd Sel]. This parameter is used to properly scale the velocity feed forward. Adjust for zero average at the filtered position output P806 [PLL Psn Out Fltr] while running at moderate speed.	Default: Min/Max:	1.00 –/+220000000.00	RW	Real
		799 ○ ⇄	755 **PLL Psn Ref Sel** Phase Locked Loop Position Reference Select Selects a position reference source.	Default: Min/Max:	800 1 / 159999	RW	32-bit Integer
		800	755 **PLL Psn Stpt** Phase Locked Loop Position Setpoint Provides position reference when the position reference select P799 [PLL Psn Ref Sel] selects this parameter.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		801	755 **PLL BW** Phase Locked Loop Bandwidth Sets internal bandwidth of the PLL function response. The setting for very noisy mechanical systems could range from 1 to 10 (r/s) while well-behaved high line count input devices could range upwards of 100 (r/s). Higher bandwidths will quickly resolve tracking errors while the lower bandwidths will take longer to settle into a steady state. Some adjustment will be necessary for the best compromise between noise and tracking response.	Units: Default: Min/Max:	R/S 20.00 0.00 / 8000.00	RW	Real
		802	755 **PLL LPFilter BW** Phase Locked Loop Low Pass Filter Bandwidth Sets low pass filter bandwidth. The filter has two functions: • Basic noise reduction of input velocity. • Timed delay of input when feed forward is provided to an external master reference other than an input encoder. The filter low pass bandwidth should be set for best tracking which occurs when the filter output coincides with the loop filter output of PLL. Usually that means setting its bandwidth to the bandwidth of the master reference drive.	Units: Default: Min/Max:	R/S 50.00 0.00 / 8000.00	RW	Real
		803	755 **PLL Virt Enc RPM** Phase Locked Loop Virtual Encoder Revolutions Per Minute Sets RPM of the virtual output device. The value determines the 1 P.U. velocity for the speed out P807 [PLL Speed Out] and does not affect performance.	Units: Default: Min/Max:	RPM 1750.00 1.00 / 40000.00	RW	Real
		804	755 **PLL EPR Input** Phase Locked Loop Edges Per Revolution Input Sets edges per revolution of the physical input device. Using the highest line count device possible smooths PLL operation.	Default: Min/Max:	1048576 1 / 67108864	RW	32-bit Integer
		805	755 **PLL Rvls Input** Phase Locked Loop Revolutions Input Sets revolution of the input encoder. This parameter must be coordinated with the revolution of the output encoder P812 [PLL Rvls Output] to resolve the gear-ratio between input revolutions and output (virtual) revolutions. The ratio of input to output revolutions can always be resolved into integer values and should be reduced to their lowest common factor.	Default: Min/Max:	1 1 / 1000000	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	Phase Lock Loop	806	755 **PLL Psn Out Fltr** Phase Locked Loop Position Output Filter Indicates internal low pass filter output. This parameter is normally used to properly scale an external velocity reference. See description of the external speed scale P798 [PLL Ext SpdScale].	Default: Min/Max:	0.00 −/+220000000.00	RO	Real
		807	755 **PLL Speed Out** Phase Locked Loop Speed Output Indicates velocity output. This parameter is used as a velocity feed forward. It is precisely in phase with the physical input device. The virtual encoder RPM P803 [PLL Virt Enc RPM] determines the RPM at 1 P.U. of this parameter.	Default: Min/Max:	0.00 −/+220000000.00	RO	Real
		808	755 **PLL Speed OutAdv** Phase Locked Loop Speed Output Advanced Indicates velocity advanced output. This parameter is one velocity reference sample in advance of the speed output P807 [PLL Speed Out].	Default: Min/Max:	0.00 −/+220000000.00	RO	Real
		809	755 **PLL Enc Out** Phase Locked Loop Encoder Output Indicates position output. This parameter is precisely in phase with the input physical device.	Default: Min/Max:	0 −2147483648 / 2147483647	RO	32-bit Integer
		810	755 **PLL Enc Out Adv** Phase Locked Loop Encoder Output Advanced Indicates position advanced output. This parameter is one position sample in advance of the position output P809 [PLL Enc Out].	Default: Min/Max:	0 −2147483648 / 2147483647	RO	32-bit Integer
		811	755 **PLL EPR Output** Phase Locked Loop Edges Per Revolution Output Sets edges per revolution of the physical output device.	Default: Min/Max:	1048576 1 / 67108864	RW	32-bit Integer
		812	755 **PLL Rvls Output** Phase Locked Loop Revolutions Output Sets revolution of the output encoder. This parameter must be coordinated with the revolution of the input encoder P805 [PLL Rvls Input] to resolve the gear-ratio between input revolutions and output (virtual) revolutions. The ratio of input to output revolutions can always be resolved into integer values and should be reduced to their lowest common factor.	Default: Min/Max:	1 1 / 2000000	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	Electronic Gear	815	**Psn Ref EGR Out** Position Reference Electronic Gear Ratio Output Indicates accumulated output of the position reference electronic gear ratio (EGR) function. When the position regulator is not enabled, this parameter is initialized to P836 [Psn Actual].	Default: Min/Max:	0 −2147483648 / 2147483647	RO	32-bit Integer
		816	**Psn EGR Mult** Position Electronic Gear Ratio Multiplier Sets integer value in the numerator of the EGR function that is precision multiplied by the position reference. A negative value will effect a change in polarity.	Default: Min/Max:	1 −/+2000000	RW	32-bit Integer
		817	**Psn EGR Div** Position Electronic Gear Ratio Division Sets integer value in the denominator of the EGR function that divides into the product of the numerator and the position reference. Remainders are accumulated and not lost.	Default: Min/Max:	1 1 / 2000000	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	Position Offset	**820** ○ ⇄	**Psn Offset 1 Sel** Position Offset 1 Select Selects a Position Offset 1 source.	Default: Min/Max:	821 1 / 159999	RW	32-bit Integer
		821	**Psn Offset 1** Position Offset 1 Provides position reference offset, which is summed after the EGR and used to trim the phase of the position reference. A step in the offset position will be internally rate limited and added to the reference position. The rate of correction is set by the offset velocity P824 [Psn Offset Vel]. The initial value of this parameter is latched upon position enable without causing a change in reference. Subsequent changes to this value will be relative to the latched value. See the offset re-referencing bit P721 [Position Control] Bit 2 "Offset ReRef."	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		822 ○ ⇄	**Psn Offset 2 Sel** Position Offset 2 Select Selects a Position Offset 2 source.	Default: Min/Max:	823 1 / 159999	RW	32-bit Integer
		823	**Psn Offset 2** Position Offset 2 Select Provides another position reference offset, which is summed with P821 [Psn Offset 1] and used to trim the phase of the position reference. The rate of correction is set by the offset velocity P824 [Psn Offset Vel].	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		824	**Psn Offset Vel** Position Offset Velocity Sets speed of position offset. A position offset command will not exceed this speed. The actual speed of offset is limited to a maximum value of 1/(inertia x pos gain) so as not to cause a torque pulse greater than 1 per unit. The speed will change exponentially.	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x 0.005 P28 [Motor NP RPM] x 0.005 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM] x 8	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	Ld Psn Fdbk Scal	**825**	755 **LdPsn Fdbk Mult** Load Position Feedback Multiplier Sets numerator of the load EGR function. It is multiplied by the position load feedback selected by the load feedback select P136 [Load Psn FdbkSel] and divided by the load feedback divider P826 [LdPsn Fdbk Div] to reflect the load pulse count to the motor (effectively removing the gear box ratio). The accumulated position values P836 [Psn Actual] and the position load actual P837 [Psn Load Actual] - will be equal if the ratio is set properly. There may be some difference due to lost motion in the gear train, but there should not be an accumulated difference. It is often necessary to count gear teeth as gear box manufacturers often approximate exact ratios with decimal numbers. Enter a negative value in the numerator to account for reversed motor rotation.	Default: Min/Max:	1 –/+1000000	RW	32-bit Integer
		826	755 **LdPsn Fdbk Div** Load Position Feedback Division Sets denominator of the load EGR function.	Default: Min/Max:	1 1 / 2000000	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	Position Reg	**830**	**PsnNtchFltrFreq** Position Notch Filter Frequency Sets the center frequency of the position notch filter.	Units: Default: Min/Max:	Hz 0.00 0.00 / 500.00	RW	Real
		831	**PsnNtchFltrDepth** Position Notch Filter Depth Sets the depth for the position notch filter. Attenuation is the ratio of the output to the input at the notch frequency P830 [PsnNtchFltrFreq]. The attenuation of 30 means that the notch output is 1/30th of the input at the specified frequency. Calculation: Attenuation = Input / Output	Default: Min/Max:	50.00 0.00 / 500.00	RW	Real
		832	**Psn Out Fltr Sel** Position Output Filter Select Selects a type of lead-lag filter for position regulator speed output. This parameter sets filter gain P833 [Psn Out FltrGain] and bandwidth P834 [Psn Out Fltr BW] according to the selected type. "Off" (0) – P833 = 1.000, P834 = 0.00 "Custom" (1) – P833 = user setting, P834 = user setting	Default: Options:	0 = "Off" 0 = "Off" 1 = "Custom"	RW	32-bit Integer
		833	**Psn Out FltrGain** Position Output Filter Gain Sets lead-lag filter gain. A default value is sets when the filter type selection P832 [Psn Out Fltr Sel] is not Custom (Option 1). See the filter type selection P832.	Default: Min/Max:	3.000 –/+5.000	RW	Real
		834	**Psn Out Fltr BW** Position Output Filter Bandwidth Sets lead-lag bandwidth. A default value is sets when the filter type selection P832 [Psn Out Fltr Sel] is not Custom (Option 1). See the filter type selection P832.	Units: Default: Min/Max:	R/S 50.00 0.00 / 500.00	RW	Real
		835	**Psn Error** Position Error Indicates actual position error in motor pulse counts as a 32-bit integer. When the position regulator is not enabled, the value is initialized to zero. When the position regulator is enabled, the value contains the running value of position error between the position command P723 [Psn Command] and P836 [Psn Actual].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		836	**Psn Actual** Position Actual Indicates accumulated motor position as a 32-bit integer. It tracks the position feedback P847 [Psn Fdbk]. When P721 [Position Control] Bit 4 "Zero Psn" is set, this parameter accumulates the value of P847 [Psn Fdbk] - the P725 [Zero Position]. When P721 [Position Control] Bit 4 "Zero Psn" is off, this parameter accumulates the value of P847 [Psn Fdbk].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Reg	837	755 **Psn Load Actual** Position Load Actual Indicates accumulated output of the load gear ratio as a 32-bit integer and forms the primary feedback for the position regulator integral channel. It is very important that the load gear ratio be precisely set such that the delta pulse count of one motor revolution equals the delta pulse count of this parameter.	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		838	**Psn Reg Ki** Position Regulator Ki Sets position regulator integral gain as measured from position error to velocity reference. The value has gain units of (P.U. velocity/second) / (P.U. position) and is unit compatible with the position regulator proportional gain P839 [Psn Reg Kp]. An integral gain of 25 means that a per unit position error of 0.1 seconds will effect a 2.5 P.U. speed change per second.	Default: Min/Max:	4.00 0.00 / 25000.00	RW	Real
		839	**Psn Reg Kp** Position Regulator Kp Sets position regulator gain as measured from position error to speed reference. The gain number is identically equal to position regulator bandwidth in radians/second. For example: A gain of 10 means that a P.U. position error of 0.1 seconds will effect a 1.0 P.U. speed change (1 per unit position error is the distance traveled in 1 second at base motor speed). The typical value of this parameter is typically 1/3 of the speed bandwidth (radians/second) but may be set considerably higher with careful tuning of the speed regulator output lead/lag filter.	Units: Default: Min/Max:	R/S 4.00 0.00 / 2000.00	RW	Real
		840	**PReg Pos Int Lmt** Position Regulation Positive Integral Limit Sets positive limit of the position regulator integral output. A value of 100% is equal to parameter 28 [Motor NP RPM].	Units: Default: Min/Max:	% 100.00 0.00 / 800.00	RW	Real
		841	**PReg Neg Int Lmt** Position Regulation Negative Integral Limit Sets negative limit of the position regulator integral output. A value of 100% is equal to parameter 28 [Motor NP RPM].	Units: Default: Min/Max:	% –100.00 –800.00 / 0.00	RW	Real
		842	**PsnReg IntgrlOut** Position Regulation Integral Output Indicates output of the position regulator integral channel after the limit function.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		843	**PsnReg Spd Out** Position Regulation Speed Output Indicates final output of the position regulator.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		844	**PReg Pos Spd Lmt** Position Regulation Positive Speed Limit Sets positive speed limit of total position regulator output. A value of 100% is equal to parameter 28 [Motor NP RPM].	Units: Default: Min/Max:	% 10.00 0.00 / 800.00	RW	Real
		845	**PReg Neg Spd Lmt** Position Regulation Negative Speed Limit Sets negative speed limit of total position regulator output. A value of 100% is equal to parameter 28 [Motor NP RPM].	Units: Default: Min/Max:	% –10.00 –800.00 / 0.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
POSITION CONTROL	Position Reg	**846**	**Psn Reg Droop** Position Regulation Droop Sets position droop which limits the low frequency gain of the position regulators integral channel to a value of (1/droop). This parameter provides a means to fine tune the stability for load mounted feedback devices where lost motion may cause a problem. Typically, the position droop will have a value that is less than (1/position gain), perhaps even zero for tightly coupled loads. The position droop has a gain value of (P.U. position) / (P.U. speed). Note: 1 P.U. position is the distance traveled in 1 second at base motor speed.	Units: Default: Min/Max:	Secs 0.00 0.00 / 25.00	RW	Real
		847	**Psn Fdbk** Position Feedback Indicates the accumulated pulse count of the position feedback selected by the position feedback select P135 [Psn Fdbk Sel].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		848 ○	**755** **Psn Gear Ratio** Position Gear Ratio Sets the load side gear ratio for position control. Adjust this parameter's value when the load side encoder is selected for the position feedback by P135 [Mtr Psn Fdk Sel], and the load is coupled to the motor through a gear. Calculation: Gear Ratio = (Number of teeth on Gear or driven) / (Number of teeth on Pinion or driver) When a motor (driver) and a load (driven) are coupled with a 20:1 gear box (the gear ratio = 20), the value of this parameter will be 20. This value affects the following parameters as a speed feed forward gain. P843 [PsnReg Spd Out] P783 [PTP Speed FwdRef] P807 [PLL Speed Out] P1472 [PCAM Vel Out]	Default: Min/Max:	1.0000 0.0001 / 9999.0000	RW	Real

Drive (Port 0) Communication File

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
COMMUNICATION	Comm Control	**865** **866** **867**	**DPI Pt1 Flt Actn** **DPI Pt2 Flt Actn** **DPI Pt3 Flt Actn** DPI Port *n* Fault Action Sets the response to a HIM communication loss. Note: This feature will not work if the HIM is the only Stop source. "Fault" (0) – Major fault indicated. Coast to Stop. "Stop" (1) – Type 2 alarm indicated. Stop according to P370 [Stop Mode A]. "Zero Data" (2) – Type 2 alarm indicated. If running, drive continues to run, speed reference goes to zero. "Hold Last" (3) – Type 2 alarm indicated. If running, drive continues to run at the last value entered from the HIM. "Send Flt Cfg" (4) – Type 2 alarm indicated. If running, drive continues to run at [DPI Pt*n* Flt Ref].	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last" 4 = "Send Flt Cfg"	RW	32-bit Integer
		868 **869** **870**	**DPI Pt1 Flt Ref** **DPI Pt2 Flt Ref** **DPI Pt3 Flt Ref** DPI Port *n* Fault Reference Sets a constant value for the speed reference when [DPI Pt*n* Flt Actn] option 4 "Send Flt Cfg" is set and a HIM communication loss is detected.	Default: Min/Max:	0.00 –/+220000000.00	RO	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
COMMUNICATION	Comm Control	871 872 873 874 875 876 877 878	**Port 1 Reference** **Port 2 Reference** **Port 3 Reference** **Port 4 Reference** **Port 5 Reference** **Port 6 Reference** 755 **Port13 Reference** **Port14 Reference** Port *n* Reference Reference value from port devices.	Units: Hz RPM Default: 0.00 Min/Max: –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		879	**Drive Logic Rslt** Drive Logic Result This is the logic output of the logic parser that combines the outputs from the DPI ports and the DeviceLogix controller to determine drive control based on the masks and owners. Used for peer to peer communication with PowerFlex 750-Series communication modules.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Jog 2	Run	Climit Stop	Coast Stop	Reserved	SpdRef Sel 2	SpdRef Sel 1	SpdRef Sel 0	Decel Time 2	Decel Time 1	Accel Time 2	Accel Time 1	Reserved	Manual	Reverse	Forward	Clear Faults	Jog 1	Start	Stop
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False, 1 = True

		880	**DPI Ref Rslt** DPI Reference Result Present speed reference scaled as a DPI reference for peer to peer communications. The value shown is the value prior to the accel/decel ramp and the corrections supplied by slip comp, PI, etc. Used for peer to peer communication with 20-COMM communication modules.	Units: Hz RPM Default: 0.000 Min/Max: –2147483.648 / 2147483.624	RO	32-bit Integer
		881	**DPI Ramp Rslt** DPI Ramp Result Displays the speed reference value, after the limit function. This is the input to the error calculator and speed regulator. Used for peer-to-peer communication with 20-COMM communication modules.	Units: Hz RPM Default: 0.000 Min/Max: –2147483.648 / 2147483.624	RO	32-bit Integer
		882	**DPI Logic Rslt** DPI Logic Result A version of P879 that is used when doing peer-to-peer control with a 20-COMM communication module. The lower 16 bit command values are copied into the upper 16 bits of this 32-bit parameter for use with this type of communication module. Not for use with a 20-750 communication module.		RO	32-bit Integer

Options	Reserved	SpdRef Sel 2	SpdRef Sel 1	SpdRef Sel 0	Decel Time 2	Decel Time 1	Accel Time 2	Accel Time 1	Reserved	Manual	Reverse	Forward	Clear Faults	Jog 1	Start	Stop	Reserved	SpdRef Sel 2	SpdRef Sel 1	SpdRef Sel 0	Decel Time 2	Decel Time 1	Accel Time 2	Accel Time 1	Reserved	Manual	Reverse	Forward	Clear Faults	Jog 1	Start	Stop
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False, 1 = True

		883	**Drive Ref Rslt** Drive Reference Result Present frequency reference scaled as a DPI reference for peer to peer communications. The value shown is the value prior to the accel/decel ramp and the corrections supplied by slip comp, PI, etc. Used for peer to peer communication with 20-COMM communication modules.	Units: Hz RPM Default: 0.000 Min/Max: –/+2147483648.000	RO	Real
		884	**Drive Ramp Rslt** Drive Ramp Result Displays the speed reference value, after the limit function. This is the input to the error calculator and speed regulator. This number is scaled so that rated motor speed will read 32768. Used for peer to peer communication with 20-COMM communication modules.	Units: Hz RPM Default: 0.000 Min/Max: –/+2147483648.000	RO	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
COMMUNICATION	Security	**885**	**Port Mask Act** Port Mask Active Active status for port communication. Bit 15 “Security” determines if network security is controlling the port mask instead of this parameter. For example, bit 15 can be active (control the port mask) when Automatic Device Configuration (ADC) is active.		RO	16-bit Integer

Options	Security	Port 14	Port 13	Reserved	Port 11	Port 10	Port 9	Port 8	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Read Only
1 = Read/Write

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
COMMUNICATION	Security	**886**	**Logic Mask Act** Logic Mask Active Active status of the logic mask for ports. Bit 15 “Security” determines if network security is controlling the logic mask instead of this parameter.		RO	16-bit Integer

Options	Security	Port 14	Port 13	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Read Only
1 = Read/Write

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
COMMUNICATION	Security	**887**	**Write Mask Act** Write Mask Active Active status of write access for ports. Bit 15 “Security” determines if network security is controlling the write mask instead of this parameter.		RO	16-bit Integer

Options	Security	Port 14	Port 13	Reserved	Port 11	Port 10	Port 9	Port 8	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Reserved
Default	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Read Only
1 = Read/Write

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
COMMUNICATION	Security	**888**	**Write Mask Cfg** Write Mask Configuration Enables/disables write access (parameters, links, etc.) for DPI ports. Changes to this parameter only become effective when power is cycled, the drive is reset or bit 15 of P887 [Write Mask Act], transitions from “1” to “0.”		RW	16-bit Integer

Options	Reserved	Port 14	Port 13	Reserved	Port 11	Port 10	Port 9	Port 8	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Reserved
Default	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Read Only
1 = Read/Write

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
COMMUNICATION	DPI Datalinks		**Important:** DPI Datalinks parameters are used for datalinks on legacy 20-COMM-*n* communication devices. For embedded EtherNet/IP or 20-750 option datalinks, refer to the parameters associated with the specific option module.				
		895 **896**	**Data In A1** **Data In A2** Data Input A*n* Parameter number whose value will be written from a communications device data table.	Default: Min/Max:	0 (0 = "Disabled") 0 / 159999	RW	32-bit Integer
		897 **898**	**Data In B1** **Data In B2** Data Input B*n* Parameter number whose value will be written from a communications device data table.	See [Data In A1].			
		899 **900**	**Data In C1** **Data In C2** Data Input C*n* Parameter number whose value will be written from a communications device data table.	See [Data In A1].			
		901 **902**	**Data In D1** **Data In D2** Data Input D*n* Parameter number whose value will be written from a communications device data table.	See [Data In A1].			
		905 **906**	**Data Out A1** **Data Out A2** Data Output A*n* Parameter number whose value will be written to a communications device data table.	Default: Min/Max:	0 (0 = "Disabled") 0 / 159999	RW	32-bit Integer
		907 **908**	**Data Out B1** **Data Out B2** Data Output B*n* Parameter number whose value will be written from a communications device data table.	See [Data Out A1].			
		909 **910**	**Data Out C1** **Data Out C2** Data Output C*n* Parameter number whose value will be written from a communications device data table.	See [Data Out A1].			
		911 **912**	**Data Out D1** **Data Out D2** Data Output D*n* Parameter number whose value will be written from a communications device data table.	See [Data Out A1].			

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
COMMUNICATION	Owners	919	**Stop Owner** Stop Owner Indicates which port is currently issuing a valid stop command.		RO	16-bit Integer

Options	Reserved	Port 14	Port 13[1]	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In[2]
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

(1) 755 drives only.
(2) If parameter 150 [Digital In Cfg] =1 “Run Level” the absence of a run command is indicated as a stop asserted.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
COMMUNICATION	Owners	920	**Start Owner** Start Owner Indicates which port is currently issuing a valid start command.		RO	16-bit Integer

Options	Reserved	Port 14	Port 13[1]	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

(1) 755 drives only.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
COMMUNICATION	Owners	921	**Jog Owner** Jog Owner Indicates which port is currently issuing a valid jog command.		RO	16-bit Integer

Options	Reserved	Port 14	Port 13[1]	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

(1) 755 drives only.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
COMMUNICATION	Owners	922	**Dir Owner** Direction Owner Indicates which port has exclusive control of direction changes. Only one port can own the direction function at one time.		RO	16-bit Integer

Options	Reserved	Port 14	Port 13[1]	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

(1) 755 drives only.

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>COMMUNICATION</td><td>Owners</td><td>923</td><td colspan="2">

Clear Flt Owner
Clear Fault Owner
Indicates which port is currently clearing a fault.

<table>
<tr><td>Options</td><td>Reserved</td><td>Port 14</td><td>Port 13 (1)</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Port 6</td><td>Port 5</td><td>Port 4</td><td>Port 3</td><td>Port 2</td><td>Port 1</td><td>Digital In</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = False
1 = True</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr>
</table>

(1) 755 drives only.
</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>924</td><td colspan="2">

Manual Owner
Manual Owner
Adapter that has requested manual control of all drive logic and/or reference functions. If an adapter is in manual lockout, all other functions (except stop) on all other adapters are locked out and non-functional. Monitor manual lockout status the associated owner status parameters.

<table>
<tr><td>Options</td><td>Reserved</td><td>Port 14</td><td>Port 13 (1)</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Port 6</td><td>Port 5</td><td>Port 4</td><td>Port 3</td><td>Port 2</td><td>Port 1</td><td>Digital In</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = False
1 = True</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr>
</table>

(1) 755 drives only.
</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>925</td><td colspan="2">

Ref Select Owner
Reference Select Owner
Indicates which port is issuing a valid reference select.

<table>
<tr><td>Options</td><td>Reserved</td><td>Port 14</td><td>Port 13 (1)</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Port 6</td><td>Port 5</td><td>Port 4</td><td>Port 3</td><td>Port 2</td><td>Port 1</td><td>Digital In</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = False
1 = True</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr>
</table>

(1) 755 drives only.
</td><td>RO</td><td>16-bit Integer</td></tr>
</table>

File	**Group**	**No.**	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
COMMUNICATION	ODK Datalinks	**1700…1731**	**UserData Int 00…31** User Data Integer 00…31 Available for storage of a 32-bit integer value by the user.	Default: Min/Max:	0 -2147483647 / 2147483647	RW	32-bit Integer
		1800…1831	**UserData Real 00…31** User Data Real 00…31 Available for storage of a real value by the user.	Default: Min/Max:	0.0000 -2147483647 / 2147483647	RW	Float
		1900 **1904** **1908** **1912** **1916** **1920** **1924** **1928**	**ScaleBlk Sel 00** **ScaleBlk Sel 01** **ScaleBlk Sel 02** **ScaleBlk Sel 03** **ScaleBlk Sel 04** **ScaleBlk Sel 05** **ScaleBlk Sel 06** **ScaleBlk Sel 07** Scale Block Select *n* Selects the source value to be scaled.	Default: Min/Max:	Disabled 0 / 159999	RW	32-bit Integer
		1901 **1905** **1909** **1913** **1917** **1921** **1925** **1929**	**ScaleBlk Scal 00** **ScaleBlk Scal 01** **ScaleBlk Scal 02** **ScaleBlk Scal 03** **ScaleBlk Scal 04** **ScaleBlk Scal 05** **ScaleBlk Scal 06** **ScaleBlk Scal 07** Scale Block Scale *n* Scales (multiplier) the selected parameter value.	Default: Min/Max:	1.0000 -2147483647 / 2147483647	RW	Float
		1902 **1906** **1910** **1914** **1918** **1922** **1926** **1930**	**ScaleBlk Int 00** **ScaleBlk Int 01** **ScaleBlk Int 02** **ScaleBlk Int 03** **ScaleBlk Int 04** **ScaleBlk Int 05** **ScaleBlk Int 06** **ScaleBlk Int 07** Scale Block Integer *n* Displays the scaling result as a 32-bit integer value.	Default: Min/Max:	0 -2147483647 / 2147483647	RO	32-bit Integer
		1903 **1907** **1911** **1915** **1919** **1923** **1927** **1931**	**ScaleBlk Real 00** **ScaleBlk Real 01** **ScaleBlk Real 02** **ScaleBlk Real 03** **ScaleBlk Real 04** **ScaleBlk Real 05** **ScaleBlk Real 06** **ScaleBlk Real 07** Scale Block Real *n* Displays the scaling result as a real value.	Default: Min/Max:	0.0000 -2147483647 / 2147483647	RO	Float

Drive (Port 0) Diagnostics File

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
DIAGNOSTICS	Status	**930**	**Speed Ref Source** Speed Reference Source Indicates the currently selected source for value displayed in P593 [Limited Spd Ref]. The Speed Reference Source displays the parameter number that is supplying the speed reference. For example, if Speed Reference Source contains the value 546, then P546 [Spd Ref A Stpt] is the source of the speed reference.	Default: Min/Max:	0 0 / 159999	RO	32-bit Integer
		931	**Last StartSource** Last Start Source Displays the source that initiated the most recent start sequence. All bits in this parameter are refreshed each time the drive receives a start command.	Default: Options:	0 = Read Only 0 = “Pwr Removed” 1-6 = “Port 1-6” 7 = “Digital In” 8 = “Sleep” 9 = “Jog” 10 = “Profiling” 11 = “AutoRestart” 12 = “Pwr Up Start” 13 = “Fault” 14 = “Enable” 15 = “Autotune” 16 = “Precharge” 17 = “Safety” 18 = “Fast Stop” 19 = “Port 13” 20 = “Port 14”	RO	32-bit Integer
		932	**Last Stop Source** Last Stop Source Displays the source that initiated the most recent stop sequence. All bits in this parameter are refreshed each time the drive receives a stop command.	Default: Options:	0 = Read Only 0 = “Pwr Removed” 1-6 = “Port 1-6” 7 = “Digital In” 8 = “Sleep” 9 = “Jog” 10 = “Profiling” 11 = “AutoRestart” 12 = “Pwr Up Start” 13 = “Fault” 14 = “Enable” 15 = “Autotune” 16 = “Precharge” 17 = “Safety” 18 = “Fast Stop” 19 = “Port 13” 20 = “Port 14”	RO	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	**Status**	**933**	**Start Inhibits** Start Inhibits Indicates which condition is preventing the drive from starting or running.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	CommutNotCfg	Profiler [1]	Sleep	Safety	Startup	Database	Stop	Precharge	Enable	Alarm	Faulted
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

0 = False
1 = True

Bit 0 “Faulted” – Drive is in a faulted state. See P951 [Last Fault Code].
Bit 1 “Alarm” – A Type 2 alarm exists. See P961 [Type 2 Alarms].
Bit 2 “Enable” – An Enable input is open.
Bit 3 “Precharge” – Drive is in precharge. See P321 [Prchrg Control], P11 [DC Bus Volts].
Bit 4 “Stop” – Drive is receiving a stop signal. See P919 [Stop Owner].
Bit 5 “Database” – Database is performing a download operation.
Bit 6 “Startup” – Startup is active and preventing a start. Go to Start-Up Routine and abort.
Bit 7 “Safety” – Safety option module is preventing a start.
Bit 8 “Sleep” – Sleep function is issuing a stop. See P350 [Sleep Wake Mode], P351 [SleepWake RefSel].
Bit 9 “Profiler” – Profiler function is issuing a stop. See P1210 [Profile Status].
Bit 10 “CommutNotCfg” – The associated PM motor commutation function has not been configured for use.

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	**Status**	**934**	**Last StrtInhibit** Last Start Inhibit Displays the Inhibit which prevented the last Start signal from starting the drive. Bits will be cleared after the next successful start sequence. See parameter 933 [Start Inhibits] for bit descriptions.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	CommutNotCfg	Profilier	Sleep	Safety	Startup	Database	Stop	Precharge	Enable	Alarm	Faulted
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status	935	**Drive Status 1** Drive Status 1		RO	32-bit Integer

Present operating condition of the drive.

Options	Regen	Motor OL	Enable On	Bus Frq Reg	Cur Limit	At Limit	At Home	AtZero Speed	Torque Mode	PositionMode	Speed Mode	DB Active	DC Braking	Stopping	Jogging	Running	Reserved	SpdRef Bit 4	SpdRef Bit 3	SpdRef Bit 2	SpdRef Bit 1	SpdRef Bit 0	Manual	At Speed	Faulted	Alarm	Decelerating	Accelerating	Actual Dir	Command Dir	Active	Ready
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Ready” – Condition is true if there are no start inhibits indicated by P933 [Start Inhibits]. When parameter 150 [Digital In Cfg] option 1 “Run Level” is selected and the run command is low, this bit will also be low.

Bit 1 “Active” – Condition is true if drive is modulating.

Bit 2 “Command Dir” – 1 = Commanded direction is forward. 0 = Commanded direction is reverse.

Bit 3 “Actual Dir” – 1 = Actual direction is forward. 0 = Actual direction is reverse.

Bit 4 “Accelerating” – For flux vector and non-vector control modes, this bit indicates when the actual motor speed is increasing due to change in speed reference. When accelerating, the motor speed is moving away from zero in either the positive (forward) or negative (reverse) direction. In adjustable voltage control mode, accelerating relates to an increasing output voltage and frequency. The “accelerating” bit will become clear when any of the following conditions occur:

- drive inactive (Bit 1 “Active” status clear)
- when “At Speed” (Bit 8 status set)
- when “AtZero Speed” (Bit 24 set)
- when “DC Braking” (Bit 19 set)
- when the drive is operating as a torque regulator (Bit 23 without Bits 21 and 22)
- when the drive is is operating in position mode (Bit 22)

Bit 5 “Decelerating” – This bit compliments the Accelerating status Bit 4 for the condition where the motor speed is decreasing due to a change in speed reference. When decelerating, the motor speed is moving toward zero in either the positive (forward) or negative (reverse) direction. In adjustable voltage control mode, decelerating relates to a decreasing output voltage and frequency. The conditions that will clear this bit are the same as those that apply to the Accelerating status bit.

Bit 8 “At Speed” – This bit will become set when the actual motor speed has reached the speed reference value. This condition is determined by comparing P131 [Active Vel Fdbk] against P597 [Final Speed Ref]. “At Speed” occurs when the difference between speed reference and feedback is within 1 percent of motor nameplate speed. In adjustable voltage control mode, the “At Speed” condition will indicate when the output voltage and frequency have completed their ramps and are no longer changing. The “At Speed” bit will become clear when any of the following conditions occur: drive inactive (Bit 1 “Active” status clear) or when accelerating (Bit 4 set) or when decelerating (Bit 5 set).

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
DIAGNOSTICS	**Status**		**Drive Status 1 Bit Descriptions** Bits 10… 14 “SpdRef Bit *x*” – See Table 935A: Reference Status:			

Table 935A: Reference Status

Bit	14	13	12	11	10	Reference Source	Parameter
	0	0	0	0	1	Auto, Ref A	545
	0	0	0	1	0	Auto, Ref B	550
	0	0	0	1	1	Auto, Preset 3	573
	0	0	1	0	0	Auto, Preset 4	574
	0	0	1	0	1	Auto, Preset 5	575
	0	0	1	1	0	Auto, Preset 6	576
	0	0	1	1	1	Auto, Preset 7	577
	1	0	0	0	0	MAN, Port 0, DIGIN SEL	563
	1	0	0	0	1	MAN, Port 1	871
	1	0	0	1	0	MAN, Port 2	872
	1	0	0	1	1	MAN, Port 3	873
	1	0	1	0	0	MAN, Port 4	874
	1	0	1	0	1	MAN, Port 5	875
	1	0	1	1	0	MAN, Port 6	876
	1	1	1	0	1	MAN, Port 13 INT. ENET	877
	1	1	1	1	0	MAN, Port 14 DRV LOGIX	878
	1	1	1	1	1	ALT MAN REF SEL	328

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status		Bit 16 “Running” – This bit indicates that the drive has successfully responded to a start signal. The “Active” (Bit 1) status bit will also be set at the same time as the Running status. The “Running” bit will remain set while the drive’s control loops are active and during a controlled stop. The “Running” bit will be clear due to any of the following conditions: drive stopped, drive coast stop, drive jogging, drive autotuning. Bit 17 “Jogging” – This bit indicates that the drive has successfully responded to a jog signal. The “Active” (Bit 1) status bit will also be set at the same time as the Jogging status. The “Jogging” bit will remain set while the drive’s control loops are active and during a controlled stop. The “Jogging” bit will remain set after the jog signal is removed until the drive is stopped. The “Jogging” bit will be clear due to any of the following conditions: drive stopped, drive coast stop, drive running, drive autotuning. Bit 18 “Stopping” – Drive is attempting to bring the motor to rest due to a Stop command. Bit 19 “DC Braking” – Drive is performing DC Braking. Bit 20 “DB Active” – The Dynamic Brake is active. Bit 21 “Speed Mode” – When set, the “Speed Mode” bit indicates that motor speed is the active regulation mode. This is the default case when operating in non-vector control mode, since position and torque can only be controlled in vector control mode. The “Speed Mode” status bit will clear due to any of the following conditions: drive operating in another regulation mode such as a position regulator, torque regulator, adjustable voltage control mode. The “Speed Mode” status bit will also clear if the drive is not active (status bit 1 clear). In cases where the control can automatically switch between speed and torque, such as SLAT FVC control modes, the “Speed Mode” bit will indicate when speed control is active. In the “Sum” FVC control mode where the speed regulator's output is added to a torque reference, both the “Speed Mode” and “Torque Mode” status bits will become set while the drive is active. Bit 22 “PositionMode” – When set, the “PositionMode” bit indicates that motor position is the active regulation mode. Position control is only available when the drive is operating in a vector control mode with a speed and position feedback device. The “Position Mode” status bit will clear due to any of the following conditions: drive operating in a non-position regulation mode such as a speed regulator, torque regulator, adjustable voltage control mode. The “PositionMode” status bit will also clear if the drive is not active (status Bit 1 clear). Bit 23 “Torque Mode” – When set, the “Torque Mode” bit indicates that motor torque is the active regulation mode. Torque control is only available when the drive is operating in a vector control mode. The “Torque Mode” status bit will clear due to any of the following conditions: drive operating in another regulation mode such as a speed regulator, position regulator, adjustable voltage control mode. The “Torque Mode” status bit will also clear if the drive is not active (status Bit 1 clear). In cases where the control can automatically switch between speed and torque, such as SLAT FVC control modes, the “Torque Mode” bit will indicate when torque control is active. In the “Sum” FVC control mode where the speed regulator’s output is added to a torque reference, both the “Speed Mode” and “Torque Mode” status bits will become set while the drive is active. Bit 24 “AtZero Speed” – When set, the “AtZero Speed” status bit indicates that the value of P131 [Active Vel Fdbk] is near zero. This status bit is set when the feedback speed magnitude (sign independent) becomes less than the level set in P525 [Zero Speed Limit]. This bit will clear when the speed exceeds twice the zero speed level. Bit 25 “At Home” – This bit is set when the difference between P847 [Psn Fdbk] and P737 [Actual Home Psn] is within P726 [In Pos Psn Band]. Bit 26 “At Limit” – This bit is set when a bit in P945 [At Limit Status] is set. See P945 [At Limit Status] for more details. Bit 27 “Cur Limit” – This bit is set when the drive is running with limited speed or torque avoid an overcurrent condition. Bit 28 “Bus Frq Reg” – This bit is set when the speed has been regulate to avoid an overcurrent condition. Bit 29 “Enable On” – This bit is set when the drive is enabled. Bit 30 “Motor OL” – This bit is set when an excessive motor load exists. Bit 31 “Regen” – This bit is set when the motor torque direction is opposite of the speed direction.			

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status	936	**Drive Status 2** Drive Status 2 Present operating condition of the drive.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	N-1 Operate (1)	Decel Rate (2)	Accel Rate (2)	PID FB Loss	Autotuning	PrchrgClosed	Adj VltgMode (2)	Reserved	FdbkLoss Sw0	Flux Braking	Reserved	HS Fan On	AuRstrCntDwn	AutoRstr Act
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 Frame 8 drives and larger only.
(2) 753 drives only.

0 = Condition False
1 = Condition True

Bit 0 “AutoRstr Act” – Auto Restart has been activated.
Bit 1 “AuRstrCntDwn” – Auto Restart is counting down the delay time programmed to attempt a restart.
Bit 2 “HS Fan On” – Heatsink fan is running.
Bit 4 “Flux Braking” –
Bit 5 “FdbkLoss Sw0” – This status bit will indicate that a F97 “Auto Tach Switch” fault has occurred. The F97 fault is associated with the option to automatically switch to the alternate feedback device upon failure of the primary device. The F97 fault indicates that both primary and alternate devices have failed. This could occur either before or after the switchover to the alternate device.
Bit 7 “Adj VltgMode” – Invalid parameter selection detected.
Bit 8 “PrchrgClosed” – Precharge relay is closed.
Bit 9 “Autotuning” – Drive is running an Autotune procedure.
Bit 10 “PID FB Loss” – The feedback selected for the PID feedback source has detected a Loss condition. The analog feedback signal of Process PID is below 2V (0…10V signal) or below 4 mA (4…20 mA signal).
Bit 11 “Accel Rate” – When set, indicates that P536 [Accel Time 2] is active. This is the acceleration time from zero to rated frequency/speed for the speed control’s reference ramp. When clear, indicates that P535 [Accel Time 1] is active. Accel Time 1 is the default selection.
Bit 12 “Decel Rate” – When set, indicates that P538 [Decel Time 2] is active. This is the deceleration time from rated frequency/speed to zero for the speed control’s reference ramp. When clear, indicates that P537 [Decel Time 1] is active. Decel Time 1 is the default selection.
Bit 13 “N-1 Operate” – Indicates the parallel drive is in operation mode.

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
DIAGNOSTICS	**Status**	**937**	**Condition Sts 1** Condition Status 1		RO	32-bit Integer

Status of conditions that may or may not result in the drive taking action (faulting), based on configuration of protective functions.

The occurrence of conditions that have been configured as faults are indicated by P952 [Fault Status A] and those configured as alarms are indicated by P959 [Alarm Status A].

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	OW Timeout (1)	GndWarning	ExtPrchrgErr	PosFdbkLoss	AuxFdbkLoss	AltFdbkLoss	PriFdbkLoss	Shear Pin 2	Shear Pin 1	Decel Inhib	OutPhaseLoss	InPhaseLoss	Load Loss	Motor OL	UnderVoltage	Power Loss
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 753 drives only

0 = Condition False
1 = Condition True

Bit 0 “Power Loss” – A Power Loss exception has been issued. Power Loss detection is a function of the bus manager and is configured by [Pwr Loss Mode *n*] and [Pwr Loss *n* Level]. The corresponding fault and alarm are processed in the background according to P449 [Power Loss Actn] and the state of this bit.

Bit 1 “UnderVoltage” – An Under Voltage exception has been issued. Parameter 460 [UnderVltg Action] must be set to an option other than 0 “Ignore” for this bit to be set. The corresponding fault and alarm are processed immediately within the same precharge function where the condition status bit is detected.

Bit 2 “Motor OL” – An excessive motor load exists. If P410 [Motor OL Actn] is set to option 0 “Ignore” the overload function will not produce a condition status bit, alarm status, or fault status. If P410 [Motor OL Actn] is set to option 1 “Alarm” the condition status bit and alarm will be set when the overload value exceeds P412 [Mtr OL Alarm Lvl]. Parameter 412 [Mtr OL Alarm Lvl] must be set to an option other than 0 “Ignore’ to produce a condition status bit alarm.

Bit 3 “Load Loss” – This bit dependent on the setting of P441 [Load Loss Action] which must be set to an option other than 0 “Ignore” to be processed. The corresponding fault and alarm are processed in the background according to P441 [Load Loss Action] and the state of this bit.

Bit 4 “InPhaseLoss” – Input Phase Loss exception has been issued. The corresponding fault and alarm are processed in the background according to P462 [InPhase LossActn] and the state of this bit. Parameter 462 [InPhase LossActn] is not used to inhibit this bit.

Bit 5 “OutPhaseLoss” – Output Phase Loss exception has been issued. The corresponding fault and alarm are processed in the background according to P444 [OutPhaseLossActn] and the state of this bit. Parameter 444 [OutPhaseLossActn] is not used to inhibit this bit.

Bit 6 “Decel Inhib” – The drive is being Inhibited from decelerating to the commanded speed. If the drive is not decelerating (P935 [Drive Status 1] Bit 5 = 0), is not in the Run state, or if P635 [Spd Options Ctrl] Bit 0 = 1, this bit is cleared. Otherwise this bit is set when a decel inhibit condition is detected. Parameter 409 [Dec Inhibit Actn] has no affect on this bit.

Bit 7 “Shear Pin 1” – Value set in P436 [Shear Pin1 Level] has been reached or exceeded. Parameter 435 [Shear Pin 1 Actn] must be set to an option other than 0 “Ignore” for this bit to be set. The corresponding fault and alarm are processed in the background according to P435 [Shear Pin 1 Actn] and the state of this bit.

Bit 8 “Shear Pin 2” – Value set in P439 [Shear Pin2 Level] has been reached or exceeded. Parameter 438 [Shear Pin 2 Actn] must be set to an option other than 0 “Ignore” for this bit to be set. The corresponding fault and alarm are processed in the background according to P438 [Shear Pin 2 Actn] and the state of this bit.

Bit 9 “PriFdbkLoss” – When set, indicates that the device selected as the primary velocity feedback source has reported a device failure. P125 [Pri Vel Fdbk Sel] selects the device used as the primary velocity feedback source. The primary feedback device supplies motor speed feedback if the Automatic Tach Switchover option is either disabled or has not switched to the alternate feedback device. In order to report this condition as an alarm, the feedback loss configuration parameter for the primary feedback device must be configured for “Alarm.”

Bit 10 “AltFdbkLoss” – When set, indicates that the device selected as the alternate velocity feedback source has reported a device failure. P128 [Alt Vel Fdbk Sel] selects the device used as the alternate velocity feedback source. The alternate feedback device supplies motor speed feedback if the Automatic Tach Switchover option is enabled and the primary feedback device has failed. In order to report this condition as an alarm, the feedback loss configuration parameter for the alternate feedback device must be configured for “Alarm.”

Bit 11 “AuxFdbkLoss” – When set, indicates that the device selected as the auxiliary velocity feedback source has reported a device failure. P132 [Aux Vel Fdbk Sel] selects the device used as the auxiliary velocity feedback source. The auxiliary feedback device can be used to supply motor speed reference. In order to report this condition as an alarm, the feedback loss configuration parameter for the auxiliary feedback device must be configured for “Alarm.”

Bit 12 “PosFdbkLoss” – When set, indicates that the device selected as the position feedback source has reported a device failure. P135 [Psn Fdbk Sel] selects the device used as the position feedback source. Position feedback is used for position control applications. It can be the same device used for velocity feedback or position feedback can be supplied by a separate device. In order to report this condition as an alarm, the feedback loss configuration parameter for the position feedback device must be configured for “Alarm.”

Bit 13 “ExtPrchrgErr” – Selected digital input assigned to the external Precharge Seal control, P190 [DI Prchrg Seal], is not active when the bus has stabilized. The corresponding fault and alarm are processed according to P323 [Prchrg Err Cfg] and the state of this bit.

Bit 14 “GndWarning” – Value set in P467 [Ground Warn Lvl] has been exceeded. Parameter 466 [Ground Warn Actn] must be set to an option other than 0 “Ignore” for this bit to be set. The corresponding fault and alarm are processed in the background based on P466 [Ground Warn Actn] and the state of this bit.

Bit 15 “OW Timeout” – The value set in P1172 [TorqAlarm Timeout] has been exceeded. This bit is set by the pump off algorithm. The corresponding fault and alarm are processed in the background based on the state of this bit.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
DIAGNOSTICS	Status	940	**Drive OL Count** Drive Overload Count Indicates power unit overload (IT) in percentage. When the value reaches 100%, the power unit overload fault occurs.	Units: Default: Min/Max:	% 0.00 0.00 / 200.00	RO	Real
		941	**IGBT Temp Pct** Insulated-Gate Bipolar Transistor Temperature Percent Indicates IGBT junction temperature in percentage of the maximum junction temperature. The value of this parameter is calculated.	Units: Default: Min/Max:	% 0.00 −/+200.00	RO	Real
		942	**IGBT Temp C** Insulated-Gate Bipolar Transistor Temperature Celsius Indicates IGBT junction temperature in centigrade. The value of this parameter is calculated.	Units: Default: Min/Max:	DegC 0.00 −/+200.00	RO	Real
		943	**Drive Temp Pct** Drive Temperature Percent Indicates operating temperature of the drive power section (heat-sink) in percentage of the maximum heat-sink temperature. The value of this parameter is measured.	Units: Default: Min/Max:	% 0.00 −/+200.00	RO	Real
		944	**Drive Temp C** Drive Temperature Celsius Present operating temperature of the drive power section. The value of this parameter is measured.	Units: Default: Min/Max:	DegC 0.00 −/+200.00	RO	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status	945	**At Limit Status** At Limit Status Status of dynamic conditions within the drive that are either active or a limit is being applied.		RO	32-bit Integer

Options	Cur Rate Lmt	TrqPrvNegLmt	TrqPrvPosLmt	Mtr Vltg Lkg	BusVltgFVLmt	Therm RegLmt	Cur Lmt FV	Regen PwrLmt	Mtrng PwrLmt	Trq Neg Lmt	Trq Pos Lmt	FlxCurNegLmt	FlxCurPosLmt	TrqCurNegLmt	TrqCurPosLmt	PsnReg HiSpd	PsnReg LoSpd	PsnReg HiLmt	PsnReg LoLmt	DB Res Limit	PWM FreqLmt	Economize	Flux Braking	FreqOSNegLmt	FreqOSPosLmt	Freq Lo Lmt	Freq Hi Lmt	Spd Reg Lmt	OverSpd Lmt	MaxSpeed Lmt	Bus Vltg Lmt	Current Lmt
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "Current Lmt" – Scalar current limit is adjusting the output frequency
Bit 1 "Bus Vltg Lmt" – Scalar bus voltage limit is adjusting the output frequency
Bit 2 "MaxSpeed Lmt" – Motor speed reference is limited to maximum forward speed or maximum reverse speed. See P520 [Max Fwd Speed], P521 [Max Rev Speed].
Bit 3 "OverSpd Lmt" – Motor speed reference positive (+) trim is at maximum speed limit plus or minus (+/-) the overspeed limit
Bit 4 "Spd Reg Lmt" – The output of the drive's speed regulator has reached limit. See P655 [Spd Reg Pos Lmt], P656 [Spd Reg Neg Lmt].
Bit 5 "Freq Hi Lmt" – Scalar control inner ramp high limit is active
Bit 6 "Freq Lo Lmt" – Scalar control inner ramp low limit is active
Bit 7 "FreqOSPosLmt" – Scalar control inner ramp positive (+) overspeed limit is active
Bit 8 "FreqOSNegLmt" – Scalar control inner ramp negative (-) overspeed limit is active
Bit 9 "Flux Braking" – Flux braking is active
Bit 10 "Economize" – Economize is active
Bit 11 "PWM FreqLmt" – PWM frequency is reduced by the thermal regulator
Bit 12 "DB Res Limit" – Dynamic brake thermal protection is active. Verify P385 [DB ExtPulseWatts].
Bit 13 "PsnReg LoLmt" – The position integrator low limit is active
Bit 14 "PsnReg HiLmt" – The position integrator high limit is active
Bit 15 "PsnReg LoSpd" – The position regulator output (speed) is at low limit
Bit 16 "PsnReg HiSpd" – The position regulator output (speed) is at high limit
Bit 17 "TrqCurPosLmt" – The torque current positive limit is active
Bit 18 "TrqCurNegLmt" – The torque current negative limit is active
Bit 19 "FlxCurPosLmt" – The flux current positive limit is active
Bit 20 "FlxCurNegLmt" – The flux current negative limit is active
Bit 21 "Trq Pos Lmt" – The positive torque limit is active. See P670 [Pos Torque Limit].
Bit 22 "Trq Neg Lmt" – The negative torque limit is active. See P671 [Neg Torque Limit].
Bit 23 "Mtrng PwrLmt" – The motoring power limit is active. See P427 [Motor Power Lmt].
Bit 24 "Regen PwrLmt" – The regeneration power limit is active. See P426 [Regen Power Lmt].
Bit 25 "Cur Lmt FV" – The current limit parameter or analog Input current limit is active
Bit 26 "Therm RegLmt" – The thermal regulator torque limit is active
Bit 27 "BusVltgFVLmt" – The bus voltage regulator torque limit is active
Bit 28 "Mtr Vltg Lkg" – The Vds motor voltage limit is active
Bit 29 "TrqPrvPosLmt" – The torque proving positive torque limit is active
Bit 30 "TrqPrvNegLmt" – The torque proving negative torque limit is active
Bit 31 "Cur Rate Lmt" – The Iqs rate limit is active

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status	946	**Safety Port Sts** Safety Port Status Indicates the port location of a valid feedback option for use with the Safe Speed Monitoring Option.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 8	Port 7	Port 6	Port 5	Port 4	Reserved	Reserved	Reserved	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
DIAGNOSTICS	Fault/Alarm Info	**950**	**Minor Flt Cfg** Minor Fault Configuration Enables / Disables operation of the "Minor Fault" function, which allows the drive to continue running while some types of faults are present. In addition to setting this parameter, the "Flt Minor" action must be selected for the condition that is desired to result in a minor fault (see P410 [Motor OL Actn] for an example).			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Enable
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
DIAGNOSTICS	Fault/Alarm Info	**951**	**Last Fault Code** Last Fault Code The fault code of the first fault since the last reset. There is often a chain of faults that occur during a breakdown. When troubleshooting, it is often helpful to know the first fault. This parameter is for convenience. A comprehensive history of fault information is available through the fault que (via HIM screens and / or software tools such as Drive Explorer).	Default: Min/Max:	0 0 / 424648720	RO	32-bit Integer
		952	**Fault Status A** Fault Status A Indicates the occurrence of conditions that have been configured as faults. These conditions are from 937 [Condition Sts 1]. See parameter 937 [Condition Sts 1] for bit descriptions.			RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	ExtPrchrgErr	PosFdbkLoss	AuxFdbkLoss	AltFdbkLoss	PriFdbkLoss	Shear Pin 2	Shear Pin 1	Decel Inhib	OutPhaseLoss	InPhaseLoss	Load Loss	Motor OL	UnderVoltage	Power Loss
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
DIAGNOSTICS	Fault/Alarm Info	953	**Fault Status B** Fault Status B		RO	32-bit Integer

Indicates the occurrence of conditions that have been configured as faults.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	End Lmt Sw	TrvlLimCflct	Over Travel	OW Alarm TO	Ground Fault	TPEnclsCfg(1)	TrqPrvSpdBnd(1)	HW OverCur	SW OverCur	AuRstExhaust	IXOVoltRange	FluxAmpsRang	IRVoltsRange	SafetyBrdFlt	Prchrg Open	Overspd Lmt	Excess Load	SinkUnderTmp	TransistorOT	Heatsink OT	Drive OL	OverVoltage	Aux InputFlt
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

0 = Condition False
1 = Condition True

Bit 0 “Aux InputFlt” –
Bit 1 “OverVoltage” – Over voltage trip occurred.
Bit 2 “Drive OL” – Indicates the drive is overloaded. P940 [Drive OL Count] reached 100%.
Bit 3 “Heatsink OT” – Indicates the drive heatsink is over temperature. P943 [Drive Temp Pct] reached 100%.
Bit 4 “TransistorOT” – Indicates the transistor (IGBT) junction is over temperature. P941 [IGBT Temp Pct] reached 100%.
Bit 5 “SinkUnderTmp” – Indicates the heatsink temperature is under -18.7 °C (-2 °F).
Bit 6 “Excess Load” – Motor did not come up to speed in the allotted time during autotune.
Bit 7 “Overspd Lmt” – When set, indicates that a F25 “OverSpeed Limit” fault has occurred. This is a non-configurable fault. An overspeed condition results when the motor speed falls outside of its normal operating range. The limits of this range are established by P521 [Max Rev Speed] - P524 [Overspeed Limit] = (lower limit) and P520 [Max Fwd Speed] + P524 [Overspeed Limit] = (upper limit). In flux vector control mode or scaler control mode with encoder, the motor speed used is a 2msec averaged value of P131 [Active Vel Fdbk]. In scaler control mode without an encoder, the overspeed check uses P1 [Output Frequency]. The overspeed condition must exist for at least 16 milliseconds before it causes a fault to occur.
Bit 8 “Prchrg Open” – Precharge relay is open.
Bit 9 “SafetyBrdFlt” – Safety board is in a faulted state.
Bit 10 “IRVoltsRange” – The Autotune IR voltage exceeded the range of P73 [IR Voltage Drop].
Bit 11 “FluxAmpsRang” – The Autotune Flux Current exceeded the range of P75 [Flux Current Ref].
Bit 12 “IXOVoltRange” – The Autotune Ixo voltage exceeded the range of P74 [Ixo Voltage Drop].
Bit 13 “AuRstExhaust” – The value set in P348 [Auto Rstrt Tries] has been exceeded.
Bit 14 “SW OverCur” – Drive output current has exceeded the 1ms 250% current rating.
Bit 15 “HW OverCur” – Drive output current has exceeded the hardware current trip limit.
Bit 16 “TrqPrvSpdBnd” – The allowable deviation between actual motor speed and ramped speed set in P1105 [Speed Dev Band] has been exceeded.
Bit 17 “TPEnclsCfg” – The Torque Proving function has been configured as Encoderless. Read the Attention statement under Lifting/Torque Proving on page 356.
Bit 18 “Ground Fault” – Current path to earth ground greater than 25% drive rated current detected.
Bit 19 “OW Alarm TO” – An A65 “OW TrqLvl Timeout” alarm has occurred.
Bit 20 “Over Travel” – The selected digital input for one of the over travel directions is active.
Bit 21 “TrvlLimCflct” – Travel limits are in conflict.
Bit 22 “End Lmt Sw” – The selected digital input for one of the end limit switches, P196 [DI Fwd End Limit] or P198 [DI Rev End Limit], has detected a falling edge and P313 [Actv SpTqPs Mode] is not set to 1 “Speed Reg.”

File	Group	No.	Display Name	Values	Read-Write	Data Type
DIAGNOSTICS	Fault/Alarm Info	954	**Status1 at Fault** Status 1 at Fault		RO	32-bit Integer

Captures and displays P935 [Drive Status 1] bit pattern at the time of the last fault.
See parameter 935 [Drive Status 1] for bit descriptions.

Options	Regen	Motor OL	Enable On	Bus Frq Reg	Cur Limit	At Limit	At Home	AtZero Speed	Torque Mode	PositionMode	Speed Mode	DB Active	DC Braking	Stopping	Jogging	Running	Reserved	SpdRef Bit 4	SpdRef Bit 3	SpdRef Bit 2	SpdRef Bit 1	SpdRef Bit 0	Manual	At Speed	Faulted	Alarm	Decelerating	Accelerating	Actual Dir	Command Dir	Active	Ready
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
DIAGNOSTICS	Fault/Alarm Info	955	**Status2 at Fault** Status 2 at Fault Captures and displays P936 [Drive Status 2] bit pattern at the time of the last fault. See parameter 936 [Drive Status 2] for bit descriptions.			RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Decel Rate	Accel Rate	PID FB Loss	Autotuning	PrchrgClosed	Reserved	Reserved	FdbkLoss Sw0	Flux Braking	Reserved	HS Fan On	AuRstrCntDwn	AutoRstr Act
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
DIAGNOSTICS	Fault/Alarm Info	956	**Fault Frequency** Fault Frequency Captures and displays the current value of P1 [Output Frequency], in Hertz, at the time of the last fault. Setting P300 [Speed Units] to option 1 “RPM” does not affect this parameter. For some faults, the value captured in this parameter may not match peak/low at time of fault due to data latency.	Units: Default: Min/Max:	Hz 0.00 –/+ 650.00	RO	Real
		957	**Fault Amps** Fault Amps Captures and displays the current value of P7 [Output Current], in Amps, at the time of the last fault. For some faults, the value captured in this parameter may not match peak/low at time of fault due to data latency.	Units: Default: Min/Max:	Amps 0.00 0.00 / P21 [Rated Amps] x 2	RO	Real
		958	**Fault Bus Volts** Fault Bus Volts Captures and displays the current value of P11 [DC Bus Volts], in Volts DC, at the time of the last fault. For some faults, the value captured in this parameter may not match peak/low at time of fault due to data latency.	Units: Default: Min/Max:	V DC 0.00 0.00 / P20 [Rated Volts] x 2	RO	Real
		959	**Alarm Status A** Alarm Status A Indicates the occurrence of conditions that have been configured as alarms. These events are from 937 [Condition Sts 1]. See parameter 937 [Condition Sts 1] for bit descriptions.			RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Task Overrun	Gnd Warning	Reserved	PosFdbkLoss	AuxFdbkLoss	AltFdbkLoss	PriFdbkLoss	Shear Pin 2	Shear Pin 1	Decel Inhib	OutPhaseLoss	InPhaseLoss	Load Loss	Motor OL	UnderVoltage	Power Loss
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	**Fault/Alarm Info**	**960**	**Alarm Status B** Alarm Status B Indicates the occurrence of conditions that have been configured as alarms.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	DB Res OT	N-1 Operate (1)	PumpOff Alrm (2)	OW Alarm TO (2)	OW Level (2)	Gnd Warning	Not Home Set (3)	Homing Actv	Profile Actv (3)	PWMFrq Reduc	CurLmt Reduc	Drive OL	StartOnPwrUp	Waking	Heatsink OT	IGBT OT
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 Frame 8 drives and larger only.
(2) 753 drives only.
(3) 755 drives only.

0 = Condition False
1 = Condition True

Bit 0 “IGBT OT” – Indicates the transistor (IGBT) junction temperature reached the alarm level, which is 10 °C (50 °F) below the maximum (fault level) junction temperature.

Bit 1 Heatsink OT” – Indicates the heatsink temperature reached the alarm level, which is 10 °C (50 °F) below the maximum (fault level) heatsink temperature.

Bit 2 “Waking” – The Sleep /Wake function is in the Waking condition.

Bit 3 “StartOnPwrUp” – The Start on powerup feature is active.

Bit 4 “Drive OL” – Indicates overload condition has reached the alarm level and P940 [Drive OL Count] has reached 50%.

Bit 5 “CurLmt Reduc” – Indicates the transistor (IGBT) junction temperature reached the level of current limit fold back, which is 5 °C (41 °F) below the maximum (fault level) junction temperature.

Bit 6 “PWMFrq Reduc” – Indicates the transistor (IGBT) junction temperature reached the level of PWM frequency fold back, which is 10 °C (50 °F) below the maximum (fault level) junction temperature. Or the instantaneous rising of junction temperature exceeded 60 °C (140 °F).

Bit 7 “Profile Actv” – Indicates the profile function is active, P1213 [Profile Command] Bit 12 “Prof Run Alarm” is set.

Bit 8 “Homing Actv” – Indicates the homing function is active, P731 [Homing Control] Bit 5 “Homing Alarm” is set.

Bit 9 “Not Home Set” – Indicates the profile function has executed without first executing the homing function, P1213 [Profile Command] Bit 11 “HomeNotSetAlarm” is set.

Bit 10 “Gnd Warning” – The value set in P467 [Ground Warn Lvl] has been exceeded.

Bit 11 “OW Level” – The value set in P1171 [TorqAlarm Level] has been reached.

Bit 12 “OW Alarm TO” – The value set in P1172 [TorqAlm Timeout] has been reached.

Bit 13 “PumpOff Alrm” – The pump off condition is active.

Bit 14 “N-1 Operate” – Indicates the parallel drive is in operation mode.

Bit 15 “DB Res OT” – Indicates the dynamic brake resistor has exceeded its maximum operating temperature.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Fault/Alarm Info	**961**	**Type 2 Alarms** Type 2 Alarms Indicates the occurrence of conditions that have been configured as alarms.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	PM FS Cflct	DL Cflct	PM Off Cflct	Prchrg Open	BipolarCflct (1)	IXOVoltRange	FluxAmpsRang	IRVltg Range	DigIn Cfg C	DigIn Cfg B	AltOpenLoop (1)	PriOpenLoop (1)	VHz Incmpble	VHzBoostLmt	VHzNegSlope	Frq Cflct	TrqProvCflct (2)	BrakeSlipped (2)	Sleep Cfg
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 753 drives only.
(2) 755 drives only.

0 = Condition False
1 = Condition True

Bit 0 “Sleep Cfg” – The Sleep/Wake function is not configured properly. Refer to P350 [Sleep Wake Mode] for conditions required to start drive.

Bit 1 “BrakeSlipped” – The Torque Prove function encountered a Brake Slip condition.

Bit 2 “TrqProvCflct” – The Torque Prove function is not configured properly. Feedback device must be setup to fault if loss is detected and to use dual channel, differential type encoder if encoder feedback is selected. For encoderless operation, read the Attention statement under Lifting/Torque Proving on page 356.

Bit 3 “Frq Cflct” – Volts per Hz is not setup properly.

Bit 4 “VHzNegSlope” –

Bit 5 “VHzBoostLmt” –

Bit 6 “VHz Incmpble” –

Bit 7 “PriOpenLoop” – When set, indicates an invalid configuration has been selected and the drive will not be allowed to start. A Flux Vector control mode with Permanent Magnet motor type has been selected, but the primary feedback selection is Open Loop. For the PF753 drive, a feedback device must be used for PM flux vector control. For the PF755 drive, Flux Vector Open Loop control of PM motors is allowed.

Bit 8 “AltOpenLoop” – When set, indicates an invalid configuration has been selected and the drive will not be allowed to start. A Flux Vector control mode with Permanent Magnet motor type has been selected, but the alternate feedback selection is Open Loop and the automatic tach loss switchover option is selected. For the PF753 drive, a feedback device must be used for PM flux vector control.

Bit 9 “DigIn Cfg B” – Certain digital input functions are not allowed to be configured at the same time. For example, if you have a Run digital input configured, a Start digital input is not allowed to be configured.

Bit 10 “DigIn Cfg C” – Multiple digital input functions configured to the same physical input is not allowed.

Bit 11 “IRVltg Range” – P73 [IR Voltage Drop] is out of range.

Bit 12 “FluxAmpsRang” – P75 [Flux Current Ref] is out of range.

Bit 13 “IXOVoltRange” – P74 [Ixo Voltage Drop] is out of range.

Bit 14 “BipolarCflct” –

Bit 15 “Prchrg Open” – Precharge relay is open.

Bit 16 “PM Off Cflct” – P80 [PM Cfg] Bit 0 “AutoOfstTest” and Bit 2 “StaticTestEn” cannot be set at the same time.

Bit 17 “DL Cflct” – There is a Datalink conflict.

Bit 18 “PM FS Cflct” – There is a permanent magnet motor, flying start conflict. A flying start sweep cannot be configured with a permanent magnet motor.

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
DIAGNOSTICS	**Fault/Alarm Info**	**962**	**AlarmA at Fault** Alarm A at Fault		RO	32-bit Integer

Captures and displays P959 [Alarm Status A] at the time of the last fault.
For some alarms, the value captured in this parameter may not match peak/low at time of fault due to data latency.
For details on alarms and faults, refer to Chapter 6.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Task Overrun	Gnd Warning	Reserved	PosFdbkLoss	AuxFdbkLoss	AltFdbkLoss	PriFdbkLoss	Shear Pin 2	Shear Pin 1	Decel Inhib	OutPhaseLoss	InPhaseLoss	Load Loss	Motor OL	UnderVoltage	Power Loss
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Power Loss” – A Power Loss exception has been issued.
Bit 1 “UnderVoltage” – An Under Voltage exception has been issued.
Bit 2 “Motor OL” – An excessive motor load exists.
Bit 4 “InPhaseLoss” – Input Phase Loss exception has been issued.
Bit 5 “OutPhaseLoss” – Output Phase Loss exception has been issued.
Bit 6 “Decel Inhib” – The drive is being Inhibited from decelerating to the commanded speed.
Bit 7 “Shear Pin 1” – Value set in P436 [Shear Pin1 Level] has been exceeded.
Bit 8 “Shear Pin 2” – Value set in P439 [Shear Pin2 Level] has been exceeded.
Bit 9 “PriFdbkLoss” – When set, indicates that the device selected as the primary velocity feedback source has reported a device failure. P125 [Pri Vel Fdbk Sel] selects the device used as the primary velocity feedback source. The primary feedback device supplies motor speed feedback if the Automatic Tach Switchover option is either disabled or has not switched to the alternate feedback device. In order to report this condition as an alarm, the feedback loss configuration parameter for the primary feedback device must be configured for “Alarm.”
Bit 10 “AltFdbkLoss” – When set, indicates that the device selected as the alternate velocity feedback source has reported a device failure. P128 [Alt Vel Fdbk Sel] selects the device used as the alternate velocity feedback source. The alternate feedback device supplies motor speed feedback if the Automatic Tach Switchover option is enabled and the primary feedback device has failed. In order to report this condition as an alarm, the feedback loss configuration parameter for the alternate feedback device must be configured for “Alarm.”
Bit 11 “AuxFdbkLoss” – When set, indicates that the device selected as the auxiliary velocity feedback source has reported a device failure. P132 [Aux Vel Fdbk Sel] selects the device used as the auxiliary velocity feedback source. The auxiliary feedback device can be used to supply motor speed reference. In order to report this condition as an alarm, the feedback loss configuration parameter for the auxiliary feedback device must be configured for “Alarm.”
Bit 12 “PosFdbkLoss” – When set, indicates that the device selected as the position feedback source has reported a device failure. P135 [Psn Fdbk Sel] selects the device used as the position feedback source. Position feedback is used for position control applications. It can be the same device used for velocity feedback or position feedback can be supplied by a separate device. In order to report this condition as an alarm, the feedback loss configuration parameter for the position feedback device must be configured for “Alarm.”
Bit 14 “GndWarning” – Value set in P467 [Ground Warn Lvl] has been exceeded.
Bit 15 “Task Overrun” – System resource utilization has been exceeded. See System Resource Allocation on page 307 for details.

File	Group	No.	Display Name	Values	Read-Write	Data Type
DIAGNOSTICS	**Fault/Alarm Info**	**963**	**AlarmB at Fault** Alarm B at Fault		RO	32-bit Integer

Captures and displays P960 [Alarm Status B] at the time of the last fault.
See parameter 960 [Alarm Status B] for bit descriptions.
For some alarms, the value captured in this parameter may not match peak/low at time of fault due to data latency.
For details on alarms and faults, refer to Chapter 6.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	DB Res OT	N-1 Operate	PumpOff Alrm	OW Alarm TO	OW Level	Gnd Warning	Not Home Set	Homing Actv	Profile Actv (1)	PWMFrq Reduc	CurLmt Reduc	Drive OL	StartOnPwrUp	Waking	Heatsink OT	IGBT OT
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

0 = Condition False
1 = Condition True

DIAGNOSTICS	**Fault/Alarm Info**	**964**	753 **CRC Flt Cfg** CRC Fault Configuration Allows the user to configure exception 917 [FPGA CRC Failure] and change the default state. Ignore (0) – No action is taken. Alarm (1) – Type 1 alarm indicated. Flt Minor (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. FltCoastStop (3) – Major fault indicated. Coast to Stop. Flt RampStop (4) – Major fault indicated. Ramp to Stop. Flt CL Stop (5) – Major fault indicated. Current Limit Stop. FltNonReset (6) – Major fault indicated. Cycle power to clear this fault.	Default: Options:	6 - FltNonReset 0 - Ignore 1 - Alarm 2 - Flt Minor 3 - FltCoastStop 4 - Flt RampStop 5 - Flt CL Stop 6 - FltNonReset	RW	32-bit Integer

File	**Group**	**No.**	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
DIAGNOSTICS	**Testpoints**	**970** **974** **978** **982**	**Testpoint Sel 1** **Testpoint Sel 2** **Testpoint Sel 3** **Testpoint Sel 4** Testpoint Select *n* Selects a source for the testpoint values (“Fval” and “Lval”). Used by the factory, typically for diagnostic purposes.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		971 **975** **979** **983**	**Testpoint Fval 1** **Testpoint Fval 2** **Testpoint Fval 3** **Testpoint Fval 4** Testpoint Float Value *n* Displays data selected by [Testpoint Sel *n*], if the data type is floating point.	Default: Min/Max:	0.000000 –/+ 220000000.000000	RW	Real
		972 **976** **980** **984**	**Testpoint Lval 1** **Testpoint Lval 2** **Testpoint Lval 3** **Testpoint Lval 4** Testpoint Long Value *n* Displays data selected by [Testpoint Sel *n*], if the data type is long integer.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
DIAGNOSTICS	**Peak Detection**	**1035**	755 **PkDtct Stpt Real** Peak Detection Setpoint Real A setpoint value, in the form of a real number. Intended to be used as a potential data source for P1038 [PkDtct1PresetSel] and P1043 [PkDtct2PresetSel].	Default: Min/Max:	0.000000 −/+ 220000000.000000	RW	Real
		1036	755 **PkDtct Stpt DInt** Peak Detection Setpoint D Integer A setpoint value, in the form of an integer number. Intended to be used as a potential data source for P1038 [PkDtct1PresetSel] and P1043 [PkDtct2PresetSel].	Default: Min/Max:	0 −2147483648 / 2147483647	RW	32-bit Integer
		1037 ⇄	755 **PkDtct1 In Sel** Peak Detection 1 Input Select Selects the input data source for the peak detect functions. The functions can be configured to sample and hold either the largest (maximum) or smallest (minimum) value of the input signal selected by this parameter. **Important**: Either real or integer data sources can be selected, but integer sources will be internally converted to real and displayed in the peak detect output as real numbers.	Default: Min/Max:	1035 0 / 15999931	RW	32-bit Integer
		1038	755 **PkDtct1PresetSel** Peak Detection 1 Preset Select Selects the preset data source for the peak detect functions. The output of the each peak detect function can be forced to equal the value of the input signal selected by this parameter by using the"Peak1 Set" bit in P1039 [Peak1 Cfg]. The same integer to real number conversion applies to both the input and the preset signal.	Default: Min/Max:	0 0 / 15999931	RW	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>DIAGNOSTICS</td><td>Peak Detection</td><td>1039</td><td colspan="2">755 **Peak1 Cfg**
Peak 1 Configure
Configures operation of each peak detector.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Peak1 Set</td><td>Peak1 Hold</td><td>Peak1 Peak</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
Bit 0 “Peak1 Peak” – 0 = Capture minimum value of the input signal. 1 = Capture maximum value of the input signal.
Bit 1 “Peak1 Hold” – 0 = Monitor input. 1 = Ignore input and hold output at present value. This bit is overridden by Bit 2.
Bit 2 “Peak1 Set” – 0 = Resume normal capture of the input signal value (assuming Bit 1 is also = 0). The preset signal will be used as a starting value to compare against further changes in the input signal level. 1 = Force output of the peak detect function to equal the signal selected by [PkDtct*n*PresetSel].</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>1040</td><td>755 **Peak 1 Change**
Peak 1 Change
Status of the peak detectors.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Peak1Change</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = Output value is held or set.
1 = Output value has changed.</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>1041</td><td>755 **PeakDetect1 Out**
Peak Detection 1 Output
Displays the output of the peak detector, according to the operation selected by the configuration bits, and is always displayed as a real number, regardless of the selected signal type.</td><td>Default: 0.000000
Min/Max: –/+2147483648.000000</td><td>RO</td><td>Real</td></tr>
<tr><td></td><td></td><td>1042</td><td>755 **PkDtct2 In Sel**
Peak Detection 2 Input Select
Selects the input data source for the peak detect functions. The functions can be configured to sample and hold either the largest (maximum) or smallest (minimum) value of the input signal selected by this parameter.
Important: Either real or integer data sources can be selected, but integer sources will be internally converted to real and displayed in the peak detect output as real numbers.</td><td>Default: 1035
Min/Max: 0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1043</td><td>755 **PkDtct2PresetSel**
Peak Detection 2 Preset Select
Selects the preset data source for the peak detect functions. The output of the each peak detect function can be forced to equal the value of the input signal selected by this parameter by using the “Peak2 Set” bit in P1044 [Peak2 Cfg]. The same integer to real number conversion applies to both the input and the preset signal.</td><td>Default: 0
Min/Max: 0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
DIAGNOSTICS	**Peak Detection**	**1044**	755 **Peak2 Cfg** Peak 2 Configure Configures operation of each peak detector.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Peak2 Set	Peak2 Hold	Peak2 Peak
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Peak2 Peak” – 0 = Capture minimum value of the input signal. 1 = Capture maximum value of the input signal.

Bit 1 “Peak2 Hold” – 0 = Monitor input. 1 = Ignore input and hold output at present value. This bit is overridden by Bit 2.

Bit 2 “Peak2 Set” – 0 = Resume normal capture of the input signal value (assuming Bit 1 is also = 0). The preset signal will be used as a starting value to compare against further changes in the input signal level. 1 = Force output of the peak detect function to equal the signal selected by [PkDtct*n*PresetSel].

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
DIAGNOSTICS	**Peak Detection**	**1045**	755 **Peak 2 Change** Peak 2 Change Status of the peak detectors.	0 = Output value is held or set. 1 = Output value has changed.	RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Peak2Change
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
DIAGNOSTICS	**Peak Detection**	**1046**	755 **PeakDetect2 Out** Peak Detection 2 Output Displays the output of the peak detector, according to the operation selected by the configuration bits, and is always displayed as a real number, regardless of the selected signal type.	Default: 0.000000 Min/Max: –/+2147483648.000000	RO	Real

Drive (Port 0) Applications File

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Process PID	1065 ○	**PID Cfg** PID Configuration Main configuration of the Process PID controller.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Percent Ref	Anti Windup	Stop Mode	Fdbk Sqrt	Zero Clamp	Ramp Ref	Preload Int
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Preload Int” – Preload the PID integral term with PID Preload value.
Bit 1 “Ramp Ref” – Ramp PID Reference when first enabled.
Bit 2 “Zero Clamp” – Clamp PID output to zero when P1079 [PID Output Sel] is set to option 2 “Speed Trim” or 4 “Torque Trim.”
Bit 3 “Fdbk Sqrt” – Apply Square root function to the Feedback signal.
Bit 4 “Stop Mode” – When P1079 [PID Output Sel] is set to option 2 “Speed Trim,” PID remains active during stopping maneuver.
Bit 5 “Anti Windup” – Prevents PID integrator from getting too far ahead of frequency ramp.
Bit 6 “Percent Ref” – When P1079 [PID Output Sel] is set to option 2 “Speed Trim,” PID output is a percentage of the Speed Reference versus a percentage of P27 [Motor NP Hertz].

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
		1066	**PID Control** PID Control Used for dynamically controlling the Process PID controller.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	PID InvError	PID Reset	PID Hold	PID Enable
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “PID Enable” – PID controller is enabled.
Bit 1 “PID Hold” – Hold PID integrator.
Bit 2 “PID Reset” – Reset PID integrator.
Bit 3 “PID InvError” – Invert PID error.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
		1067 ○ ⇄	**PID Ref Sel** PID Reference Select Selects the source for the PID reference.	Default: Min/Max:	1070 1 / 159999	RW	32-bit Integer
		1068	**PID Ref AnlgHi** PID Reference Analog High When an analog input is selected for the PID reference this sets the high value of scaling. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 100.00 –/+100.00	RW	Real
		1069	**PID Ref AnlgLo** PID Reference Analog Low When an analog input is selected for PID reference this sets the low value of scaling. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 0.00 –/+100.00	RW	Real
		1070	**PID Setpoint** PID Setpoint Provides an internal fixed value for PID reference when P1067 [PID Ref Sel] is set to this parameter. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 0.00 –/+100.00	RW	Real
		1071	**PID Ref Mult** PID Reference Multiplier Sets the multiplying factor which is applied to the Reference source before the Reference is used. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 100.00 –/+100.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
APPLICATIONS	**Process PID**	**1072** ○	**PID Fdbk Sel** PID Feedback Select Selects the source for the PID Feedback.	Default: Min/Max:	1077 1 / 159999	RW	32-bit Integer
		1073	**PID Fdbk AnlgHi** PID Feedback Analog High When an analog input is selected for PID Feedback this sets high value of scaling. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 100.00 –/+100.00	RW	Real
		1074	**PID Fdbk AnlgLo** PID Feedback Analog Low When an analog input is selected for PID Feedback this sets low value of scaling. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 0.00 –/+100.00	RW	Real
		1075 ○ ⇄	**PID FBLoss SpSel** PID Feedback Loss Speed Select When an analog input is selected for PID Feedback, P1079 [PID Output Sel] is set to Speed Excl/Speed Trim, and an analog signal loss is detected, sets speed to this source. Analog signal loss occurs when the signal falls below 2V (0…10V signal) or below 4 mA (4…20 mA signal).	Default: Min/Max:	546 0 / 159999	RW	32-bit Integer
		1076 ○ ⇄	**PID FBLoss TqSel** PID Feedback Loss Torque Select When an analog input is selected for PID Feedback, P1079 [PID Output Sel] is set to option 1 "Speed Excl," 2 "Speed Trim," 3 "Torque Excl," or 4 "Torque Trim" and an analog signal loss is detected, sets torque to this source.	Default: Min/Max:	676 0 / 159999	RW	32-bit Integer
		1077	**PID Fdbk** PID Feedback Provides an internal fixed value for PID Feedback when P1072 [PID Fdbk Sel] is set to this parameter. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 0.00 –/+100.00	RW	Real
		1078	**PID Fdbk Mult** PID Feedback Multiplier Sets the multiplying factor which is applied to the Feedback source before the Feedback is used.	Units: Default: Min/Max:	% 100.00 –/+100.00	RW	Real
		1079 ○	**PID Output Sel** PID Output Select Selects the target for the PID Output. "Not Used" (0) – PID output is not applied to any speed reference. "Speed Excl" (1) – PID output is only reference applied to speed reference. "Speed Trim" (2) – PID output is applied to speed reference as a trim value. "Torque Excl" (3) – PID output is only reference applied to torque reference. "Torque Trim" (4) – PID output is applied to torque reference as a trim value. "Volt Excl" (5) – PID output is only reference applied to voltage reference. "Volt Trim" (6) – PID output is applied to voltage reference as a trim value.	Default: Options:	2 = "Speed Trim" 0 = "Not Used" 1 = "Speed Excl" 2 = "Speed Trim" 3 = "Torque Excl" 4 = "Torque Trim" 5 = "Volt Excl" 6 = "Volt Trim"	RW	32-bit Integer
		1080	**PID Output Mult** PID Output Multiplier Sets the multiplying factor which is applied to the PID Output before the PID Output is used. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 100.00000 –/+100.00000	RW	Real
		1081	**PID Upper Limit** PID Upper Limit Sets the upper limit for the P1093 [PID Output Meter]. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 100.00 –/+800.00	RW	Real
		1082	**PID Lower Limit** PID Lower Limit Sets the lower limit for the P1093 [PID Output Meter]. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% –100.00 –/+800.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Process PID**	**1083**	**PID Deadband** PID Deadband Determines the error (+/-) which will be ignored. Any error which falls within this band will not change the PID output. A value of 100% is equal to motor base speed.	Units: % Default: 0.00 Min/Max: 0.00 / 100.00	RW	Real
		1084	**PID LP Filter BW** PID Low Pass Filter Bandwidth Sets the level of filtering applied to the error signal. Zero will disable this filter.	Units: R/S Default: 0.00 Min/Max: 0.00 / 100.00	RW	Real
		1085	**PID Preload** PID Preload Sets the value used to preload PID Integrator when PID is enabled and P1065 [PID Cfg] Bit 0 "Preload Int" is set to 1. A value of 100% is equal to motor base speed.	Units: % Default: 0.00 Min/Max: –/+100.00	RW	Real
		1086	**PID Prop Gain** PID Proportional Gain Sets the value for the PID proportional component. PID ErrorMeter x PID Prop Gain = PID Output	Default: 1.00 Min/Max: 0.00 / 100.00	RW	Real
		1087	**PID Int Time** PID Integral Time Time required for the integral component to reach 100% of P1092 [PID Error Meter]. Not used when P1066 [PID Control] Bit 1 "PID Hold" = 1 (enabled).	Units: Secs Default: 1.00 Min/Max: 0.00 / 100.00	RW	Real
		1088	**PID Deriv Time** PID Derivative Time Refer to formula below: $PID_{Out} = KD\ (Sec)\ x\ \frac{d_{PI\ Error}\ (\%)}{d_t\ (Sec)}$ KD = P1088 $d_{PI\ Error}$ = Error - Last Error d_t = Interrupt Time A setting of zero disables this parameter.	Units: Secs Default: 0.00 Min/Max: 0.00 / 100.00	RW	Real
		1089	**PID Status** PID Status Status of the Process PI regulator.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	PID In Limit	PID Reset	PID Hold	PID Enabled
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "PID Enable" – PID controller is enabled.
Bit 1 "PID Hold" – Hold PID integrator.
Bit 2 "PID Reset" – Reset PID integrator.
Bit 3 "PID In Limit" – PID in limit.

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
		1090	**PID Ref Meter** PID Reference Meter Present value of the PI reference signal. A value of 100% is equal to motor base speed.	Units: % Default: 0.00 Min/Max: –/+100.00	RO	Real
		1091	**PID Fdbk Meter** PID Feedback Meter Present value of the PI feedback signal. A value of 100% is equal to motor base speed.	Units: % Default: 0.00 Min/Max: –/+100.00	RO	Real
		1092	**PID Error Meter** PID Error Meter Present value of the PI error. A value of 100% is equal to motor base speed.	Units: % Default: 0.00 Min/Max: –/+200.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	Process PID	1093	**PID Output Meter** PID Output Meter Present value of the PI output. A value of 100% is equal to motor base speed.	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**	Read-Write	Data Type
APPLICATIONS	Torque Prove	1100 ○	755 **Trq Prove Cfg** Torque Prove Configure		RW	16-bit Integer

Enables/disables torque/brake proving function. When "Enabled," brake control comes from a digital output relay that is set to select Port 0, P1103 [Trq Prove Status] Bit 4 "Brake Set." See PowerFlex 755 Lifting/Torque Proving on page 440 and, PowerFlex 750-Series AC Drives Reference Manual, publication 750-RM002, for examples on how to use Torque Prove with PowerFlex 755 drives.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	BkSlp SpdLmt	Fast Stop Bk	Test Brake	BrkSlipStart	BrkSlipEncls	FW LoadLimit	Preload	Micro Psn	Encoderless	TP Enable
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 "TP Enable" – Enables TorqProve functions.
Bit 1 "Encoderless" – Enables encoderless operation – Bit 0 must also be enabled. Read the Attention statement under Lifting/Torque Proving on page 356.
Bit 2 "Micro Psn" – Enables the Micro Position digital input to change the speed command by the value set in P1112 [MicroPsnScalePct] while the drive is running.
Bit 3 "Preload" – "0" uses the last torque for preload. "1" uses P676 [Trq Ref A Stpt] if commanded direction is forward and P681 [Trq Ref B Stpt] for reverse.
Bit 4 "FW LoadLimit" – Enables drive to perform load calculation at base speed. Drive will then limit operation above base speed depending on load. "FWLoadLimit" = "Field Weakening Load Limit"
Bit 5 "BrkSlipEncls" – A "1" Disables the partial Brake Slip routine from the drive when encoderless is selected.
Bit 6 "BrkSlipStart" – Starts drive if Brake slippage is detected. Drive does not start if P933 [Start Inhibits] exists.
Bit 7 "Test Brake" – Tests the brake at Start. Torque is applied against the brake while movement is monitored.
Bit 8 "Fast Stop Bk" – Brake is set immediately upon receiving a Fast Stop input vs. setting the brake after the ramp.
Bit 9 "BkSlp SpdLmt" – When a brake slip condition is detected, the load is lowered at a fixed speed (Preset Speed 1).

File	Group	No.	**Display Name** Full Name Description	**Values**	Read-Write	Data Type
APPLICATIONS	Torque Prove	1101	755 **Trq Prove Setup** Torque Prove Setup		RW	16-bit Integer

Allows control of specific torque proving functions through a communication device.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	NHdwrOvrTrvl	PHdwrOvrTrvl	End Stop Rev	Decel Rev	End Stop Fwd	Decel Fwd	Float Micro	Fast Stop
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 "Fast Stop" – Forces a current limit stop.
Bit 1 "Float Micro" – Activates the micro position function when selected and running. Activates float when stopping.
Bit 2 "Decel Fwd" – Forces decel forward travel limit.
Bit 3 "End Stop Fwd" – Forces end forward travel limit.
Bit 4 "Decel Rev" – Forces decel reverse travel limit.
Bit 5 "End Stop Rev" – Forces end reverse travel limit.
Bit 6 "PHdwrOvrTrvl" – Positive Hardware Over Travel limit: Setting this bit creates a Coast to Stop fault.
Bit 7 "NHdwrOvrTrvl" – Negative Hardware Over Travel limit: Setting this bit creates a Coast to Stop fault.

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	**Torque Prove**	**1102** ○ ⇄	755 **DI FloatMicroPsn** Digital Input Float Micro Position Selects the digital input to be used for the float and micro position functions. Activates the micro position function when selected and running. Activates float when stopping.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1103 ○	755 **Trq Prove Status** Torque Prove Status Displays the status bits for TorqProve.			RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	BrakeRelease	Encoderless	RefLoadLmted	LoadTestActv	Brake Set	BrkSlip1 Alm	Micro Psn	DecelLmtActv	EndLimitActv
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “EndLimitActv” – End travel limit active.
Bit 1 “DecelLmtActv” – Decel travel limit active.
Bit 2 “Micro Psn” – Micro position active.
Bit 3 “BrkSlip1 Alm” – Brake slip detected.
Bit 4 “Brake Set” – Brake signal set. For example set P10 [RO0 Sel] on the digital I/O module to Port 0, P1103 Bit 4 and set P6 [Dig Out Invert] Bit 0 = 1.
Bit 5 “LoadTestActv” – The test used to check the load for above base speed operation is active.
Bit 6 “RefLoadLmted” – The reference is limited due to the load test results.
Bit 7 “Encoderless” – Encoderless configure fault is active.
Bit 8 “BrakeRelease” – Inverted state of P1103 Bit 4.

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
		1104	755 **Trq Lmt SlewRate** Torque Limit Slew Rate Sets the rate to ramp the torque limits to zero during brake proving.	Units: Default: Min/Max:	Secs 10.000 0.500 / 300.000	RW	Real
		1105	755 **Speed Dev Band** Speed Deviation Band The amount of allowable deviation between the commanded speed and the actual speed (from a feedback device). When this value is exceeded for the amount of time in P1106 [SpdBand Intgrtr], a fault will occur.	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x 0.0334 P28 [Motor NP RPM] x 0.0334 P27 x 0.0016 / P27 x 0.25 P28 x 0.0016 / P28 x 0.25	RW	Real
		1106	755 **SpdBand Intgrtr** Speed Band Integrator The amount of time for which the actual speed is allowed to deviate from P1105 [Speed Dev Band] before a fault occurs.	Units: Default: Min/Max:	Secs 0.060 0.001 / 0.200	RW	Real
		1107	755 **Brk Release Time** Brake Release Time With an encoder, this parameter sets the time between the brake release command and when the drive begins to accelerate. Without an encoder, this parameter sets the time to release the brake after drive starts.	Units: Default: Min/Max:	Secs 0.100 0.000 / 10.000	RW	Real
		1108	755 **Brk Set Time** Brake Set Time Defines the amount of delay time between commanding the brake to be set and the start of brake proving.	Units: Default: Min/Max:	Secs 0.100 0.000 / 10.000	RW	Real
		1109	755 **Brk Alarm Travel** Brake Alarm Travel Sets the number of motor shaft revolutions allowed during the brake slippage test. Drive torque is reduced to check for brake slippage. When slippage occurs, the drive allows this number of motor shaft revolutions before regaining control. Not used when P1100 [Trq Prove Cfg] Bit 1 “Encoderless” = 1 (enabled).	Default: Min/Max:	1.00 0.00 / 1000.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	**Torque Prove**	**1110**	755 **Brk Slip Count** Brake Slip Count Sets the number of encoder counts to define a brake slippage condition and is based on the feedback device attached to P135 [Position Feedback]. Not used when P1100 [Trq Prove Cfg] Bit 1 "Encoderless" = 1 (enabled).	Default: Min/Max:	250.00 0.00 / 65535.00	RW	Real
		1111	755 **Float Tolerance** Float Tolerance Sets the frequency or speed level where the float timer starts. Also sets the frequency or speed level where the brake will be closed when P1100 [Trq Prove Cfg] Bit 1 "Encoderless" = 1 (enabled).	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x 0.0334 P28 [Motor NP RPM] x 0.0334 P27 [Motor NP Hertz] / P27 x 0.25 P28 [Motor NP RPM] x 0.001 / P28 x 0.25	RW	Real
		1112 ○	755 **MicroPsnScalePct** Micro Position Scale Percent Sets the percent of speed reference to be used when micropositioning has been selected in P1100 [Trq Prove Cfg]. Bit 2 of P1100 [Trq Prove Cfg], determines if the motor needs to come to a stop before this setting will take effect.	Units: Default: Min/Max:	% 10.000 0.100 / 100.000	RW	Real
		1113	755 **ZeroSpdFloatTime** Zero Speed Float Time Sets the amount of time the drive is below P1111 [Float Tolerance] before the brake is set. Not used when P1100 [Trq Prove Cfg] Bit 1 "Encoderless" = 1 (enabled).	Units: Default: Min/Max:	Secs 5.000 0.100 / 500.000	RW	Real
		1114	755 **Brake Test Torq** Brake Test Torque Sets the percent of torque applied to the motor before the brake is released when P1100 [Trq Prove Cfg] bit 7 "Test Brake" is enabled.	Units: Default: Min/Max:	% 50.0 0.0 / 150.0	RW	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Fibers Function**	**1120**	**Fiber Control** Fiber Control Controls the Sync and Traverse Fiber Application functions.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Traverse Ena	Sync Enable
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Sync Enable” – Used in combination with an optional digital input to begin Synchronous speed change upon the falling edge of enable.
Bit 1 “Traverse Ena” – Used in combination with an optional digital input to enable/disable the speed traverse routine.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
		1121	**Fiber Status** Fiber Status Status of Sync and Traverse functions.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Traverse Dec	Traverse On	Sync Ramp	Sync Hold
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Synch Hold” – Set when the Synchronous Speed change function is holding the speed reference constant. The speed will begin ramping to its setpoint upon the falling edge of Sync Enable.
Bit 1 “Sync Ramp” – Set when the Synchronous Speed change function is ramping to its setpoint.
Bit 2 “Traverse On” – Set when the Traverse Speed function is varying the speed, either increasing or decreasing.
Bit 3 “Traverse Dec” – Set when the Traverse Speed function is decreasing the motor speed.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
		1122	**Sync Time** Synchronize Time The time in seconds to ramp from the “held speed reference” to the current speed reference, after the Sync input is de-energized.	Units: Default: Min/Max:	Secs 0.0 0.0 / 3600.0	RW	Real
		1123	**Traverse Inc** Traverse Increment Sets the time period in seconds of increasing speed for the Fiber Traverse function.	Units: Default: Min/Max:	Secs 0.00 0.00 / 30.00	RW	Real
		1124	**Traverse Dec** Traverse Decrement Sets the time period in seconds of decreasing speed for the Fiber Traverse function.	Units: Default: Min/Max:	Secs 0.00 0.00 / 30.00	RW	Real
		1125	**Max Traverse** Maximum Traverse Sets the amplitude of the triangle wave speed modulation for the Fiber Traverse function. The total speed variation will be twice this value, from speed ref plus Max Traverse to speed ref minus Max Traverse.	Units: Default: Min/Max:	Hz RPM 0.00 0.00 / P520 [Max Fwd Speed]	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	Fibers Function	**1126**	**P Jump** Position Jump Sets the amplitude of the square wave speed modulation for the Fiber Traverse function. This speed is alternately added to and subtracted from the speed reference together with the P1125 [Max Traverse] triangle speed modulation.	Units: Default: Min/Max:	Hz RPM 0.00 0.00 / P520 [Max Fwd Speed]	RW	Real
		1129 ○ ⇄	**DI Fiber SyncEna** Digital Input Fiber Synchronize Enable Selects a digital input source for the Fiber Application Function's synchronous speed change routine. Used in combination with the P1120 [Fiber Control] Sync Enable bit.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1130 ○ ⇄	**DI Fiber TravDis** Digital Input Fiber Traverse Disable Selects a digital input source for the Fiber Application Traverse Routine. This is an inverted input, so the Traverse Routine is disabled when the input is active (set). Used in combination with P1120 [Fiber Control] Bit 1 "Traverse Ena."	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	Adjustable Vltg	**1131** ○	**Adj Vltg Config** Adjustable Voltage Configuration Selects output voltage phase setting. Single-phase operation is intended for resistive loads such as heating coils. Connect single-phase loads across the U/T1 and V/T2 output terminals.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	PhaseSetting
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = 3-Phase Operation
1 = 1-Phase Operation

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	Adjustable Vltg	**1133** ○ ⇄	**Adj Vltg Select** Adjustable Voltage Reference Select Selects the source of the voltage reference to the drive.	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
		1134	**Adj Vltg Ref Hi** Adjustable Voltage Reference High Scales the upper value of the P1133 [Adj Vltg Select] selection when the source is an analog input.	Units: Default: Min/Max:	% 0.0 0 / 100.0 of Drive Rated Volts	RW	Real
		1135	**Adj Vltg Ref Lo** Adjustable Voltage Reference Low Scales the lower value of the P1133 [Adj Vltg Select] selection when the source is an analog input.	Units: Default: Min/Max:	% 0.0 0 / 100.0 of Drive Rated Volts	RW	Real
		1136 ○ ⇄	**Adj Vltg TrimSel** Adjustable Voltage Trim Select Selects the source of the voltage trim that is added to or subtracted from the voltage reference.	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
		1137	**Adj Vltg Trim Hi** Adjustable Voltage Trim High Scales the upper value of the P1136 [Adj Vltg TrimSel] selection when the source is an analog input.	Units: Default: Min/Max:	% 0.0 0 / 100.0 of Drive Rated Volts	RW	Real
		1138	**Adj Vltg Trim Lo** Adjustable Voltage Trim Low Scales the lower value of the P1136 [Adj Vltg TrimSel] selection when the source is an analog input.	Units: Default: Min/Max:	% 0.0 0 / 100.0 of Drive Rated Volts	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	**Adjustable Vltg**	**1139**	**Adj Vltg Command** Adjustable Voltage Command Displays the voltage value of the reference specified in P1133 [Adj Vltg Select].	Units: Default: Min/Max:	V AC 0.00 0.00 / Drive Rated Volts	RO	Real
		1140	**Adj Vltg AccTime** Adjustable Voltage Acceleration Time Sets the rate of voltage increase. The value will be the time it takes to ramp the voltage from P1152 [Min Adj Voltage] to P36 [Maximum Voltage]. An "S" curve can be applied to the ramp using P1150 [Adj Volt Scurve].	Units: Default: Min/Max:	Secs 0.0 0.0 / 3600.0	RW	Real
		1141	**Adj Vltg DecTime** Adjustable Voltage Deceleration Time Sets the rate of voltage decrease. The value will be the time it takes to ramp the voltage from P36 [Maximum Voltage] to P1152 [Min Adj Voltage]. An "S" curve can be applied to the ramp using P1150 [Adj Volt Scurve]. This is an independent voltage ramp decoupled from the scalar frequency ramp P537/538 [Decel Time *n*] and controlled by user selectable acceleration and deceleration ramp times. **Important:** This ramp and P537/538 [Decel Time *n*] must ramp to zero for drive to Stop.	Units: Default: Min/Max:	Secs 0.0 0.0 / 3600.0	RW	Real
		1142 **1143** **1144** **1145** **1146** **1147** **1148**	**Adj Vltg Preset1** **Adj Vltg Preset2** **Adj Vltg Preset3** **Adj Vltg Preset4** **Adj Vltg Preset5** **Adj Vltg Preset6** **Adj Vltg Preset7** Adjustable Voltage Preset *n* Provides an internal fixed voltage command value that is available as a selection for P1133 [Adj Vltg Select].	Units: Default: Min/Max:	V AC 0.0 0.0 / Based on Drive Rating and Voltage Class	RW	Real
		1149	**Adj Vltg RefMult** Adjustable Voltage Reference Multiplier Scales the selected reference voltage by a percentage where 100% equals the reference command. If the reference command equals 100V and P1149 equals 100% then the total output voltage equals 100V + 100V = 200V.	Units: Default: Min/Max:	% 0.0 0 / 100.0 of Drive Rated Volts	RW	Real
		1150	**Adj Vltg Scurve** Adjustable Voltage S Curve Sets the percentage of acceleration time or deceleration time to be applied to the voltage ramp as "S" curve. Time is added 1/2 at the beginning and 1/2 at the end. A value of zero disables this feature.	Units: Default: Min/Max:	% 0.0 0.0 / 100.0	RW	Real
		1151	**Adj Vltg TrimPct** Adjustable Voltage Trim Percentage Scales the selected trim voltage by a percentage where 100% equals the trim voltage. If the reference command equals 100V and P1151 equals 100% then the total output voltage equals 100V + 100V = 200V. Analog In 1 and 2 are scaled separately with P1137 [Adj Vltg Trim Hi] and P1138 [Adj Vltg Trim Lo] then P1151 sets the trim value. The sign of this value will determine if trim is added or subtracted from the reference.	Units: Default: Min/Max:	% 0.0 –/+100.0 of Drive Rated Volts	RW	Real
		1152	**Min Adj Voltage** Minimum Adjustable Voltage Sets the low limit for the voltage reference when P35 [Motor Ctrl Mode] is set to 9 "Adj Voltage."	Units: Default: Min/Max:	V AC 0.0 0.0 / Drive Rated Volts	RW	Real
		1153 ○	**Dead Time Comp** Dead Time Compensation Sets the dead time compensation value to reduce DC offsets in the output voltage from the PWM inverter for non-motor loads.	Units: Default: Min/Max:	% 100.00 0.00 / 100.00	RW	Real
		1154 ○	**DC Offset Ctrl** DC Offset Control Used to further reduce DC offsets in the output voltage from the PWM inverter for non-motor loads. When enabled, P1153 [Dead Time Comp] is disabled.	Default: Options:	0 = "Disable" 0 = "Disable" 1 = "Enable"	RW	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Pump Jack	1165	**Rod Speed** Rod Speed Displays the speed in RPM of the pump rod after the gearbox and sheaves. Rod Speed = Motor Speed x P1174 [Total Gear Ratio]	Units: Default: Min/Max:	RPM 0.00 0.00 / 10000.00	RO	Real
		1166	**Rod Torque** Rod Torque Displays the load side torque. P1174 [Total Gear Ratio] must be greater than zero to activate this display.	Units: Default: Min/Max:	FtLb 0.00 0.00 / 10000.00	RO	Real
		1167	**Rod Speed Cmd** Rod Speed Command Displays the commanded speed in RPM of the pump rod after the gearbox and sheaves.	Units: Default: Min/Max:	RPM 0.00 0.00 / 10000.00	RO	Real
		1168 ○	**TorqAlarm Action** Torque Alarm Action Sets the drive action when the Torque Alarm is exceeded. Note: only active with PC pump applications. See P1179 [OilWell Pump Cfg].	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Preset Spd1"	RW	32-bit Integer
		1169 ○	**TorqAlarm Config** Torque Alarm Configure Enables the Torque Alarm function.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Torque Level
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Pump Jack	1170 ○	**TorqAlarm Dwell** Torque Alarm Dwell Sets the time that the torque must exceed P1171 [TorqAlarm Level] before P1168 [TorqAlarm Action] takes place. Active when P1169 [TorqAlarm Config] Bit 0 "Torque Level" = 1 (enabled).	Units: Default: Min/Max:	Secs 0.0 0.0 / 60.0	RW	Real
		1171 ○	**TorqAlarm Level** Torque Alarm Level Sets the level at which the Torque Alarm becomes active. Active when P1169 [TorqAlarm Config] Bit 0 "Torque Level" = 1 (enabled)	Units: Default: Min/Max:	FtLb 0.0 0.0 / 5000.0	RW	Real
		1172 ○	**TorqAlm Timeout** Torque Alarm Time Out Sets the amount of time a Torque Alarm can be active until timeout action begins. Active when P1169 [TorqAlarm Config] Bit 0 "Torque Level" = 1 (enabled)	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		1173 ○	**TorqAlarm TOActn** Torque Alarm Time Out Action Sets the drive action when P1172 [TorqAlrm Timeout] is exceeded. Active when P1169 [TorqAlarm Config] Bit 0 "Torque Level" = 1 (enabled) "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop" 6 = "Resume"	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	**Pump Jack**	**1174**	**Total Gear Ratio** Total Gear Ratio Displays the calculated total gear ratio as follows: (P1184 [Gearbox Sheave] x P1183 [Gearbox Ratio]) / P1178 [Motor Sheave]	Default: Min/Max:	0.0 0.0 / 32000.0	RO	Real
		1175	**Max Rod Speed** Maximum Rod Speed Sets the maximum speed for the polished rod in a PCP oil well application.	Units: Default: Min/Max:	RPM 300.0 200.0 / 600.0	RW	Real
		1176 ○	**Max Rod Torque** Maximum Rod Torque Sets the desired maximum torque on the polished rod in a PCP oil well application.	Units: Default: Min/Max:	FtLb 500.0 0.0 / 3000.0	RW	Real
		1177 ○	**Min Rod Speed** Minimum Rod Speed Sets the minimum speed for the polished rod in a PCP oil well application.	Units: Default: Min/Max:	RPM 0.0 0.0 / 199.0	RW	Real
		1178 ○	**Motor Sheave** Motor Sheave Sets the sheave diameter on the motor.	Units: Default: Min/Max:	Inch 10.0 0.25 / 25.00	RW	Real
		1179 ○	**OilWell Pump Cfg** Oil Well Pump Configure Selects the type of oil well application. “Disable” (0) – Disables oil well parameters. “Pump Jack” (1) – Sets parameters based on Pump Jack type oil well. “PrgrsvCavity” (2) – Sets parameters based on Progressive Cavity type Pumps.	Default: Options:	0 = “Disable” 0 = “Disable” 1 = “Pump Jack” 2 = “PrgrsvCavity”	RW	32-bit Integer
		1180 ○	**PCP Pump Sheave** PCP Pump Sheave Specifies the pump sheave diameter.	Units: Default: Min/Max:	Inch 20.0 0.25 / 200.00	RW	Real
		1181 ○	**Gearbox Limit** Gearbox Limit Sets the gearbox torque limit. This value is used in determining the P670 [Pos Torque Limit] and P671 [Neg Torque Limit].	Units: Default: Min/Max:	% 100.0 0.0 / 200.0	RW	Real
		1182 ○	**Gearbox Rating** Gearbox Rating Sets the gearbox rating.	Units: Default: Min/Max:	Kin# 640.0 16.0 / 2560.0	RW	Real
		1183 ○	**Gearbox Ratio** Gearbox Ratio Specifies the nameplate gear ratio.	Default: Min/Max:	1.0 1.0 / 40.0	RW	Real
		1184 ○	**Gearbox Sheave** Gearbox Sheave Sets the Sheave diameter on the Gearbox	Units: Default: Min/Max:	Inch 0.25 0.25 / 100.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Pump Off	1187	**Pump Off Config** Pump Off Configure Selects the torque data that will be used for the pump off control. “Automatic” (0) – Downstroke torque is used if the torque waveform synchronizes with previously saved waveform. If the position is not found after 6 cycles, the cycle torque is used. If cycle torque is used, P1191 [Pump Off Status] Bit 3 “Cycle Used” is set to 1 “Enable.” “Position” (1) – Downstroke torque is used to detect a pump off condition. The torque waveform needs to be able to synchronize with the previously saved waveform. “Cycle” (2) – Full pump cycle torque is used to detect a pump off condition.	Default: Options:	0 = “Automatic” 0 = “Automatic” 1 = “Position” 2 = “Cycle”	RW	32-bit Integer
		1188 ○	**Pump Off Setup** Pump Off Setup Select pump off options.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Cycle PO Pos	Pos Min Trq	Pos Offset	Pos Filter
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Pos Filter” – Sets level of filtering on torque for position calculation: 0 = Light (Default), 1 = Heavy. Used to remove extra peaks in the waveform.
Bit 1 “Pos Offset” – Enables/disables correction factor for motor slip in position calculator. Set bit if torques and position count are drifting apart.
Bit 2 “Pos Min Trq” – Sets the minimum torque threshold for the position detector. 0 = 10% (Default), 1 = Auto Detect Min Torque.
Bit 3 “Cycle PO Pos” – Enables/disables positive level changes for Pump Off in cycle mode.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Pump Off	1189	**Pump Off Action** Pump Off Action Selects the action to be taken after a pump off condition has been detected. “Change Speed” (0) – When a pump off condition is detected, speed is reduced by the percentage set in P1196 [Pump Off Speed] and runs for the time set in P1197 [Pump Off Time]. If condition continues, speed is reduced a second time. The pump will remain at this speed until the pump off condition no longer exists. “Always Stop” (1) – Stops pump when a pump off condition is detected. Pump will remain stopped for the time set in P355 [Wake Time]. “Stop After 1” (2) – When a pump off condition is detected, speed is reduced by the percentage set in P1196 [Pump Off Speed] and runs for the time set in P1197 [Pump Off Time]. Pump will stop if torque continues to change while at the reduced speed. Pump will remain stopped for the time set in P353 [Sleep Time]. “Stop After 2” (3) – When a pump off condition is detected, speed is reduced by the percentage set in P1196 [Pump Off Speed] and runs for the time set in P1197 [Pump Off Time]. If torque change continues, speed is reduced a second time by the same percentage. Pump will stop if torque continues to change while at the reduced speed. Pump will remain stopped for the time entered in P353 [Sleep Time].	Default: Options:	0 = “Change Speed” 0 = “Change Speed” 1 = “Always Stop” 2 = “Stop After 1” 3 = “Stop After 2”	RW	32-bit Integer
		1190	**Pump Off Control** Pump Off Control Enables/Disable the pump off control or select the source for the torque level. “Baseline Set” (1) – The control uses a torque baseline created after any start of the drive (first ten cycles). It is critical that this data is gathered from a “full” well. “Fixed Setpt” (2) – The control uses the value set in P1194 [Torque Setpoint]. Use the value in P1200 [Pct Drop Torque] as a guideline in “Automatic” or “Position” mode. In “Cycle” mode use P1198 [Pct Cycle Torque] as a guideline.	Default: Options:	0 = “Disable” 0 = “Disable” 1 = “Baseline Set” 2 = “Fixed Setpt”	RW	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="5">APPLICATIONS</td><td rowspan="5">Pump Off</td><td>1191</td><td colspan="3">Pump Off Status
Pump Off Status
Displays the status of the pump off control.
<table>
<tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Pump Stable</th><th>PumpOff Alrm</th><th>TopOf Stroke</th><th>Cycle Used</th><th>Pump Stopped</th><th>Pump Slowed</th><th>Pump OffEnbl</th></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Condition False
1 = Condition True

Bit 0 “Pump OffEnbl” – Pump off control is enabled.
Bit 1 “Pump Slowed” – A pump off condition was detected and the drive is running at a reduced speed.
Bit 2 “Pump Stopped” – A pump off condition was detected and the drive stopped (sleeping).
Bit 3 “Cycle Used” – The cycle torque is used for pump off detection.
Bit 4 “TopOf Stroke” – The internal position is between 0 and 500. Top of stroke is 0.
Bit 5 “PumpOff Alrm” – A pump off condition was detected, but has not yet triggered P1189 [Pump Off Action]. This is a warning of a pending pump off condition.
Bit 6 “Pump Stable” – The pump is running at a stable speed and not calculating the baseline torque.</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td>1192</td><td>Pump Cycle Store
Pump Cycle Store
Stores the torque waveform over the course of a pump cycle. Used to determine the downstoke when in “Automatic” or “Position” mode.
With the drive running at the desired speed, set this parameter to 1 “Enable” and press Enter. Over the next few cycles, the waveform will be stored and this parameter will automatically return to 0 “Disable.”
If this parameter does not return to 0 “Disable” after five pump cycles, waveform variations may be excessive. Use of a fixed setpoint may be required. See the PowerFlex 750-Series AC Drives Reference Manual, publication 750-RM002, for more information on setting up the pump off feature.</td><td>Default:
Options:</td><td>0 = “Disable”
0 = “Disable”
1 = “Enable”</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>1193</td><td>Set Top ofStroke
Set Top of Stroke
Captures the position at the top of the pump stroke cycle.
With the drive running at the desired speed, set this parameter to 1 “Enable” and press Enter when the rod is at its highest position. The top of pump stroke position will be stored and this parameter will automatically return to 0 “Disable.”</td><td>Default:
Options:</td><td>0 = “Disable”
0 = “Disable”
1 = “Enable”</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>1194</td><td>Torque Setpoint
Torque Set Point
Sets the torque level for pump off when P1190 [Pump Off Control] is set to 2 “Fixed Setpt.”</td><td>Units:
Default:
Min/Max:</td><td>%
0.00
0.00 / 100.00</td><td>RW</td><td>Real</td></tr>
<tr><td>1195</td><td>Pump Off Level
Pump Off Level
Sets the percent change in torque from the baseline or setpoint that will indicate the well is in the pump off condition.
When the pump is started it creates a baseline torque level, assuming the well is full. For example, if the baseline torque is 50% and the [Pump Off Level] is set to 10%, the drive will go into pump off when the torque drops to 45%.</td><td>Units:
Default:
Min/Max:</td><td>%
5.00
0.00 / 100.00</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Pump Off	**1196**	**Pump Off Speed** Pump Off Speed Sets the percent drop in speed from the commanded speed during a pump off condition.	Units: Default: Min/Max:	% 20.00 0.00 / 100.00	RW	Real
		1197	**Pump Off Time** Pump Off Time Sets the time the drive will run at the reduced P1196 [Pump Off Speed] before returning to the commanded speed and checking if the pump off condition still exists.	Units: Default: Min/Max:	Secs 600.00 120.00 / 60000.00	RW	Real
		1198	**Pct Cycle Torque** Percent Cycle Torque Displays the average torque for a full pump cycle.	Units: Default: Min/Max:	% 0.00 -100.00 / 200.00	RO	Real
		1199	**Pct Lift Torque** Percent Lift Torque Displays the average rod lift torque.	Units: Default: Min/Max:	% 0.00 -100.00 / 200.00	RO	Real
		1200	**Pct Drop Torque** Percent Drop Torque Displays the average rod dropping torque.	Units: Default: Min/Max:	% 0.00 -100.00 / 200.00	RO	Real
		1201	**Stroke Pos Count** Stroke Position Count Displays the pump cycle position. The top of stroke should be 0 and rolls over at 10,000.	Default: Min/Max:	0 0 / 15000	RO	32-bit Integer
		1202	**Stroke Per Min** Stroke Per Minute Displays the strokes per minute.	Default: Min/Max:	0.00 0.00 / 50.00	RO	Real
		1203	**Pump Off Count** Pump Off Count Displays the number of times a pump off condition has occurred since this parameter was reset.	Default: Min/Max:	0.00 0.00 / 60000.00	RW	Real
		1204	**PumpOff SleepCnt** Pump Off Sleep Count Displays the number of times a sleep condition has occurred since this parameter was reset.	Default: Min/Max:	0.00 0.00 / 60000.00	RW	Real
		1205	**Day Stroke Count** Day Stroke Count Displays the number of strokes for the past 24 hours. This is a rolling counter updated every hour.	Default: Min/Max:	0.00 0.00 / 65535.00	RO	Real
		1206 ○ ⇄	**DI PumpOff Disbl** Digital Input Pump Off Disable Selects the digital input source for the Pump Off Disable function.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1207	**Pump OffSleepLvl** Pump Off Sleep Level Provides a source for P351 [SleepWake RefSel]. This provides the start/stop control of the drive by the pump off function.	Units: Default: Min/Max:	Volt 0.00 0.00 / 10.00	RO	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Profiling**	**1210**	755 **Profile Status** Profile Status Indicates status of speed profile/position indexer control logic.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Home Not Set	Vel Override	Restart Step	Resume	Stopped	Complete	In Position	Holding	Dwell	PositionMode	Running	Enabled	Reserved	Reserved	Reserved	Step Bit 4	Step Bit 3	Step Bit 2	Step Bit 1	Step Bit 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Step Bit 0” – Bit 0 through Bit 4 indicate executing step number in the move table in binary format.
Bit 1 “Step Bit 1”
Bit 2 “Step Bit 2”
Bit 3 “Step Bit 3”
Bit 4 “Step Bit 4”
Bit 8 “Enabled” – Indicates that the profile control logic is enabled. When the drive is started with the profiler selection (Option 6) in the speed/torque/position mode P313 [Actv SpTqPs Mode], this bit turns on.
Bit 9 “Running” – Indicates that the profile control logic is in running state.
Bit 10 “PositionMode” – Indicates that the profile control logic is using position control logic.
Bit 11 “Dwell” – Indicates that the profile control logic is in dwell state.
Bit 12 “Holding” – Indicates that the profile control logic is in holding states
Bit 13 “In Position” – Indicates that the target position has been reached at the completion of a move. The in position bandwidth P726 [In Pos Psn Band] can be adjusted to affect when this bit is set with respect to the target position. This bit will be cleared when a new move is begun. The status of this bit is not meaningful when using blended steps.
Bit 14 “Complete” – Indicates that all steps in the move table have been executed and a step with a End action has been reached. The profile control logic is complete. This bit will be cleared when the profile is first enabled.
Bit 15 “Stopped” – Indicates that the profile control logic stops the drive following Bit 14 “Complete” and any additional dwell time specified for the End step. This bit will be cleared when a new profile is begun.
Bit 16 “Resume” – Indicates that an existing step is to resume execution when the profile is enabled. A previously running step will then be allowed to complete. When the bit is clear, the profile will begin at its Starting Step.
Bit 17 “Restart Step” – Follows the state of the restart step bit in P1213 [Profile Command] Bit 10 “Restart Step.”
Bit 18 “Vel Override” – Follows the state of the velocity override bit in P1213 [Profile Command] Bit 9 “Vel Override.”
Bit 19 “Home Not Set” – Indicates that the home position is not defined and the move table contains a position absolute move type. When this bit is set the profile will not be allowed to execute. This bit will be cleared when either a homing function or position redefine function is completed.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	**Profiling**	**1212**	755 **Units Traveled** Units Traveled Indicates total number of units traveled. The relationship between the feedback edge counts and the position units is determined by the P1215 [Counts Per Unit]. Actual motor position is converted from the edge counts to this value using the P1215 [Counts Per Unit].	Units: Default: Min/Max:	Cnts Read Only –/+ 2200000000.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
APPLICATIONS	**Profiling**	**1213**	755 **Profile Command** Profile Command Sets bits to configure the speed profile/position indexer control logic.		RW	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Prof Run Alm	HomNotSetAlm	Restart Step	Vel Override	Hold Step	Reserved	Reserved	Reserved	StrStepSel4	StrStepSel3	StrStepSel2	StrStepSel1	StrStepSel0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “StrStepSel0” – Bit 0 through Bit 4 set initial or starting step in the move table in binary format. A starting step value of zero results in no motion when the drive is enabled.

Bit 1 “StrStepSel1”

Bit 2 “StrStepSel2”

Bit 3 “StrStepSel3”

Bit 4 “StrStepSel4”

Bit 8 “Hold Step” – When the drive is enabled with this bit is set, the drive starts and runs at zero velocity. The starting step is not executed until the “Hold Step” bit is removed. For non-blended moves, the drive will hold zero speed and/or current position. This does not stop the drive. For blended moves, the drive will continue to run at the step velocity. If the Hold Step bit is removed, then the conditions required to complete the step can be evaluated.

Bit 9 “Vel Override” – Can be used to rescale all move velocities by the velocity override P1216 [ProfVel Override]. When this bit is off, a scale factor of 1 is used.

Bit 10 “Restart Step” – Can be used to disable a currently executing profile. This bit forces the current step to reset to the starting step value.

Bit 11 “HomNotSetAlm” – Sets condition to indicate the “home position not set” alarm. The absolute position type will work without home position if the bit is off. Default state is Enabled.

Bit 12 “Prof Run Alm” – Sets condition to indicate the profile running alarm when the drive is running. Default state is Enabled.

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
APPLICATIONS	**Profiling**	**1215**	755 **Counts Per Unit** Counts Per Unit Sets number of position feedback counts per unit of machine travel (for example 1024 encoder edge counts per inch). This parameter is used to scale position targets from their entered values of units to internal units of encoder edge counts. This parameter is also used to convert actual motor position from encoder edge counts back into the desired units for display in P1212 [Units Traveled].	Default: Min/Max:	1 1 / 2200000000	RW	32-bit Integer
		1216	755 **ProfVel Override** Profile Velocity Override Sets multiplier for all move velocities when the velocity override function is selected P1213 [Profile Command] Bit 9 “Vel Override.” This parameter is typically set to a value less than 1. When the velocity override bit P1213 [Profile Command] Bit 9 “Vel Override” is off, a scale factor of 1 is used.	Units: Default: Min/Max:	% 100.00 10.00 / 150.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	Profiling	1217 ○	755 **Prof DI Invert** Profile Digital Input Invert		RW	32-bit Integer

Sets polarity of the digital inputs. Each bit is assigned to a move table step. Rising edge of the digital input is used when the bit is off, and falling edge of digital input is used when the bit is on.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Step 16	Step 15	Step 14	Step 13	Step 12	Step 11	Step 10	Step 9	Step 8	Step 7	Step 6	Step 5	Step 4	Step 3	Step 2	Step 1	StrStepSel4	StrStepSel3	StrStepSel2	StrStepSel1	StrStepSel0	Vel Override	AbortProfile	Abort Step	Hold Step
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Hold Step” – sets polarity of the digital input for the hold step, P1218 [DI Hold Step].
Bit 1 “Abort Step” – sets polarity of the digital input for abort step, P1219 [DI Abort Step].
Bit 2 “AbortProfile” – sets polarity of the digital input for abort profile, P1220 [DI Abort Profile].
Bit 3 “Vel Override” – sets polarity of the digital input for velocity override, P1221 [DI Vel Override].
Bit 4 “StrStepSel0” – sets polarity of the digital input for start step 1, P1222 [DI StrtStep Sel0].
Bit 5 “StrStepSel1” – sets polarity of the digital input for start step 2, P1223 [DI StrtStep Sel1].
Bit 6 “StrStepSel2” – sets polarity of the digital input for start step 3, P1224 [DI StrtStep Sel2].
Bit 7 “StrStepSel3” – sets polarity of the digital input for start step 4, P1225 [DI StrtStep Sel3].
Bit 8 “StrStepSel4” – sets polarity of the digital input for start step 5, P1226 [DI StrtStep Sel4]
Bit 9 “Step 1” – sets polarity of the digital input for move step 1, P1230 [Step 1 Type].
Bit 10 “Step 2” – sets polarity of the digital input for move step 2, P1240 [Step 2 Type].
Bit 11 “Step 3” – sets polarity of the digital input for move step 3, P1250 [Step 3 Type].
Bit 12 “Step 4” – sets polarity of the digital input for move step 4, P1260 [Step 4 Type].
Bit 13 “Step 5” – sets polarity of the digital input for move step 5, P1270 [Step 5 Type].
Bit 14 “Step 6” – sets polarity of the digital input for move step 6, P1280 [Step 6 Type].
Bit 15 “Step 7” – sets polarity of the digital input for move step 7, P1290 [Step 7 Type].
Bit 16 “Step 8” – sets polarity of the digital input for move step 8, P1300 [Step 8 Type].
Bit 17 “Step 9” – sets polarity of the digital input for move step 9, P1310 [Step 9 Type].
Bit 18 “Step 10” – sets polarity of the digital input for move step 10, P1320 [Step 10 Type].
Bit 19 “Step 11” – sets polarity of the digital input for move step 11, P1330 [Step 11 Type].
Bit 20 “Step 12” – sets polarity of the digital input for move step 12, P1340 [Step 12 Type].
Bit 21 “Step 13” – sets polarity of the digital input for move step 13, P1350 [Step 13 Type].
Bit 22 “Step 14” – sets polarity of the digital input for move step 14, P1360 [Step 14 Type].
Bit 23 “Step 15” – sets polarity of the digital input for move step 15, P1370 [Step 15 Type].
Bit 24 “Step 16” – sets polarity of the digital input for move step 16, P1380 [Step 16 Type].

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Profiling	1218 ○ ⇄	755 **DI Hold Step** Digital Input Hold Step Sets a digital input port for the hold step in profile/indexer control logic. The digital input assigned by this parameter is equivalent to P1213 [Profile Command] Bit 8 “Hold Step.” Polarity of active state is defined by P1217 [Prof DI Invert] Bit 0 “Hold Step.”	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
APPLICATIONS	Profiling	1219 ○ ⇄	755 **DI Abort Step** Digital Input Abort Step Sets a digital input port for the abort step in profile/indexer control logic. Polarity of active state is defined by P1217 [Prof DI Invert] Bit 1 “Abort Step.”	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Profiling	1220 ○ ⇄	755 **DI Abort Profile** Digital Input Abort Profile Sets a digital input port for the abort profile in profile/indexer control logic. Polarity of active state is defined by P1217 [Prof DI Invert] Bit 2 "AbortProfile."	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1221 ○ ⇄	755 **DI Vel Override** Digital Input Velocity Profile Sets a digital input port for the velocity override in profile/indexer control logic. The digital input assigned by this parameter is equivalent to P1213 [Profile Command] Bit 9 "Vel Override." Polarity of active state is defined by P1217 [Prof DI Invert] Bit 3 "Vel Override."	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1222 1223 1224 1225 1226 ○ ⇄	755 **DI StrtStep Sel0** 755 **DI StrtStep Sel1** 755 **DI StrtStep Sel2** 755 **DI StrtStep Sel3** 755 **DI StrtStep Sel4** Digital Input Start Step Select *n* Set digital input ports for the start step in profile/indexer control logic. The digital inputs assigned by these parameters are equivalent to P1213 [Profile Command] Bit 4 "StrStepSel4." Polarities of active state are defined by P1217 [Prof DI Invert] Bit 4 "StrStepSel0" to Bit 8 "StrStepSel4."	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350 1360 1370 1380 ○	755 **Step 1 Type** 755 **Step 2 Type** 755 **Step 3 Type** 755 **Step 4 Type** 755 **Step 5 Type** 755 **Step 6 Type** 755 **Step 7 Type** 755 **Step 8 Type** 755 **Step 9 Type** 755 **Step 10 Type** 755 **Step 11 Type** 755 **Step 12 Type** 755 **Step 13 Type** 755 **Step 14 Type** 755 **Step 15 Type** 755 **Step 16 Type** Step *n* Type Set type of move for a particular step. The possible step types are: "Speed" (0) = Speed Profile moves in speed mode. "Position Abs" (1) = Position Absolute moves in absolute position mode. "PositionIncr" (2) = Position Incremental moves in position increment mode. The drive must have the direction mode set to the bipolar for the position regulator to function properly. The current, torque, and regen power limits must be set so as not to limit the programmed deceleration time. If the limits occur, the position regulator may overshoot the position set point.	Default: Options:	0 = "Speed" 0 = "Speed" 1 = "Position Abs" 2 = "PositionIncr"	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
APPLICATIONS	**Profiling**	**1231** **1241** **1251** **1261** **1271** **1281** **1291** **1301** **1311** **1321** **1331** **1341** **1351** **1361** **1371** **1381**	755 **Step 1 Velocity** 755 **Step 2 Velocity** 755 **Step 3 Velocity** 755 **Step 4 Velocity** 755 **Step 5 Velocity** 755 **Step 6 Velocity** 755 **Step 7 Velocity** 755 **Step 8 Velocity** 755 **Step 9 Velocity** 755 **Step 10 Velocity** 755 **Step 11 Velocity** 755 **Step 12 Velocity** 755 **Step 13 Velocity** 755 **Step 14 Velocity** 755 **Step 15 Velocity** 755 **Step 16 Velocity** Step *n* Velocity Set speed at which a move will take place. The step velocity applies to all three types of moves – position absolute, position incremental, and speed profile. The motor may not achieve the step velocity in all cases. Short distance moves may begin to decelerate before the step velocity is reached. If the move is sufficiently long, then the motor speed will be limited to the step velocity. Sign on the step velocity is used to determine direction of motor rotation. Cannot be used with most blended moves in Position Absolute type and Position Incremental type.	Units: Default: Min/Max:	Hz / RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RW	Real
		1232 **1242** **1252** **1262** **1272** **1282** **1292** **1302** **1312** **1322** **1332** **1342** **1352** **1362** **1372** **1382**	755 **Step 1 Accel** 755 **Step 2 Accel** 755 **Step 3 Accel** 755 **Step 4 Accel** 755 **Step 5 Accel** 755 **Step 6 Accel** 755 **Step 7 Accel** 755 **Step 8 Accel** 755 **Step 9 Accel** 755 **Step 10 Accel** 755 **Step 11 Accel** 755 **Step 12 Accel** 755 **Step 13 Accel** 755 **Step 14 Accel** 755 **Step 15 Accel** 755 **Step 16 Accel** Step *n* Acceleration Set acceleration time between zero and rated motor speed in seconds. The motor will accelerate towards the step speed using the step velocity parameter. The minimum acceleration rate is determined by the system inertia. Cannot be used with most blended moves in Position Absolute type and Position Incremental type.	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	**Profiling**	**1233**	755 **Step 1 Decel**	Units:	Secs	RW	Real
		1243	755 **Step 2 Decel**	Default:	10.00		
		1253	755 **Step 3 Decel**	Min/Max:	0.00 / 3600.00		
		1263	755 **Step 4 Decel**				
		1273	755 **Step 5 Decel**				
		1283	755 **Step 6 Decel**				
		1293	755 **Step 7 Decel**				
		1303	755 **Step 8 Decel**				
		1313	755 **Step 9 Decel**				
		1323	755 **Step 10 Decel**				
		1333	755 **Step 11 Decel**				
		1343	755 **Step 12 Decel**				
		1353	755 **Step 13 Decel**				
		1363	755 **Step 14 Decel**				
		1373	755 **Step 15 Decel**				
		1383	755 **Step 16 Decel**				
			Step *n* Deceleration Set deceleration time between rated motor speed and zero in seconds. The motor will decelerate towards zero speed. The minimum deceleration rate is determined by the system inertia. Cannot be used with most blended moves in Position Absolute type and Position Incremental type.				

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	**Profiling**	**1234**	755 **Step 1 Value**	Default:	0	RW	32-bit Integer
		1244	755 **Step 2 Value**	Min/Max:	−2147483648 / 2147483647		
		1254	755 **Step 3 Value**				
		1264	755 **Step 4 Value**				
		1274	755 **Step 5 Value**				
		1284	755 **Step 6 Value**				
		1294	755 **Step 7 Value**				
		1304	755 **Step 8 Value**				
		1314	755 **Step 9 Value**				
		1324	755 **Step 10 Value**				
		1334	755 **Step 11 Value**				
		1344	755 **Step 12 Value**				
		1354	755 **Step 13 Value**				
		1364	755 **Step 14 Value**				
		1374	755 **Step 15 Value**				
		1384	755 **Step 16 Value**				
			Step *n* Value These parameters can take on any one of several meanings depending on the move type and action. The possible meanings for these parameters are given below. All other type/action combinations will be ignored. [Type] = Position Absolute [Action] = Posit Blend, Wait Dig-in, or Step to Next [Value] is the Absolute Target Position [Type] = Position Incremental [Action] = Posit Blend, Wait Dig-in, or Step to Next [Value] is the Incremental Target Position [Type] = Speed Profile [Action] = Posit Blend [Value] is the Incremental Target Position [Type] = Speed Profile [Action] = Time Blend, Wait Dig-in, or Step to Next [Value] is the Total Time to complete the move. Time is specified in 1/100ths of a second (1000 = 10.00 seconds). Negative values result in time = 0 seconds (no move) [Type] = Speed Profile [Action] = Parameter Blend [Value] is the parameter number to compare against the parameter set-point specified in the dwell parameter. Positive numbers will use a greater than check, negative numbers will use a less than check.				

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Profiling	1235	755 **Step 1 Dwell**	Units:	Secs	RW	Real
		1245	755 **Step 2 Dwell**	Default:	0.00		
		1255	755 **Step 3 Dwell**	Min/Max:	–1.00 / 3600.00		
		1265	755 **Step 4 Dwell**				
		1275	755 **Step 5 Dwell**				
		1285	755 **Step 6 Dwell**				
		1295	755 **Step 7 Dwell**				
		1305	755 **Step 8 Dwell**				
		1315	755 **Step 9 Dwell**				
		1325	755 **Step 10 Dwell**				
		1335	755 **Step 11 Dwell**				
		1345	755 **Step 12 Dwell**				
		1355	755 **Step 13 Dwell**				
		1365	755 **Step 14 Dwell**				
		1375	755 **Step 15 Dwell**				
		1385	755 **Step 16 Dwell**				
			Step *n* Dwell Set time delay between moves. P1210 [Profile Status] Bit 11 “Dwell” will be set to indicate that the step dwell period is active and timing. Zero value will disable dwell, negative value will wait forever. Not all steps can use dwell (example, most blended moves cannot use dwell). When the speed type with the parameter blend action move is used, the step dwell parameter will contain the parameter number of the set-point value to compare with the parameter selected in the value parameter.				
		1236	755 **Step 1 Batch**	Default:	1	RW	32-bit Integer
		1246	755 **Step 2 Batch**	Min/Max:	0 / 65535		
		1256	755 **Step 3 Batch**				
		1266	755 **Step 4 Batch**				
		1276	755 **Step 5 Batch**				
		1286	755 **Step 6 Batch**				
		1296	755 **Step 7 Batch**				
		1306	755 **Step 8 Batch**				
		1316	755 **Step 9 Batch**				
		1326	755 **Step 10 Batch**				
		1336	755 **Step 11 Batch**				
		1346	755 **Step 12 Batch**				
		1356	755 **Step 13 Batch**				
		1366	755 **Step 14 Batch**				
		1376	755 **Step 15 Batch**				
		1386	755 **Step 16 Batch**				
			Step *n* Batch Set number of times to repeat a step. For example, a batch count of two will cause that step to repeat two times before starting the next step. These parameters cannot be used with position absolute moves, since this would imply moving to the same position repeatedly. These parameters cannot be used with most blended moves (exception dig-in blend), because most blended moves need to transition to the next step, instead of repeating. The dig-in blend moves use this parameter to specify the number of digital input transitions required. A zero step batch setting will cause that step to repeat forever.				

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
APPLICATIONS	**Profiling**	**1237** **1247** **1257** **1267** **1277** **1287** **1297** **1307** **1317** **1327** **1337** **1347** **1357** **1367** **1377** **1387**	755 **Step 1 Next** 755 **Step 2 Next** 755 **Step 3 Next** 755 **Step 4 Next** 755 **Step 5 Next** 755 **Step 6 Next** 755 **Step 7 Next** 755 **Step 8 Next** 755 **Step 9 Next** 755 **Step 10 Next** 755 **Step 11 Next** 755 **Step 12 Next** 755 **Step 13 Next** 755 **Step 14 Next** 755 **Step 15 Next** 755 **Step 16 Next** Step *n* Next Set step number that will be executed after the current step is complete. The current step will be complete after any batch repeat cycles have finished. Typically, steps are executed in ascending order, although this is not a requirement. These parameters do not apply to a step having an End action, since this step is normally used to terminate a sequence of step moves.	Default: Min/Max:	2 1 / 16	RW	32-bit Integer
		1238 **1248** **1258** **1268** **1278** **1288** **1298** **1308** **1318** **1328** **1338** **1348** **1358** **1368** **1378** **1388**	755 **Step 1 Action** 755 **Step 2 Action** 755 **Step 3 Action** 755 **Step 4 Action** 755 **Step 5 Action** 755 **Step 6 Action** 755 **Step 7 Action** 755 **Step 8 Action** 755 **Step 9 Action** 755 **Step 10 Action** 755 **Step 11 Action** 755 **Step 12 Action** 755 **Step 13 Action** 755 **Step 14 Action** 755 **Step 15 Action** 755 **Step 16 Action** Step *n* Action Set what is to be done at the end of a step after the move is complete. End (0) = End stops the move sequence. Step to Next (1) = Step to Next moves to the next step after the speed ramp up/down is completed in the specific total time. The dwell time and the batch can be applied. Psn Blend (2) = Posit Blend moves to the next step after the actual position becomes greater than the position specified in the value parameter. Time Blend (3) = Time Blend moves to the next step after the total running time becomes greater than the time specified in the value parameter. Param Blend (4) = Param Blend moves to the next step after comparison of two parameters is satisfied. The parameters for comparison are specified in the value and dwell parameter. DigIn Blend (5) = DigIn Blend moves to the next step after the specified number of digital input rising (or falling) edges are applied. The batch parameter specifies the number of digital input edges. Wait DigIn (6) = Wait DigIn moves to the next step after the digital input rising (or falling) edges are applied.	Default: Options:	1 = "Step to Next" 0 = "End" 1 = "Step to Next" 2 = "Psn Blend" 3 = "Time Blend" 4 = "Param Blend" 5 = "DigIn Blend" 6 = "Wait DigIn"	RW	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	Profiling	1239	755 **Step 1 Dig In**	Default:	0.00	RW	32-bit Integer
		1249	755 **Step 2 Dig In**	Min/Max:	0.00 / 159999.15		
		1259	755 **Step 3 Dig In**				
		1269	755 **Step 4 Dig In**				
		1279	755 **Step 5 Dig In**				
		1289	755 **Step 6 Dig In**				
		1299	755 **Step 7 Dig In**				
		1309	755 **Step 8 Dig In**				
		1319	755 **Step 9 Dig In**				
		1329	755 **Step 10 Dig In**				
		1339	755 **Step 11 Dig In**				
		1349	755 **Step 12 Dig In**				
		1359	755 **Step 13 Dig In**				
		1369	755 **Step 14 Dig In**				
		1379	755 **Step 15 Dig In**				
		1389	755 **Step 16 Dig In**				
		○ ⇄	Step *n* Digital Input Set digital input sources. Not all steps use the digital input for the step move. The following type and action moves use the dig-in parameters to specify the digital input sources. Polarity (rising or falling edges) of digital input is set by P1217 [Prof DI Invert]. 1. [Type] Position Absolute [Action] Wait DigIn 2. [Type] Position Incremental [Action] Wait DigIn 3. [Type] Speed Profile [Action] DigIn Blend 4. [Type] Speed Profile [Action] Wait DigIn				

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	Camming	**1390**	755 **PCAM Control** Position Camming Control Sets bits to control the position CAM control logic.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Cndtnl Hold	Unidirection	Reref Psn In	Offset En	Alt Slope	Aux Cam En	ReverseY Out	ReverseX In	Start
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Start” – Start the position CAM
Bit 1 “ReverseX In” – Reverse polarity of x-axis input (P1392 [PCAM Psn Select])
Bit 2 “ReverseY Out” – Reverse polarity of y-axis output at beginning of next cycle (P1473 [PCAM Psn Out])
Bit 3 “Aux Cam En” – Switch to the auxiliary CAM profile at beginning of next cycle
Bit 4 “Alt Slope” – Use a different slope calculation
Bit 5 “Offset En” – Enable input offset function (P1394 [PCAM Psn Ofst])
Bit 6 “Reref Psn In” – Permit re-referencing x-axis input (P1392 PCAM Psn Select])
Bit 7 “Unidirection” – Use unidirectional operation
Bit 8 “Cndtnl Hold” – Freeze the speed regulator's integrator if position reference changes. This bit is recommended to be set for point to point motion.

		1391	755 **PCAM Mode** Position Camming Mode The parameter sets type of operational mode. “Off” (0) – Disable position CAM function “Single Step” (1) – At rising edge of Start (P1390 [PCAM Control]), the CAM profile begins at point 0 and runs until the x-axis has reached the last point defined by the end point (P1405 [PCAM Main EndPnt] and P1439 [PCAM Aux EndPnt]) at which point it is completed. If the x-axis then backs up into CAM range, nothing happens; the profile has already completed and won't restart until control Start (P1390 [PCAM Control]) is once again set. “Continuous” (2) – At rising edge of Start (P1390 [PCAM Control]), the CAM profile begins at point 0 and runs to the end point (P1405 [PCAM Main EndPnt] and P1439 [PCAM Aux EndPnt]), and then repeats forever or until the control bit Start (P1390 [PCAM Control]) is cleared. “Persistent” (3) – At rising edge of Start (P1390 [PCAM Control]), the CAM profile begins at point 0 and runs to the end point (P1405 [PCAM Main EndPnt] and P1439 [PCAM Aux EndPnt]), and remains active until the control bit Start (P1390 [PCAM Control]) is cleared.	Default: Options:	0 = “Off” 0 = “Off” 1 = “Single Step” 2 = “Continuous” 3 = “Persistent”	RW	32-bit Integer
		1392 ○ ⇄	755 **PCAM Psn Select** Position Camming Position Select The parameter selects a position reference source for x-axis.	Default: Options:	1393 1 / 159999	RW	32-bit Integer
		1393	755 **PCAM Psn Stpt** Position Camming Position Setpoint The parameter provides position reference for x-axis when the position reference select (P1392 [PCAM Psn Select]) selects this parameter.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		1394	755 **PCAM Psn Ofst** Position Camming Position Offset The parameter provides position offset value to x-axis position when the offset enable control bit (P1390 [PCAM Control]) is set. The offset value causes a phase shift or position change in x-axis and a momentary change to CAM speed.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	**Camming**	**1395**	755 **PCAM PsnOfst Eps** Position Camming Position Offset Eps The parameter provides count of edges per second for virtual encoder function. The value makes a limit on change of x-axis position in change of position offset input.	Default: Min/Max:	2000 0 / 2147483647	RW	32-bit Integer
		1396	755 **PCAM Span X** Position Camming Span X Axis The parameter provides the number of integer counts equivalent to the span or range of x-axis.	Default: Min/Max:	8192 0 / 2147483647	RW	32-bit Integer
		1397	755 **PCAM Scale X** Position Camming Scale X Axis The parameter multiplies span x (P1396 [PCAM Span X]) such that the x-axis dimension will expand if this parameter is greater than 1.	Default: Min/Max:	1.00 0.01 / 214748000.00	RW	Real
		1398	755 **PCAM Span Y** Position Camming Span Y Axis The parameter provides the number of edges equivalent to the span of the y-axis. The value is the number of integer counts representing the maximum vertical extent of the profile.	Default: Min/Max:	8192 0 / 2147483647	RW	32-bit Integer
		1399 ○ ⇄	755 **PCAM ScaleY Sel** Position Camming Scale Y Axis Select The parameter selects a source for y-axis scale.	Default: Options:	1400 1 / 159999	RW	32-bit Integer
		1400	755 **PCAM ScaleYSetPt** Position Camming Scale Y Axis Setpoint The parameter provides y-axis scale when the y scale select (P1399 [PCAM ScaleY Sel]) selects this parameter. The y scale multiplies the y span such that the y-axis dimension will increase if y scale is greater than 1.	Default: Min/Max:	1.00 0.00 / 214748000.00	RW	Real
		1401 ○ ⇄	755 **PCAM VelScaleSel** Position Camming Velocity Scale Select The parameter selects a source for velocity scale.	Default: Options:	1402 1 / 159999	RW	32-bit Integer
		1402	755 **PCAM VelScaleSP** Position Camming Velocity Scale Setpoint The parameter provides velocity scale when the velocity scale select (P1401 [PCAM VelScaleSel]) selects this parameter. The velocity scale multiplies the velocity output (P1472 [PCAM Vel Out]) such that the velocity output (P1472) will decrease if the velocity scale is less than 1.	Units: Default: Min/Max:	MPE 0.000100 0.000000 / 8.000000	RW	Real
		1403	755 **PCAM Slope Begin** Position Camming Slope Begin The parameter provides beginning slope at CAM point 0. The parameter is used only if the segment is cubic type curve.	Default: Min/Max:	0.00 –/+214748000.00	RW	Real
		1404	755 **PCAM Slope End** Position Camming Slope End The parameter provides ending slope at CAM point 0. The parameter is used only if the segment is cubic type curve in both the main and the auxiliary CAM profile.	Default: Min/Max:	0.00 –/+214748000.00	RW	Real
		1405	755 **PCAM Main EndPnt** Position Camming Main End Point The parameter provides a number of the last CAM point used in the main CAM profile.	Default: Options:	0 0 / 15	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	Camming	1406	755 **PCAM Main Types** Position Camming Main Types Each bit sets curve type for each segment in the main CAM profile. If the bit is clear, the curve is linear at the point of segment in the main CAM profile. If the bit is set, the curve is cubic at the point of segment in the main CAM profile.		RW	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	CubicCurve15	CubicCurve14	CubicCurve13	CubicCurve12	CubicCurve11	CubicCurve10	CubicCurve9	CubicCurve8	CubicCurve7	CubicCurve6	CubicCurve5	CubicCurve4	CubicCurve3	CubicCurve2	CubicCurve1	CubicCurve0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	Camming	1407 1409 1411 1413 1415 1417 1419 1421 1423 1425 1427 1429 1431 1433 1435 1437	755 **PCAM Main Pt X 0** 755 **PCAM Main Pt X 1** 755 **PCAM Main Pt X 2** 755 **PCAM Main Pt X 3** 755 **PCAM Main Pt X 4** 755 **PCAM Main Pt X 5** 755 **PCAM Main Pt X 6** 755 **PCAM Main Pt X 7** 755 **PCAM Main Pt X 8** 755 **PCAM Main Pt X 9** 755 **PCAM Main PtX 10** 755 **PCAM Main PtX 11** 755 **PCAM Main PtX 12** 755 **PCAM Main PtX 13** 755 **PCAM Main PtX 14** 755 **PCAM Main PtX 15** Position Camming Main Point X *n* Provides x-coordinate value for CAM point in the main CAM profile.	Default: 0.00 Min/Max: −/+220000000.00	RW	Real
		1408 1410 1412 1414 1416 1418 1420 1422 1424 1426 1428 1430 1432 1434 1436 1438	755 **PCAM Main Pt Y 0** 755 **PCAM Main Pt Y 1** 755 **PCAM Main Pt Y 2** 755 **PCAM Main Pt Y 3** 755 **PCAM Main Pt Y 4** 755 **PCAM Main Pt Y 5** 755 **PCAM Main Pt Y 6** 755 **PCAM Main Pt Y 7** 755 **PCAM Main Pt Y 8** 755 **PCAM Main Pt Y 9** 755 **PCAM Main PtY 10** 755 **PCAM Main PtY 11** 755 **PCAM Main PtY 12** 755 **PCAM Main PtY 13** 755 **PCAM Main PtY 14** 755 **PCAM Main PtY 15** Position Camming Main Point Y *n* Provides y-coordinate value for CAM point in the main CAM profile.	Default: 0.00 Min/Max: −/+220000000.00	RW	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Camming**	**1439**	755 **PCAM Aux EndPnt** Position Camming Auxiliary End Point Provides a number of the last CAM point used in the auxiliary CAM profile.	Default: 1 Options: 1 / 15	RW	32-bit Integer
		1440	755 **PCAM Aux Types** Position Camming Auxiliary Types Each bit sets curve type for each segment in the auxiliary CAM profile. If the bit is clear, the curve is linear at the point of segment in the auxiliary CAM profile. If the bit is set, the curve is cubic at the point of segment in the auxiliary CAM profile.		RW	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	CubicCurve15	CubicCurve14	CubicCurve13	CubicCurve12	CubicCurve11	CubicCurve10	CubicCurve9	CubicCurve8	CubicCurve7	CubicCurve6	CubicCurve5	CubicCurve4	CubicCurve3	CubicCurve2	CubicCurve1	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
		1441 **1443** **1445** **1447** **1449** **1451** **1453** **1455** **1457** **1459** **1461** **1463** **1465** **1467** **1469**	755 **PCAM Aux Pt X 1** 755 **PCAM Aux Pt X 2** 755 **PCAM Aux Pt X 3** 755 **PCAM Aux Pt X 4** 755 **PCAM Aux Pt X 5** 755 **PCAM Aux Pt X 6** 755 **PCAM Aux Pt X 7** 755 **PCAM Aux Pt X 8** 755 **PCAM Aux Pt X 9** 755 **PCAM Aux PtX 10** 755 **PCAM Aux PtX 11** 755 **PCAM Aux PtX 12** 755 **PCAM Aux PtX 13** 755 **PCAM Aux PtX 14** 755 **PCAM Aux PtX 15** Position Camming Auxiliary Point X *n* Provides x-coordinate value for CAM point in the auxiliary CAM profile.	Default: 0.00 Min/Max: –/+220000000.00	RW	Real
		1442 **1444** **1446** **1448** **1450** **1452** **1454** **1456** **1458** **1460** **1462** **1464** **1466** **1468** **1470**	755 **PCAM Aux Pt Y 1** 755 **PCAM Aux Pt Y 2** 755 **PCAM Aux Pt Y 3** 755 **PCAM Aux Pt Y 4** 755 **PCAM Aux Pt Y 5** 755 **PCAM Aux Pt Y 6** 755 **PCAM Aux Pt Y 7** 755 **PCAM Aux Pt Y 8** 755 **PCAM Aux Pt Y 9** 755 **PCAM Aux PtY 10** 755 **PCAM Aux PtY 11** 755 **PCAM Aux PtY 12** 755 **PCAM Aux PtY 13** 755 **PCAM Aux PtY 14** 755 **PCAM Aux PtY 15** Position Camming Auxiliary Point Y *n* Provides y-coordinate value for CAM point in the auxiliary CAM profile.	Default: 0.00 Min/Max: –/+220000000.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
APPLICATIONS	**Camming**	**1471**	755 **PCAM Status** Position Camming Status Indicates status of position CAM logic.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Cndtnl Hold	Unidirection	Reref Psn In	Offset En	Alt Slope	Aux Cam En	ReverseY Out	ReverseX In	Start	In Cam	Persist Mode	Contins Mode	Single Mode
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Single Mode” – Position CAM is in single step mode.
Bit 1 “Contins Mode” – Position CAM is in continuous mode.
Bit 2 “Persist Mode” – Position CAM is in persistent mode.
Bit 3 “In Cam” – X-axis is in range of defined profile.
Bit 4 “Start” – Position CAM has started.
Bit 5 “ReverseX In” – X-axis input is reversed.
Bit 6 “ReverseY Out” – Y-axis output is reversed.
Bit 7 “Aux Cam En” – Auxiliary CAM profile is in use.
Bit 8 “Alt Slope” – Alternated slope is in use.
Bit 9 “Offset En” – X-axis offset is enabled.
Bit 10 “Reref Pos In” – X-position input is re-referencing.
Bit 11 “Unidirection” – Position CAM is in unidirectional mode.
Bit 12 “Cndtnl Hold” – Conditional integrator hold is in use.

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
APPLICATIONS	**Camming**	**1472**	755 **PCAM Vel Out** Position Camming Velocity Output Indicates output velocity in per unit. The value is connected to the speed regulator.	Units: Default: Min/Max:	Hz RPM 0.00 0.00 / P27 [Motor NP Hertz] x 8 0.00 / P28 [Motor NP RPM] x 8	RO	Real
		1473	755 **PCAM Psn Out** Position Camming Position Output Indicates output position. The value is connected to the position regulator.	Default: Min/Max:	0.00 –/+220000000.00	RO	32-bit Integer
		1474 ○ ⇄	755 **DI PCAM Start** Digital Input Position Camming Start Selects the digital input used to start the position camming sequence.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>APPLICATIONS</td><td>Roll Position</td><td>1500</td><td colspan="3">

755 **Roll Psn Config**
Roll Position Indicator Configuration
Configuration for the Roll Position Indicator function.

<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>EGR Select</td><td>Rereference</td><td>Preset</td><td>Enable</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Disabled
1 = Enabled</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr>
</table>

Bit 0 “Enable” – Enables the Roll Position Indicator function.
Bit 1 “Preset” – At rising edge of this bit, P1504 [Roll Psn Preset] is loaded in P1505 [Roll Psn Offset].
Bit 2 “Rereference” – Permit changing the offset value of P1511 [RP Psn Output] without affecting actual position.
Bit 3 “EGR Select” – 0 = EGR with gear ratio input as numerator and gear ratio output as denominator.
1 = EGR with gear ratio output as numerator and gear ratio input as denominator.

</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>1501</td><td colspan="3">

755 **Roll Psn Status**
Roll Position Indicator Status
Status of the Roll Position Indicator function.

<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Rereference</td><td>Enable</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Disabled
1 = Enabled</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr>
</table>

Bit 0 “Enable” – Acknowledges that Roll Position Indicator function is enabled.
Bit 1 “Rereference” – Acknowledges that rereferencing of P1511 [RP Psn Output] is active.

</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>1502</td><td>755 **RP Psn Fdbk Stpt**
Roll Position Position Indicator Feedback Setpoint
Provides a set point for the position feedback value in the form of accumulated encoder counts.</td><td>Default:
Min/Max:</td><td>0
–2147483648 / 2147483647</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1503
○
⇄</td><td>755 **RP Psn Fdbk Sel**
Roll Position Position Indicator Feedback Select
Selects source data for the position feedback. The function generates P1511 [RP Psn Output] based on the selected position feedback source.</td><td>Default:
Min/Max:</td><td>1502
0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1504</td><td>755 **Roll Psn Preset**
Roll Position Indicator Preset
Provides a pre-set position value. At rising edge of Bit 1 “Preset” in P1500 [Roll Psn Config], this parameter value is loaded in P1511 [RP Psn Output]. Note: P1511 [RP Psn Output] is limited by P1509 [RP Unwind].</td><td>Default:
Min/Max:</td><td>0
–2147483648 / 2147483647</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1505</td><td>755 **Roll Psn Offset**
Roll Position Indicator Offset
Provides position offset, which is summed after the EPR and used to trim the phase of the position feedback.</td><td>Default:
Min/Max:</td><td>0
–2147483648 / 2147483647</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1506</td><td>755 **RP EPR Input**
Roll Position Indicator Edges Per Revolution Input
Sets edges per revolution of the physical input device such as the motor encoder.</td><td>Default:
Min/Max:</td><td>4096
1 / 67108864</td><td>RW</td><td>32-bit Integer</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	**Roll Position**	**1507**	755 **RP Rvls Input** Roll Position Indicator Revolutions Input Sets revolution of the input encoder. This parameter must be coordinated with the revolution of the output encoder P1508 [RP Rvls Output] to resolve the gear ratio between input revolutions and output (virtual) revolutions. The ratio of input to output revolutions can always be resolved into integer values and should be reduce to their lowest common factor.	Default: Min/Max:	1 –/+1000000	RW	32-bit Integer
		1508	755 **RP Rvls Output** Roll Position Indicator Revolutions Output Sets revolution of the output encoder. This parameter must be coordinated with the revolution of the input encoder P1507 [RP Rvls Input] to resolve the gear ratio between input revolutions and output (virtual) revolutions. The ratio of input to output revolutions can always be resolved into integer values and should be reduce to their lowest common factor.	Default: Min/Max:	1 1 / 4294967295	RW	32-bit Integer
		1509	755 **RP Unwind** Roll Position Indicator Unwind Count Sets the number of counts per roll revolution. P1511 [RP Psn Output] rolls over at this count minus 1.	Default: Min/Max:	4194304 1024 / 536870912	RW	32-bit Integer
		1510	755 **RP Unit Scale** Roll Position Indicator Unit Scale Provides the multiplier to P1512 [RP Unit Out], which is a floating point output of P1511 [RP Psn Output].	Default: Min/Max:	1.00000 –/+220000000.00000	RW	Real
		1511	755 **RP Psn Output** Roll Position Indicator Position Output Output of roll position, which has a span limited by P1509 [RP Unwind].	Default: Min/Max:	0 0 / 4294967295	RO	32-bit Integer
		1512	755 **RP Unit Out** Roll Position Indicator Unit Output Floating point output that results from multiplying P1511 [RP Psn Output] by P1510 [RP Unit Scale].	Default: Min/Max:	0.00 –/+220000000.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Torque Boost**	**1515**	755 **PsnTrqBst Ctrl** Position Oriented Torque Boost Control Configuration for the Position Oriented Torque Boost function.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Boost Enable
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Boost Enable” – Enables the Position Oriented Torque Boost function.

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	Torque Boost	**1516**	755 **PsnTrqBst Sts** Position Oriented Torque Boost Status Status of the Position Oriented Torque Boost function.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	In Position	Enabled
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Enabled” – Acknowledges that Position Oriented Torque Boost is enabled.
Bit 1 “In Position” – Indicates that the selected position reference is in the target range (such as between X1 and X5).

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	Torque Boost	**1517** ○ ⇄	755 **PsnTrqBst RefSel** Position Oriented Torque Boost Reference Select Selects a source data for the position reference.	Default: 1511 Min/Max: 0 / 159999	RW	32-bit Integer
		1518	755 **PsnTrqBstPsnOfst** Position Oriented Torque Boost Position Offset Provides position offset, which is summed to the position reference and used to trim the phase of it.	Default: 0 Min/Max: –2147483648 / 2147483647	RW	32-bit Integer
		1519	755 **PsnTrqBst UNWCnt** Position Oriented Torque Boost Unwind Count Sets the number of counts per roll revolution. The selected position reference internally rolls over at this count minus 1.	Default: 4194304 Min/Max: 1024 / 2147483647	RW	32-bit Integer
		1520 **1521** **1522** **1523** **1524**	755 **PsnTrqBst Ps X1** 755 **PsnTrqBst Ps X2** 755 **PsnTrqBst Ps X3** 755 **PsnTrqBst Ps X4** 755 **PsnTrqBst Ps X5** Position Oriented Torque Boost Position X*n* The torque/position profile is built by specifying endpoint position counts for X1, X2, X3, X4, and X5, and corresponding per unit torque values for Y2, Y3, and Y4. The torque values corresponding to the points X1 and X5 are zero.	Default: 0 Min/Max: 0 / 2147483647	RW	32-bit Integer
		1525 **1526** **1527**	755 **PsnTrqBst Trq Y2** 755 **PsnTrqBst Trq Y3** 755 **PsnTrqBst Trq Y4** Position Oriented Torque Boost Torque Y*n* The position profile from X1 to X5 must be ascending order. The torque profile from Y2 and Y4 is free form with no restriction.	Default: 0.00 Min/Max: –/+2.00	RW	Real
		1528	755 **PsnTrqBst TrqOut** Position Oriented Torque Boost Torque Output Output of the Position Oriented Torque Boost, which is the torque taken from the profile at the position target.	Default: 0.00 Min/Max: –/+2.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Variable Boost**	**1535**	**VB Config** Variable Boost Configuration Controls the variable boost function.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Minimum Freq	Flux Level	Rising Edge	Current Rate	VB Enable
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “VB Enable” – Enables the variable boost voltage function.

Bit 1 “Current Rate” – The current rate trigger condition is defined by the level set in P1550 [VB Cur Thresh] with a hysteresis band of P1549 [VB Current Hyst]. The slope of P1548 [VB Current Rate] is set to either default falling edge or rising edge by Bit 2 “Rising Edge.” If these trigger conditions are met, P1536 [VB Status] Bit 3 “Current Trig” is set.

Bit 2 “Rising Edge” – The current rate trigger condition is defined by the level set in P1550 [VB Cur Thresh] with a hysteresis band of 1549 [VB Current Hyst]. The slope of P1548 [VB Current Rate] is set to either default falling edge or rising edge by Bit 2 “Rising Edge.” If these trigger conditions are met, P1536 [VB Status] Bit 3 “Current Trig” is set.

Bit 3 “Flux Level” – Sets the flux trigger condition defined by the level of P1545 [VB Flux Thresh]. If P1547 [VB Filt Flux Cur] is greater than or equal to P1545 [VB Flux Thresh], P1536 [VB Status] Bit 4 “Flux Trigger” is set.

Bit 4 “Minimum Freq” – Sets the minimum frequency trigger source derived from P1 [Output Frequency] and is enabled by setting P1535 [VB Config] Bit 4 “Minimum Freq.” If P1 [Output Frequency] is less than or equal to P1544 [VB Min Freq], P1536 [VB Status] Bit 5 “Freq Trigger” is set.

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Variable Boost**	**1536**	**VB Status** Variable Boost Status Status bits for the variable boost function.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Hold Freq	Max Boost	Freq Trigger	Flux Trigger	Current Trig	Triggered	VB Timer	VB Enabled
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “VB Enabled” – The variable boost voltage function is enabled.

Bit 1 “VB Timer” – P1538 [VB Time] has expired.

Bit 2 “Triggered” – Indicates that a trigger function has been enabled by 1535 [VB Config].

Bit 3 “Current Trig” – This trigger condition is defined by P1550 [VB Cur Thresh] with a hysteresis band of P1549 [VB Current Hyst]. The slope of P1548 [VB Current Rate] is set to either default falling edge or rising edge by P1535 [VB Config] Bit 2 “Rising Edge.” If these trigger conditions are met, this bit is set.

Bit 4 “Flux Trigger” – This trigger event is enabled by P1535 [VB Config] Bit 3 “Flux Level.” The trigger condition is defined by the level P1545 [VB Flux Thresh]. If P1547 [VB Filt Flux Cur] is greater than or equal to P1545 [VB Flux Thresh], P1536 [VB Status] Bit 4 “Flux Trigger” is set.

Bit 5 “Freq Trigger” – This trigger event is enabled when P1 [Output Frequency] is less than or equal to P1544 [VB Min Freq].

Bit 6 “Max Boost” – This trigger event is enabled when P1537 [VB Voltage] reaches P1540 [VB Maximum] before any of the other trigger events cause P1537 [VB Voltage] to ramp down.

Bit 7 “Hold Freq” – Output frequency is being held at P1543 [VB Frequency].

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
APPLICATIONS	**Variable Boost**	**1537**	**VB Voltage** Variable Boost Voltage Displays the output value of the voltage-axis intercept of the V/Hz curve. When the variable boost function is enabled, the value of [VB Voltage] is ramped up/down according to the settings of the variable boost function when the drive is running. This parameter is equal to P60 [Start Acc Boost] and P61 [Run Boost] when the drive is stopped or when P1535 [VB Config] Bit 0 “VB Enable” = 0.	Units: Default: Min/Max:	V AC 0.0 0.0 / 460.0	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	**Variable Boost**	**1538** ○	**VB Time** Variable Boost Time Sets the time delay for which the variable voltage boost trigger becomes active following a drive start. This parameter begins counting down when the drive enters the run state. Valid trigger conditions may only be met in the time following the expiration of [VB Time] to cause a trigger event. This time delay does not affect the trigger condition associated with P1540 [VB Maximum].	Units: Default: Min/Max:	Secs 1.0 0.0 / 100.0	RW	Real
		1539 ○	**VB Minimum** Variable Boost Minimum Sets the minimum boost voltage level for the variable boost voltage function. If P1537 [VB Voltage] reaches P1540 [VB Maximum] voltage or one of the variable boost voltage trigger events occurs then P1537 [VB Voltage] decelerates at the rate corresponding to P1542 [VB Decel Rate].	Units: Default: Min/Max:	V AC 2.0 0.0 / 200.0	RW	Real
		1540 ○	**VB Maximum** Variable Boost Maximum Sets the maximum boost voltage level for the variable boost voltage function. If P1537 [VB Voltage] reaches [VB Maximum] voltage then [VB Voltage] decelerates at the rate corresponding to P1542 [VB Decel Rate].	Units: Default: Min/Max:	V AC 10.0 0.0 / 200.0	RW	Real
		1541	**VB Accel Rate** Variable Boost Acceleration Rate Sets the rate of acceleration of P1537 [VB Voltage] for the variable boost voltage function.	Units: Default: Min/Max:	V/s 0.75 0.01 / 537.67	RW	Real
		1542	**VB Decel Rate** Variable Boost Deceleration Rate Sets the rate of deceleration of P1537 [VB Voltage] for the variable boost voltage function following a trigger event.	Units: Default: Min/Max:	V/s 6.00 0.01 / 537.67	RW	Real
		1543	**VB Frequency** Variable Boost Frequency Sets the initial frequency reference for the variable boost voltage function.	Units: Default: Min/Max:	Hz 0.8 0.0 / 110.0	RW	Real
		1544	**VB Min Freq** Variable Boost Minimum Frequency Sets the frequency reference trigger level for the variable boost voltage function. P1536 [VB Status] Bit 5 "Freq Trigger" is set to 1 when P1 [Output Frequency] falls below [VB Min Freq]. To enable this threshold and trigger event: Set P1535 [VB Config] Bit 0 "VB Enable" to 1 and Bit 4 "Minimum Freq" to 1.	Units: Default: Min/Max:	Hz 0.5 0.0 / 110.0	RW	Real
		1545	**VB Flux Thresh** Variable Boost Flux Threshold Sets the flux current trigger level for the variable boost voltage function. P1536 [VB Status] Bit 4 "Flux Trigger" is set to 1 when P1547 [VB Filt Flux Cur] exceeds [VB Flux Thresh]. To enable this threshold and trigger event: Set P1535 [VB Config] Bit 0 "VB Enable" to 1 and Bit 3 "Flux Level" to 1.	Units: Default: Min/Max:	Amps P21 [Rated Amps] x 0.5 0.0 / P21 [Rated Amps]	RW	Real
		1546	**VB Flux Lag Freq** Variable Boost Flux Lag Frequency Sets the lag (cutoff) frequency of the P6 [Flux Cur Fdbk] low pass filter. The output of this filter is displayed in P1547 [VB Filt Flux Cur].	Units: Default: Min/Max:	R/S 0.60 0.01 / 100.00	RW	Real
		1547	**VB Filt Flux Cur** Variable Boost Filter Flux Current Filtered version of the P6 [Flux Cur Fdbk]. P1546 [VB Flux Lag Freq] sets the cutoff frequency of the low pass filter.	Units: Default: Min/Max:	Amps 0.0 0.0 / P21 [Rated Amps] x 2	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	Variable Boost	**1548**	**VB Current Rate** Variable Boost Current Rate Output current rate of change.	Default: Min/Max:	0.0 –/+1000.0	RO	Real
		1549	**VB Current Hyst** Variable Boost Current Hysteresis Sets the hysteresis level around P1550 [VB Cur Thresh] for the variable boost voltage function.	Default: Min/Max:	0.0 –/+100.0	RW	Real
		1550	**VB Cur Thresh** Variable Boost Current Threshold Sets the P1548 [VB Current Rate] trigger level for the variable boost voltage function. The trigger is not active until P1538 [VB Time] time has expired following a drive start. P1535 [VB Config] Bit 2 "Rising Edge" = 0: The value of [VB Current Rate] must first pass through [VB Cur Thresh] + P1549 [VB Current Hyst] then [VB Cur Thresh] in order to cause a boost voltage trigger event. P1535 [VB Config] Bit 2 "Rising Edge" = 1: The value of P1548 [VB Current Rate] must first pass through [VB Cur Thresh] - P1549 [VB Current Hyst] then [VB Cur Thresh] in order to cause a boost voltage trigger event.	Default: Min/Max:	–25.0 –/+1000.0	RW	Real
		1551	**VB Rate Lag Freq** Variable Boost Rate Lag Frequency Sets the lag (cutoff) frequency of the current magnitude low pass filter. The output of this filter is displayed in P1548 [VB Current Rate].	Units: Default: Min/Max:	R/S 2.60 0.01 / 100.00	RW	Real

		1560	See page 128 for parameters numbers 1560…1567.

File	Group	No.	**Display Name** Full Name Description	**Values**	Read-Write	Data Type
APPLICATIONS	Spindle Orient		**Important:** After the Spindle Orient group is set up for an application, any subsequent changes to parameter settings will require a drive reset for the changes to take affect.			
		1580	755 **SO Config** Spindle Orientation Configuration Configures the options for the Spindle Orientation function. Function requires P35 [Motor Ctrl Mode] is set to option 3 "Induction FV," 6 "PM FV," or 10 "IPM FV." P125 [Pri Vel Fdbk Sel] and P135 [Psn Fdbk Sel] must also be set up accordingly.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Scale Invert	ShortestPath	Recap Hm Psn	Home DI Inv	Home DI
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 "Home DI" – Selects the type of Homing signal (Marker Pulse vs. Digital Input Switch). 1 = Home signal. 0 = Z Channel.
Bit 1 "Home DI Inv" – Rising/Falling Edge of Homing Input.
Bit 2 "Recap Hm Psnv" – Re-capture Home Position. Allows the drive to find Home after a power or drive reset. Typically set to 1 "Enabled."
Bit 3 "ShortestPath" – Allow direction reversal to obtain shortest distance traveled.
Bit 4 "Scale Invert" – Inverts the calculation for the user-defined units value. This improves resolution as the value of P1587 [SO Cnts per Rvls] increases.

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>APPLICATIONS</td><td>Spindle Orient</td><td>1581</td><td>755 SO Status
Spindle Orientation Status
Indicates status of spindle orientation logic.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Orient Cplt</td><td>Mode</td><td>At SO Speed</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
Bit 0 “At SO Speed” – Drive running at Spindle Orientation velocity.
Bit 1 “Mode” – Drive in Spindle Orientation mode.
Bit 2 “Orient Cplt” – In selected Spindle Orientation position.</td><td colspan="2">0 = Disabled
1 = Enabled</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>1582</td><td>755 SO Setpoint
Spindle Orientation Setpoint
Sets the desired Spindle Orientation Position in user-defined units.
Can use the value of P1590 [SO Unit Out] if an offset other than zero is required.</td><td>Default:
Min/Max:</td><td>0.00
0.00 / 536870912.00</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>1583
○</td><td>755 SO Offset
Spindle Orientation Offset
Sets the offset encoder counts for the Home position. This value is loaded automatically when the Homing function is run (typically after power up).</td><td>Default:
Min/Max:</td><td>0
–/+536870912</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1584
○</td><td>755 SO EPR Input
Spindle Orientation Edges Per Revolution Input
Indicates the edges per revolution of the encoder. For example a 1024 quad encoder equals 4096 (4 x 1024).</td><td>Default:
Min/Max:</td><td>4096
1 / 67108864</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1585
○</td><td>755 SO Rvls Input
Spindle Orientation Revolutions Input
Sets the revolutions of the input gear relative to the output gear (<u>14</u>:1).</td><td>Default:
Min/Max:</td><td>1.00
–/+1000000.00</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>1586
○</td><td>755 SO Rvls Output
Spindle Orientation Revolutions Output
Sets the revolutions of the output gear relative to the input gear (14:<u>1</u>).</td><td>Default:
Min/Max:</td><td>1.00
1.00 / 2000000.00</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>1587
○</td><td>755 SO Cnts per Rvls
Spindle Orientation Counts Per Revolution
Sets the counts per revolution of the output gear.
Typically P1584 [SO EPR Input] x Gear Ratio.</td><td>Default:
Min/Max:</td><td>4096
1024 / 536870912</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1588
○</td><td>755 SO Unit Scale
Spindle Orientation Unit Scale
Scales P1589 [SO Position Out] to user-defined units.
Typically set to Desired Units/P1587 [SO Cnts per Rvls].</td><td>Default:
Min/Max:</td><td>1.00000
–/+220000000.00000</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>1589</td><td>755 SO Position Out
Spindle Orientation Position Output
Displays the present position of the output gear in encoder counts.</td><td>Default:
Min/Max:</td><td>0
0 / 4294967295</td><td>RO</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1590</td><td>755 SO Unit Out
Spindle Orientation Unit Output
Displays the present position of the output gear in user-scaled units.</td><td>Default:
Min/Max:</td><td>0.00
–/+220000000.00</td><td>RO</td><td>Real</td></tr>
<tr><td></td><td></td><td>1591</td><td>755 SO Accel Time
Spindle Orientation Acceleration Time
Sets the acceleration rate used during positioning.</td><td>Units:
Default:
Min/Max:</td><td>Secs
10.00
0.00 / 3600.00</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	Spindle Orient	1592	755 **SO Decel Time** Spindle Orientation Deceleration Time Sets the deceleration rate used during positioning.	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real
		1593 ○	755 **SO Fwd Vel Lmt** Spindle Orientation Forward Velocity Limit Sets the forward speed used during positioning.	Units: Default: Min/Max:	Hz / RPM 30.00 0.00 / 40000.00	RW	Real
		1594 ○	755 **SO Rev Vel Lmt** Spindle Orientation Reverse Velocity Limit Sets the reverse speed used during positioning.	Units: Default: Min/Max:	Hz / RPM –30.00 –40000.00 / 0.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	Id Compensation	1600	755 **Id Comp Enbl** Id Compensation Enable Enables or disables the Id compensation calculation. This selection is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Options:	0 = "Disable" 0 = "Disable" 1 = "Enable"	RW	32-bit Integer
		1601	755 **Id Comp Mtrng 1** Id Compensation Motoring 1 Sets Id compensation value (in p.u.) at Iq = P1602 [IdCompMtrng 1 Iq] (in p.u.) for motoring operation. Id compensation = [Id Comp Mtrng 1] x IqCmd (in p.u.) for IqCmd = between 0 and P1602 [IdCompMtrng 1 Iq]. 1.0 p.u. is scaled to the motor rated current. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1602	755 **IdCompMtrng 1 Iq** Id Compensation Motoring 1 Iq Sets Iq value (in p.u.) at which P1601 [Id Comp Mtrng 1] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.2500 0.0000 / 5.0000	RW	Real
		1603	755 **Id Comp Mtrng 2** Id Compensation Motoring 2 Sets Id compensation value (in p.u.) at Iq = P1604 [IdCompMtrng 2 Iq] (in p.u.) for motoring operation. Id compensation = P1601 [Id Comp Mtrng 1] + (Id Comp Mtrng 2 – Id Comp Mtrng 1) x (IqCmd - IdCompMtrng 1 Iq) x 1/(IdCompMtrng 2 Iq – IdCompMtrng 1 Iq) for IqCmd = between IdCompMtrng 1 Iq and IdCompMtrng 2 Iq. 1.0 p.u. is scaled to the motor rated current. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1604	755 **IdCompMtrng 2 Iq** Id Compensation Motoring 2 Iq Sets Iq value (in p.u.) at which P1603 [Id Comp Mtrng 2] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.5000 0.0000 / 5.0000	RW	Real
		1605	755 **Id Comp Mtrng 3** Id Compensation Motoring 3 Sets Id compensation value (in p.u.) at Iq = P1606 [IdCompMtrng 3 Iq] (in p.u.) for motoring operation. Id compensation = Id Comp Mtrng 2 + (Id Comp Mtrng 3 – Id Comp Mtrng 2) x (IqCmd – IdCompMtrng 2 Iq) x 1/(IdCompMtrng 3 Iq – IdCompMtrng 2 Iq) for IqCmd = between IdCompMtrng 2 Iq and IdCompMtrng 3 Iq. 1.0 p.u. is scaled to the motor rated current. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.0000 –/+1.0000	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	Id Compensation	1606	755 **IdCompMtrng 3 Iq** Id Compensation Motoring 3 Iq Sets Iq value (in p.u.) at which P1605 [Id Comp Mtrng 3] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	0.7500 0.0000 / 5.0000	RW	Real
		1607	755 **Id Comp Mtrng 4** Id Compensation Motoring 4 Sets Id compensation value (in p.u.) at Iq = P1608 [IdCompMtrng 4 Iq] (in p.u.) for motoring operation. Id compensation = Id Comp Mtrng 3 + (Id Comp Mtrng 4 – Id Comp Mtrng 3) x (IqCmd – IdCompMtrng 3 Iq) x 1/(IdCompMtrng 4 Iq – IdCompMtrng 3 Iq) for IqCmd = between IdCompMtrng 3 Iq and IdCompMtrng 4 Iq. 1.0 p.u. is scaled to the motor rated current. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1608	755 **IdCompMtrng 4 Iq** Id Compensation Motoring 4 Iq Sets Iq value (in p.u.) at which P1607 [Id Comp Mtrng 4] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	1.0000 0.0000 / 5.0000	RW	Real
		1609	755 **Id Comp Mtrng 5** Id Compensation Motoring 5 Sets Id compensation value (in p.u.) at Iq = P1610 [IdCompMtrng 5 Iq] (in p.u.) for motoring operation. Id compensation = Id Comp Mtrng 4 + (Id Comp Mtrng 5 – Id Comp Mtrng 4) x (IqCmd – IdCompMtrng 4 Iq) x 1/(IdCompMtrng 5 Iq – IdCompMtrng 4 Iq) for IqCmd = between IdCompMtrng 4 Iq and IdCompMtrng 5 Iq. 1.0 p.u. is scaled to the motor rated current. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1610	755 **IdCompMtrng 5 Iq** Id Compensation Motoring 5 Iq Sets Iq value (in p.u.) at which P1609 [Id Comp Mtrng 5] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	1.2500 0.0000 / 5.0000	RW	Real
		1611	755 **Id Comp Mtrng 6** Id Compensation Motoring 6 Sets Id compensation value (in p.u.) at Iq = P1612 [IdCompMtrng 6 Iq] (in p.u.) for motoring operation. Id compensation = Id Comp Mtrng 5 + (Id Comp Mtrng 6 – Id Comp Mtrng 5) x (IqCmd – IdCompMtrng 5 Iq) x 1/(IdCompMtrng 6 Iq – IdCompMtrng 5 Iq) for IqCmd = between IdCompMtrng 5 Iq and IdCompMtrng 6 Iq. 1.0 p.u. is scaled to the motor rated current. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1612	755 **IdCompMtrng 6 Iq** Id Compensation Motoring 6 Iq Sets Iq value (in p.u.) at which P1611 [Id Comp Mtrng 6] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	1.5000 0.0000 / 5.0000	RW	Real
		1613	755 **Id Comp Regen 1** Id Compensation Regen 1 Sets Id compensation value (in p.u.) at P1614 Iq = IdCompRegen 1 Iq (in p.u.) for regenerative operation. Id compensation = Id Comp Regen 1 x IqCmd (in p.u.) for IqCmd = between 0 and IdCompRegen 1 Iq. 1.0 p.u. is scaled to the motor rated current. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	0.0000 –/+1.0000	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	**Id Compensation**	**1614**	755 **IdCompRegen 1 Iq** Id Compensation Regen 1 Iq Sets Iq value (in p.u.) at which P1613 Id Comp Regen 1 (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.2500 0.0000 / 5.0000	RW	Real
		1615	755 **Id Comp Regen 2** Id Compensation Regen 2 Sets Id compensation value (in p.u.) at Iq = P1616 [IdCompRegen 2 Iq] (in p.u.) for regenerative operation. Id compensation = Id Comp Regen 1 + (Id Comp Regen 2 – Id Comp Regen 1) x (IqCmd – IdCompRegen 1 Iq) x 1/(IdCompRegen 2 Iq – IdCompRegen 1 Iq) for IqCmd = between IdCompRegen 1 Iq and IdCompRegen 2 Iq. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1616	755 **IdCompRegen 2 Iq** Id Compensation Regen 2 Iq Sets Iq value (in p.u.) at which P1615 [Id Comp Regen 2] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.5000 0.0000 / 5.0000	RW	Real
		1617	755 **Id Comp Regen 3** Id Compensation Regen 3 Sets Id compensation value (in p.u.) at Iq = P1618 [IdCompRegen 3 Iq] (in p.u.) for regenerative operation. Id compensation = Id Comp Regen 2 + (Id Comp Regen 3 – Id Comp Regen 2) x (IqCmd – IdCompRegen 2 Iq) x 1/(IdCompRegen 3 Iq – IdCompRegen 2 Iq) for IqCmd = between IdCompRegen 2 Iq and IdCompRegen 3 Iq. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1618	755 **IdCompRegen 3 Iq** Id Compensation Regen 3 Iq Sets Iq value (in p.u.) at which P1617 [Id Comp Regen 3] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Cntrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.7500 0.0000 / 5.0000	RW	Real
		1619	755 **Id Comp Regen 4** Id Compensation Regen 4 Sets Id compensation value (in p.u.) at Iq = P1620 [IdCompRegen 4 Iq] (in p.u.) for regenerative operation. Id compensation = Id Comp Regen 3 + (Id Comp Regen 4 – Id Comp Regen 3) x (IqCmd – IdCompRegen 3 Iq) x 1/(IdCompRegen 4 Iq – IdCompRegen 3 Iq) for IqCmd = between IdCompRegen 3 Iq and IdCompRegen 4 Iq. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1620	755 **IdCompRegen 4 Iq** Id Compensation Regen 4 Iq Sets Iq value (in p.u). at which P1619 [Id Comp Regen 4] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	1.0000 0.0000 / 5.0000	RW	Real
		1621	755 **Id Comp Regen 5** Id Compensation Regen 5 Sets Id compensation value (in p.u.) at Iq = P1622 [IdCompRegen 5 Iq] (in p.u.) for regenerative operation. Id compensation = Id Comp Regen 4 + (Id Comp Regen 5 – Id Comp Regen 4) x (IqCmd – IdCompRegen 4 Iq) x 1/(IdCompRegen 5 Iq – IdCompRegen 4 Iq) for IqCmd = between IdCompRegen 4 Iq and IdCompRegen 5 Iq. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1622	755 **IdCompRegen 5 Iq** Id Compensation Regen 5 Iq Sets Iq value (in p.u.) at which P1621 [Id Comp Regen 5] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Min/Max:	1.2500 0.0000 / 5.0000	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
APPLICATIONS	**Id Compensation**	**1623**	755 **Id Comp Regen 6** Id Compensation Regen 6 Sets Id compensation value (in p.u.) at Iq = P1624 [IdCompRegen 6 Iq] (in p.u.) for regenerative operation. Id compensation = Id Comp Regen 5 + (Id Comp Regen 6 – Id Comp Regen 5) x (IqCmd - IdCompRegen 5 Iq) x 1/(IdCompRegen 6 Iq – IdCompRegen 5 Iq) for IqCmd = between IdCompRegen 5 Iq and IdCompRegen 6 Iq. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	0.0000 –/+1.0000	RW	Real
		1624	755 **IdCompRegen 6 Iq** Id Compensation Regen 6 Iq Sets Iq value (in p.u.) at which P1623 [Id Comp Regen 6] (in p.u.) is specified. This parameter is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	1.5000 0.0000 / 5.0000	RW	Real

		1629	See page 63 for parameter numbers 1629 and 1637…1645.
		1630	See page 60 for parameter numbers 1630…1636, 1646, and 1647.
		1648	See page 54 for parameter numbers 1648…1661

		1700	See page 151 for parameter numbers 1700…1731.
		1800	See page 151 for parameter numbers 1800…1831.
		1900	See page 151 for parameter numbers 1900, 1904, 1908, 1912, 1916, 1920, 1924, and 1928.
		1901	See page 151 for parameter numbers 1901, 1905, 1909, 1913, 1917, 1921, 1925, and 1929.
		1902	See page 151 for parameter numbers 1902, 1906, 1910, 1914, 1918, 1922, 1926, and 1930.
		1903	See page 151 for parameter numbers 1903, 1907, 1911, 1915, 1919, 1923, 1927, and 1931.

Chapter 4

Port 10 and Port 11 Parameters

This chapter lists and describes the PowerFlex 750-Series Port 10 and 11 drive parameters. The parameters can be programmed (viewed/edited) using a Human Interface Module (HIM). Refer to Enhanced PowerFlex 7-Class Human Interface Module (HIM) User Manual, publication 20HIM-UM001, for information on using the HIM to view and edit parameters. As an alternative, programming can also be performed using DriveTools™ software and a personal computer.

Inverter (Port 10) Common Parameters

Inverter Common parameters apply only to PowerFlex 755 Frame 8 and larger drives.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
INVERTER COMMON	System Ratings	1	755 (8+) **Sys Rated Amps** System Rated Amps Displays the continuous current rating of the drive. This parameter is the same value as displayed in P21 [Rated Amps] for the drive at Port 0.	Units: Default: Min/Max:	Amps 0.00 0.00 / Dependent on Frame Rating	RO	Real
		2	755 (8+) **Sys Rated Volts** System Rated Volts Input voltage class (400, 480, 600, 690, etc) of the drive. This parameter is the same value as displayed in P20 [Rated Volts] for the drive at Port 0.	Units: Default: Min/Max:	V AC 0.00 0.00 / 690.00	RO	Real
		3 4 5	755 (8+) **I1 Rated Amps** 755 (8+) **I2 Rated Amps** 755 (8+) **I3 Rated Amps** Inverter *n* Rated Amps Continuous current rating of inverter *n*. The continuous current rating varies based on the value of P305 [Voltage Class] and P306 [Duty Rating] for the drive at Port 0.	Units: Default: Min/Max:	Amps 0.00 0.00 / 1000.00	RO	Real
		21	755 (8+) **Effctv I Rating** Effective Inverter Rating Sets the effective inverter current rating. During N-1 operation, the effective inverter current rating is reduced from P21 [Rated Amps].	Units: Default: Min/Max:	Amps 0.0 0.0 / Dependent on Frame Rating	RO	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
INVERTER COMMON	Status	10	755 (8+) **Online Status** Online Status Indicates whether the inverter has successfully established fiber optic communications with the main control board.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Inverter 2	Inverter 1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Not Active
1 = Active

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
INVERTER COMMON	Status	12	755 (8+) **Fault Status** Fault Status Indicates whether the inverter has a fault condition. See P105 [I1 Fault Status] to view which fault conditions currently exist for inverter 1. Refer to Chapter 6 for information on fault and alarm codes.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Inverter 2	Inverter 1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Not Faulted
1 = Faulted

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
INVERTER COMMON	**Status**	**13**	755 (8+) **Alarm Status** Alarm Status Indicates whether the inverter has an alarm condition. See P107 [I1 Alarm Status] to view which alarms currently exist for inverter 1. Refer to Chapter 6 for information on fault and alarm codes.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Inverter 2	Inverter 1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = No Alarm
1 = Alarm

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
INVERTER COMMON	**Metering**	**18**	755 (8+) **Ground Current** Ground Current Ground current of AC output to a motor. This value is calculated based on the total output currents (U, V, and W phases of the drive). When the three phases are balanced, the ground current is ideally close to zero.	Units: Default: Min/Max:	Amps 0.0 0.0 / 5000.0	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
INVERTER COMMON	**Configuration**	**20** ○	755 (8+) **Recfg Acknowledg** Reconfiguration Acknowledgement Acknowledge drive re-configuration for N-1 operation or drive rating change. Set to 1 "Acknowledge" (1) – Clears fault F361 "N-1 See Manual" and fault F362 "Rerate See Manual."	Default: Options:	0 = "Ready" 0 = "Ready" 1 = "Acknowledge"	RW	32-bit Integer

		21	See page 212.

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
INVERTER COMMON	**Testpoints**	**30** **32**	755 (8+) **Testpoint Sel 1** 755 (8+) **Testpoint Sel 2** Testpoint Selection 1, 2 Selects a source for [Testpoint Val *n*]. Used by the factory, typically for diagnostic purposes.	Default: Min/Max:	0 0 / 65535	RW	32-bit Integer
		31 **33**	755 (8+) **Testpoint Val 1** 755 (8+) **Testpoint Val 2** Testpoint Value 1, 2 Displays data selected by [Testpoint Sel *n*].	Default: Min/Max:	0.000000 –/+220000000.000000	RO	Real

Inverter *n* (Port 10) Parameters

Inverter *n* parameters apply only to PowerFlex 755 Frame 8 and larger drives.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
INVERTER N	Status	**105** **205** **305**	755 (8+) **I1 Fault Status** 755 (8+) **I2 Fault Status** 755 (8+) **I3 Fault Status** Inverter *n* Fault Status Indicates which fault conditions currently exist for inverter *n*. Refer to Chapter 6 - Inverter (Port 10) Faults and Alarms (Frame 8 and Larger) for information on these fault codes.		RO	32-bit Integer

Options	Reserved	Reserved	WBrd Fault	VBrd Fault	UBrd Fault	Incompat PS	DC Bus Imbal	Incomp Brdn	Incomp WBrd	Incomp VBrd	Incomp UBrd	NTC Open	PSBrdOvrTemp	PLI OvrTemp	CT Harness	SysPSOverCur	Sys PS Low	IPwrIF PSLow	Main PS Low	HS OvrTemp	IGBT OvrTemp	Ground Fault	Bus Overvolt	Overcur WNeg	Overcur WPos	Overcur VNeg	Overcur VPos	Overcur UNeg	Overcur UPos	ThermalConst	Comm Loss	Fault Q Full
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = No Fault
1 = Fault

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
INVERTER N	Status	**107** **207** **307**	755 (8+) **I1 Alarm Status** 755 (8+) **I2 Alarm Status** 755 (8+) **I3 Alarm Status** Inverter *n* Alarm Status Indicates which alarm conditions currently exist for inverter *n*. Refer to Chapter 6 - Inverter (Port 10) Faults and Alarms (Frame 8 and Larger) for information on these alarm codes.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	HSFan Slow	HSFan PS Low	Cur Offset W	Cur Offset V	Cur Offset U	Reserved	HS OvrTemp	IGBT OvrTemp	DC Bus Imbal	InFan2 Slow	InFan1 Slow	Sys PS Low	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = No Alarm
1 = Alarm

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
INVERTER N	**Metering**	**115** **215** **315**	755 (8+) **I1 U Phase Curr** 755 (8+) **I2 U Phase Curr** 755 (8+) **I3 U Phase Curr** Inverter *n* U Phase Current Output current present through terminal T1 (U phase) of inverter *n*.	Units: Default: Min/Max:	Amps 0.0 –/+3000.0	RO	Real
		116 **216** **316**	755 (8+) **I1 V Phase Curr** 755 (8+) **I2 V Phase Curr** 755 (8+) **I3 V Phase Curr** Inverter *n* V Phase Current Output current present through terminal T2 (V phase) of inverter *n*.	Units: Default: Min/Max:	Amps 0.0 –/+3000.0	RO	Real
		117 **217** **317**	755 (8+) **I1 W Phase Curr** 755 (8+) **I2 W Phase Curr** 755 (8+) **I3 W Phase Curr** Inverter *n* W Phase Current Output current present through terminal T3 (W phase) of inverter *n*.	Units: Default: Min/Max:	Amps 0.0 –/+3000.0	RO	Real
		118 **218** **318**	755 (8+) **I1 Gnd Current** 755 (8+) **I2 Gnd Current** 755 (8+) **I3 Gnd Current** Inverter *n* Ground Current Ground current of the AC output to a motor. The value is calculated based on the output currents (U, V, and W phases) for inverter *n*. When the three phases are balanced, the ground current is ideally close to zero.	Units: Default: Min/Max:	Amps 0.0 –/+3000.0	RO	Real
		119 **219** **319**	755 (8+) **I1 DC Bus Volt** 755 (8+) **I2 DC Bus Volt** 755 (8+) **I3 DC Bus Volt** Inverter *n* DC Bus Voltage DC bus voltage measured by inverter *n*.	Units: Default: Min/Max:	V DC 0.00 0.00 / 1200.00	RO	Real
		120 **220** **320**	755 (8+) **I1 Heatsink Temp** 755 (8+) **I2 Heatsink Temp** 755 (8+) **I3 Heatsink Temp** Inverter *n* Heatsink Temperature Temperature of the heatsink for inverter *n*.	Units: Default: Min/Max:	DegC 0.0 –/+200.0	RO	Real
		121 **221** **321**	755 (8+) **I1 IGBT Temp** 755 (8+) **I2 IGBT Temp** 755 (8+) **I3 IGBT Temp** Inverter *n* IGBT Temperature IGBT junction temperature of inverter *n*.	Units: Default: Min/Max:	DegC 0.0 –/+200.0	RO	Real
		124 **224** **324**	755 (8+) **I1 HSFan Speed** 755 (8+) **I2 HSFan Speed** 755 (8+) **I3 HSFan Speed** Inverter *n* Heatsink Fan Speed The measured speed of the heatsink fan for inverter *n*.	Units: Default: Min/Max:	RPM 0.0 0.0 / 7200.0	RO	Real
		125 **225** **325**	755 (8+) **I1 InFan 1 Speed** 755 (8+) **I2 InFan 1 Speed** 755 (8+) **I3 InFan 1 Speed** Inverter *n* Internal Fan 1 Speed The measured speed of the capacitor bank internal stirring fan 1 for inverter *n*.	Units: Default: Min/Max:	RPM 0.0 0.0 / 7200.0	RO	Real
		126 **226** **326**	755 (8+) **I1 InFan 2 Speed** 755 (8+) **I2 InFan 2 Speed** 755 (8+) **I3 InFan 2 Speed** Inverter *n* Internal Fan 2 Speed The measured speed of the capacitor bank internal stirring fan 2 for inverter *n*.	Units: Default: Min/Max:	RPM 0.0 0.0 / 7200.0	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
INVERTER N	**Predictive Main**	**127** **227** **327** ○	755 (8+) **I1 PredMainReset** 755 (8+) **I2 PredMainReset** 755 (8+) **I3 PredMainReset** Inverter *n* Predictive Maintenance Reset Allows a reset of the elapsed run time to zero for either the heatsink fan or internal stirring fans for inverter *n*. After the time has been reset, the value of this parameter returns to 0 "Ready." "Hs Fan Life" (1) – Resets the elapsed run time (displayed in [I*n* HSFanElpsdLif]) for the heatsink fan on inverter *n* to zero. "In Fan Life" (2) – Resets the elapsed run time (displayed in [I*n* InFanElpsdLif]) for the internal stirring fans on inverter *n* to zero.	Default: Options:	0 = "Ready" 0 = "Ready" 1 = "HS Fan Life" 2 = "In Fan Life"	RW	32-bit Integer
		128 **228** **328**	755 (8+) **I1 HSFanElpsdLif** 755 (8+) **I2 HSFanElpsdLif** 755 (8+) **I3 HSFanElpsdLif** Inverter *n* Heatsink Fan Elapsed Life The amount of time the heat sink fan on inverter *n* has been running. This value can be reset using [I*n* PredMainReset].	Units: Default: Min/Max:	Hrs 0.00 0.00 / 220000000.00	RO	Real
		129 **229** **329**	755 (8+) **I1 InFanElpsdLif** 755 (8+) **I2 InFanElpsdLif** 755 (8+) **I3 InFanElpsdLif** Inverter *n* Internal Fan Elapsed Life The amount of time the inverter stirring fans on inverter *n* have been running. This value can be reset using [I*n* PredMainReset].	Units: Default: Min/Max:	Hrs 0.00 0.00 / 220000000.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
INVERTER N	**Testpoints**	**140** **142** **240** **242** **340** **342**	755 (8+) **I1 Testpt Sel 1** 755 (8+) **I1 Testpt Sel 2** 755 (8+) **I2 Testpt Sel 1** 755 (8+) **I2 Testpt Sel 2** 755 (8+) **I3 Testpt Sel 1** 755 (8+) **I3 Testpt Sel 2** Inverter *n* Testpoint Selection 1, 2 Selects a source for [I*n* Testpt Val *n*]. Used by the factory, typically for diagnostic purposes.	Default: Min/Max:	0 0 / 65535	RW	32-bit Integer
		141 **143** **241** **243** **341** **343**	755 (8+) **I1 Testpt Val 1** 755 (8+) **I1 Testpt Val 2** 755 (8+) **I2 Testpt Val 1** 755 (8+) **I2 Testpt Val 2** 755 (8+) **I3 Testpt Val 1** 755 (8+) **I3 Testpt Val 2** Inverter *n* Testpoint Value 1, 2 Displays the data selected by [I*n* Testpt Sel *n*].	Default: Min/Max:	0.000000 –/+220000000.000000	RO	Real

Converter (Port 11) Common Parameters

Converter Common parameters apply only to PowerFlex 755 AC Input Frame 8 and larger drives.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
CONVERTER COMMON	System Ratings	1	755 (8+) **Sys Rated Amps** System Rated Amps Displays the continuous current rating of the converter system.	Units: Default: Min/Max:	Amps 0.00 0.00 / Dependent on Frame Rating	RO	Real
		2	755 (8+) **Sys Rated Volts** System Volts Input voltage class (400, 480, 600, 690, etc) of the converter system.	Units: Default: Min/Max:	V AC 0.00 0.00 / 690.00	RO	Real
		3 4 5	755 (8+) **C1 Rated Amps** 755 (8+) **C2 Rated Amps** 755 (8+) **C3 Rated Amps** Converter *n* Rated Amps Continuous current rating of converter *n*. Used with AC Input drives.	Units: Default: Min/Max:	Amps 0.00 0.00 / 3000.00	RO	Real

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>CONVERTER COMMON</td><td>Status</td><td>10</td><td colspan="2">755 (8+) Online Status
Online Status
Indicates whether the converter has successfully established fiber optic communications with the main control board.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Converter 2</td><td>Converter 1</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td rowspan="2">0 = Not Active
1 = Active</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>12</td><td colspan="2">755 (8+) Fault Status
Fault Status
Indicates whether the converter has a fault condition. See [C<i>n</i> Fault Status<i>n</i>] to view which fault conditions currently exist for converter <i>n</i>.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Converter 2</td><td>Converter 1</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td rowspan="2">0 = No Fault
1 = Fault</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>13</td><td colspan="2">755 (8+) Alarm Status
Alarm Status
Indicates whether the converter has an alarm condition. See [C<i>n</i> Alarm Status<i>n</i>] to view which alarms currently exist for converter <i>n</i>.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Converter 2</td><td>Converter 1</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td rowspan="2">0 = No Alarm
1 = Alarm</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>RO</td><td>16-bit Integer</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
CONVERTER COMMON	Configuration	16	755 (8+) **Gnd Cur Flt Lvl** Ground Current Fault Level The converter system peak ground current fault threshold. The converter will fault if the peak input ground current exceeds this threshold for five line cycles on any converter.	Units: Default: Min/Max:	Amps 600.0 0.0 / 3000.0	RW	Real
		17	755 (8+) **Converter Actn** Converter Action The action the inverter takes when a converter fault occurs.	Default: Options:	3 0 = "Ignore" 1 = "Reserved" 2 = "Minor Stop" 3 = "Coast Stop" 4 = "Ramp Stop" 5 = "Cur Lmt Stop"	RW	Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
CONVERTER COMMON	Metering	20	755 (8+) **L1 Phase Curr** Line 1 Phase Current The converter system AC line 1 (R) RMS input current. This is the sum of all line 1 (R) phase currents from all online converters.	Units: Default: Min/Max:	Amps 0.0 0.0 / 15000.0	RO	Real
		21	755 (8+) **L2 Phase Curr** Line 2 Phase Current The converter system AC line 2 (S) RMS input current. This is the sum of all line 2 (S) phase currents from all online converters.	Units: Default: Min/Max:	Amps 0.0 0.0 / 15000.0	RO	Real
		22	755 (8+) **L3 Phase Curr** Line 3 Phase Current The converter system AC line 3 (T) RMS input current. This is the sum of all line 3 (T) phase currents from all online converters.	Units: Default: Min/Max:	Amps 0.0 0.0 / 15000.0	RO	Real
		23	755 (8+) **Heatsink Temp** Heatsink Temperature The converter system heatsink temperature. This is the maximum heatsink temperature from all online converters.	Units: Default: Min/Max:	DegC 0.0 –/+200.0	RO	Real
		24	755 (8+) **SCR Temp** SCR Temperature The converter system SCR temperature. This is the maximum SCR temperature from all online converters.	Units: Default: Min/Max:	DegC 0.0 –/+200.0	RO	Real
		25	755 (8+) **Gate Board Temp** Gate Board Temperature The converter system gate board temperature. This is the maximum gate board temperature from all online converters	Units: Default: Min/Max:	DegC 0.0 –/+200.0	RO	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
CONVERTER COMMON	**Testpoints**	**30** **32**	755 (8+) **Testpoint Sel 1** 755 (8+) **Testpoint Sel 2** Testpoint Selection 1, 2 Selects a source for [Testpoint Val *n*]. Used by the factory, typically for diagnostic purposes.	Default: Min/Max:	0 0 / 65535	RW	32-bit Integer
		31 **33**	755 (8+) **Testpoint Val 1** 755 (8+) **Testpoint Val 2** Testpoint Value 1, 2 Displays data selected by [Testpoint Sel *n*].	Default: Min/Max:	0.000000 −/+220000000.000000	RO	Real

Converter *n* (Port 11) Parameters

Converter *n* parameters apply only to PowerFlex 755 AC Input Frame 8 and larger drives.

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
CONVERTER N	Status	**105** **205** **305**	755 (8+) **C1 Fault Status1** 755 (8+) **C2 Fault Status1** 755 (8+) **C3 Fault Status1** Converter *n* Fault Status 1		RO	32-bit Integer

Indicates which fault conditions currently exist for converter *n*. Refer to Chapter 6 - Converter (Port 11) Faults and Alarms (Frame 8 and Larger) for information on these fault codes.

Options	Reserved	BFuseHarness	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Line Fuse L3	Line Fuse L2	Line Fuse L1	LFuseHarness	CT Harness	DC Bus Short	DC Bus Open	Firmware Flt	Comm Loss	Power Supply	Brd NTCShort	Brd NTC Open	Brd OvrTemp	HS NTC Short	HS NTC Open	Ground Fault	Overcurrent	Single Phase	Line Freq	Line Dip	HS OvrTemp	SCR OvrTemp	Precharge	Fault Q Full
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
CONVERTER N	Status	**106** **206** **306**	755 (8+) **C1 Fault Status2** 755 (8+) **C2 Fault Status2** 755 (8+) **C3 Fault Status2** Converter *n* Fault Status 2		RO	32-bit Integer

Indicates which fault conditions currently exist for converter *n*. Refer to Chapter 6 - Converter (Port 11) Faults and Alarms (Frame 8 and Larger) for information on these fault codes.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Line Loss	AC Line High	Command Stop	BFuse Neg	BFuse Pos
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
CONVERTER N	Status	**107** **207** **307**	755 (8+) **C1 Alarm Status1** 755 (8+) **C2 Alarm Status1** 755 (8+) **C3 Alarm Status1** Converter *n* Alarm Status 1		RO	32-bit Integer

Indicates which alarm conditions currently exist for converter *n*. Refer to Chapter 6 - Converter (Port 11) Faults and Alarms (Frame 8 and Larger) for information on these alarm codes.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Single Phase	Line Freq	Minimum Line	Line Dip	Reserved	TVSS Blown	HS OvrTemp	SCR OvrTemp	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Phase LossL3	Phase LossL2	Phase LossL1	Precharge
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
CONVERTER N	Metering	**115** **215** **315**	755 (8+) **C1 L1 Phase Curr** 755 (8+) **C2 L1 Phase Curr** 755 (8+) **C3 L1 Phase Curr** Converter *n* Line 1 Phase Current Input current present at terminal L1 (R phase) of converter *n*.	Units: Default: Min/Max:	Amps 0.0 –/+9000.0	RO	Real
		116 **216** **316**	755 (8+) **C1 L2 Phase Curr** 755 (8+) **C2 L2 Phase Curr** 755 (8+) **C3 L2 Phase Curr** Converter *n* Line 2 Phase Current Input current present at terminal L2 (S phase) of converter *n*.	Units: Default: Min/Max:	Amps 0.0 –/+9000.0	RO	Real
		117 **217** **317**	755 (8+) **C1 L3 Phase Curr** 755 (8+) **C2 L3 Phase Curr** 755 (8+) **C3 L3 Phase Curr** Converter *n* Line 3 Phase Current Input current present at terminal L3 (T phase) of converter *n*.	Units: Default: Min/Max:	Amps 0.0 –/+9000.0	RO	Real
		118 **218** **318**	755 (8+) **C1 Gnd Current** 755 (8+) **C2 Gnd Current** 755 (8+) **C3 Gnd Current** Converter *n* Ground Current The RMS ground current of AC input to converter *n*. The value displayed is based on the sum of converter *n* drive input currents (L1, L2, and L3). When the three phases are balanced, the ground current is ideally close to zero.	Units: Default: Min/Max:	Amps 0.0 –/+9000.0	RO	Real
		119 **219** **319**	755 (8+) **C1 DC Bus Volt** 755 (8+) **C2 DC Bus Volt** 755 (8+) **C3 DC Bus Volt** Converter *n* DC Bus Voltage DC bus voltage measured by converter *n*.	Units: Default: Min/Max:	V DC 0.0 0.0 / 1200.0	RO	Real
		120 **220** **320**	755 (8+) **C1 Heatsink Temp** 755 (8+) **C2 Heatsink Temp** 755 (8+) **C3 Heatsink Temp** Converter *n* Heatsink Temperature Temperature of the converter *n* heatsink.	Units: Default: Min/Max:	DegC 0.0 –/+200.0	RO	Real
		121 **221** **321**	755 (8+) **C1 SCR Temp** 755 (8+) **C2 SCR Temp** 755 (8+) **C3 SCR Temp** Converter *n* SCR Frequency Maximum temperature of all SCRs for converter *n*.	Units: Default: Min/Max:	DegC 0.0 –/+200.0	RO	Real
		122 **222** **322**	755 (8+) **C1 GateBoardTemp** 755 (8+) **C2 GateBoardTemp** 755 (8+) **C3 GateBoardTemp** Converter *n* Gate Board Temperature Gate board temperature for converter *n*.	Units: Default: Min/Max:	DegC 0.0 –/+200.0	RO	Real
		123 **223** **323**	755 (8+) **C1 AC Line Freq** 755 (8+) **C2 AC Line Freq** 755 (8+) **C3 AC Line Freq** Converter *n* AC Line Frequency AC line frequency of converter *n*.	Units: Default: Min/Max:	Hz 0.0 0.0 / 100.0	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
CONVERTER N	**Metering**	**125** **225** **325**	755 (8+) **C1 L12 Line Volt** 755 (8+) **C2 L12 Line Volt** 755 (8+) **C3 L12 Line Volt** Converter *n* Line 1 to Line 2 Line Voltage The phase-to-phase RMS line voltage between L1 and L2 for converter *n*.	Units: Default: Min/Max:	V AC 0.0 0.0 / 850.0	RO	Real
		126 **226** **326**	755 (8+) **C1 L23 Line Volt** 755 (8+) **C2 L23 Line Volt** 755 (8+) **C3 L23 Line Volt** Converter *n* Line 2 to Line 3 Line Voltage The phase-to-phase RMS line voltage between L2 and L3 for converter *n*.	Units: Default: Min/Max:	V AC 0.0 0.0 / 850.0	RO	Real
		127 **227** **327**	755 (8+) **C1 L31 Line Volt** 755 (8+) **C2 L31 Line Volt** 755 (8+) **C3 L31 Line Volt** Converter *n* Line 3 to Line 1 Line Voltage The phase-to-phase RMS line voltage between L3 and L1 for converter *n*.	Units: Default: Min/Max:	V AC 0.0 0.0 / 850.0	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
CONVERTER N	**Predictive Main**	**137** **237** **337** ○	755 (8+) **C1 PredMainReset** 755 (8+) **C2 PredMainReset** 755 (8+) **C3 PredMainReset** Converter *n* Predictive Maintenance Reset Allows a reset of the elapsed run time to zero for the cabinet fan for converter *n*. After the time has been reset, the value of this parameter returns to 0 "Ready."	Default: Options:	0 = "Ready" 0 = "Ready" 1 = "Cb Fan Life"	RW	Real
		138 **238** **338**	755 (8+) **C1 CbFanElpsdLif** 755 (8+) **C2 CbFanElpsdLif** 755 (8+) **C3 CbFanElpsdLif** Converter *n* Cabinet Fan Elapsed Life The amount of time the cabinet fan for converter *n* has been running. This value can be reset using [C*n* PredMainReset].	Units: Default: Min/Max:	Hrs 0.000 0.000 / 2200000.000	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
CONVERTER N	**Testpoints**	**140** **142** **240** **242** **340** **342**	755 (8+) **C1 Testpt Sel 1** 755 (8+) **C1 Testpt Sel 2** 755 (8+) **C2 Testpt Sel 1** 755 (8+) **C2 Testpt Sel 2** 755 (8+) **C3 Testpt Sel 1** 755 (8+) **C3 Testpt Sel 2** Converter *n* Testpoint Selection 1, 2 Selects a source for [C*n* Testpt Val *n*]. Used by the factory, typically for diagnostic purposes.	Default: Min/Max:	0 0 / 65535	RW	32-bit Integer
		141 **143** **241** **243** **341** **343**	755 (8+) **C1 Testpt Val 1** 755 (8+) **C1 Testpt Val 2** 755 (8+) **C2 Testpt Val 1** 755 (8+) **C2 Testpt Val 2** 755 (8+) **C3 Testpt Val 1** 755 (8+) **C3 Testpt Val 2** Converter *n* Testpoint Value 1, 2 Displays the data selected by [C*n* Testpt Sel *n*].	Default: Min/Max:	0.000000 –/+220.000000	RO	Real

Precharge (Port 11) Common Parameters

Precharge Common parameters apply only to PowerFlex 755 Common DC Input Frame 8 and larger drives.

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
PRECHARGE COMMON	System Ratings	1	755 (8+) **Sys Rated Amps** System Rated Amps Displays the continuous current rating of the precharge system.	Units: Default: Min/Max:	Amps 0.00 0.00 / 5000.00	RO	Real
		2	755 (8+) **Sys Rated Volts** System Volts Input voltage class (400, 480, 600, 690, etc) of the precharge system.	Units: Default: Min/Max:	V AC 0.00 0.00 / 690.00	RO	Real
		3 4 5	755 (8+) **P1 Rated Amps** 755 (8+) **P2 Rated Amps** 755 (8+) **P3 Rated Amps** Precharge *n* Rated Amps Continuous current rating of precharge unit *n*. Used with Common DC Input drives.	Units: Default: Min/Max:	Amps 0.00 0.00 / 3000.00	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
PRECHARGE COMMON	Status	10	755 (8+) **Online Status** Online Status Indicates whether the precharge unit has successfully established fiber optic communications with the main control board.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Precharge 2	Precharge 1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Not Active
1 = Active

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
PRECHARGE COMMON	Status	12	755 (8+) **Fault Status** Fault Status Indicates whether the precharge unit has a fault condition. See [P*n* Fault Status*n*] and to view which fault conditions currently exist for precharge *n*.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Precharge 2	Precharge 1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = No Fault
1 = Fault

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
PRECHARGE COMMON	Status	13	755 (8+) **Alarm Status** Alarm Status Indicates whether the precharge unit has an alarm condition. See [P*n* Alarm Status*n*] to view which alarms currently exist for precharge *n*.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Precharge 2	Precharge 1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = No Alarm
1 = Alarm

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PRECHARGE COMMON	Metering	**18**	755 (8+) **Main DC Bus Volt** Main DC Bus Voltage Sets the main DC bus voltage.	Units: Default: Min/Max:	V DC 0.00 0.oo / 1200.00	RW	Real
		25	755 (8+) **Gate Board Temp** Gate Board Temperature The precharge system gate board temperature. This is the maximum gate board temperature from all online precharge units.	Units: Default: Min/Max:	DegC 0.0 −/+200.0	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PRECHARGE COMMON	Testpoints	**30** **32**	755 (8+) **Testpoint Sel 1** 755 (8+) **Testpoint Sel 2** Testpoint Selection 1, 2 Selects a source for [Testpoint Val *n*]. Used by the factory, typically for diagnostic purposes.	Default: Min/Max:	0 0 / 65535	RW	32-bit Integer
		31 **33**	755 (8+) **Testpoint Val 1** 755 (8+) **Testpoint Val 2** Testpoint Value 1, 2 Displays data selected by [Testpoint Sel *n*].	Default: Min/Max:	0.000000 −/+220000000.000000	RO	Real

Precharge *n* (Port 11) Parameters

Precharge *n* parameters apply only to PowerFlex 755 Common DC Input Frame 8 and larger drives.

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
PRECHARGE N	**Status**	**104** **204** **304**	755 (8+) **P1 Board Status** 755 (8+) **P2 Board Status** 755 (8+) **P3 Board Status** Precharge *n* Board Status Status bits for the precharge board.		RO	32-bit Integer

Options	ReadyToReset	Flash Update	Reserved	Reserved	Reserved	Reserved	Reserved	Flash Failed	MCS AuxInput	MCS UVDlyOut	MCSSprgChgOt	MCSShntRelOt	MCSClsCilOut	Ext FaultRst	Ext Inhibit	Ext Opn/Cls	Fan Out	DoorLock Out	DoorLock In	BusNegFuseIn	BusPosFuseIn	Discnnct Out	Discnnct In	DC Bus OK	240V ACPresnt	Reserved	Alarm	Faulted	MCS Opening	Prechrg Done	MCS Closing	Ready
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 “Ready” – CB controller is ready to begin the precharge sequence. Stop input is not active, 240V AC is present, molded case switch (MCS) auxiliary contact is open, disconnect is closed and there are no faults.
Bit 1 “MCS Closing” – The precharge sequence is in progress but is not complete.
Bit 2 “Prechrg Done” – Precharge has been completed and the MCS is closed.
Bit 3 “MCS Opening” – The MCS is in the process of opening.
Bit 4 “Faulted” – A fault has occurred and is enumerated in the fault word.
Bit 5 “Alarm” – An alarm has occurred and is enumerated in the alarm word.
Bit 7 “240V ACPresnt” – 240V AC supply is present. Threshold is 85% or 204V AC.
Bit 8 “DC Bus OK” – 0 = DC bus voltage out of tolerance. 1 = DC bus voltage is within tolerance.
Bit 9 “Discnnct In” – 0 = Auxiliary switch is off. 1 = Auxiliary switch is on.
Bit 10 “Discnnct Out” – 0 = Relay is off. 1 = Relay is on.
Bit 11 “BusPosFuseIn” – 0 = Fuse is blown. 1 = Fuse is intact.
Bit 12 “BusNegFuseIn” – 0 = Fuse is blown. 1 = Fuse is intact.
Bit 13 “DoorLock In” – 0 = Door is open. 1 = Door is closed.
Bit 14 “DoorLock Out” – 0 = Door solenoid relay is off. 1 = Door solenoid relay is on.
Bit 15 “Fan Out” – 0 = Fan is on. 1 = Fan is off.
Bit 16 “Ext Opn/Cls” – 0 = Inactive (tied to common or open). 1 = Active (24V DC applied).
Bit 17 “Ext Inhibit” – 0 = Stopped (tied to common or open). 1 = Not Stopped (24V DC applied). Level sensitive. Ignored when fiber-optic communications is online.
Bit 18 “Ext FaultRst” – 0 = Inactive (tied to common or open). 1 = Active (24V DC applied).
Bit 19 “MCSClsCilOut” – 0 = Relay is off. 1 = Relay is on.
Bit 20 “MCSShntRelOt” – 0 = Relay is off. 1 = Relay is on.
Bit 21 “MCSSprgChgOt” – 0 = Relay is off. 1 = Relay is on.
Bit 22 “MCS UVDlyOut” – 0 = Relay is off. 1 = Relay is on.
Bit 23 “MCS AuxInput” – 0 = MCS auxiliary contact is open. 1 = MCS auxiliary contact is closed.
Bit 24 “Flash Failed” – An error occurred during the flash update process.
Bit 30 “Flash Update” – The precharge controller is in flash update mode.
Bit 31 “ReadyToReset” – The flash update process has ended and the precharge controller is waiting for a reset command.

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
PRECHARGE N	**Status**	**105** **205** **305**	755 (8+) **P1 Fault Status1** 755 (8+) **P2 Fault Status1** 755 (8+) **P3 Fault Status1** Precharge *n* Fault Status 1 Indicates which fault conditions currently exist for precharge *n*. Refer to Chapter 6 - Converter (Port 11) Faults and Alarms (Frame 8 and Larger) for information on these fault codes.		RO	32-bit Integer
		106 **206** **306**	755 (8+) **P1 Fault Status2** 755 (8+) **P2 Fault Status2** 755 (8+) **P3 Fault Status2** Precharge *n* Fault Status 2 Indicates which fault conditions currently exist for precharge *n*. Refer to Chapter 6 - Converter (Port 11) Faults and Alarms (Frame 8 and Larger) for information on these fault codes.		RO	32-bit Integer
		107 **207** **307**	755 (8+) **P1 Alarm Status1** 755 (8+) **P2 Alarm Status1** 755 (8+) **P3 Alarm Status1** Precharge *n* Alarm Status 1 Indicates which alarm conditions currently exist for precharge *n*. Refer to Chapter 6 - Converter (Port 11) Faults and Alarms (Frame 8 and Larger) for information on these alarm codes.		RO	32-bit Integer

Options	MCSAuxCntact	MCSCloseFail	MCSShuntTrip	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	BusUnderVolt	DiscnnectErr	240V AC Loss	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Precharge
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Options	Reserved	Fault Q Full	Reserved	Reserved	Reserved	BusNgFuseFlt	BusPsFuseFlt	BusFuseHrnss	Bus Shorted	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Firmware Flt	Comm Loss	Pwr Supp Flt	Brd NTCShort	Brd NTC Open	Brd OvrTemp	Reserved	Reserved	Reserved	Reserved	MCS Closed
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Door Open	Bus Overvolt	BusUnderVolt	DiscnnctOpen	240V AC Loss	Reserved	Reserved	Reserved	Bus Dip	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Precharge
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PRECHARGE N	Metering	**110** **210** **310**	755 (8+) **P1 DC Bus Volts** 755 (8+) **P2 DC Bus Volts** 755 (8+) **P3 DC Bus Volts** Precharge *n* DC Bus Voltage Indicates the DC voltage on the inverter capacitor bank. This voltage is measured at a point after the precharge resistors and contactor.	Units: Default: Min/Max:	V DC 0.0 0.0 / 1200.0	RO	Real
		111 **211** **311**	755 (8+) **P1 Main DC Volts** 755 (8+) **P2 Main DC Volts** 755 (8+) **P3 Main DC Volts** Precharge *n* Main DC Voltage Indicates the input DC voltage to the drive. This voltage is measured at the input to the drive before the precharge resistors and contactor.	Units: Default: Min/Max:	V DC 0.0 0.0 / 1200.0	RO	Real
		112 **212** **312**	755 (8+) **P1 240VSplyVolts** 755 (8+) **P2 240VSplyVolts** 755 (8+) **P3 240VSplyVolts** Precharge *n* 240 V Supply Voltage Indicates the RMS output voltage of the 240V AC control transformer.	Units: Default: Min/Max:	V AC 0.0 0.0 / 500.0	RO	Real
		122 **222** **322**	755 (8+) **P1 GateBoardTemp** 755 (8+) **P2 GateBoardTemp** 755 (8+) **P3 GateBoardTemp** Precharge *n* Gate Board Temperature Gate board temperature for precharge *n*.	Units: Default: Min/Max:	DegC 0.0 –/+200.0	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
PRECHARGE N	Predictive Main	**137** **237** **337** ○	755 (8+) **P1 PredMainReset** 755 (8+) **P2 PredMainReset** 755 (8+) **P3 PredMainReset** Precharge *n* Predictive Maintenance Reset Allows a reset of the elapsed run time to zero for the cabinet fan for precharge *n*. After the time has been reset, the value of this parameter returns to 0 "Ready."	Default: Options:	0 = "Ready" 0 = "Ready" 1 = "Cb Fan Life"	RW	Real
		138 **238** **338**	755 (8+) **P1 CbFanElpsdLif** 755 (8+) **P2 CbFanElpsdLif** 755 (8+) **P3 CbFanElpsdLif** Precharge *n* Cabinet Fan Elapsed Life The amount of time the cabinet fan for precharge *n* has been running. This value can be reset using [P*n* PredMainReset].	Units: Default: Min/Max:	Hrs 0.000 0.000 / 2200000.000	RO	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
PRECHARGE N	Testpoints	**140** **142** **240** **242** **340** **342**	755 (8+) **P1 Testpt Sel 1** 755 (8+) **P1 Testpt Sel 2** 755 (8+) **P2 Testpt Sel 1** 755 (8+) **P2 Testpt Sel 2** 755 (8+) **P3 Testpt Sel 1** 755 (8+) **P3 Testpt Sel 2** Precharge *n* Testpoint Selection 1, 2 Selects a source for [P*n* Testpt Val *n*]. Used by the factory, typically for diagnostic purposes.	Default: Min/Max:	0 0 / 65535	RW	32-bit Integer
		141 **143** **241** **243** **341** **343**	755 (8+) **P1 Testpt Val 1** 755 (8+) **P1 Testpt Val 2** 755 (8+) **P2 Testpt Val 1** 755 (8+) **P2 Testpt Val 2** 755 (8+) **P3 Testpt Val 1** 755 (8+) **P3 Testpt Val 2** Precharge *n* Testpoint Value 1, 2 Displays the data selected by or [P*n* Testpt Sel *n*].	Default: Min/Max:	0.000000 −/+220.000000	RO	Real

Chapter 5

Embedded Feature and Option Module Parameters

This chapter lists and describes the PowerFlex 750-Series drive embedded feature and option module parameters. The parameters can be programmed (viewed/edited) using a Human Interface Module (HIM). Refer to Enhanced PowerFlex 7-Class Human Interface Module (HIM) User Manual, publication 20HIM-UM001, for information on using the HIM to view and edit parameters. As an alternative, programming can also be performed using DriveTools™ software and a personal computer.

Embedded EtherNet/IP (Port 13) Parameters

For complete information on the Embedded EtherNet/IP feature, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter user manual, publication 750COM-UM001.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Embedded EtherNet/IP		**1** Thru **16** ○	755 **DL From Net 01** 755 **DL From Net 16** Datalinks From Network 01…16 Sets the port number and parameter number to which the selected Datalink connects. Each selected port/parameter is written with data received from the network (outputs from the controller). **Parameters 1…14** can only link to floating point parameters. **Parameters 15 and 16** can only link to DINT parameters. If setting the value manually, the parameter value = (10000 x port number) + (destination parameter number). For example, to use P1 [DL From Net 01] to write to Parameter 1 of an optional encoder module plugged into drive Port 5. The value for P1 [DL From Net 01] must be 50001 [(10000 x 5) + 1].	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
		17 Thru **32** ○	755 **DL To Net 01** 755 **DL To Net 16** Datalinks To Network 01…16 Sets the port number and parameter number to which the selected Datalink connects. Each selected port/parameter is read and their values are transmitted over the network to the controller (inputs to the controller). **Parameters 17…30** can only link to floating point parameters. **Parameters 31 and 32** can only link to DINT parameters. If setting the value manually, the parameter value = (10000 x port number) + (origination parameter number). For example, to use P17 [DL To Net 01] to read Parameter 01 of an optional I/O module plugged into drive Port 4. The value for P17 [DL To Net 01] must be 40001 [(10000 x 4) + 1].	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
		33	755 **Port Number** Port number Displays the drive port to which the embedded EtherNet/IP adapter is dedicated. This is always Port 13.	Default: Value:	13 13 / 15	RO	32-bit Integer
		34	755 **DLs From Net Act** Datalinks From Network Actual Displays the number of actual controller-to- drive Datalinks that the drive is using based on the I/O connection opened by the controller.	Default: Min/Max:	0 0 / 16	RO	32-bit Integer
		35	755 **DLs To Net Act** Datalinks To Network Actual Displays the number of actual drive-to- controller Datalinks that the controller is using based on the I/O connection opened by the controller.	Default: Min/Max:	0 0 / 16	RO	32-bit Integer
		36	755 **BOOTP** Bootstrap Protocol Configures the adapter to use BOOTP so that you can set its IP address, subnet mask, and gateway address with a BOOTP server. When this parameter is disabled, you must use the adapter parameters to set these addressing functions. This parameter is only functional when the IP address switches are set to 001…254 or 888. Power cycle or reset is required for change to take affect.	Default: Options:	1 = "Enabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer
		37	755 **Net Addr Src** Network Address Source Displays the source from which the adapter node address, subnet mask, and gateway are taken. This will be switches, Parameters 38…41 [IP Addr Cfg *n*], or BOOTP. It is determined by the settings of the octet switches on the adapter. See Establishing A Connection With EtherNet/IP on page 17 for details.	Default: Options:	0 = "Switches" 0 = "Switches" 1 = "Parameters" 2 = "BOOTP"	RO	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Embedded EtherNet/IP		**38** **39** **40** **41**	755 **IP Addr Cfg 1** 755 **IP Addr Cfg 2** 755 **IP Addr Cfg 3** 755 **IP Addr Cfg 4** IP Address Configure 1…4 Sets the bytes in the IP address. 255 . 255 . 255 . 255 [IP Addr Cfg 1] [IP Addr Cfg 2] [IP Addr Cfg 3] Set with Octet Switch on Drive Main Control Board **Important:** To set the IP address using these parameters, P36 [BOOTP] must be set to "0" (Disabled) and switches set to a value other than 001…254 or 888. If the drive does not accept parameter settings, check the Octet switch on the drive main control board. Set to 999 and cycle power to the drive.	Default: Min/Max:	0 0 / 255	RW	32-bit Integer
		42 **43** **44** **45**	755 **Subnet Cfg 1** 755 **Subnet Cfg 2** 755 **Subnet Cfg 3** 755 **Subnet Cfg 4** Subnet Configure 1…4 Sets the bytes of the subnet mask. 255 . 255 . 255 . 255 [Subnet Cfg 1] [Subnet Cfg 2] [Subnet Cfg 3] [Subnet Cfg 4] **Important:** To set the subnet mask using these parameters, P36 [BOOTP] must be set to "0" (Disabled) and switches set to a value other than 001…254 or 888.	Default: Min/Max:	0 0 / 255	RW	32-bit Integer
		46 **47** **48** **49**	755 **Gateway Cfg 1** 755 **Gateway Cfg 2** 755 **Gateway Cfg 3** 755 **Gateway Cfg 4** Gateway Configure 1…4 Sets the bytes of the gateway address. 255 . 255 . 255 . 255 [Gateway Cfg 1] [Gateway Cfg 2] [Gateway Cfg 3] [Gateway Cfg 4] **Important:** To set the gateway address using these parameters, P36 [BOOTP] must be set to "0" (Disabled) and switches set to a value other than 001…254 or 888.	Default: Min/Max:	0 0 / 255	RW	32-bit Integer
		50	755 **Net Rate Cfg** Network Rate Configure Sets the network data rate at which the adapter communicates. (Updates P51 [Net Rate Act] after a reset.)	Default: Options:	0 = "Autodetect" 0 = "Autodetect" 1 = "10Mbps Full" 2 = "10Mbps Half" 3 = "100Mbps Full" 4 = "100Mbps Half"	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Embedded EtherNet/IP		51	755 **Net Rate Act** Network Rate Actual Displays the actual network data rate used by the adapter.	Default: Options:	0 = "No Link" 0 = "No Link" 1 = "10Mbps Full" 2 = "10Mbps Half" 3 = "100Mbps Full" 4 = "100Mbps Half" 5 = "Dup IP Addr"	RO	32-bit Integer
		52	755 **Web Enable** Web Enabled Enables/disables the adapter Web page features. For detailed information on the Web enable feature, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer
		53	755 **Web Features** Web Features Enables/disables the Web-configurable e-mail notification feature. For detailed information on the Web enable feature, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Email Config
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Embedded EtherNet/IP		54	755 **Comm Flt Action** Communication Fault Action Sets the action that the adapter and drive will take if the adapter detects that I/O communications have been disrupted. This setting is effective only if I/O that controls the drive is transmitted through the adapter.	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last" 4 = "Send Flt Cfg"	RW	32-bit Integer

ATTENTION: Risk of injury or equipment damage exists. P54 [Comm Flt Action] lets you determine the action of the adapter and connected drive if I/O communications are disrupted. By default, this parameter faults the drive. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create a risk of injury or equipment damage. When commissioning the drive, verify that your system responds correctly to various situations (for example, a disconnected cable).

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Embedded EtherNet/IP		55	755 **Idle Flt Action** Idle Fault Action Sets the action that the adapter and drive will take if the adapter detects that the controller is in program mode or faulted. This setting is effective only if I/O that controls the drive is transmitted through the adapter.	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last" 4 = "Send Flt Cfg"	RW	32-bit Integer

ATTENTION: Risk of injury or equipment damage exists. P55 [Idle Flt Action] lets you determine the action of the adapter and connected drive when the controller is idle. By default, this parameter faults the drive. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create a risk of injury or equipment damage. When commissioning the drive, verify that your system responds correctly to various situations (for example, a controller in idle state).

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Embedded EtherNet/IP		56	755 **Peer Flt Action** Peer Fault Action Sets the action that the adapter and drive will take if the adapter detects that Peer I/O communications have been disrupted. This setting is effective only if I/O is transmitted through the adapter. For detailed information on peer communications, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last" 4 = "Send Flt Cfg"	RW	32-bit Integer

ATTENTION: Risk of injury or equipment damage exists. P56 [Peer Flt Action] lets you determine the action of the adapter and connected drive if the adapter is unable to communicate with the designated peer. By default, this parameter faults the drive. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create a risk of injury or equipment damage. When commissioning the drive, verify that your system responds correctly to various situations (for example, a disconnected cable).

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Embedded EtherNet/IP		57	755 **Msg Flt Action** Message Fault Action Sets the action that the adapter and drive will take if the adapter detects that explicit messaging, only when used for drive control via PCCC and the CIP Register Object, has been disrupted.	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last" 4 = "Send Flt Cfg"	RW	32-bit Integer

ATTENTION: Risk of injury or equipment damage exists. P57 [Msg Flt Action] lets you determine the action of the adapter and connected drive if explicit messaging for drive control is disrupted. By default, this parameter faults the drive. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create a risk of injury or equipment damage. When commissioning the drive, verify that your system responds correctly to various situations (for example, a disconnected cable).

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Embedded EtherNet/IP		58	755 **Flt Cfg Logic** Fault Configure Logic Sets the Logic Command data that is sent to the drive if any of the following is true: • P54 [Comm Flt Action] is set to 4 "Send Flt Cfg" and I/O communications are disrupted. • P55 [Idle Flt Action] is set to 4 "Send Flt Cfg" and the controller is idle. • P56 [Peer Flt Action] is set to 4 "Send Flt Cfg" and Peer I/O communications are disrupted. • P57 [Msg Flt Action] is set to 4 "Send Flt Cfg" and explicit messaging for drive control is disrupted. The bit definitions in the Logic Command word for PowerFlex 750-Series drives are shown on page 237.	Default: Min/Max:	0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1111 1111 1111 1111 1111 1111 1111 1111	RW	32-bit Integer
		59	755 **Flt Cfg Ref** Fault Configure Reference Sets the Reference data that is sent to the drive if any of the following is true: • P54 [Comm Flt Action] is set to 4 "Send Flt Cfg" and I/O communications are disrupted. • P55 [Idle Flt Action] is set to 4 "Send Flt Cfg" and the controller is idle. • P56 [Peer Flt Action] is set to 4 "Send Flt Cfg" and Peer I/O communications are disrupted. • P57 [Msg Flt Action] is set to 4 "Send Flt Cfg" and explicit messaging for drive control is disrupted.	Default: Min/Max:	0 –/+-220000000	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Embedded EtherNet/IP		**60** Thru **75**	755 **Flt Cfg DL 01** 755 **Flt Cfg DL 16** Fault Configure DeviceLogix Sets the data that is sent to the Datalink in the drive if any of the following is true: • P54 [Comm Flt Action] is set to 4 “Send Flt Cfg” and I/O communications are disrupted. • P55 [Idle Flt Action] is set to 4 “Send Flt Cfg” and the controller is idle. • P56 [Peer Flt Action] is set to 4 “Send Flt Cfg” and Peer I/O communications are disrupted. • P57 [Msg Flt Action] is set to 4 “Send Flt Cfg” and explicit messaging for drive control is disrupted.	Default: Min/Max:	0 0 / 4294967295	RW	32-bit Integer
		76	755 **DLs Fr Peer Cfg** Datalinks From Peer Configure Sets the number of network-to-drive Datalinks (parameters) that are used for peer I/O. The Datalinks being used are allocated from the end of the list. For example, if this parameter's value is set to 3, Datalinks 14…16 are allocated for the three selected Datalinks. The Datalinks allocated for peer I/O cannot overlap with other assigned DL From Net 01…16 parameters. For detailed information on peer communications, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Default: Min/Max:	0 0 / 16	RW	32-bit Integer
		77	755 **DLs Fr Peer Act** Datalinks From Peer Action Displays the value of P76 [DLs Fr Peer Cfg] at the time the drive was reset. This is the number of actual peer-to-drive Datalinks that the drive is expecting.	Default: Min/Max:	0 0 / 16	RO	32-bit Integer
		78	755 **Logic Src Cfg** Logic Source Configure Controls which of the peer-to-drive Datalinks contain the Logic Command for the drive. For detailed information on peer communications, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Default: Min/Max:	0 0 / 16	RW	32-bit Integer
		79	755 **Ref Src Cfg** Reference Source Configure Controls which of the peer-to-drive Datalinks contain the Reference for the drive. For detailed information on peer communications, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Default: Min/Max:	0 0 / 16	RW	32-bit Integer
		80	755 **Fr Peer Timeout** From Peer Timeout Sets the timeout for a Peer I/O connection. If the time is reached without the adapter receiving (consuming) a message, the adapter will respond with the action specified in P56 [Peer Flt Action]. In an adapter receiving (consuming) Peer I/O, the value of this parameter must be greater than the product of the value of P89 [To Peer Period] in the adapter transmitting (producing) Peer I/O multiplied by the value of P90 [To Peer Skip] in the adapter transmitting (producing) Peer I/O. For detailed information on peer communications, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Units: Default: Min/Max:	Secs 10.00 0.00 / 200.00	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Embedded EtherNet/IP		**81** **82** **83** **84**	755 **Fr Peer Addr 1** 755 **Fr Peer Addr 2** 755 **Fr Peer Addr 3** 755 **Fr Peer Addr 4** From Peer Address 1…4 Sets the bytes in the IP address that specifies the device from which the adapter receives (consumes) Peer I/O data. 255 . 255 . 255 . 255 [Peer Inp Addr 1] [Peer Inp Addr 2] [Peer Inp Addr 3] [Peer Inp Addr 4] **Important:** The Peer Inp Addr must be on the same subnet as the embedded EtherNet/IP adapter. Changes to these parameters are ignored when P85 [Fr Peer Enable] is "1" (On). For detailed information on peer communications, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Default: Min/Max:	0 0 / 255	RW	32-bit Integer
		85	755 **Fr Peer Enable** From Peer Enable Controls whether Peer I/O input is operating. A value of 0 "Off" turns off Peer I/O input. A value of 1 "Cmd/Ref" overrides the settings in Parameters P76 [DLs Fr Peer Cfg], P78 [Logic Src Cfg], and P79 [Ref Src Cfg] and automatically uses peer Datalink 01 as the drive's present Logic Command and peer Datalink 02 as the drive's Reference. A value of 2 "Custom" enables peer I/O input using the Datalink count and settings provided by the user. For detailed information on peer communications, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Default: Options:	0 = "Off" 0 = "Off" 1 = "Cmd/Ref" 2 = "Custom"	RW	32-bit Integer
		86	755 **Fr Peer Status** From Peer Status Displays the status of the consumed Peer I/O input connection. For detailed information on peer communications, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Default: Options:	0 = "Off" 0 = "Off" 1 = "Waiting" 2 = "Running" 3 = "Faulted"	RO	32-bit Integer
		87	755 **DLs To Peer Cfg** Datalinks To Peer Configure Sets the number of drive-to-network Datalinks (parameters) that are used for Peer I/O. The Datalinks being used are allocated from the end of the list. For example, if this parameter's value is set to 3, Datalinks 14…16 are allocated for the three selected Datalinks. The Datalinks allocated for this cannot overlap with other assigned DL To Net 01…16 parameters. For detailed information on peer communications, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.	Default: Min/Max:	0 0 / 16	RW	32-bit Integer
		88	755 **DLs To Peer Act** Datalinks To Peer Action Displays the value of P87 [DLs To Peer Cfg] at the time the drive was reset. This is the number of actual drive-to-peer Datalinks that the drive is expecting.	Default: Min/Max:	0 0 / 16	RO	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Embedded EtherNet/IP		**89**	755 **To Peer Period** To Peer Period Sets the minimum time that an adapter will wait when transmitting data to a peer. **Important:** Changes to this parameter are ignored when P91 [To Peer Enable] is 0 “Off.”	Units: Default: Min/Max:	Secs 10.00 0.01 / 10.00	RW	Real
		90	755 **To Peer Skip** To Peer Skip Sets the maximum time that an adapter will wait when transmitting data to a peer. The value of P89 [To Peer Period] is multiplied by the value of this parameter to set the time. Important: Changes to this parameter are ignored when P91 [To Peer Enable] is 0 “Off.”	Default: Min/Max:	1 1 / 16	RW	32-bit Integer
		91	755 **To Peer Enable** To Peer Enable Controls whether Peer I/O output is operating. A value of 0 “Off” turns off Peer I/O output. A value of 1 “Cmd/Ref” overrides the settings in Parameters P31 [DL To Net 15], P32 [DL To Net 16], P76 [DLs Fr Peer Cfg], and P77 [DLs Fr Peer Act], and automatically sends the drive's present Logic Command (as Datalink 01) and Reference (as Datalink 02). A value of 2 “Custom” enables Peer I/O output using the Datalink count and settings provided by the user.	Default: Options:	0 = “Off” 0 = “Off” 1 = “Cmd/Ref” 2 = “Custom”	RW	32-bit Integer

Communication Configurations

20-COMM-* Network Adapter Compatibility

Some 20-COMM adapters can be used with PowerFlex 750-Series drives. See “20-COMM Carrier” in the Installation Instructions, publication 750-IN001, for more information.

IMPORTANT When a 20-COMM Carrier (20-750-20COMM) is used to install a 20-COMM adapter on a 750-Series drive, the upper word (Bits 16…31) of the Logic Command Word and Logic Status Word are not accessible. The upper word is only used and accessible on 750-Series communication modules (20-750-*) and the embedded EtherNet/IP on PowerFlex 755 drives.

Typical Programmable Controller Configurations

IMPORTANT If block transfers are programmed to continuously write information to the drive, care must be taken to properly format the block transfer. If attribute 10 is selected for the block transfer, values will be written only to RAM and will not be saved by the drive. This is the preferred attribute for continuous transfers. If attribute 9 is selected, each program scan will complete a write to the drives non-volatile memory (EEprom). Since the EEprom has a fixed number of allowed writes, continuous block transfers will quickly damage the EEprom. Do Not assign attribute 9 to continuous block transfers. Refer to the individual communications adapter User Manual for additional details.

Logic Command/Status Words

Table 4 - Logic Command Word

Logic Bits																																Command	Description
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
																															X	Normal Stop	0 = Not Normal Stop 1 = Normal Stop
																														X		Start (1)	0 = Not Start 1 = Start
																													X			Jog 1 (2)	0 = Not Jog 1 (Par. 556) 1 = Jog 1
																												X				Clear Fault (3)	0 = Not Clear Fault 1 = Clear Fault
																										X	X					Unipolar Direction	00 = No Command 01 = Forward Command 10 = Reverse Command 11 = Hold Direction Control
																									X							Manual	0 = Not Manual 1 = Manual
																								X								Reserved	
																						X	X									Accel Time	00 = No Command 01 = Use Accel Time 1 (Par. 535) 10 = Use Accel Time 2 (Par. 536) 11 = Use Present Time
																				X	X											Decel Time	00 = No Command 01 = Use Decel Time 1 (Par. 537) 10 = Use Decel Time 2 (Par. 538) 11 = Use Present Time
																			X													Ref Select 1	000 = No Command 001 = Ref A Select (Par. 545) 010 = Ref B Select (Par. 550) 011 = Preset 3 (Par. 573) 100 = Preset 4 (Par. 574) 101 = Preset 5 (Par. 575) 110 = Preset 6 (Par. 576) 111 = Preset 7 (Par. 577)
																		X														Ref Select 2	
																	X															Ref Select 3	
																X																Reserved	
															X																	Coast Stop	0 = Not Coast to Stop 1 = Coast to Stop
														X																		Current Limit Stop	0 = Not Current Limit Stop 1 = Current Limit Stop
													X																			Run (4)	0 = Not Run 1 = Run
												X																				Jog 2 (2)	0 = Not Jog 2 (Par. 557) 1 = Jog 2
											X																					Reserved	
										X																						Reserved	
									X																							Reserved	
								X																								Reserved	
							X																									Reserved	
						X																										Reserved	
					X																											Reserved	
				X																												Reserved	
			X																													Reserved	
		X																														Reserved	
	X																															Reserved	
X																																Reserved	

(1) A Not Stop condition (logic bit 0 = 0) must first be present before a 1 = Start condition will start the drive.

(2) A Not Stop condition (logic bit 0 = 0) must first be present before a 1 = Jog 1/Jog 2 condition will jog the drive. A transition to a "0" will stop the drive.

(3) To perform this command, the value must switch from "0" to "1."

(4) A Not Stop condition (logic bit 0 = 0) must first be present before a 1 = Run condition will run the drive. A transition to a "0" will stop the drive.

Table 5 - Logic Status Word

Logic Bits																																	
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	**Command**	**Description**
																															x	Run Ready	0 = Not Ready to Run 1 = Ready to Run
																														x		Active	0 = Not Active 1 = Active
																													x			Command Direction	0 = Reverse 1 = Forward
																												x				Actual Direction	0 = Reverse 1 = Forward
																											x					Accelerating	0 = Not Accelerating 1 = Accelerating
																										x						Decelerating	0 = Not Decelerating 1 = Decelerating
																									x							Alarm	0 = No Alarm (Par. 959 & 960) 1 = Alarm
																								x								Fault	0 = No Fault (Par. 952 & 953) 1 = Fault
																							x									At Setpt Spd	0 = Not at Setpoint Speed 1 = At Setpoint Speed
																						x										Manual	0 = Manual Mode Not Active 1 = Manual Mode Active
																					x											Spd Ref ID 0	00000 = Reserved 00001 = Auto Ref A (par. 545) 00010 = Auto Ref B (Par. 550) 00011 = Auto Preset Speed 3 (Par. 573) 00100 = Auto Preset Speed 4 (Par. 574) 00101 = Auto Preset Speed 5 (Par. 575) 00110 = Auto Preset Speed 6 (Par. 576) 00111 = Auto Preset Speed 7 (Par. 577) 01000 = Reserved 01001 = Reserved 01010 = Reserved 01011 = Reserved 01100 = Reserved 01101 = Reserved 01110 = Reserved 01111 = Reserved 10000 = Man Port 0 10001 = Man Port 1 10010 = Man Port 2 10011 = Man Port 3 10100 = Man Port 4 10101 = Man Port 5 10110 = Man Port 6 10111 = Reserved 11000 = Reserved 11001 = Reserved 11010 = Reserved 11011 = Reserved 11100 = Reserved 11101 = Man Port 13 (Emb. ENET) 11110 = Man Port 14 (Drive Logix) 11111 = Alternate Man Ref Sel
																				x												Spd Ref ID 1	
																			x													Spd Ref ID 2	
																		x														Spd Ref ID 3	
																	x															Spd Ref ID 4	
																x																Reserved	
															x																	Running	0 = Not Running 1 = Running
														x																		Jogging	0 = Not Jogging (Par. 556 & 557) 1 = Jogging
													x																			Stopping	0 = Not Stopping 1 = Stopping
												x																				DC Brake	0 = Not DC Brake 1 = DC Brake
											x																					DB Active	0 = Not Dynamic Brake Active 1 = Dynamic Brake Active
										x																						Speed Mode	0 = Not Speed Mode (Par. 309) 1 = Speed Mode
									x																							Position Mode	0 = Not Position Mode (Par. 309) 1 = Position Mode
								x																								Torque Mode	0 = Not Torque Mode (Par. 309) 1 = Torque Mode
							x																									At Zero Speed	0 = Not at Zero Speed 1 =At Zero Speed
						x																										At Home	0 = Not at Home 1 = At Home
					x																											At Limit	0 = Not at Limit 1 = At Limit
				x																												Current Limit	0 = Not at Current Limit 1 = At Current Limit
			x																													Bus Freq Reg	0 = Not Bus Freq Reg 1 = Bus Freq Reg
		x																														Enable On	0 = Not Enable On 1 = Enable On
	x																															Motor Overload	0 = Not Motor Overload 1 = Motor Overload
x																																Regen	0 = Not Regen 1= Regen

Embedded DeviceLogix (Port 14) Parameters

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Embedded DeviceLogix	Analog Outputs	**1** Thru **14**	**DLX Out 01** **DLX Out 14** Fourteen floating point outputs that can be controlled by the DeviceLogix program. These are typically mapped to a parameter to write its value. It can also be mapped to the Reference Command.	Default: 0 Min/Max: 0 / 159999	RW	32-bit Real
		15 **16**	**DLX Out 15** **DLX Out 16** Two unsigned 32-bit integer outputs that can be controlled by the DeviceLogix program. These are typically mapped to a parameter to write its value.	Default: 0 Min/Max: 0 / 159999	RW	32-bit Integer
	Analog Inputs	**17** Thru **30**	**DLX In 01** **DLX In 14** Fourteen floating point inputs that can be read by the DeviceLogix program. These are typically mapped to a parameter to read its value. It can also be mapped to Common Feedback.	Default: 0 Min/Max: 0 / 159999	RW	32-bit Real
		31 **32**	**DLX In 15** **DLX In 16** Two unsigned 32-bit integer inputs that can be read by the DeviceLogix program. These are typically mapped to a parameter to read its value. It can also be mapped to Real Time Clock values.	Default: 0 Min/Max: 0 / 159999.15	RW	32-bit Integer
	Digital Inputs	**33** Thru **48**	**DLX DIP 01** **DLX DIP 16** Sixteen digital inputs that can be read by the DeviceLogix program. These are typically mapped to an input point in an I/O option module or to Logic Status bits.	Default: 0.00 Min/Max: 0 / 159999.15	RW	32-bit Integer
	Status & Cntl	**49**	**DLX DigIn Sts** Provides the individual on/off status of the 16 DLX DIP's.		RO	16-bit Integer

Options	DLX DIPVal16	DLX DIPVal15	DLX DIPVal14	DLX DIPVal13	DLX DIPVal12	DLX DIPVal11	DLX DIPVal10	DLX DIPVal9	DLX DIPVal8	DLX DIPVal7	DLX DIPVal6	DLX DIPVal5	DLX DIPVal4	DLX DIPVal3	DLX DIPVal2	DLX DIPVal1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition Off
1 = Condition On

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Embedded DeviceLogix	Status & Cntl	**50**	**DLX DigOut Sts** Provides the individual on/off status of the DLX Logic Command word bits.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	DLX CmdSts16	DLX CmdSts15	DLX CmdSts14	DLX CmdSts13	DLX CmdSts12	DLX CmdSts11	DLX CmdSts10	DLX CmdSts9	DLX CmdSts8	DLX CmdSts7	DLX CmdSts6	DLX CmdSts5	DLX CmdSts4	DLX CmdSts3	DLX CmdSts2	DLX CmdSts1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition Off
1 = Condition On

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Embedded DeviceLogix	Status & Cntl	51	**DLX DigOut Sts2** Provides the individual on/off status of the 16 DLX DOPs.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	DLX DOPSts16	DLX DOPSts15	DLX DOPSts14	DLX DOPSts13	DLX DOPSts12	DLX DOPSts11	DLX DOPSts10	DLX DOPSts9	DLX DOPSts8	DLX DOPSts7	DLX DOPSts6	DLX DOPSts5	DLX DOPSts4	DLX DOPSts3	DLX DOPSts2	DLX DOPSts1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition Off
1 = Condition On

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Embedded DeviceLogix	Status & Cntl	52	**DLX Prog Cond** Defines the action that will be taken when the DLX logic is disabled. "Fault" (0) – Drive is faulted and stopped. "Stop" (1) – Drive is stopped, but not faulted. "Zero Data" (2) – Output data sent to the drive from DLX is zeroed (does not command a stop). "Hold Last" (3) – Drive continues in its present state.	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last"	RW	32-bit Integer
		53	**DLX Operation** Contains both operation commands as well as status information.	Default: Options:	5 = "Logic Disabled" 0 = "Enable Logic" 1 = "Disable Logic" 2 = "Reset Program" 3 = "Save Program" 4 = "Load Program" 5 = "Logic Disabled" 6 = "Logic Enabled"	RW	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Embedded DeviceLogix	**Internal Regs**	**54** Thru **69**	**DLX Real SP1** **DLX Real SP16** Sixteen 32-bit Real scratchpad registers for DLX program use.	Default: 0 Min/Max: −/+220000000	RW	Real
		70 Thru **77**	**DLX DINT SP1** **DLX DINT SP8** Eight 32-bit Integer scratchpad registers for DLX program use.	Default: 0 Min/Max: −2147483648 / 2147483647	RW	32-bit Integer
		78 Thru **81**	**DLX Bool SP1** **DLX Bool SP4** Four 32-bit Boolean scratchpad registers (128 bits total) for DLX program use.		RW	32-bit Integer

Options	Bit 31	Bit 30	Bit 29	Bit 28	Bit 27	Bit 26	Bit 25	Bit 24	Bit 23	Bit 22	Bit 21	Bit 20	Bit 19	Bit 18	Bit 17	Bit 16	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition Off
1 = Condition On

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Embedded DeviceLogix	**Internal Regs**	**82** Thru **89**	**DLX Real In SP1** **DLX Real In SP8** Eight 32-bit Real scratchpad registers for DLX program input use.	Default: 0 Min/Max: −/+220000000	RW	Real
		90 Thru **97**	**DLX Real OutSP1** **DLX Real OutSP8** Eight 32-bit Real scratchpad registers for DLX program output use.	Default: 0 Min/Max: −/+220000000	RW	Real
		98 Thru **101**	**DLX DINT InSP1** **DLX DINT InSP4** Four 32-bit Integer scratchpad registers for DLX program input use.	Default: 0 Min/Max: −2147483648 / 2147483647	RW	32-bit Integer
		102 Thru **105**	**DLX DINT OutSP1** **DLX DINT OutSP4** Four 32-bit Integer scratchpad registers for DLX program output use.	Default: 0 Min/Max: −2147483648 / 2147483647	RW	32-bit Integer

11-Series I/O Module Parameters

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="3">11-Series I/O</td><td rowspan="3">Digital Inputs</td><td>1</td><td>Dig In Sts
Digital Input Status
Status of the digital inputs.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Input 2</td><td>Input 1</td><td>Input 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = Input Not Activated
1 = Input Activated</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td>2
○</td><td>Dig In Filt Mask
Digital Input Filter Mask
Filters the selected digital input.
Important: Only used by 11-Series I/O Module models 20-750-1133C-1R2T and 20-750-1132C-2R. (Modules with 24V DC inputs.)
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Input 2</td><td>Input 1</td><td>Input 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = Input Not Filtered
1 = Input Filtered</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td>3
○</td><td>Dig In Filt
Digital Input Filter
Sets the amount of filtering on the digital inputs.
Important: Only used by 11-Series I/O Module models 20-750-1133C-1R2T and 20-750-1132C-2R. (Modules with 24V DC inputs.)</td><td>Units: mS
Default: 4
Min/Max: 2 / 10</td><td>RW</td><td>32-bit Integer</td></tr>
</table>

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>11-Series I/O</td><td>Digital Outputs</td><td>5</td><td>Dig Out Sts
Digital Output Status
Status of the digital outputs.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 1(2)</td><td>Trans Out 0(1)</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
(1) Bit 1 = "Trans Out 0" for 11-Series I/O Module model 20-750-1133C-1R2T
= "Relay Out 1" for 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R
(2) Bit 2 is only used by 11-Series I/O Module 20-750-1133C-1R2T</td><td>0 = Output De-energized
1 = Output Energized</td><td>RO</td><td>16-bit Integer</td></tr>
</table>

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="6">11-Series I/O</td><td rowspan="6">Digital Outputs</td><td>6</td><td colspan="3">Dig Out Invert
Digital Output Invert
Inverts the selected digital output.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 1(2)</td><td>Trans Out 0(1)</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Output Not Inverted
1 = Output Inverted

(1) Bit 1 = "Trans Out 0" for 11-Series I/O Module model 20-750-1133C-1R2T
= "Relay Out 1" for 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R
(2) Bit 2 is only used by 11-Series I/O Module 20-750-1133C-1R2T</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td>7</td><td colspan="3">Dig Out Setpoint
Digital Output Setpoint
Controls Relay or Transistor Outputs when chosen as the source. Can be used to control outputs from a communication device using DataLinks.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 1(2)</td><td>Trans Out 0(1)</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Output De-energized
1 = Output Energized

(1) Bit 1 = "Trans Out 0" for 11-Series I/O Module model 20-750-1133C-1R2T
= "Relay Out 1" for 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R
(2) Bit 2 is only used by 11-Series I/O Module 20-750-1133C-1R2T</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td>10</td><td>RO0 Sel
Relay Output 0 Select
Selects the source that will energize the relay output.
Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] Bit 7 "Faulted."
For Torque Proving set to Port 0, parameter 1103 Bit 4. Use N.O. for safety.</td><td>Default:
Min/Max:</td><td>0.00 (Disabled)
0.00 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>11</td><td>RO0 Level Sel
Relay Output 0 Level Select
Selects the source of the level that will be compared.</td><td>Default:
Min/Max:</td><td>0 (Disabled)
0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>12</td><td>RO0 Level
Relay Output 0 Level
Sets the level compare value.</td><td>Default:
Min/Max:</td><td>0.0
−/+1000000.0</td><td>RW</td><td>Real</td></tr>
<tr><td>13</td><td colspan="3">RO0 Level CmpSts
Relay Output 0 Level Compare Status
Status of the level compare, and a possible source for a relay or transistor output. Relay Output <i>n</i> Select or Transistor Output <i>n</i> Select must have this selected to energize the output. Can be used without a physical output as status information only.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>AbsGrtThanEq</td><td>Abs Less Than</td><td>Grt Than Equ</td><td>Less Than</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Condition False
1 = Condition True

Bit 0 "Less Than" – Level source is less than the level value.
Bit 1 "Grt Than Equ" – Level source is greater than or equal to the level value.
Bit 2 "Abs Less Than" – Absolute value of the level source is less than the absolute value of the level value.
Bit 3 "AbsGrtThanEq" – Absolute value of the level source is greater than or equal to the absolute value of the level value.</td><td>RO</td><td>16-bit Integer</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
11-Series I/O	**Digital Outputs**	**14**	**RO0 On Time** Relay Output 0 On Time Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		15	**RO0 Off Time** Relay Output 0 Off Time Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		20	**RO1 Sel** Relay Output 1 Select – 11-Series I/O Module model 20-750-1132C-2R or 20-750-1132D-2R is installed. **TO0 Sel** Transistor Output 0 Select – 11-Series I/O Module model 20-750-1133C-1R2T is installed. Selects the source that will energize the relay or transistor output. Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] Bit 7 "Faulted."	Default: Min/Max:	0.00 (Disabled) 0.00 / 159999.15	RW	32-bit Integer
		21	**RO1 Level Sel** Relay Output 1 Level Select – 11-Series I/O Module model 20-750-1132C-2R or 20-750-1132D-2R is installed. **TO0 Level Sel** Transistor Output 0 Level Select – 11-Series I/O Module model 20-750-1133C-1R2T is installed. Selects the source of the level that will be compared.	Default: Min/Max:	0 (Disabled) 0 / 159999	RW	32-bit Integer
		22	**RO1 Level** Relay Output 1 Level – 11-Series I/O Module model 20-750-1132C-2R or 20-750-1132D-2R is installed. **TO0 Level** Transistor Output 0 Level – 11-Series I/O Module model 20-750-1133C-1R2T is installed. Sets the level compare value.	Default: Min/Max:	0.0 –/+1000000.0	RW	Real
		23	**RO1 Level CmpSts** Relay Output 1 Level Compare Status – 11-Series I/O Module model 20-750-1132C-2R or 20-750-1132D-2R is installed. **TO0 Level CmpSts** Transistor Output 0 Level Compare Status – 11-Series I/O Module model 20-750-1133C-1R2T is installed. Status of the level compare, and a possible source for a relay or transistor output. Relay Output *n* Select or Transistor Output *n* Select must have this selected to energize the output. Can be used without a physical output as status information only.			RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	AbsGrtThanEq	Abs Less Than	Grt Than Equ	Less Than
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "Less Than" – Level source is less than the level value.
Bit 1 "Grt Than Equ" – Level source is greater than or equal to the level value.
Bit 2 "Abs Less Than" – Absolute value of the level source is less than the absolute value of the level value.
Bit 3 "AbsGrtThanEq" – Absolute value of the level source is greater than or equal to the absolute value of the level value.

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
11-Series I/O	**Digital Outputs**	**24**	**RO1 On Time** Relay Output 1 On Time – 11-Series I/O Module model 20-750-1132C-2R or 20-750-1132D-2R is installed. **TO0 On Time** Transistor Output 0 On Time – 11-Series I/O Module model 20-750-1133C-1R2T is installed. Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay or transistor.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
11-Series I/O	**Digital Outputs**	**25**	**R01 Off Time** Relay Output 1 Off Time – 11-Series I/O Module model 20-750-1132C-2R or 20-750-1132D-2R is installed. **T00 Off Time** Transistor Output 0 Off Time – 11-Series I/O Module model 20-750-1133C-1R2T is installed. Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay or transistor.	Units: Secs Default: 0.0 Min/Max: 0.0 / 600.0	RW	Real
		30	**T01 Sel** Transistor Output 1 Select Selects the source that will energize the transistor output. Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] Bit 7 "Faulted." **Important:** Only used by 11-Series I/O Module model 20-750-1133C-1R2T.	Default: 0 (Disabled) Min/Max: 0 / 159999	RW	32-bit Integer
		31	**T01 Level Sel** Transistor Output 1 Level Select Selects the source of the level that will be compared. **Important:** Only used by 11-Series I/O Module model 20-750-1133C-1R2T.	Default: 0 (Disabled) Min/Max: 0 / 159999	RW	32-bit Integer
		32	**T01 Level** Transistor Output 1 Level Sets the level compare value. **Important:** Only used by 11-Series I/O Module model 20-750-1133C-1R2T.	Default: 0.0 Min/Max: –/+1000000.0	RW	Real
		33	**T01 Level CmpSts** Transistor Output 1 Level Compare Status		RO	16-bit Integer

Status of the level compare, and a possible source for a transistor output. Transistor Output *n* Select must have this selected to energize the output. Can be used without a physical output as status information only.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	AbsGrtThanEq	Abs Less Than	Grt Than Equ	Less Than
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "Less Than" – Level source is less than the level value.
Bit 1 "Grt Than Equ" – Level source is greater than or equal to the level value.
Bit 2 "Abs Less Than" – Absolute value of the level source is less than the absolute value of the level value.
Bit 3 "AbsGrtThanEq" – Absolute value of the level source is greater than or equal to the absolute value of the level value.
Important: Only used by 11-Series I/O Module model 20-750-1133C-1R2T.

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
11-Series I/O	**Digital Outputs**	**34**	**T01 On Time** Transistor Output 1 On Time Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the transistor. **Important:** Only used by 11-Series I/O Module model 20-750-1133C-1R2T.	Units: Secs Default: 0.0 Min/Max: 0.0 / 600.0	RW	Real
		35	**T01 Off Time** Transistor Output 1 Off Time Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the transistor. **Important:** Only used by 11-Series I/O Module model 20-750-1133C-1R2T.	Units: Secs Default: 0.0 Min/Max: 0.0 / 600.0	RW	Real

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
11-Series I/O	**Motor PTC**	**41**	**ATEX Sts** ATEX Status		RO	16-bit Integer

This parameter is not latched and only displays the current status of the ATEX thermal sensor. When an ATEX fault is present, the corresponding bit value is 1. When motor temperature is within the optimal range, the bit value is 0.

This parameter is available only when an ATEX option module is installed.

Options	Reserved	PTC Selected	Thermostat	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Voltage Loss	Over Temp	Short Cirkt	Thrmlsnsor OK
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Thrmlsnsor OK” – Thermal sensor is Ok.
Bit 1 “Short Cirkt” – Short circuit fault detected by thermal sensor.
Bit 2 “Over Temp” – Over temperature fault is detected by thermal sensor.
Bit 3 “Voltage Loss” – Voltage loss fault has taken place on ATEX board.
Bit 13 “Thermostat” – Thermostat input has been selected.
Bit 14 “PTC Selected” – PTC input has been selected.

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="3">11-Series I/O</td><td rowspan="3">Analog Inputs</td><td>45</td><td>Anlg In Type
Analog Input Type
Status of the analog input mode set by the option jumpers.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Analog 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = Voltage Mode
1 = Current Mode</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td>46</td><td>Anlg In Sqrt
Analog Input Square Root
Enables/disables the square root function for each input.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Analog 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = Square Root Disabled
1 = Square Root Enabled</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td>47</td><td>Anlg In Loss Sts
Analog Input Loss Status
Status of the analog input loss.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Loss0</td><td>Loss</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
Bit 0 “Loss” – Indicates loss of input.
Bit 1 “Loss0” – Indicates loss of input.</td><td>0 = No Loss
1 = Loss Detected</td><td>RO</td><td>16-bit Integer</td></tr>
</table>

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="7">11-Series I/O</td><td rowspan="7">Analog Inputs</td><td>50</td><td>Anlg In0 Value
Analog Input 0 Value
Value of the Analog input after filter, square root, and loss action.</td><td>Units:

Default:

Min/Max:</td><td>Volt
mA
0.000 Volts
0.000 mA
–/+10.000 Volts
0.000 / 20.000 mA</td><td>RO</td><td>Real</td></tr>
<tr><td>51</td><td>Anlg In0 Hi
Analog Input 0 High
Sets the highest input value to the analog input scaling block.</td><td>Units:

Default:

Min/Max:</td><td>Volt
mA
10.000 Volts
20.000 mA
–/+10.000 Volts
0.000 / 20.000 mA</td><td>RW</td><td>Real</td></tr>
<tr><td>52</td><td>Anlg In0 Lo
Analog Input 0 Low
Sets the lowest input value to the analog input scaling block.</td><td>Units:

Default:

Min/Max:</td><td>Volt
mA
0.000 Volts
0.000 mA
–/+10.000 Volts
0.000 / 20.000 mA</td><td>RW</td><td>Real</td></tr>
<tr><td>53</td><td>Anlg In0 LssActn
Analog Input 0 Loss Action
Selects drive action when an analog signal loss is detected. Signal loss is defined as an analog signal less than 1V or 2mA. The signal loss event ends and normal operation resumes when the input signal level is greater than or equal to 1.5V or 3mA.
“Ignore” (0) – No action is taken.
“Alarm” (1) – Type 1 alarm indicated.
“Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault.
“FltCoastStop” (3) – Major fault indicated. Coast to Stop.
“Flt RampStop” (4) – Major fault indicated. Ramp to Stop.
“Flt CL Stop” (5) – Major fault indicated. Current Limit Stop.
“Hold Input” (6) – Holds input at last value.
“Set Input Lo” (7) – Sets input to P52 [Anlg In0 Lo].
“Set Input Hi” (8) – Sets input to P51 [Anlg In0 Hi].</td><td>Default:
Options:</td><td>0 = “Ignore”
0 = “Ignore”
1 = “Alarm”
2 = “Flt Minor”
3 = “FltCoastStop”
4 = “Flt RampStop”
5 = “Flt CL Stop”
6 = “Hold Input”
7 = “Set Input Lo”
8 = “Set Input Hi”</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>54</td><td>Anlg In0 Raw Val
Analog Input 0 Raw Value
Raw Value of the analog input.</td><td>Units:

Default:

Min/Max:</td><td>Volt
mA
0.000 Volts
0.000 mA
–/+10.000 Volts
0.000 / 20.000 mA</td><td>RO</td><td>Real</td></tr>
<tr><td>55</td><td>Anlg In0 Filt Gn
Analog Input 0 Filter Gain
Sets the analog input filter gain.
Recommended settings:<table><tr><th>Low Gain</th><th>High Gain</th></tr><tr><td>0.70</td><td>0.50</td></tr></table></td><td>Default:
Min/Max:</td><td>1.00
–/+5.00</td><td>RW</td><td>Real</td></tr>
<tr><td>56</td><td>Anlg In0 Filt BW
Analog Input 0 Filter Bandwidth
Sets the analog input filter bandwidth.
Recommended settings:<table><tr><th>Low Gain</th><th>High Gain</th></tr><tr><td>35.0</td><td>20.0</td></tr></table></td><td>Default:
Min/Max:</td><td>0.0
0.0 / 500.0</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
11-Series I/O	Analog Outputs	70	**Anlg Out Type** Analog Output Type Select the analog output mode for each analog output.	0 = Voltage Mode 1 = Current Mode	RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
11-Series I/O	Analog Outputs	71	**Anlg Out Abs** Analog Output Absolute Selects whether the signed value or absolute value of a parameter is used before being scaled to drive the analog output.	0 = Condition False 1 = Condition True	RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
11-Series I/O	Analog Outputs	75	**Anlg Out0 Sel** Analog Output 0 Select Selects the source for the analog output.	Default: Min/Max:	3 0 / 159999	RW	32-bit Integer
		76	**Anlg Out0 Stpt** Analog Output 0 Setpoint A possible source for an analog output. Can be used to control an analog output from a communication device using a DataLink. Not affected by analog output scaling.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		77	**Anlg Out0 Data** Analog Output 0 Data Displays the value of the source selected by P75 [Anlg Out0 Sel].	Default: Min/Max:	0 –/+100000	RO	Real
		78	**Anlg Out0 DataHi** Analog Output 0 Data High Sets the high value for the data range of analog out scale.	Units: Default: Min/Max:	pu 1 –/+21474800	RW	Real
		79	**Anlg Out0 DataLo** Analog Output 0 Data Low Sets the low value for the data range of analog out scale.	Default: Min/Max:	1 –/+21474800	RW	Real
		80	**Anlg Out0 Hi** Analog Output 0 High Sets the high value for the analog output value when the data value is at its maximum.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		81	**Anlg Out0 Lo** Analog Output 0 Low Sets the low value for the analog output value when the data value is at its minimum.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
11-Series I/O	Analog Outputs	82	**Anlg Out0 Val** Analog Output 0 Value Displays the analog output value.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA −/+10.000 Volts 0.000 / 20.000 mA	RO	Real

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="7">11-Series I/O</td><td rowspan="7">Predictive Main</td><td>99</td><td colspan="3">PredMaint Sts
Predictive Maintenance Status
Status of relay’s predictive maintenance.
<table>
<tr><td>Options</td><td>Master</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Relay Out 0(1)</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Condition False
1 = Condition True

(1) Bit 1= “Relay Out 0” for 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td>100</td><td>RO0 Load Type
Relay Output 0 Load Type
Sets the type of load that will be applied to the relay. Must be properly set for the Predictive Maintenance function to predict the relay life.</td><td>Default:
Options:</td><td>1 = “DC Inductive”
0 = “DC Resistive”
1 = “DC Inductive”
2 = “AC Resistive”
3 = “AC Inductive”</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>101</td><td>RO0 Load Amps
Relay Output 0 Load Amps
Load current that will be applied to the relay contacts. Must be properly set for the Predictive Maintenance function to approximate the relay life.</td><td>Units:
Default:
Min/Max:</td><td>Amps
2.000
0.000 / 2.000</td><td>RW</td><td>Real</td></tr>
<tr><td>102</td><td>RO0 TotalLife
Relay Output 0 Total Life
Total life cycles of the relay based on programmed load type and amps.</td><td>Units:
Default:
Min/Max:</td><td>Cycl
0
0 / 2147483647</td><td>RO</td><td>32-bit Integer</td></tr>
<tr><td>103</td><td>RO0 ElapsedLife
Relay Output 0 Elapsed Life
Non-resettable, total accumulated cycles of the relay.</td><td>Units:
Default:
Min/Max:</td><td>Cycl
0
0 / 2147483647</td><td>RO</td><td>32-bit Integer</td></tr>
<tr><td>104</td><td>RO0 RemainLife
Relay Output 0 Remaining Life
The difference between the Total Life and the Elapsed Life.</td><td>Units:
Default:
Min/Max:</td><td>Cycl
0
0 / 2147483647</td><td>RO</td><td>32-bit Integer</td></tr>
<tr><td>105</td><td>RO0 LifeEvntLvl
Relay Output 0 Life Event Level
Sets the percentage of relay life cycles before action is taken.</td><td>Units:
Default:
Min/Max:</td><td>%
80.000
0.000 / 100.000</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
11-Series I/O	**Predictive Main**	**106**	**R00 LifeEvntActn** Relay Output 0 Life Event Action Sets the action that will be taken when the percentage of relay life cycles has been reached. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		110	**R01 Load Type** Relay Output 1 Load Type Sets the type of load that will be applied to the relay. Must be properly set for the Predictive Maintenance function to predict the relay life. **Important:** Only used by 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R.	Default: Options:	1 = "DC Inductive" 0 = "DC Resistive" 1 = "DC Inductive" 2 = "AC Resistive" 3 = "AC Inductive"	RW	32-bit Integer
		111	**R01 Load Amps** Relay Output 1 Load Amps Load current that will be applied to the relay contacts. Must be properly set for the Predictive Maintenance function to approximate the relay life. **Important:** Only used by 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R.	Units: Default: Min/Max:	Amps 2.000 0.000 / 2.000	RW	Real
		112	**R01 TotalLife** Relay Output 1 Total Life Total life cycles of the relay based on programmed load type and amps. **Important:** Only used by 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		113	**R01 ElapsedLife** Relay Output 1 Elapsed Life Non-resettable, total accumulated cycles of the relay. **Important:** Only used by 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		114	**R01 RemainLife** Relay Output 1 Remaining Life The difference between the Total Life and the Elapsed Life. **Important:** Only used by 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		115	**R01 LifeEvntLvl** Relay Output 1 Life Event Level Sets the percentage of relay life cycles before action is taken. **Important:** Only used by 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		116	**R01 LifeEvntActn** Relay Output 1 Life Event Action Sets the action that will be taken when the percentage of relay life cycles has been reached. **Important:** Only used by 11-Series I/O Module models 20-750-1132C-2R and 20-750-1132D-2R. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer

22-Series I/O Module Parameters

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>22-Series I/O</td><td>Digital Inputs</td><td>1</td><td>Dig In Sts
Digital Input Status
Status of the digital inputs.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Input 5</td><td>Input 4</td><td>Input 3</td><td>Input 2</td><td>Input 1</td><td>Input 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Input Not Activated
1 = Input Activated</td><td></td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>2
○</td><td>Dig In Filt Mask
Digital Input Filter Mask
Filters the selected digital input.
Important: Only used by 22-Series I/O Module models 20-750-2263C-1R2T and 20-750-2262C-2R. (Modules with 24V DC inputs.)
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Input 5</td><td>Input 4</td><td>Input 3</td><td>Input 2</td><td>Input 1</td><td>Input 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Input Not Filtered
1 = Input Filtered</td><td></td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>3
○</td><td>Dig In Filt
Digital Input Filter
Sets the amount of filtering on the digital inputs.
Important: Only used by 22-Series I/O Module models 20-750-2263C-1R2T and 20-750-2262C-2R. (Modules with 24V DC inputs.)</td><td>Units: mS
Default: 4
Min/Max: 2 / 10</td><td>RW</td><td>32-bit Integer</td></tr>
</table>

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>22-Series I/O</td><td>Digital Outputs</td><td>5</td><td>Dig Out Sts
Digital Output Status
Status of the digital outputs.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 1(2)</td><td>Trans Out 0(1)</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Output De-energized
1 = Output Energized

(1) Bit 1 = "Trans Out 0" for 22-Series I/O Module model 20-750-2263C-1R2T
= "Relay Out 1" for 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R
(2) Bit 2 is only used by 22-Series I/O Module 20-750-2263C-1R2T</td><td></td><td>RO</td><td>16-bit Integer</td></tr>
</table>

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="6">22-Series I/O</td><td rowspan="6">Digital Outputs</td><td>6</td><td colspan="2">

Dig Out Invert
Digital Output Invert
Inverts the selected digital output.

<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 1(2)</td><td>Trans Out 0(1)</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>

0 = Output Not Inverted
1 = Output Inverted

(1) Bit 1 = "Trans Out 0" for 22-Series I/O Module model 20-750-2263C-1R2T
= "Relay Out 1" for 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R
(2) Bit 2 is only used by 22-Series I/O Module 20-750-2263C-1R2T

</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td>7</td><td colspan="2">

Dig Out Setpoint
Digital Output Setpoint
Controls Relay or Transistor Outputs when chosen as the source. Can be used to control outputs from a communication device using DataLinks.

<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 1(2)</td><td>Trans Out 0(1)</td><td>Relay Out 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>

0 = Output De-energized
1 = Output Energized

(1) Bit 1 = "Trans Out 0" for 22-Series I/O Module model 20-750-2263C-1R2T
= "Relay Out 1" for 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R
(2) Bit 2 is only used by 22-Series I/O Module 20-750-2263C-1R2T

</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td>10</td><td>

RO0 Sel
Relay Output 0 Select
Selects the source that will energize the relay output.
Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] Bit 7 "Faulted."
For Torque Proving set to Port 0, parameter 1103 Bit 4. Use N.O. for safety.

</td><td>Default: 0.00 (Disabled)
Min/Max: 0.00 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>11</td><td>

RO0 Level Sel
Relay Output 0 Level Select
Selects the source of the level that will be compared.

</td><td>Default: 0 (Disabled)
Min/Max: 0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>12</td><td>

RO0 Level
Relay Output 0 Level
Sets the level compare value.

</td><td>Default: 0.0
Min/Max: –/+1000000.0</td><td>RW</td><td>Real</td></tr>
<tr><td>13</td><td colspan="2">

RO0 Level CmpSts
Relay Output 0 Level Compare Status
Status of the level compare, and a possible source for a relay or transistor output. Relay Output *n* Select or Transistor Output *n* Select must have this selected to energize the output. Can be used without a physical output as status information only.

<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>AbsGrtThanEq</td><td>Abs Less Than</td><td>Grt Than Equ</td><td>Less Than</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>

0 = Condition False
1 = Condition True

Bit 0 "Less Than" – Level source is less than the level value.
Bit 1 "Grt Than Equ" – Level source is greater than or equal to the level value.
Bit 2 "Abs Less Than" – Absolute value of the level source is less than the absolute value of the level value.
Bit 3 "AbsGrtThanEq" – Absolute value of the level source is greater than or equal to the absolute value of the level value.

</td><td>RO</td><td>16-bit Integer</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
22-Series I/O	Digital Outputs	14	**RO0 On Time** Relay Output 0 On Time Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		15	**RO0 Off Time** Relay Output 0 Off Time Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		20	**RO1 Sel** Relay Output 1 Select – 22-Series I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Sel** Transistor Output 0 Select – 22-Series I/O Module model 20-750-2263C-1R2T is installed. Selects the source that will energize the relay or transistor output. Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] Bit 7 "Faulted."	Default: Min/Max:	0.00 (Disabled) 0.00 / 159999.15	RW	32-bit Integer
		21	**RO1 Level Sel** Relay Output 1 Level Select – 22-Series I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Level Sel** Transistor Output 0 Level Select – 22-Series I/O Module model 20-750-2263C-1R2T is installed. Selects the source of the level that will be compared.	Default: Min/Max:	0 (Disabled) 0 / 159999	RW	32-bit Integer
		22	**RO1 Level** Relay Output 1 Level – 22-Series I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Level** Transistor Output 0 Level – 22-Series I/O Module model 20-750-2263C-1R2T is installed. Sets the level compare value.	Default: Min/Max:	0.0 –/+1000000.0	RW	Real
		23	**RO1 Level CmpSts** Relay Output 1 Level Compare Status – 22-Series I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Level CmpSts** Transistor Output 0 Level Compare Status – 22-Series I/O Module model 20-750-2263C-1R2T is installed. Status of the level compare, and a possible source for a relay or transistor output. Relay Output *n* Select or Transistor Output *n* Select must have this selected to energize the output. Can be used without a physical output as status information only.			RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	AbsGrtThanEq	Abs Less Than	Grt Than Equ	Less Than
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "Less Than" – Level source is less than the level value.
Bit 1 "Grt Than Equ" – Level source is greater than or equal to the level value.
Bit 2 "Abs Less Than" – Absolute value of the level source is less than the absolute value of the level value.
Bit 3 "AbsGrtThanEq" – Absolute value of the level source is greater than or equal to the absolute value of the level value.

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
22-Series I/O	Digital Outputs	24	**RO1 On Time** Relay Output 1 On Time – 22-Series I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 On Time** Transistor Output 0 On Time – 22-Series I/O Module model 20-750-2263C-1R2T is installed. Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay or transistor.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
22-Series I/O	Digital Outputs	25	**RO1 Off Time** Relay Output 1 Off Time – 22-Series I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Off Time** Transistor Output 0 Off Time – 22-Series I/O Module model 20-750-2263C-1R2T is installed. Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay or transistor.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		30	**TO1 Sel** Transistor Output 1 Select Selects the source that will energize the transistor output. Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] Bit 7 "Faulted." **Important:** Only used by 22-Series I/O Module model 20-750-2263C-1R2T.	Default: Min/Max:	0 (Disabled) 0 / 159999.15	RW	32-bit Integer
		31	**TO1 Level Sel** Transistor Output 1 Level Select Selects the source of the level that will be compared. **Important:** Only used by 22-Series I/O Module model 20-750-2263C-1R2T.	Default: Min/Max:	0 (Disabled) 0 / 159999.15	RW	32-bit Integer
		32	**TO1 Level** Transistor Output 1 Level Sets the level compare value. **Important:** Only used by 22-Series I/O Module model 20-750-2263C-1R2T.	Default: Min/Max:	0.0 −/+1000000.0	RW	Real
		33	**TO1 Level CmpSts** Transistor Output 1 Level Compare Status			RO	16-bit Integer

Status of the level compare, and a possible source for a transistor output. Transistor Output *n* Select must have this selected to energize the output. Can be used without a physical output as status information only.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	AbsGrtThanEq	Abs Less Than	Grt Than Equ	Less Than
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "Less Than" – Level source is less than the level value.
Bit 1 "Grt Than Equ" – Level source is greater than or equal to the level value.
Bit 2 "Abs Less Than" – Absolute value of the level source is less than the absolute value of the level value.
Bit 3 "AbsGrtThanEq" – Absolute value of the level source is greater than or equal to the absolute value of the level value.
Important: Only used by 22-Series I/O Module model 20-750-2263C-1R2T.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
22-Series I/O	Digital Outputs	34	**TO1 On Time** Transistor Output 1 On Time Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the transistor. **Important:** Only used by 22-Series I/O Module model 20-750-2263C-1R2T.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		35	**TO1 Off Time** Transistor Output 1 Off Time Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the transistor. **Important:** Only used by 22-Series I/O Module model 20-750-2263C-1R2T.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
22-Series I/O	Motor PTC	**40**	**PTC Cfg** Positive Temperature Coefficient Configuration Sets the action that will be taken when the PTC is not Ok. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		41	**PTC Sts** Positive Temperature Coefficient Status Status of the PTC.			RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Over Temp	PTC Short	PTC Ok
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "PTC Ok" – PTC is OK
Bit 1 "PTC Short" – PTC is Shorted
Bit 2 "Over Temp" – PTC is indicating over temperature

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
22-Series I/O	Motor PTC	**42**	**PTC Raw Value** Positive Temperature Coefficient Raw Value Displays the value of the PTC.	Units: Default: Min/Max:	Volt 0 0 / 10	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**	Read-Write	Data Type
22-Series I/O	Analog Inputs	**45**	**Anlg In Type** Analog Input Type Status of the analog input mode set by the option jumpers.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 1	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Voltage Mode
1 = Current Mode

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
22-Series I/O	Analog Inputs	**46**	**Anlg In Sqrt** Analog Input Square Root Enables/disables the square root function for each input.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 1	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Square Root Disabled
1 = Square Root Enabled

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>22-Series I/O</td><td>Analog Inputs</td><td>47</td><td colspan="3">Anlg In Loss Sts
Analog Input Loss Status
Status of the analog input loss.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Loss 1</td><td>Loss 0</td><td>Loss</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = No Loss
1 = Loss Detected</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr>
</table>
Bit 0 "Loss" – Indicates loss of one or both inputs.</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>50</td><td>Anlg In0 Value
Analog Input 0 Value
Value of the Analog input after filter, square root, and loss action.</td><td>Units:

Default:

Min/Max:</td><td>Volt
mA
0.000 Volts
0.000 mA
−/+10.000 Volts
0.000 / 20.000 mA</td><td>RO</td><td>Real</td></tr>
<tr><td></td><td></td><td>51</td><td>Anlg In0 Hi
Analog Input 0 High
Sets the highest input value to the analog input scaling block.</td><td>Units:

Default:

Min/Max:</td><td>Volt
mA
0.000 Volts
0.000 mA
−/+10.000 Volts
0.000 / 20.000 mA</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>52</td><td>Anlg In0 Lo
Analog Input 0 Low
Sets the lowest input value to the analog input scaling block.</td><td>Units:

Default:

Min/Max:</td><td>Volt
mA
0.000 Volts
0.000 mA
−/+10.000 Volts
0.000 / 20.000 mA</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>53</td><td>Anlg In0 LssActn
Analog Input 0 Loss Action
Selects drive action when an analog signal loss is detected. Signal loss is defined as an analog signal less than 1V or 2mA. The signal loss event ends and normal operation resumes when the input signal level is greater than or equal to 1.5V or 3mA.
"Ignore" (0) – No action is taken.
"Alarm" (1) – Type 1 alarm indicated.
"Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault.
"FltCoastStop" (3) – Major fault indicated. Coast to Stop.
"Flt RampStop" (4) – Major fault indicated. Ramp to Stop.
"Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.
"Hold Input" (6) – Holds input at last value.
"Set Input Lo" (7) – Sets input to P52 [Anlg In0 Lo].
"Set Input Hi" (8) – Sets input to P51 [Anlg In0 Hi].</td><td>Default:
Options:</td><td>0 = "Ignore"
0 = "Ignore"
1 = "Alarm"
2 = "Flt Minor"
3 = "FltCoastStop"
4 = "Flt RampStop"
5 = "Flt CL Stop"
6 = "Hold Input"
7 = "Set Input Lo"
8 = "Set Input Hi"</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>54</td><td>Anlg In0 Raw Val
Analog Input 0 Raw Value
Raw Value of the analog input.</td><td>Units:

Default:

Min/Max:</td><td>Volt
mA
0.000 Volts
0.000 mA
−/+10.000 Volts
0.000 / 20.000 mA</td><td>RO</td><td>Real</td></tr>
<tr><td></td><td></td><td>55</td><td>Anlg In0 Filt Gn
Analog Input 0 Filter Gain
Sets the analog input filter gain.</td><td>Default:
Min/Max:</td><td>1.00
−/+5.00</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
22-Series I/O	Analog Inputs	56	**Anlg In0 Filt BW** Analog Input 0 Filter Bandwidth Sets the analog input filter bandwidth.	Default: Min/Max:	0.0 0.0 / 500.0	RW	Real
		60	**Anlg In1 Value** Analog Input 1 Value Value of the Analog input after filter, square root, and loss action.	Units: Default: Min/Max:	Volt mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real
		61	**Anlg In1 Hi** Analog Input 1 High Sets the highest input value to the analog input scaling block.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		62	**Anlg In1 Lo** Analog Input 1 Low Sets the lowest input value to the analog input scaling block.	Units: Default: Min/Max:	Volt mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		63	**Anlg In1 LssActn** Analog Input 1 Loss Action Selects drive action when an analog signal loss is detected. Signal loss is defined as an analog signal less than 1V or 2mA. The signal loss event ends and normal operation resumes when the input signal level is greater than or equal to 1.5V or 3mA. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop. "Hold Input" (6) – Holds input at last value. "Set Input Lo" (7) – Sets input to P62 [Anlg In1 Lo]. "Set Input Hi" (8) – Sets input to P61 [Anlg In1 Hi].	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop" 6 = "Hold Input" 7 = "Set Input Lo" 8 = "Set Input Hi"	RW	32-bit Integer
		64	**Anlg In1 Raw Val** Analog Input 1 Raw Value Raw Value of the analog input.	Units: Default: Min/Max:	Volt mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real
		65	**Anlg In1 Filt Gn** Analog Input 1 Filter Gain Sets the analog input filter gain.	Default: Min/Max:	1.00 –/+5.00	RW	Real
		66	**Anlg In1 Filt BW** Analog Input 1 Filter Bandwidth Sets the analog input filter bandwidth.	Default: Min/Max:	0.0 0.0 / 500.0	RW	Real

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
22-Series I/O	Analog Outputs	70	**Anlg Out Type** Analog Output Type Select the analog output mode for each analog output.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 1	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Voltage Mode
1 = Current Mode

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
		71	**Anlg Out Abs** Analog Output Absolute Selects whether the signed value or absolute value of a parameter is used before being scaled to drive the analog output.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 1	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
		75	**Anlg Out0 Sel** Analog Output 0 Select Selects the source for the analog output.	Default: Min/Max:	3 0 / 159999	RW	32-bit Integer
		76	**Anlg Out0 Stpt** Analog Output 0 Setpoint A possible source for an analog output. Can be used to control an analog output from a communication device using a DataLink. Not affected by analog output scaling.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		77	**Anlg Out0 Data** Analog Output 0 Data Displays the value of the source selected by P75 [Anlg Out0 Sel].	Default: Min/Max:	0 –/+40000.000	RO	Real
		78	**Anlg Out0 DataHi** Analog Output 0 Data High Sets the high value for the data range of analog out scale.	Units: Default: Min/Max:	pu 1 –/+40000.000	RW	Real
		79	**Anlg Out0 DataLo** Analog Output 0 Data Low Sets the low value for the data range of analog out scale.	Default: Min/Max:	1 –/+40000.000	RW	Real
		80	**Anlg Out0 Hi** Analog Output 0 High Sets the high value for the analog output value when the data value is at its maximum.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		81	**Anlg Out0 Lo** Analog Output 0 Low Sets the low value for the analog output value when the data value is at its minimum.	Units: Default: Min/Max:	Volt mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
22-Series I/O	**Analog Outputs**	**82**	**Anlg Out0 Val** Analog Output 0 Value Displays the analog output value.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real
		85	**Anlg Out1 Sel** Analog Output 1 Select Selects the source for the analog output.	Default: Min/Max:	7 0 / 159999	RW	32-bit Integer
		86	**Anlg Out1 Stpt** Analog Output 1 Setpoint A possible source for an analog output. Can be used to control an analog output from a communication device using a DataLink. Not affected by analog output scaling.	Units: Default: Min/Max:	Volt mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		87	**Anlg Out1 Data** Analog Output 1 Data Displays the value of the source selected by P85 [Anlg Out1 Sel].	Default: Min/Max:	0.000 0.000 / 4140.00	RO	Real
		88	**Anlg Out1 DataHi** Analog Output 1 Data High Sets the high value for the data range of analog out scale.	Default: Min/Max:	1.000 0.000 / 4140.00	RW	Real
		89	**Anlg Out1 DataLo** Analog Output 1 Data Low Sets the low value for the data range of analog out scale.	Default: Min/Max:	0.000 0.000 / 4140.00	RW	Real
		90	**Anlg Out1 Hi** Analog Output 1 High Sets the high value for the analog output value when the data value is at its maximum.	Units: Default: Min/Max:	Volt mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		91	**Anlg Out1 Lo** Analog Output 1 Low Sets the low value for the analog output value when the data value is at its minimum.	Units: Default: Min/Max:	Volt mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		92	**Anlg Out1 Val** Analog Output 1 Value Displays the analog output value.	Units: Default: Min/Max:	Volt mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
22-Series I/O	**Predictive Main**	**99**	**PredMaint Sts** Predictive Maintenance Status Status of relay's predictive maintenance.			RO	16-bit Integer

Options	Master	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Relay Out 0[1]	Relay Out 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

(1) Bit 1= “Relay Out 0” for 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
		100	**RO0 Load Type** Relay Output 0 Load Type Sets the type of load that will be applied to the relay. Must be properly set for the Predictive Maintenance function to predict the relay life.	Default: Options:	1 = “DC Inductive” 0 = “DC Resistive” 1 = “DC Inductive” 2 = “AC Resistive” 3 = “AC Inductive”	RW	32-bit Integer
		101	**RO0 Load Amps** Relay Output 0 Load Amps Load current that will be applied to the relay contacts. Must be properly set for the Predictive Maintenance function to approximate the relay life.	Units: Default: Min/Max:	Amps 2.000 0.000 / 2.000	RW	Real
		102	**RO0 TotalLife** Relay Output 0 Total Life Total life cycles of the relay based on programmed load type and amps.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		103	**RO0 ElapsedLife** Relay Output 0 Elapsed Life Non-resettable, total accumulated cycles of the relay.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		104	**RO0 RemainLife** Relay Output 0 Remaining Life The difference between the Total Life and the Elapsed Life.	Units: Default: Min/Max:	Cycl 0 –/+2147483647	RO	32-bit Integer
		105	**RO0 LifeEvntLvl** Relay Output 0 Life Event Level Sets the percentage of relay life cycles before action is taken.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		106	**RO0 LifeEvntActn** Relay Output 0 Life Event Action Sets the action that will be taken when the percentage of relay life cycles has been reached. “Ignore” (0) – No action is taken. “Alarm” (1) – Type 1 alarm indicated. “Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. “FltCoastStop” (3) – Major fault indicated. Coast to Stop. “Flt RampStop” (4) – Major fault indicated. Ramp to Stop. “Flt CL Stop” (5) – Major fault indicated. Current Limit Stop.	Default: Options:	1 = “Alarm” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
22-Series I/O	Predictive Main	110	**R01 Load Type** Relay Output 1 Load Type Sets the type of load that will be applied to the relay. Must be properly set for the Predictive Maintenance function to predict the relay life. **Important:** Only used by 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Default: Options:	1 = "DC Inductive" 0 = "DC Resistive" 1 = "DC Inductive" 2 = "AC Resistive" 3 = "AC Inductive"	RW	32-bit Integer
		111	**R01 Load Amps** Relay Output 1 Load Amps Load current that will be applied to the relay contacts. Must be properly set for the Predictive Maintenance function to approximate the relay life. **Important:** Only used by 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	Amps 2.000 0.000 / 2.000	RW	Real
		112	**R01 TotalLife** Relay Output 1 Total Life Total life cycles of the relay based on programmed load type and amps. **Important:** Only used by 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		113	**R01 ElapsedLife** Relay Output 1 Elapsed Life Non-resettable, total accumulated cycles of the relay. **Important:** Only used by 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		114	**R01 RemainLife** Relay Output 1 Remaining Life The difference between the Total Life and the Elapsed Life. **Important:** Only used by 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	Cycl 0 –/+2147483647	RO	32-bit Integer
		115	**R01 LifeEvntLvl** Relay Output 1 Life Event Level Sets the percentage of relay life cycles before action is taken. **Important:** Only used by 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		116	**R01 LifeEvntActn** Relay Output 1 Life Event Action Sets the action that will be taken when the percentage of relay life cycles has been reached. **Important:** Only used by 22-Series I/O Module models 20-750-2262C-2R and 20-750-2262D-2R. "Ignore" (0) – No action is taken. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.	Default: Options:	1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer

Single Incremental Encoder Module Parameters

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
Single Incremental Encoder		**1** ○	**Encoder Cfg** Encoder Configure Configures the direction, speed calculation method, signal type and active encoder channels.			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Direction	Single Ended	Inv Home In	Edge Mode	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Channel Enbl” – Configures the Channel Z to be used and monitored for Phase Loss. A value of 0 = the Z channel will be ignored. Must be set if the encoder marker pulse is used.
Bit 1 “A Chan Only” – Configures the module to use only the A channel, and ignore the B channel. In this mode, direction cannot be determined, and the position counter will always count up.
Bit 2 “Edge Mode” – Configure the module to use AB edge time data for speed calculation rather than accumulated count. Recommended for low speed operation.
Bit 3 “Inv Home In” – Configures the home input to be inverted. 1 = inverted, 0 = not inverted
Bit 4 “Single Ended” – Configure when the A Quad B encoder has single ended signals. In this mode, Phase Loss detection is disabled. 0 = Differential, 1 = Single Ended
Bit 5 “Direction” – Inverts the feedback count up/down associated with a given rotation direction internally. 1 = invert, 0 = do not invert This bit is changed by the direction test in the Start-Up routine when encoder direction is determined to be incorrect and “Change Logic” is selected when prompted.

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
Single Incremental Encoder		**2** ○	**Encoder PPR** Encoder Pulses Per Revolution Configures the encoder module for the Pulses Per Revolution (Encoder Lines) of the incremental encoder.	Default: Min/Max:	1024 2 / 20000	RW	Real
		3 ○	**Fdbk Loss Cfg** Feedback Loss Configure Configures how the drive reacts to an error status condition for the feedback. “Ignore” (0) – No action is taken. “Alarm” (1) – Type 1 alarm indicated. “Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. “FltCoastStop” (3) – Major fault indicated. Coast to Stop.	Default: Options:	3 = “FltCoastStop” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop”	RW	Real
		4	**Encoder Feedback** Encoder Feedback Displays the position feedback value of the encoder. This can be used as a source for the main control (Port 0) Feedback Select.	Default: Min/Max:	0 –/+2147483647	RO	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Single Incremental Encoder		5	**Encoder Status** Encoder Status Status information for the Incremental Encoder Module.		RO	16-bit Integer

Options	Direction	HomMrk Event	HomMrk Armed	HomeIn Event	HomeIn Armed	Home Input	Inv Home In	Marker Event	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – State of the corresponding bit in the [Encoder Cfg] parameter.
Bit 1 “A Chan Only” – State of the corresponding bit in the [Encoder Cfg] parameter.
Bit 2 “A Input” – State of encoder A input signal.
Bit 3 “A Not Input” – State of encoder A Not input signal.
Bit 4 “B Input” – State of encoder B input signal.
Bit 5 “B Not Input” – State of encoder B Not input signal.
Bit 6 “Z Input” – State of encoder Z input signal.
Bit 7 “Z Not Input” – State of encoder Z Not input signal.
Bit 8 “Marker Event” – When channel Z (marker pulse) is used, indicates that a marker pulse is detected. Automatically cleared in the homing routine or due to clearing of faults. This bit will remain on until cleared by either the homing function, spindle orient function or clear fault. For the Single and Dual Incremental encoder options, the marker input can only be used by the homing and spindle orient functions. Clearing the encoder faults will also clear the Marker Event status. The single and dual encoder cards use the same clear fault mechanism that is used to clear the drive faults.
Bit 9 “Inv Home In” – State of the corresponding bit in the [Encoder Cfg] parameter. When set, the home input signal will be inverted.
Bit 10 “Home Input” – Active state of the Home Input signal. This status bit gets inverted if the “Inv Home In” bit is enabled.
Bit 11 “HomeIn Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next transition of the home input.
Bit 12 “HomeIn Event” – Indicates that the homing logic has latched the encoder position in response to a transition of the home input.
Bit 13 “HomMrk Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next marker (Z channel) pulse.
Bit 14 “HomMrk Event” – Indicates that the homing logic has latched the encoder position in response to a marker (Z channel) pulse.
Bit 15 “Direction” – State of the corresponding bit in the [Encoder Cfg] parameter.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Single Incremental Encoder		6	**Error Status** Error Status Status information that will result in a feedback loss condition.		RO	16-bit Integer

Options	SI Comm Loss	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Quad Loss	Phase Loss	Open Wire
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Open Wire” – Indicates that an input signal (A, B or Z) is in the same state as its complement (A Not, B Not, Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled. See P1 [Encoder Cfg].
Bit 1 “Phase Loss” – Indicates that more than 30 phase loss (open wire) events have occurred over an 8 msec time period. The same restrictions apply as on [Encoder Cfg] Bit 0. The Z channel will be ignored if not enabled. Checking for phase loss on the Z channel is only done when the Z channel is enabled.
Bit 2 “Quad Loss” – Quadrature loss events occur when simultaneous edge transitions occur on both the A and B encoder channels. Indicates that more than 10 quad loss events over a 8 msec time period are detected. Only valid when both A and B channels are used (not 'A Chan Only' in [Encoder Cfg]).
Bit 15 “SI Comm Loss” – Indicates a communication loss between the main control board and the encoder module over the Serial Interface backplane.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Single Incremental Encoder		**7**	**Phase Loss Count** Phase Loss Count Displays the total number of encoder errors detected by the encoder card every 1 millisecond sample interval. These values are reset to zero every 1 millisecond. Diagnostic Items are available for the encoder that show the errors counted over 8 milliseconds as well as the peak error values. The peak values are reset when the drive faults are cleared.	Default: Min/Max:	0 0 / 127	RO	Real
		8	**Quad Loss Count** Displays the total number of encoder errors detected by the encoder card every 1 millisecond sample interval. These values are reset to zero every 1 millisecond. Diagnostic Items are available for the encoder that show the errors counted over 8 milliseconds as well as the peak error values. The peak values are reset when the drive faults are cleared.	Default: Min/Max:	0 0 / 15	RO	Real

Dual Incremental Encoder Module Parameters

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
Dual Incremental Encoder	Encoder 0	**1** ○	**Enc 0 Cfg** Encoder 0 Configure Configures the position direction, speed calculation method, signal type and active encoder channels used for Encoder 0 (primary encoder).			RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Direction	Single Ended	Reserved	Edge Mode	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Channel Enbl” – Configures the Channel Z to be used and monitored for Phase Loss. A value of 0 = the Z channel will be ignored.
Bit 1 “A Chan Only” – Configures the module to use only the A channel, and ignore the B channel. In this mode, direction cannot be determined, and the position counter will always count up.
Bit 2 “Edge Mode” – Configure the module to use AB edge time data for speed calculation rather than accumulated count. Recommended for low speed operation.
Bit 4 “Single Ended” – Configure when the A Quad B encoder has single ended signals. In this mode, Phase Loss detection is disabled.
0 = Differential, 1 = Single Ended
Bit 5 “Direction” – Inverts the feedback count up/down associated with a given rotation direction internally. 1 = invert, 0 = do not invert

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
Dual Incremental Encoder	Encoder 0	**2** ○	**Enc 0 PPR** Encoder 0 Pulses Per Revolution Configures the encoder module's primary input (Encoder 0) for the Pulses Per Revolution (Encoder Lines) of the A Quad B Encoder. When using a permanent magnet motor, the pulses per revolution (PPR) must be an exponent of two. For example: 512, 1024, 2048, 4096, 8192…524288…	Default: Min/Max:	1024 2 / 20000	RW	32-bit Integer
		3 ○	**Enc 0 FB Lss Cfg** Encoder 0 Feedback Loss Configure Configures how the drive reacts to an error status condition for Encoder 0 (primary encoder). “Ignore” (0) – No action is taken. “Alarm” (1) – Type 1 alarm indicated. “Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. “FltCoastStop” (3) – Major fault indicated. Coast to Stop.	Default: Options:	3 = “FltCoastStop” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop”	RW	32-bit Integer
		4	**Enc 0 FB** Encoder 0 Feedback Displays the position feedback value of Encoder 0 (primary encoder). This should be used as a source for the main control (Port 0) Feedback Select.	Default: Min/Max:	0 –/+2147483647	RO	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
Dual Incremental Encoder	**Encoder 0**	5	**Enc 0 Sts** Encoder 0 Status Status information for Encoder 0.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Direction	HomMrk Event	HomMrk Armed	HomeIn Event	HomeIn Armed	Home Input	Inv Home In	Marker Event	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Z Chan Enbl” – State of the corresponding bit in the [Enc 0 Cfg] parameter.
Bit 1 “A Chan Only” – State of the corresponding bit in the [Enc 0 Cfg] parameter.
Bit 2 “A Input” – State of encoder A input signal.
Bit 3 “A Not Input” – State of encoder A Not input signal.
Bit 4 “B Input” – State of encoder B input signal.
Bit 5 “B Not Input” – State of encoder B Not input signal.
Bit 6 “Z Input” – State of encoder Z input signal.
Bit 7 “Z Not Input” – State of encoder Z Not input signal.
Bit 8 “Marker Event” – When channel Z (marker pulse) is used, indicates that a marker pulse is detected. Automatically cleared in the homing routine or due to clearing of encoder faults.
Bit 9 “Inv Home In” – State of the corresponding bit in the [Enc 0 Cfg] parameter. When set, the home input signal will be inverted.
Bit 10 “Home Input” – Active state of the Home Input signal. This status bit gets inverted if the “Inv Home In” bit is enabled.
Bit 11 “HomeIn Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next transition of the home input.
Bit 12 “HomeIn Event” – Indicates that the homing logic has latched the encoder position in response to a transition of the home input.
Bit 13 “HomMrk Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next marker (Z channel) pulse.
Bit 14 “HomMrk Event” – Indicates that the homing logic has latched the encoder position in response to a marker (Z channel) pulse.
Bit 15 “Direction” – State of the corresponding bit in the [Enc 0 Cfg] parameter.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
		6	**Enc 0 Error Sts** Encoder 0 Error Status Status information that will result in a feedback loss condition for Encoder 0. Bit 0 “Open Wire” – Indicates that an input signal (A, B or Z) is in the same state as its complement (A Not, B Not, Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	SI Comm Loss	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Quad Loss	Phase Loss	Open Wire
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 1 “Phase Loss” – Indicates that more than 30 phase loss (open wire) events have occurred over an 8msec time period. The same restrictions apply as on [Enc 0 Cfg] Bit 0 “Z Chan Enbl.”
Bit 2 “Quad Loss” – Quadrature loss events occur when simultaneous edge transitions occur on both the A and B encoder channels. Indicates that more than 10 quad loss events over a 10 msec time period are detected. Only valid when both A and B channels are used (not 'A Chan Only' in [Enc 0 Cfg]).
Bit 15 “SI Comm Loss” – Indicates a communication loss between the main control board and the encoder module over the Serial Interface backplane.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
		7	**Enc 0 PhsLss Cnt** Encoder 0 Phase Loss Count Displays the active value of the encoder module's Encoder 0 phase loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Phase Loss errors.	Default: Min/Max:	0 0 / 127	RO	32-bit Integer
		8	**Enc 0 QuadLssCnt** Encoder 0 Quad Loss Count Displays the active value of the encoder module's Encoder 0 quad loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Quad Loss errors.	Default: Min/Max:	0 0 / 15	RO	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>Dual Incremental Encoder</td><td>Encoder 1</td><td>11
○</td><td colspan="3">Enc 1 Cfg
Encoder 1 Configure
Configures the position direction, speed calculation method, signal type and active encoder channels used for Encoder 1 (secondary encoder).
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Direction</td><td>Single Ended</td><td>Reserved</td><td>Edge Mode</td><td>A Chan Only</td><td>Z Chan Enbl</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Condition False</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Condition True</td></tr>
</table>
Bit 0 “Z Channel Enbl” – Configures the Channel Z to be used and monitored for Phase Loss. A value of 0 = the Z channel will be ignored.
Bit 1 “A Chan Only” – Configures the module to use only the A channel, and ignore the B channel. In this mode, direction cannot be determined, and the position counter will always count up.
Bit 2 “Edge Mode” – Configure the module to use AB edge time data for speed calculation rather than accumulated count. Recommended for low speed operation.
Bit 4 “Single Ended” – Configure when the A Quad B encoder has single ended signals. In this mode, Phase Loss detection is disabled. 0 = Differential, 1 = Single Ended
Bit 5 “Direction” – Inverts the position count up/down associated with a given rotation direction internally. 1 = invert, 0 = do not invert</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>12
○</td><td>Enc 1 PPR
Encoder 1 Pulses Per Revolution
Configures the encoder module's secondary input (Encoder 1) for the Pulses Per Revolution (Encoder Lines) of the A Quad B Encoder. When using a permanent magnet motor, the pulses per revolution (PPR) must be an exponent of two. For example: 512, 1024, 2048, 4096, 8192…524288…</td><td>Default:
Min/Max:</td><td>1024
2 / 20000</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>13
○</td><td>Enc 1 FB Lss Cfg
Encoder 1 Feedback Loss
Configures how the drive reacts to an error status condition for Encoder 1 (secondary encoder).
“Ignore” (0) – No action is taken.
“Alarm” (1) – Type 1 alarm indicated.
“Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault.
“FltCoastStop” (3) – Major fault indicated. Coast to Stop.</td><td>Default:
Min/Max:</td><td>3 = “FltCoastStop”
0 = “Ignore”
1 = “Alarm”
2 = “Flt Minor”
3 = “FltCoastStop“</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>14</td><td>Enc 1 FB
Encoder 1 Feedback
Displays the position feedback value of Encoder 1 (secondary encoder). This should be used as a source for the main control (Port 0) Feedback Select.</td><td>Default:
Min/Max:</td><td>0
–/+2147483647</td><td>RO</td><td>32-bit Integer</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
Dual Incremental Encoder	**Encoder 1**	**15**	**Enc 1 Sts** Encoder 1 Status Status information for Encoder 1.		RW	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Direction	HomMrk Event	HomMrk Armed	HomeIn Event	HomeIn Armed	Home Input	Inv Home In	Marker Event	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Z Chan Enbl” – State of the corresponding bit in the [Enc 1 Cfg] parameter.
Bit 1 “A Chan Only” – State of the corresponding bit in the [Enc 1 Cfg] parameter.
Bit 2 “A Input” – State of encoder A input signal.
Bit 3 “A Not Input” – State of encoder A Not input signal.
Bit 4 “B Input” – State of encoder B input signal.
Bit 5 “B Not Input” – State of encoder B Not input signal.
Bit 6 “Z Input” – State of encoder Z input signal.
Bit 7 “Z Not Input” – State of encoder Z Not input signal.
Bit 8 “Marker Event” – When channel Z (marker pulse) is used, indicates that a marker pulse is detected. Automatically cleared in the homing routine or due to clearing of encoder faults.
Bit 9 “Inv Home In” – State of the corresponding bit in the [Enc 1 Cfg] parameter. When set, the home input signal will be inverted.
Bit 10 “Home Input” – Active state of the Home Input signal. This status bit gets inverted if the “Inv Home In” bit is enabled.
Bit 11 “HomeIn Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next transition of the home input.
Bit 12 “HomeIn Event” – Indicates that the homing logic has latched the encoder position in response to a transition of the home input.
Bit 13 “HomMrk Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next marker (Z channel) pulse.
Bit 14 “HomMrk Event” – Indicates that the homing logic has latched the encoder position in response to a marker (Z channel) pulse.
Bit 15 “Direction” – State of the corresponding bit in the [Enc 1 Cfg] parameter.

Dual Incremental Encoder	**Encoder 1**	**16**	**Enc 1 Error Sts** Encoder 1 Error Status Status information that will result in a feedback loss condition for Encoder 1.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	SI Comm Loss	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Quad Loss	Phase Loss	Open Wire
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Open Wire” – Indicates that an input signal (A, B or Z) is in the same state as its complement (A Not, B Not, Z Not).
For open wire detection to work, the encoder signals must be differential (not single ended).
The Z channel is only checked when enabled.
Bit 1 “Phase Loss” – Indicates that more than 30 phase loss (open wire) events have occurred over an 8msec time period. The same restrictions apply as on [Enc 1 Cfg] Bit 0 “Z Chan Enbl.”
Bit 2 “Quad Loss” – Quadrature loss events occur when simultaneous edge transitions occur on both the A and B encoder channels. Indicates that more than 10 quad loss events over a 10 msec time period are detected. Only valid when both A and B channels are used (not “A Chan Only” in [Enc 1 Cfg]).
Bit 15 “SI Comm Loss” – Indicates a communication loss between the main control board and the encoder module over the Serial Interface backplane.

Dual Incremental Encoder	**Encoder 1**	**17**	**Enc 1 PhsLss Cnt** Encoder 1 Phase Loss Count Displays the active value of the encoder module's Encoder 1 phase loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Phase Loss errors.	Default: Min/Max:	0 0 / 127	RO	32-bit Integer
Dual Incremental Encoder	**Encoder 1**	**18**	**Enc 1 QuadLssCnt** Encoder 1 Quad Loss Count Displays the active value of the encoder module's Encoder 1 quad loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Quad Loss errors.	Default: Min/Max:	0 0 / 15	RO	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Dual Incremental Encoder	Homing Cfg	20 ○	**Homing Cfg** Homing Configure Configures options for the homing function. Common to both encoders.	0 = Not Inverted 1 = Inverted	RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Inv Home In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Inv Home In” – Inverts the home input signal.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Dual Incremental Encoder	Module Status	21	**Module Sts** Module Status Encoder module status information. Common to both encoders.	0 = Cleared 1 = Set	RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	SafetyVoltHi	Safety Mode
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Safety Mode” – Indicates that the dip switch on the dual encoder module is configured to place its feedback signals on the SI backplane for use by the Safe Speed Monitor module. If multiple dual encoder modules are present, only one dual encoder can be configured for Safety Mode. 0 = Safety Mode Off. 1 = Safety Mode On.

Bit 1 “SafetyVoltHi” – Indicates the status (configured by a jumper on the module) of the safety feedback voltage mode. 0 = 5V safety feedback mode, 1 = 12V safety feedback mode.

Universal Feedback Module Parameters

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
Universal Feedback	**Module**	**1**	**Module Sts** Module Status Shows error and alarm information of the Feedback Option module.		RO	16-bit Integer

Options	DPI Ready	Sec Safety	Pri Safety	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Initializing	FB0FB1 Cflct	Reserved	Reserved	Safety Cflct	EncOut Cflct	Reserved	Reserved	Firmware Err	Hardware Err	Reserved	Cfg Alarm	FB1 Alarm	FB0 Alarm	Reserved	System Error	FB1 Error	FB0 Error	Reserved	Alarm Type 2	Alarm Type 1	Module Error
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 “Module Error” – Indicates that the Feedback Option module has any error. This bit is set if at least one of the bits “FB0 Error”, “FB1 Error”, or “System Error” is set.

Bit 1 “Alarm Type 1” – Indicates that there is any alarm of type 1 active on the Feedback Option module. Bits 8…10 indicate what kind of alarm is active.

Bit 2 “Alarm Type 2” – Indicates that there is any alarm of type 2 active on the Feedback Option module. Bits 20 and 21 indicate what kind of alarm is active.

Bit 4 “FB0 Error” – Indicates that Feedback 0 has an error. This bit is set if any Feedback 0 error bit in P10 [FB0 Sts] is set. If this bit is set, Bit 0 “Module Error” is also set.

Bit 5 “FB1 Error” – Indicates that Feedback 1 has an error. This bit is set if any Feedback 1 error bit in P10 [FB1 Sts] is set. If this bit is set, Bit 0 “Module Error” is also set.

Bit 6 “System Error” – Indicates that there is a feedback independent error on the Feedback Option module. Bits 12 and 13 show the type of the System Error. If this bit is set, Bit 0 “Module Error” is also set.

Bit 8 “FB0 Alarm” – Indicates that feedback device 0 has an alarm. This bit is set if there is an alarm in the Feedback 0 encoder. If this bit is set, Bit 1 “Alarm Type 1” and P10 [FB0 Sts] Bit 12 “Encoder Alm” will also be set. The specific alarm condition may be shown in a status found under the diagnostics tab for the Universal Feedback Module. Separate diagnostic items are provided for both ports and for both of the following devices: EnDat and BiSS. Alarm conditions for Linear Stahl feedback devices can be found in P27 [FB0 LinStahl Sts] and P57 [FB1 LinStahl Sts].

Bit 9 “FB1 Alarm” – Indicates that feedback device 1 has an alarm. This bit is set if there is an alarm in the Feedback 1 encoder. If this bit is set, Bit 1 “Alarm Type 1” and P40 [FB1 Sts] Bit 12 “Encoder Alm” will also be set. The specific alarm condition may be shown in a status found under the diagnostics tab for the Universal Feedback Module. Separate diagnostic items are provided for both ports and for both of the following devices: EnDat and BiSS. Alarm conditions for Linear Stahl feedback devices can be found in P27 [FB0 LinStahl Sts] and P57 [FB1 LinStahl Sts].

Bit 10 “Cfg Alarm” – Indicates that there is a feedback independent alarm on the Feedback Option module. Bits 16 and 17 show the type of the Cfg Alarm. If this bit is set, Bit 1 “Alarm Type 1” is also set.

Bit 12 “Hardware Err” – Indicates that there is a Hardware Error on the Feedback Option module. If this bit is set, Bit 6 “System Error” is also set. The hardware is self tested by the board at powerup. Specific details of the hardware failure are not available.

Bit 13 “Firmware Err” – Indicates that there is a Firmware Error on the Feedback Option module. A Firmware Error occurs if the Hardware and the downloaded Firmware are not compatible. If this bit is set, Bit 6 “System Error” is also set.

Bit 16 “EncOut Cflct” – If set, there is one of the following problems with the Encoder Output:

- The selection in P80 [Enc Out Sel] is not possible since the required pins on the terminal blocks are already used for Feedback 0 or 1 according to P6 [FB0 Device Sel] and P36 [FB1 Device Sel].
- P80 [Enc Out Sel] is set to “Sine Cosine” and there is no signal connected to the pins 1-4 of the Terminal Block 1.
- P80 [Enc Out Sel] is set to “Sine Cosine”, the value of [FB*n* IncAndSC PPR] is not a power of two, and the parameter P84 [Enc Out Z PPR] is not set to 0 “1 ZPulse.” This is not allowed.
- P80 [Enc Out Sel] is set to “Channel X” or “Channel Y” and there is no encoder connected to that channel.
- P80 [Enc Out Sel] is set to “Channel X” or “Channel Y” and there is a linear encoder connected to this channel. If this bit is set, Bit 10 “Cfg Alarm” is also set.

Bit 17 “Safety Cflct” – If set, the Safety DIP switches are in an invalid position. If this bit is set, Bit 10 “Cfg Alarm” is also set.

Bit 20 “FB0FB1 Cflct” – If set, the combination of the feedback selection done with the parameters P6 [FB0 Device Sel] and P36 [FB1 Device Sel] is invalid, i.e. both feedbacks have Sin-Cos-Signals (There is only place for one set of Sin-Cos-Signals on the Terminal Blocks). If this bit is set, Bit 2 “Alarm Type 2” is also set.

Bit 21 “Initializing” – Indicates that the Universal Feedback State Machine is in the Initialize State. This Type 2 alarm makes sure that the motor cannot be started during the initialization state. If this bit is set, Bit 2 “Alarm Type 2” is also set.

Bit 29 “Pri Safety” – Indicates that the UFB is used as primary safety module.

Bit 30 “Sec Safety” – Indicates that the UFB is used as secondary safety module.

Bit 31 “DPI Ready” – This bit tells the MCB if the UFB is ready for DPI communication.

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
Universal Feedback	Module	2	**Module Err Reset** Module Error Reset Selects the module reset type. The Universal Feedback module allows errors to be reset directly on the module. The drive's fault and alarm clear mechanisms will do this automatically and should normally be used instead of this parameter. In cases where the errors need to be reset directly, this parameter can be used. "Ready" (0) – This is the normal state for this parameter. All other states are temporary. This parameter will return to "Ready" once the requested reset operation is complete. "Clr FB Intlz" (1) – Requests the module to clear all errors and re-execute its initialization routines. Only possible when the drive is stopped. "Clear Errors" (2) – Requests the module to clear all errors without re-executing its initialization routines. Allowed if the drive is active. "FB Initlz" (3) – Requests the module to execute a software reset. Only possible when the drive is stopped.	Default: Options:	0 = "Ready" 0 = "Ready" 1 = "Clr FB Intlz" 2 = "Clear Errors" 3 = "FB Initlz"	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
Universal Feedback	Feedback 0	5	**FB0 Position** Feedback 0 Position Displays the position value from the feedback 0 device. For parameter 6 [FB0 Device Select] options 1, 2, 3, and 4, one revolution of the feedback = 1048576. For options 11, 12, and 13, typically one revolution of the feedback is 4 x Pulses Per Revolution.	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		6 ○	**FB0 Device Sel** Feedback 0 Device Select Specifies the encoder type for the feedback 0 device. In some cases, there is a choice of terminal blocks to use. Channel X refers to devices wired to TB1 and Channel Y refers to TB2. "None" (0) – No feedback device selected. Use this selection if the feedback device is unused. For example, only one feedback device is present and it is used on the other feedback. "EnDat SC" (1) – EnDat encoder with sine/cosine signals (Heidenhain). Terminal block 1. "Hiperface SC" (2) – Hiperface encoder with sine/cosine signals (Stegmann). Terminal block 1. The following Hiperface Type ID codes are supported: 02h, 07h, 22h, 27h, 23h, and 37h. Refer to manufacturer data sheet for more information. "BiSS SC" (3) – BiSS encoder with sine/cosine signals. Terminal block 1. "SSI SC" (4) – SSI encoder with sine/cosine signals. Terminal block 1. "EnDat FD ChX" (5) – Full digital EnDat encoder without sine/cosine signals (Heidenhain). Terminal block 1. "EnDat FD ChY" (6) – Full digital EnDat encoder without sine/cosine signals (Heidenhain). Terminal block 2. "BiSS FD ChX" (7) – Full digital BiSS encoder without sine/cosine signals. Terminal block 1. "BiSS FD ChY" (8) – Full digital BiSS encoder without sine/cosine signals. Terminal block 2. "SSI FD ChX" (9) – SSI Full Digital ChX "SSI FD ChY" (10) – SSI Full Digital ChY "SinCos Only" (11) – Generic sine/cosine encoder. Terminal block 1. "Inc A B Z" (12) – A Quad B encoder with Z marker. Terminal block 1, Pins 17…22. "Inc SC" (13) – A Quad B encoder without Z marker. Terminal block 1, Pins 1…4. "LinTempo ChX" (14) – Temposonic linear encoder. Terminal block 1. "LinTempo ChY" (15) – Temposonic linear encoder. Terminal block 2. "LinStahl ChX" (16) – Stahl linear encoder. Terminal block 1. "LinStahl ChY" (17) – Stahl linear encoder. Terminal block 2. "LinSSI ChX" (18) – Any linear encoder with an SSI interface. Terminal block 1. "LinSSI ChY" (19) – Any linear encoder with an SSI interface. Terminal block 2.	Default: Options:	0 = "None" 0 = "None" 1 = "EnDat SC" 2 = "Hiperface SC" 3 = "BiSS SC" 4 = "SSI SC" 5 = "EnDat FD ChX" 6 = "EnDat FD ChY" 7 = "BiSS FD ChX" 8 = "BiSS FD ChY" 9 = "Reserved" (See "SSI FD ChX") 10 = "Reserved" (See "SSI FD ChY") 11 = "SinCos Only" 12 = "Inc A B Z" 13 = "Inc SC" 14 = "LinTempo ChX" 15 = "LinTempo ChY" 16 = "LinStahl ChX" 17 = "LinStahl ChY" 18 = "LinSSI ChX" 19 = "LinSSI ChY"	RW	Real

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Universal Feedback	Feedback 0	7	**FB0 Identify** Feedback 0 Identify		RO	16-bit Integer

Displays the used encoder type for the feedback 0 device, e.g. Multi turn, rotary encoder with EnDat 2.1 interface including SIN/COS incremental signals.

Options	Reserved	Stahl	Temposonic	SSI	BiSS	Hiperface	EnDat 2p2	EnDat 2p1	Incremental	Full Digital	Sin Cos	Enh Resol	Multi Turn	Single Turn	Linear	Rotary
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Rotary” – Rotary encoder (incremental type).

Bit 1 “Linear” – Linear encoder (Temposonic and Stahl type).

Bit 2 “Single Turn” – Single turn absolute encoder. This encoder type can only track absolute position for one turn of the encoder shaft.

Bit 3 “Multi Turn” – Multiturn absolute encoder. This encoder type can track absolute position across multiple encoder turns.

Bit 4 “Enh Resol” – High resolution encoder. This bit is set if there are more than 24 bits resolution (full digital encoders) or the PPR is greater than or equal to 16384. If this bit is set, Bit 1 “24-bit Resol” in parameter [FB0 Cfg] should also be set.

Bit 5 “Sin Cos” – Sine / Cosine encoder, abbreviated SC. This encoder type makes use of an analog sine/cosine signal pair. This is the analog counterpart to the A quad B incremental encoder. A fine interpolation algorithm is sometimes used to provide high resolution feedback by processing the full sine/cosine cycle. Lower resolution feedback is also implemented by counting only zero crossings.

Bit 6 “Full Digital” – Full digital encoder, abbreviated FD. Refers to devices that use a serial communication interface, such as a clock and data lines to transmit data to/from the module. The analog (sine/cosine) signals are not used with a Full Digital interface.

Bit 7 “Incremental” – Typically an A quad B encoder, with optional Z (marker) channel. “A Channel Only” is possible (no B channel), but rarely used because this configuration lacks direction capability. Single channel incremental could be used to provide a speed (magnitude only) reference signal.

Bit 8 “EnDat 2p1” – Heidenhain absolute encoder with EnDat 2.1 command set support. EnDat is a proprietary protocol developed by Heidenhain. It is a synchronous, bidirectional serial interface. EnDat is a full digital interface.

Bit 9 “EnDat 2p2” – Heidenhain EnDat 2.2 command set support. This version supports incremental as well as absolute encoders.

Bit 10 “Hiperface” – Dedicated serial interface protocol for Stegmann devices. Hiperface is short for High Performance Interface. This interface makes use of both analog (sine/cosine) and digital (clock/data) signals.

Bit 11 “BiSS” – Bidirectional Synchronous Serial Interface. This is an open protocol and is hardware-compatible with SSI. Both mixed SC with digital and FD types are supported. Presently, only BiSS encoders from Hengstler GmbH are supported.

Bit 12 “SSI” – Synchronous Serial Interface. Only the mixed SC with digital version is supported. Rotary version is mixed analog/digital, linear version is full digital.

Bit 13 “Temposonic” – Linear position sensor from MTS Systems Corp. Full digital SSI interface, absolute device uses magnetostrictive technology.

Bit 14 “Stahl” – Linear position sensor from Stahl GmbH. Full digital SSI interface, absolute device uses an encoded rail.

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="2">Universal Feedback</td><td rowspan="2">Feedback 0</td><td>8
○</td><td colspan="2">
FB0 Cfg
Feedback 0 Configuration
Configure the direction, position data format, as well as the baud rate for the serial communication interface for the feedback 0 device.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>SC Quadrant</td><td>FD Low Baud</td><td>24-bit Resol</td><td>Direction</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Condition False</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Condition True</td></tr>
</table>
Bit 0 “Direction” – Inverts the direction internally.
Bit 1 “24-bit Resol” – If set, the high resolution 32-Bit feedback position is formatted as 8/24 bit. The 8 refers to the upper 8 most significant bits or left most 8 bits. These 8 bits count the number of complete encoder shaft revolutions. The remaining lower right least significant 24 bits indicate the encoder position within a single turn of the encoder shaft. The 24-Bit resolution is only available when Bit 4 “Enh Resol” of the FB Identify parameter is set. If clear, the feedback position is formatted as 12/20 bit. The upper 12 bits count the number of complete encoder shaft revolutions. The lower 20 bits indicate the encoder position within a single turn. The 12/20 bit format is the default setting for high resolution feedback.
Bit 2 “FD Low Baud” – Full Digital Low Baud refers to the serial data interface between the encoder and Universal Feedback module. If set, the communication baud rate is reduced from the default setting for the connected encoder with a serial communication channel. The actual value of the lower baud setting will vary, depending upon the specific interface and device type in use. For feedback 0, UFB diagnostic item 8 will indicate the exact baud rate in use. For feedback 1, Universal Feedback diagnostic item 14 will indicate the baud rate. Diagnostic items can be found under “Device Properties” in the “Diagnostics” tab of DriveExplorer. The possible settings for diagnostic item 8 [Fdbk0 Baud Rate] and item 14 [Fdbk1 Baud Rate] are as follows:
0 = “None” - No digital communication.
1 = “9.6 kBaud” - 9.6 kBaud: Used for communication with Hiperface encoders.
2 = “100 kHz” - 100kHz: Used for communication with
– SSI encoders with sine cosine signals (only in Initialize state).
– Linear SSI encoders if the “Low BaudRate” in [Fdbk0 Pos Config] is set.
3 = “200 kHz” - 200kHz: Used for communication with
– EnDat encoders with sine cosine signals (only in Initialize state).
– BiSS encoders with sine cosine signals (only in Initialize state).
– Linear SSI encoders if the “Low BaudRate” in [Fdbk0 Pos Config] is cleared.
4 = “400 kHz” - Not used.
5 = “1 MHz” - 1MHz: Used for communication with
– SSI encoders if the “Low BaudRate” in [Fdbk0 Pos Config] is set.
6 = “2 MHz” - 2MHz: Used for communication with
– SSI encoders if the “Low BaudRate” in [Fdbk0 Pos Config] is cleared.
– EnDat2.1 encoders without sine cosine signals.
– EnDat2.2 encoders that do not manage 8MHz.
7 = “4 MHz” - 4MHz: Used for communication with
– EnDat2.2 encoders if the “Low BaudRate” in [Fdbk0 Pos Config] is set.
8 = “5 MHz” - 5MHz: Used for communication with
– BiSS encoders if the “Low BaudRate” in [Fdbk0 Pos Config] is set.
9 = “8 MHz” - 8MHz: Used for communication with
– EnDat2.2 encoders if the “Low BaudRate” in [Fdbk0 Pos Config] is cleared.
10 = “10 MHz” - 10MHz: Used for communication with
– BiSS encoders if the “Low BaudRate” in [Fdbk0 Pos Config] is cleared.
Bit 3 “SC Quadrant” – Reserved for future use.
</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td>9</td><td>FB0 Loss Cfg
Feedback 0 Loss Configuration
Configures how the drive reacts to an error status condition on the feedback 0 device.
“Ignore” (0) – No action is taken.
“Alarm” (1) – Type 1 alarm indicated.
“Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault.
“FltCoastStop” (3) – Major fault indicated. Coast to Stop.</td><td>Default: 3 = “FltCoastStop”
Options: 0 = “Ignore”
1 = “Alarm”
2 = “Flt Minor”
3 = “FltCoastStop”</td><td>RW</td><td>32-bit Integer</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
Universal Feedback	**Feedback 0**	**10**	**FB0 Sts** Feedback 0 Status Shows feedback specific errors and alarms for the feedback 0 device.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Encoder Alm	Reserved	Unsupp Enc	Phase Loss	Quad Loss	Open Wire	SC Amplitude	SpplyVltRng	Diagnostic	Comm	Timeout	Msg Checksum	Encoder Err
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Encoder Err” – When set, indicates that a device specific error has occurred. Further detail can be found for each of the following devices:

- Linear Stahl device on Feedback 0, see P27 [FB0 LinStahl Sts] bits 4, 8…14.
- Linear Stahl device on Feedback 1, see P57 [FB1 LinStahl Sts] bits 4, 8…14.
- EnDat device on Feedback 0, see Universal Feedback diagnostic Item 9 [FB0 EnDat Sts] bits 0…6.
- EnDat device on Feedback 1, see Universal Feedback diagnostic Item 15 [FB1 EnDat Sts] bits 0…6.
- BiSS device on Feedback 0, see Universal Feedback diagnostic Item 10 [FB0 BiSS Sts] bits 0, 8…15.
- BiSS device on Feedback 1, see Universal Feedback diagnostic Item 16 [FB1 BiSS Sts] bits 0, 8…15.
- Hiperface device (either feedback, 0 or 1), see diagnostic Item 18 [Hiperface Sts] bits 0…31.

Bit 1 “Msg Checksum” – When asserted, the module has experienced a checksum error while attempting to communicate to an encoder via the serial communication channel.

Bit 2 “Timeout” – When asserted, the module has experienced a time out condition while attempting to communicate to the encoder via the serial communication channel.

Bit 3 “Comm” – When asserted, there was an error (except Checksum and Time Out) while attempting to communicate to an encoder via the serial communication channel.

Bit 4 “Diagnostic” – When asserted, the module has experienced a diagnostic test failure on power up.

Bit 5 “SpplyVltRng” – When asserted, the voltage source to the encoder is out of range.

Bit 6 “SC Amplitude” – When asserted, the Universal Feedback option module has detected that the analog Sine/Cosine (SC) signal amplitude is out of tolerance.

Bit 7 “Open Wire” – When asserted, the module has detected an open wire. The open wire condition for A quad B devices checks that the A, B, and Z signals are in opposite states to their corresponding NOT signals. Note that when the “A Chan Only” configuration is selected, the B signal will be ignored. If the “Z Chan Enbl” configuration is not selected, then then the Z signal will be ignored. The open wire condition for sine/cosine devices checks the analog signal levels. An open wire condition will occur when both the sine and cosine signals are smaller than 0.03V. If only one of the two analog signals is missing, then a “SC Amplitude” error condition will occur.

Bit 8 “Quad Loss” – Indicates that there is a signal quadrature error.

Bit 9 “Phase Loss” – Indicates that an A or B signal of an A Quad B Incremental encoder was not detected.

Bit 10 “Unsupp Enc” – Indicates that the connected encoder is not supported.

Bit 12 “Encoder Alm” – When asserted, there is an Encoder Alarm.

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Universal Feedback	**Feedback 0**	**15** ○	**FB0 IncAndSC PPR** Feedback 0 Incremental and Sine Cosine Pulses Per Revolution Indicates the Pulses Per Revolution (Encoder Lines) of the SinCos or A Quad B encoder for the feedback 0 device. When using a permanent magnet motor, the pulses per revolution (PPR) must be an exponent of two. For example: 512, 1024, 2048, 4096, 8192…524288… For the following selections, PPR is automatically read from the encoder: • EnDat SC • BiSS SC (not manually configured) • Hiperface SC For the following selections, PPR has to be entered by the user: • BiSS SC, Manually configured • Gen SinCos • A Quad B **Important:** Parameter is only updated on power up.	Units: Default: Min/Max:	PPR 1024 1 / 100000	RW	32-bit Integer

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Universal Feedback	Feedback 0	16 ○	**FB0 Inc Cfg** Feedback 0 Incremental Configuration Configures Incremental Feedback for the feedback 0 device.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Single Ended	Reserved	Edge Mode	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – When set, Channel Z is also monitored for Phase Loss. When cleared, Channel Z is ignored for Phase Loss detection.
Only used if [FB0 Device Sel] = “Inc A B Z.”
Bit 1 “A Chan Only” – When set, logic monitors only channel A. When clear, logic monitors both A and B.
Bit 2 “Edge Mode” – When set, speed calc uses AB edge data. When clear, speed calc does not use AB edge data.
Bit 4 “Single Ended” – This bit has to be set if the connected A Quad B encoder has single ended signals. For these encoders, the Phase Loss detection is switched off.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Universal Feedback	Feedback 0	17	**FB0 Inc Sts** Feedback 0 Incremental Status Displays Incremental Feedback status for the feedback 0 device.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – Indicates that Channel Z is monitored for Phase Loss. Only used if [FB0 Device Sel] = “Inc A B Z.”
Bit 1 “A Chan Only” – Indicates only A channel is monitored, B channel not used.
Bit 2 “A Input” – State of encoder A input signal
Bit 3 “A Not Input” – State of encoder A Not input signal
Bit 4 “B Input” – State of encoder B input signal
Bit 5 “B Not Input” – State of encoder B Not input signal
Bit 6 “Z Input” – State of encoder Z input signal
Bit 7 “Z Not Input” – State of encoder Z Not input signal

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Universal Feedback	Feedback 0	20 ○	**FB0 SSI Cfg** Feedback 0 SSI Configuration Configures the communication to a SSI encoder for the feedback 0 device. Transmission format: [MSB...Position...LSB], [Error Bit]*, [Parity Bit]*.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	DblWordQuery	Err Bit Enbl	Gray Code	Reserved	Parity Bit
Default	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Parity Bit” – If set, SSI encoder has to support a parity bit (even parity).
Bit 2 “Gray Code” – Enables the gray to binary conversion of the position.
Bit 3 “Err Bit Enbl” – If set, there is an error bit transmitted by the encoder.
Bit 4 “DblWordQuery” – If set, a Double Word Query is executed at startup which means that the same position is transmitted twice by the encoder. If the two positions are not identical, the “Comm” error bit in [FB0 Sts] is set. This bit only needs to be cleared if the encoder does not support Double Word Query and it does not send zeros instead of the second position (which it actually should according to the SSI specification).

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Universal Feedback	**Feedback 0**	**21** ○	**FB0 SSI Resol** Feedback 0 SSI Resolution Configures the number of bits for the position within one revolution (resolution) of the SSI encoder for the feedback 0 device. Setting is based on the encoder specifications.	Units: Default: Min/Max:	Bits 13 8 / 32	RW	32-bit Integer
		22 ○	**FB0 SSI Turns** Feedback 0 SSI Turns Configures the number of bits for the revolutions of the SSI encoder for the feedback 0 device. Setting is based on the encoder specifications. Set to 0 for a linear SSI encoder.	Units: Default: Min/Max:	Bits 12 0 / 16	RW	32-bit Integer
		25 ○	**FB0 Lin CPR** Feedback 0 Linear Encoder Counts Per Revolution Specifies the counts per motor revolution for a linear encoder for the feedback 0 device. This reflects the relationship between motor feedback counts and linear feedback counts when using linear load side feedback. When a load side position feedback device is used, the counts per rev for that device must be entered using the effective change in position feedback per one motor revolution, taking into account machine mechanics. The setting for this parameter is not used by encoder but instead is used by the position control routine firmware on the main control board.	Default: Min/Max:	0 0 / 4294967295	RW	32-bit Integer
		26 ○	**FB0 Lin Upd Rate** Feedback Linear Update Rate Sets the sample rate for the linear channel for the feedback 0 device. This determines how often the Universal Feedback module will sample the absolute position device.	Default: Options:	2 = "1.5 ms" 0 = "0.5 ms" 1 = "1.0 ms" 2 = "1.5 ms" 3 = "2.0 ms"	RW	32-bit Integer
		27	**FB0 LinStahl Sts** Feedback 0 Linear Stahl Status Displays the error status of the linear Stahl encoder for the feedback 0 device.			RO	16-bit Integer

Options	Reserved	No Position	Reserved	ROM Error	EPROM Error	RAM Error	Read Head 2	Read Head 1	Reserved	Reserved	Reserved	OutOfRailErr	Reserved	Reserved	OutOfRailAlm	Optics Alarm	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Condition False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = Condition True

Bit 0 "Optics Alarm" – Displays an alarm when optics require cleaning.
Bit 1 "OutOfRailAlm" – Indicates that the read encoder count is at the maximum value (524,287).
Bit 4 "OutOfRailErr" – Indicates that there is no more room between the read head and the rail.
Bit 8 "Read Head 1" – Indicates that the read head must be cleaned or installed correctly.
Bit 9 "Read Head 2" – Indicates that the read head must be cleaned or installed correctly.
Bit 10 "RAM Error" – Indicates a RAM error. Reading head needs to be repaired.
Bit 11 "EPROM Error" – Indicates an EPROM error. Reading head needs to be repaired.
Bit 12 "ROM Error" – Indicates a ROM error. Reading head needs to be repaired.
Bit 14 "No Position" – Indicates that no position value was available. Only happens after power on or reset.

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Universal Feedback	**Feedback 1**	**35**	**FB1 Position** Feedback 1 Position Displays the position value from the feedback 1 device. For parameter 36 [FB1 Device Select] options 1, 2, 3, and 4, one revolution of the feedback = 1048576. For options 11, 12, and 13, typically one revolution of the feedback is 4 x Pulses Per Revolution.	Default: Min/Max:	0 −2147483648 / 2147483647	RO	32-bit Integer
		36 ○	**FB1 Device Sel** Feedback 1 Device Select Specifies the encoder type for the feedback 1 device. In some cases, there is a choice of terminal blocks to use. Channel X refers to devices wired to TB1 and Channel Y refers to TB2. "None" (0) – No feedback device selected. Use this selection if the feedback device is unused. For example, only one feedback device is present and it is used on the other feedback. "EnDat SC" (1) – EnDat encoder with sine/cosine signals (Heidenhain). Terminal block 1. "Hiperface SC" (2) – Hiperface encoder with sine/cosine signals (Stegmann). Terminal block 1. The following Hiperface Type ID codes are supported: 02h, 07h, 22h, 27h, 23h, and 37h. Refer to manufacturer data sheet for more information. "BiSS SC" (3) – BiSS encoder with sine/cosine signals. Terminal block 1. "SSI SC" (4) – SSI encoder with sine/cosine signals. Terminal block 1. "EnDat FD ChX" (5) – Full digital EnDat encoder without sine/cosine signals (Heidenhain). Terminal block 1. "EnDat FD ChY" (6) – Full digital EnDat encoder without sine/cosine signals (Heidenhain). Terminal block 2. "BiSS FD ChX" (7) – Full digital BiSS encoder without sine/cosine signals. Terminal block 1. "BiSS FD ChY" (8) – Full digital BiSS encoder without sine/cosine signals. Terminal block 2. "SSI FD ChX" (9) – SSI Full Digital ChX "SSI FD ChY" (10) – SSI Full Digital ChY "SinCos Only" (11) – Generic sine/cosine encoder. Terminal block 1. "Inc A B Z" (12) – A Quad B encoder with Z marker. Terminal block 1, Pins 17…22. "Inc SC" (13) – A Quad B encoder without Z marker. Terminal block 1, Pins 1…4. "LinTempo ChX" (14) – Temposonic linear encoder. Terminal block 1. "LinTempo ChY" (15) – Temposonic linear encoder. Terminal block 2. "LinStahl ChX" (16) – Stahl linear encoder. Terminal block 1. "LinStahl ChY" (17) – Stahl linear encoder. Terminal block 2. "LinSSI ChX" (18) – Any linear encoder with an SSI interface. Terminal block 1. "LinSSI ChY" (19) – Any linear encoder with an SSI interface. Terminal block 2.	Default: Options:	0 = "None" 0 = "None" 1 = "EnDat SC" 2 = "Hiperface SC" 3 = "BiSS SC" 4 = "SSI SC" 5 = "EnDat FD ChX" 6 = "EnDat FD ChY" 7 = "BiSS FD ChX" 8 = "BiSS FD ChY" 9 = "SSI FD ChX" 10 = "SSI FD ChY" 11 = "SinCos Only" 12 = "Inc A B Z" 13 = "Inc SC" 14 = "LinTempo ChX" 15 = "LimTempo ChY" 16 = "LinStahl ChX" 17 = "LinStahl ChY" 18 = "LinSSI ChX" 19 = "LinSSI ChY"	RW	Real

File	Group	No.	**Display Name** Full Name Description	**Values**	**Read-Write**	**Data Type**
Universal Feedback	**Feedback 1**	**37**	**FB1 Identify** Feedback 1 Identify		RO	16-bit Integer

Displays the used encoder type for the feedback 1 device, e.g. Multi turn, rotary encoder with EnDat 2.1 interface including SIN/COS incremental signals.

Options	Reserved	Stahl	Temposonic	SSI	BiSS	Hiperface	EnDat 2p2	EnDat 2p1	Incremental	Full Digital	Sin Cos	Enh Resol	Multi Turn	Single Turn	Linear	Rotary
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Rotary” – Rotary encoder (incremental type).

Bit 1 “Linear” – Linear encoder (Temposonic and Stahl type).

Bit 2 “Single Turn” – Single turn absolute encoder. This encoder type can only track absolute position for one turn of the encoder shaft.

Bit 3 “Multi Turn” – Multiturn absolute encoder. This encoder type can track absolute position across multiple encoder turns.

Bit 4 “Enh Resol” – High resolution encoder. This bit is set if there are more than 24 bits resolution (full digital encoders) or the PPR is greater than or equal to 16384. If this bit is set, Bit 1 “24-bit Resol” in parameter [FB0 Cfg] should also be set.

Bit 5 “Sin Cos” – Sine / Cosine encoder, abbreviated SC. This encoder type makes use of an analog sine/cosine signal pair. This is the analog counterpart to the A quad B incremental encoder. A fine interpolation algorithm is sometimes used to provide high resolution feedback by processing the full sine/cosine cycle. Lower resolution feedback is also implemented by counting only zero crossings.

Bit 6 “Full Digital” – Full digital encoder, abbreviated FD. Refers to devices that use a serial communication interface, such as a clock and data lines to transmit data to/from the module. The analog (sine/cosine) signals are not used with a Full Digital interface.

Bit 7 “Incremental” – Typically an A quad B encoder, with optional Z (marker) channel. “A Channel Only” is possible (no B channel), but rarely used because this configuration lacks direction capability. Single channel incremental could be used to provide a speed (magnitude only) reference signal.

Bit 8 “EnDat 2p1” – Heidenhain absolute encoder with EnDat 2.1 command set support. EnDat is a proprietary protocol developed by Heidenhain. It is a synchronous, bidirectional serial interface. EnData is a full digital interface.

Bit 9 “EnDat 2p2” – Heidenhain EnDat 2.2 command set support. This version supports incremental as well as absolute encoders.

Bit 10 “Hiperface” – Dedicated serial interface protocol for Stegmann devices. Hiperface is short for High Performance Interface. This interface makes use of both analog (sine/cosine) and digital (clock/data) signals.

Bit 11 “BiSS” – Bidirectional Sychronous Serial Interface. This is an open protocol and is hardware-compatible with SSI. Both mixed SC with digital and FD types are supported. Presently, only BiSS encoders from Hengstler GmbH are supported.

Bit 12 “SSI” – Synchronous Serial Interface. Only the mixed SC with digital version is supported. Rotary version is mixed analog/digital, linear version is full digital.

Bit 13 “Temposonic” – Linear position sensor from MTS Systems Corp. Full digital SSI interface, absolute device uses magnetostrictive technology.

Bit 14 “Stahl” – Linear position sensor from Stahl GmbH. Full digital SSI interface, absolute device uses an encoded rail.

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="3">Universal Feedback</td><td rowspan="3">Feedback 1</td><td>38</td><td colspan="2">

FB1 Cfg
Feedback 1 Configuration
Configure the direction, position data format, as well as the baud rate for the serial communication interface for the feedback 1 device.

<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>SC Quadrant</td><td>FD Low Baud</td><td>24-bit Resol</td><td>Direction</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Condition False</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Condition True</td></tr>
</table>

Bit 0 “Direction” – Inverts the direction internally.
Bit 1 “24-bit Resol” – If set, the data format of the parameter [FB1 Position] is set to 8/24 (8 bit resolution, 24 bits position within one revolution). Otherwise, the data format is set to 12/20. It only makes sense to set this bit if the bit “Enh Resol” in parameter [FB1 Identify] is set.
Bit 2 “FD Low Baud” – Reduces the communication baud rate from the default setting for the connected encoder with a serial communication channel.
Bit 3 “SC Quadrant” – Reserved for future use.
</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td>39
○</td><td>

FB1 Loss Cfg
Feedback 1 Loss Configuration
Configures how the drive reacts to an error status condition on the feedback 1 device.
“Ignore” (0) – No action is taken.
“Alarm” (1) – Type 1 alarm indicated.
“Flt Minor” (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault.
“FltCoastStop” (3) – Major fault indicated. Coast to Stop.
</td><td>

Default: 3 = “FltCoastStop”
Options: 0 = “Ignore”
1 = “Alarm”
2 = “Flt Minor”
3 = “FltCoastStop”
</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>40</td><td colspan="2">

FB1 Sts
Feedback 1 Status
Shows feedback specific errors and alarms for the feedback 1 device.

<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Encoder Alm</td><td>Reserved</td><td>Unsupp Enc</td><td>Phase Loss</td><td>Quad Loss</td><td>Open Wire</td><td>SC Amplitude</td><td>SpplyVltRng</td><td>Diagnostic</td><td>Comm</td><td>Timeout</td><td>Msg Checksum</td><td>Encoder Err</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Condition False</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Condition True</td></tr>
</table>

Bit 0 “Encoder Err” – When asserted, there is an Encoder Error.
Bit 1 “Msg Checksum” – When asserted, the module has experienced a checksum error while attempting to communicate to an encoder via the serial communication channel.
Bit 2 “Timeout” – When asserted, the module has experienced a time out condition while attempting to communicate to the encoder via the serial communication channel.
Bit 3 “Comm” – When asserted, there was an error (except Checksum and Time Out) while attempting to communicate to an encoder via the serial communication channel.
Bit 4 “Diagnostic” – When asserted, the module has experienced a diagnostic test failure on power up.
Bit 5 “SpplyVltRng” – When asserted, the voltage source to the encoder is out of range.
Bit 6 “SC Amplitude” – When asserted, the module detected that the encoder signal amplitude is out of tolerance.
Bit 7 “Open Wire” – When asserted, the module has detected an open wire.
Bit 8 “Quad Loss” – Indicates that there is a signal quadrature error.
Bit 9 “Phase Loss” – Indicates that an A or B signal of an A Quad B Incremental encoder is disconnected.
Bit 10 “Unsupp Enc” – Indicates that the connected encoder is not supported.
Bit 12 “Encoder Alm” – When asserted, there is an Encoder Alarm.
</td><td>RO</td><td>16-bit Integer</td></tr>
</table>

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Universal Feedback	Feedback 1	**45** ○	**FB1 IncAndSC PPR** Feedback 1 Incremental and Sine Cosine Pulses Per Revolution Indicates the Pulses Per Revolution (Encoder Lines) of the SinCos or A Quad B encoder for the feedback 1 device. For the following selections, PPR is automatically read from the encoder: • EnDat SC • BiSS SC (not manually configured) • Hiperface SC For the following selections, PPR has to be entered by the user: • BiSS SC, Manually configured • Gen SinCos • A Quad B	Units: PPR Default: 1024 Min/Max: 1 / 100000	RW	32-bit Integer
		46 ○	**FB1 Inc Cfg** Feedback 1 Incremental Configuration Configures Incremental Feedback for the feedback 1 device.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Single Ended	Reserved	Edge Mode	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – When set, Channel Z is also monitored for Phase Loss. When cleared, Channel Z is ignored for Phase Loss detection.
Only used if [FB1 Device Sel] = “Inc A B Z.”
Bit 1 “A Chan Only” – When set, logic monitors only channel A. When clear, logic monitors both A and B.
Bit 2 “Edge Mode” – When set, speed calc uses AB edge data. When clear, speed calc does not use AB edge data.
Bit 4 “Single Ended” – This bit has to be set if the connected A Quad B encoder has single ended signals. For these encoders, the Phase Loss detection is switched off.

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Universal Feedback	Feedback 1	**47**	**FB1 Inc Sts** Feedback 1 Incremental Status Displays Incremental Feedback status for the feedback 1 device.		RO	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – Indicates that Channel Z is monitored for Phase Loss. Only used if [FB1 Device Sel] = “Inc A B Z.”
Bit 1 “A Chan Only” – Indicates only A channel is monitored, B channel not used.
Bit 2 “A Input” – State of encoder A input signal
Bit 3 “A Not Input” – State of encoder A Not input signal
Bit 4 “B Input” – State of encoder B input signal
Bit 5 “B Not Input” – State of encoder B Not input signal
Bit 6 “Z Input” – State of encoder Z input signal
Bit 7 “Z Not Input” – State of encoder Z Not input signal

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>Universal Feedback</td><td>Feedback 1</td><td>50
○</td><td colspan="3">FB1 SSI Cfg
Feedback 1 SSI Configuration
Configures the communication to a SSI encoder for the feedback 1 device. Transmission format: [MSB...Position...LSB], [Error Bit]*, [Parity Bit]*.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>DblWordQuery</td><td>Err Bit Enbl</td><td>Gray Code</td><td>Reserved</td><td>Parity Bit</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0 = Condition False
1 = Condition True</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr>
</table>
Bit 0 “Parity Bit” – If set, SSI encoder has to support a parity bit (even parity).
Bit 2 “Gray Code” – Enables the gray to binary conversion of the position.
Bit 3 “Err Bit Enbl” – If set, there is an error bit transmitted by the encoder.
Bit 4 “DblWordQuery” – If set, a Double Word Query is executed at startup which means that the same position is transmitted twice by the encoder. If the two positions are not identical, the “Comm” error bit in [FB1 Sts] is set. This bit only needs to be cleared if the encoder does not support Double Word Query and it does not send zeros instead of the second position (which it actually should according to the SSI specification).</td><td>RW</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>51
○</td><td>FB1 SSI Resol
Feedback 1 SSI Resolution
Configures the number of bits for the position within one revolution (resolution) of the SSI encoder for the feedback 1 device.</td><td>Units:
Default:
Min/Max:</td><td>Bits
13
8 / 32</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>52
○</td><td>FB1 SSI Turns
Feedback 1 SSI Turns
Configures the number of bits for the revolutions of the SSI encoder for the feedback 0 device. Setting is based on the encoder specifications. Set to 0 for a linear SSI encoder.</td><td>Units:
Default:
Min/Max:</td><td>Bits
12
0 / 16</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>55
○</td><td>FB1 Lin CPR
Feedback 1 Linear Encoder Counts Per Revolution
Specifies the counts per motor revolution for a linear encoder for the feedback 1 device.</td><td>Default:
Min/Max:</td><td>0
0 / 4294967295</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>56
○</td><td>FB1 Lin Upd Rate
Feedback Linear Update Rate
Sets the sample rate for the linear channel for the feedback 1 device.</td><td>Default:
Options:</td><td>2 = “1.5 ms”
0 = “0.5 ms”
1 = “1.0 ms”
2 = “1.5 ms”
3 = “2.0 ms”</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>57</td><td colspan="3">FB1 LinStahl Sts
Feedback 1 Linear Stahl Status
Displays the error status of the linear Stahl encoder for the feedback 1 device.
<table>
<tr><td>Options</td><td>Reserved</td><td>No Position</td><td>Reserved</td><td>ROM Error</td><td>EPROM Error</td><td>RAM Error</td><td>Read Head 2</td><td>Read Head 1</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>OutOfRailErr</td><td>Reserved</td><td>Reserved</td><td>OutOfRailAlm</td><td>Optics Alarm</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Condition False
1 = Condition True</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr>
</table>
Bit 0 “Optics Alarm” – Displays an alarm when fiber optics require cleaning.
Bit 1 “OutOfRailAlm” – Indicates that the read encoder count is at the maximum value (524,287).
Bit 4 “OutOfRailErr” – Indicates that there is no more room between the read head and the rail.
Bit 8 “Read Head 1” – Indicates that the read head must be cleaned or installed correctly.
Bit 9 “Read Head 2” – Indicates that the read head must be cleaned or installed correctly.
Bit 10 “RAM Error” – Indicates a RAM error. Reading head needs to be repaired.
Bit 11 “EPROM Error” – Indicates an EPROM error. Reading head needs to be repaired.
Bit 12 “ROM Error” – Indicates a ROM error. Reading head needs to be repaired.
Bit 14 “No Position” – Indicates that no position value was available. Only happens after power on or reset.</td><td>RO</td><td>16-bit Integer</td></tr>
</table>

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Universal Feedback	**Encoder Out**	**80** ○	**Enc Out Sel** Encoder Output Select Selects the Encoder Output. If the feedback 0 or 1 device is configured as A Quad B Z then this parameter has to be set to None. Otherwise, there is an Encoder Output Alarm (Bit 16 of [Module Sts]).	Default: Options:	0 = "None" 0 = "None" 1 = "Reserved" 2 = "Sine Cosine" 3 = "Channel X" (FB0 Channel) 4 = "Channel Y" (FB1 Channel)	RW	32-bit Integer
		81 ○	**Enc Out Mode** Encoder Output Mode Configures the Encoder Output type. "A Quad B" (0) – Sets the phase relationship between the A and B signal. "Inv A Quad B" (1) – Inverts the phase relationship between the A and B signal. Forward and reverse exchange meanings.	Default: Options:	0 = "A Quad B" 0 = "A Quad B" 1 = "Inv A Quad B"	RW	32-bit Integer
		82 ○	**Enc Out FD PPR** Full Digital Encoder Feedback Emulator Output Pulses Per Revolution Specifies the emulated encoder output PPR when the Feedback Selection (FB device 0/1 Sel) is set to Full Digital (values 5…10). When the Feedback selection is set to Sin/Cos "SC", the Sin/Cos native PPR defines the emulated encoder outputs PPR.	Default: Options:	1 = "1024 PPR" 0 = "512 PPR" 1 = "1024 PPR" 2 = "2048 PPR" 3 = "4096 PPR"	RW	32-bit Integer
		83	**Enc Out Z Offset** Encoder Output Z Offset Configures the offset of the Z pulse for both simulated and emulated encoder output. The marker offset is specified within one revolution. Simulated mode is used for full digital rotary devices and is selected by "Channel X" and "Channel Y" in P80 [Enc Out Sel]. Emulated mode is used when "Sine Cosine" devices are selected in P80 [Enc Out Sel]. The encoder output function cannot be used with linear feedback devices.	Units: Default: Min/Max:	PPR 0 0 / 100000	RW	32-bit Integer
		84 ○	**Enc Out Z PPR** Encoder Output Z Pulses Per Revolution Configures the number of Z-Pulses per encoder revolution. For example, if "32 Z-Pulses" (5) is selected, then 32 Z pulses will be generated for each complete revolution of the full digital input encoder. Each input encoder revolution will produce the number of output pulses specified on the A and B output channels in addition to 32 pulses on the Z output channel. The Z pulses will be evenly spaced throughout the specified number of A/B output pulses.	Default: Options:	0 = "1 Z-Pulse" 0 = "1 Z-Pulse" 1 = "2 Z-Pulses" 2 = "4 Z-Pulses" 3 = "8 Z-Pulses" 4 = "16 Z-Pulses" 5 = "32 Z-Pulses"	RW	32-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**	Read-Write	Data Type
Universal Feedback	**Registration**	**90**	**Rgsn Arm** Registration Arm Selects Registration Latches to be used.		RW	16-bit Integer

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Arm Latch 10	Arm Latch 9	Arm Latch 8	Arm Latch 7	Arm Latch 6	Arm Latch 5	Arm Latch 4	Arm Latch 3	Arm Latch 2	Arm Latch 1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Universal Feedback	Registration	**91**	**Rgsn In 0 Filter** Registration Input 0 Filter Configures a digital filter for the registration input 0. This filter can be used to reject spurious noise. The filter works by waiting a programmed time before deciding that the signal is valid. This waiting imposes a mandatory delay in the registration signal. The filter delay is programmable in increments of 100 nanoseconds from 0 (or no delay) up to 1500 nanoseconds.	Default: Options:	0 = “0 ns” 0 = “0 ns” 1 = “100 ns” 2 = “200 ns” 3 = “300 ns” 4 = “400 ns” 5 = “500 ns” 6 = “600 ns” 7 = “700 ns” 8 = “800 ns” 9 = “900 ns” 10 = “1000 ns” 11 = “1100 ns” 12 = “1200 ns” 13 = “1300 ns” 14 = “1400 ns” 15 = “1500 ns”	RW	Real
		92	**Rgsn In 1 Filter** Registration Input 1 Filter Configures a digital filter for the registration input 1. This filter can be used to reject spurious noise. The filter works by waiting a programmed time before deciding that the signal is valid. This waiting imposes a mandatory delay in the registration signal. The filter delay is programmable in increments of 100 nanoseconds from 0 (or no delay) up to 1500 nanoseconds.	Default: Options:	0 = “0 ns” 0 = “0 ns” 1 = “100 ns” 2 = “200 ns” 3 = “300 ns” 4 = “400 ns” 5 = “500 ns” 6 = “600 ns” 7 = “700 ns” 8 = “800 ns” 9 = “900 ns” 10 = “1000 ns” 11 = “1100 ns” 12 = “1200 ns” 13 = “1300 ns” 14 = “1400 ns” 15 = “1500 ns”	RW	Real
		93	**Rgsn HmIn Filter** Registration Home Input Filter Configures a digital filter for the home input. This filter can be used to reject spurious noise. The filter works by waiting a programmed time before deciding that the signal is valid. This waiting imposes a mandatory delay in the registration signal. The filter delay is programmable in increments of 100 nanoseconds from 0 (or no delay) up to 1500 nanoseconds.	Default: Options:	0 = “0 ns” 0 = “0 ns” 1 = “100 ns” 2 = “200 ns” 3 = “300 ns” 4 = “400 ns” 5 = “500 ns” 6 = “600 ns” 7 = “700 ns” 8 = “800 ns” 9 = “900 ns” 10 = “1000 ns” 11 = “1100 ns” 12 = “1200 ns” 13 = “1300 ns” 14 = “1400 ns” 15 = “1500 ns”	RW	Real

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Display Name
Full Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>Universal Feedback</td><td>Registration</td><td>94</td><td colspan="2">**Rgsn Sts**
Registration Status
Status of the configured registration events.
<table>
<tr><td>Options</td><td>Home Input</td><td>Rgsn Input 1</td><td>Rgsn Input 0</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Latch10Found</td><td>Latch10Armed</td><td>Latch9 Found</td><td>Latch9 Armed</td><td>Latch8 Found</td><td>Latch8 Armed</td><td>Latch7 Found</td><td>Latch7 Armed</td><td>Latch6 Found</td><td>Latch6 Armed</td><td>Latch5 Found</td><td>Latch5 Armed</td><td>Latch4 Found</td><td>Latch4 Armed</td><td>Latch3 Found</td><td>Latch3 Armed</td><td>Latch2 Found</td><td>Latch2 Armed</td><td>Latch1 Found</td><td>Latch1 Armed</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = False
1 = True</td><td>RO</td><td>16-bit Integer</td></tr>
<tr><td></td><td></td><td>100
103
106
109
112
115
118
121
124
127</td><td colspan="2">**Rgsn Latch1 Cfg**
Rgsn Latch2 Cfg
Rgsn Latch3 Cfg
Rgsn Latch4 Cfg
Rgsn Latch5 Cfg
Rgsn Latch6 Cfg
Rgsn Latch7 Cfg
Rgsn Latch8 Cfg
Rgsn Latch9 Cfg
Rgsn Latch10 Cfg
Registration Latch *n* Configure
Configures Registration Latch *n*.
The registration function consists of 10 sets of latches. The latched data includes a feedback position and associated time parameter. Time is relative to when the feedback devices were last sampled. Once the registration function has been armed, the values for these parameters are captured (latched) upon the occurrence of a trigger event. See functionality tables on following page.
The registration trigger for each latch is separately configured by its Latch Configuration Parameter. Refer to Figure 2 on page 287. The trigger logic includes two separate trigger stages. Each trigger stage is separately configured to use one of three possible registration input signals or the marker (Z pulse) of the selected feedback channel. Trigger combination logic determines how the two stages are combined to define the trigger event conditions.
<table>
<tr><td>Options</td><td>Reserved</td><td>Stg2EdgeFall</td><td>Stg2EdgeRise</td><td>Reserved</td><td>Stg2 In b1</td><td>Stg2 In b0</td><td>Logic Sel b1</td><td>Logic Sel b0</td><td>Stg1EdgeFall</td><td>Stg1EdgeRise</td><td>Reserved</td><td>Stg1 In b1</td><td>Stg1 In b0</td><td>Rev Capture</td><td>Fwd Capture</td><td>Channel Sel</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Condition False
1 = Condition True

Bit 0 “Channel Sel” – Channel select (FB0 or FB1).
Bit 1 “Fwd Capture” – Direction select forward.
Bit 2 “Rev Capture” – Direction select reverse.
Bit 3 “Stg1 In b0” – Latch stage 1 input selection b0
Bit 4 “Stg1 In b1” – Latch stage 1 input selection b1
Bit 6 “Stg1EdgeRise” – Latch stage 1 edge/level select: Rising edge or high level
Bit 7 “Stg1EdgeFall” – Latch stage 1 edge/level select: Falling edge or low level
Bit 8 “Logic Sel b0” – Trigger stage combination logic
Bit 9 “Logic Sel b1” – Trigger stage combination logic
Bit 10 “Stg2 In b0” – Latch stage 2 input selection b0
Bit 11 “Stg2 In b1” – Latch stage 2 input selection b1
Bit 13 “Stg2EdgeRise” – Latch stage 2 edge/level select: Rising edge or high level
Bit 14 “Stg2EdgeFall” – Latch stage 2 edge/level select: Falling edge or low level</td><td>RO</td><td>16-bit Integer</td></tr>
</table>

Registration Latch Configuration Parameters

Functionality of the Registration Latch Configuration parameter bits are listed in the tables that follow.

The registration parameters P100, P103, P106, . . . P127 can only be used when the drive's Spindle Orientation and Homing functions are active. These functions will overwrite any manually entered configuration.

Feedback Selection

Selects the feedback device for registration and marker pulse.

Bit 0 "Channel Sel" – 0 = Feedback 0
1 = Feedback 1

Direction Selection.

Bit 2 "Rev Capture"	Bit 1 "Fwd Capture"	Description
0	1	Latch only if rotation is forward
1	0	Latch only if rotation is reverse
1	1	Latch for both forward and reverse rotation
0	0	Not defined. No latch will occur

Trigger Stage 1

Bit 4 "Stg1 In b1"	Bit 3 "Stg1 In b0"	Description
0	0	Registration Input 0 (TB2: -R0, +R0)
0	1	Registration Input 0 (TB2: -R1, +R1)
1	0	Home Input (TB2: -Hm, +Hm)
1	1	Marker Input of respective feedback channel. (Z channel must be activated for respective feedback channel.)

Bit 7 "Stg1EdgeFall"	Bit 6 "Stg1EdgeRise"	Description
0	0	Trigger Disabled
0	1	Trigger on rising edge or high level of signal
1	0	Trigger on falling edge or low level of signal
1	1	Trigger on either edge. (Invalid as level select. Result is always true for level select.)

Trigger Stage Combination Logic

The two trigger stages are combined to form the final or resulting trigger condition for each registration latch.

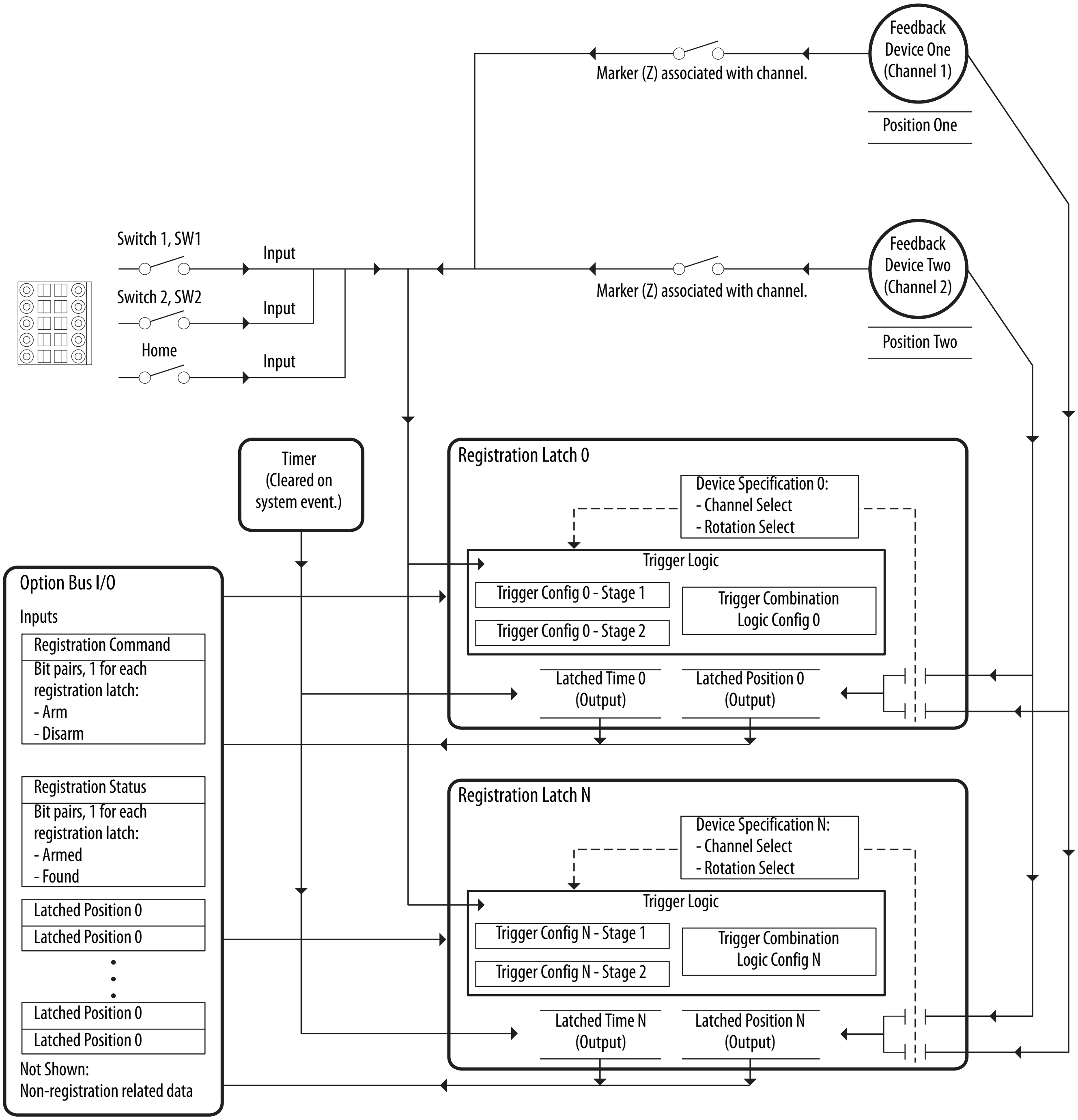
Bit 9 "Logic Sel b1"	Bit 8 "Logic Sel b0"	Description
0	0	None: Stage 1 Only (Stage 2 ignored)
0	1	THEN: Stage 1 Edge Transition THEN Stage 2 Edge Transition
1	0	OR: Stage 1 Edge Transition OR Stage 2 Edge Transition
1	1	AND: Stage 1 Level Transition AND Stage 2 Level Transition

Trigger Stage 2

Bit 11 "Stg2 In b1"	Bit 10 "Stg1 In b0"	Description
0	0	Registration Input 0 (TB2: -R0, +R0)
0	1	Registration Input 0 (TB2: -R1, +R1)
1	0	BEFORE: Stage 1 edge causes acquisition of time and position data. Stage 2 edge causes the latch of the last acquired position.
1	1	Marker Input of respective feedback channel. (Z channel must be activated for respective feedback channel.)

Bit 14 "Stg2EdgeFall"	Bit 13 "Stg2EdgeRise"	Description
0	0	Trigger Disabled
0	1	Trigger on rising edge or high level of signal
1	0	Trigger on falling edge or low level of signal
1	1	Trigger on either edge. (Invalid as level select. Result is always true for level select.)

Figure 2 - Registration Trigger Logic



File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Universal Feedback	**Registration**	**101** **104** **107** **110** **113** **116** **119** **122** **125** **128**	**Rgsn Latch1 Psn** **Rgsn Latch2 Psn** **Rgsn Latch3 Psn** **Rgsn Latch4 Psn** **Rgsn Latch5 Psn** **Rgsn Latch6 Psn** **Rgsn Latch7 Psn** **Rgsn Latch8 Psn** **Rgsn Latch9 Psn** **Rgsn Latch10 Psn** Registration Latch X Position Position Captured during the Registration Event for Latch X.	Default: Min/Max:	0 2147483648 / 2147483647	RO	32-bit Integer
		102 **105** **108** **111** **114** **117** **120** **123** **126** **129**	**Rgsn Latch1 Time** **Rgsn Latch2 Time** **Rgsn Latch3 Time** **Rgsn Latch4 Time** **Rgsn Latch5 Time** **Rgsn Latch6 Time** **Rgsn Latch7 Time** **Rgsn Latch8 Time** **Rgsn Latch9 Time** **Rgsn Latch10 Time** Registration Latch X Time Time Captured when the Registration Event occurred for Latch X.	Units: Default: Min/Max:	Cnt 0 0 / 4294967295	RO	32-bit Integer

Safe Speed Monitor Module Parameters

For detailed information on the Safe Speed Monitor option, refer to the Safe Speed Monitor Option Module for PowerFlex 750-Series AC Drives Safety Reference Manual, publication 750-RM001.

File	Group	No.	**Display Name** Full Name Description	Values		Read-Write	Data Type
Safe Speed Monitor	Security	1	**Password** Password Password for Lock and Unlock function.	Default: Min/Max:	N/A 0 / 4294967295	RW	32-bit Integer
		5	**Lock State** Lock State Command to lock or unlock the safety option configuration.	Default: Options:	0 = "Unlock" 0 = "Unlock" 1 = "Lock"	RW	8-bit Integer
		6	**Operating Mode** Operating Mode Command to place the system in Program or Run mode.	Default: Options:	0 = "Program" 0 = "Program" 1 = "Run" 2 = "Config Fault"	RW	8-bit Integer
		7	**Reset Defaults** Reset Defaults Resets safety option to factory defaults.	Default: Options:	0 = "No Action" 0 = "No Action" 1 = "Reset Fac" (Reset to factory defaults)	RW	8-bit Integer
		10	**Signature ID** Signature Identifier Safety configuration identifier.	Default: Min/Max:	N/A 0 / 4294967295	RO	32-bit Integer
		13	**New Password** New Password 32-Bit configuration password.	Default: Min/Max:	N/A 0 / 4294967295	RW	32-bit Integer
		17	**Password Command** Password Command Save new password command.	Default: Options:	0 = "No Action" 0 = "No Action" 1 = "Change PW" (Change Password) 2 = "Reset PW" (Reset Password)	RW	8-bit Integer
		18	**Security Code** Security Code Used for Reset Password command.	Default: Min/Max:	N/A 0 / 4294967295	RO	32-bit Integer
		19	**Vendor Password** Vendor Password Vendor password for Reset Password command.	Default: Min/Max:	N/A 0 / 65535	RW	16-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Safe Speed Monitor	Security	**70**	**Config Flt Code** Configuration Fault Code 0 = No Fault 1 = Password Required (Password Req) 2 = P21 [Safety Mode] value not legal based on P20 [Cascaded Config] value. 3 = P57 [Door Out Type] value not legal based on P20 [Cascaded Config] value. 4 = P46 [Stop Mon Delay] value not legal based on P45 [Safe Stop Type] value. 5 = P50 [Decel Ref Speed] value not legal based on P31 [Fbk 1 Resolution] value. 6 = P48 [Standstill Speed] value not legal based on P20 [Cascaded Config] value. 7 = P53 [LimSpd Mon Delay] value not legal based on P21 [Safety Mode] value. 8 = P55 [Safe Speed Limit] value not legal based on P21 [Safety Mode] and P31 [Fbk 1 Resolution] value. 9 = P56 [Speed Hysteresis] value not legal based on P21 [Safety Mode] value. 10 = P62 [Safe Max Speed] value not legal based on P31 [Fbk 1 Resolution] value. 11 = P42 [Direction Mon] value not legal based on P21 [Safety Mode] value. 12 = P59 [Lock Mon Enable] value not legal based on P21 [Safety Mode] value. 13 = P36 [Fbk 2 Resolution] value not legal based on P27 [Fbk Mode] value. 14 = P35 [Fbk 2 Polarity] value not legal based on P27 [Fbk Mode] value. 15 = P39 [Fbk Speed Ratio] value not legal based on P27 [Fbk Mode] value. 16 = P41 [Fbk Pos Tol] value not legal based on P27 [Fbk Mode] value. 17 = P40 [Fbk Speed Tol] value not legal based on P27 [Fbk Mode] value. 18 = P44 [Safe Stop In Typ] value not legal based on P21 [Safety Mode] value. 19 = P52 [Lim Spd In Typ] value not legal based on P21 [Safety Mode] value. 20 = P58 [DM Input Type] value not legal based on P20 [Cascaded Config] and P21 [Safety Mode] value. 21 = P54 [Enable SW In Typ] value not legal based on P21 [Safety Mode] value. 22 = P60 [Lock Mon In Type] value not legal based on P21 [Safety Mode] value and P59 [Lock Mon Enable] value. 23 = Illegal P20 [Cascaded Config] value. 24 = Illegal P22 [Reset Type] value. 25 = Reserved 26 = Illegal P45 [Safe Stop Type] value. 27 = Illegal P51 [Stop Decel Tol] value. 28 = Illegal P27 [Fbk Mode] value. 29 = Illegal P28 [Fbk 1 Type] value. 30 = Illegal P31 [Fbk 1 Resolution] value. 31 = Illegal P32 [Fbk1 Volt Mon] value. 32 = Illegal P37 [Fbk 2 Volt Mon] value. 33 = Illegal P24 [OverSpd Response] value. 34 = Reserved 36 = Unknown Error (Unknown Err).	Default: Options:	NA 0…36	RO	8-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Safe Speed Monitor	General	**20**	**Cascaded Config** Cascaded Configuration Defines whether the speed monitoring safety option is a single unit or if it occupies a first, middle, or last position in a multi-axis cascaded system. "Single" (0) - Single Unit System "Milti First" (1) - Cascaded System First Unit "Multi Mid" (2) - Cascaded System Middle Unit "Multi Last" (3) - Cascaded System Last Unit	Default: Options:	0 = "Single" 0 = "Single" 1 = "Multi First" 2 = "Multi Mid" 3 = "Multi Last"	RW	8-bit Integer
		21	**Safety Mode** Safety Mode Defines the primary operating mode of the speed monitoring safety functions. "Safe Stop" (1) - Master, Safe Stop "Safe Stop DM" (2) - Master, Safe Stop with Door Monitoring "Lim Speed" (3) - Master, Safe Limited Speed "Lim Speed DM" (4) -Master, Safe Limited Speed with Door Monitoring "Lim Speed ES" (5) - Master, Safe Limited Speed with Enabling Switch Control "LimSpd DM ES" (6) - Master, Safe Limited Speed with Door Monitoring and Enabling Switch Control "Lim Spd Stat" (7) - Master, Safe Limited Speed Status Only "Slv Safe Stp" (8) - Slave, Safe Stop "Slv Lim Spd" (9) - Slave, Safe Limited Speed "Slv Spd Stat" (10) - Slave, Safe Limited Speed Status Only	Default: Options:	1 = "Safe Stop" 0 = "Disable" 1 = "Safe Stop" 2 = "Safe Stop DM" 3 = "Lim Speed" 4 = "Lim Speed DM" 5 = "Lim Speed ES" 6 = "LimSpd DM ES" 7 = "Lim Spd Stat" 8 = "Slv Safe Stp" 9 = "Slv Lim Spd" 10 = "Slv Spd Stat"	RW	8-bit Integer
		22	**Reset Type** Reset Type Defines the type of reset used by the safety option.	Default: Options:	2 = "Monitored" 0 = "Automatic" 1 = "Manual" 2 = "Monitored" (Manual Monitored)	RW	8-bit Integer
		24	**OverSpd Response** Over Speed Response Configuration for the feedback interface sampling rate.	Default: Options:	0 = "42 msec" 0 = "42 msec" 1 = "48 msec" 2 = "60 msec" 3 = "84 msec" 4 = "132 msec" 5 = "228 msec" 6 = "420 msec"	RW	8-bit Integer
		72	**SS Out Mode** Defines whether the SS_Out output is pulse-tested. If pulse-testing is turned off for any output, the SIL, Category, and PL rating is reduced for the entire safety system.	Default: Options:	0 = "Pulse Test" 0 = "Pulse Test" 1 = "No Pulse Tst"	RW	8-bit Integer
		73	**SLS Out Mode** Defines whether the SLS_Out output is pulse-tested. If pulse-testing is turned off for any output, the SIL, Category, and PL rating is reduced for the entire safety system.	Default: Options:	0 = "Pulse Test" 0 = "Pulse Test" 1 = "No Pulse Tst"	RW	8-bit Integer

File	**Group**	**No.**	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
Safe Speed Monitor	**Feedback**	**27**	**Fbk Mode** Feedback Mode Selects the number of feedback devices and the type of discrepancy checking. "Single Fbk" (0) - 1 Encoder "Dual S/P Chk" (1) - 2 Encoders with Speed and Position Discrepancy Checking "Dual Spd Chk" (2) - 2 Encoders with Speed Discrepancy Checking "Dual Pos Chk" (3) - 2 Encoders with Position Discrepancy Checking	Default: Options:	0 = "Single Fbk" 0 = "Single Fbk" 1 = "Dual S/P Chk" 2 = "Dual Spd Chk" 3 = "Dual Pos Chk"	RW	8-bit Integer
		28	**Fbk 1 Type** Feedback 1 Type Selects the type of feedback for encoder 1. When using the Safe Speed Monitor module with a 20-750-UFB-1 Universal Feedback module, set this parameter to 0 "Sine/Cosine" and ensure that the Universal Feedback module is set to a Sine/Cosine type device (P6 [FB0 Device Sel] and/or P36 [FB1 Device Sel]).	Default: Options:	1 = "Incremental" 0 = "Sine/Cosine" 1 = "Incremental"	RW	8-bit Integer
		29	**Fbk 1 Units** Feedback 1 Units Selects rotary or linear feedback for encoder 1.	Default: Options:	0 = "Rev" 0 = "Rev" (Rotary) 1 = "mm" (Linear)	RW	8-bit Integer
		30	**Fbk 1 Polarity** Feedback 1 Polarity Defines the direction polarity for encoder 1.	Default: Options:	0 = "Normal" 0 = "Normal" (Same as encoder) 1 = "Reversed"	RW	8-bit Integer
		31	**Fbk 1 Resolution** Feedback 1 Resolution Counts/Revolution. 1…65,535 pulses/revolution or pulses/mm based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Default: Min/Max:	1024 1 / 65535	RO	16-bit Integer
		32	**Fbk 1 Volt Mon** Feedback 1 Voltage Monitor Encoder 1 voltage to be monitored.	Default: Options:	0 = Voltage not monitored 0 = Voltage not monitored 5 = 5V +/- 5% 9 = 7…12V 12 = 12V +/- 5% 24 = 24V - 10%…24V + 5%	RW	8-bit Integer
		33	**Fbk 1 Speed** Feedback 1 Speed Displays the output speed of encoder 1. Units based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Min/Max:	RPM mm/s -214748364.8 / 214748364.7 RPM -214748364.8 / 214748364.7mm/s	RO	32-bit Integer
		34	**Fbk 2 Units** Feedback 2 Units Selects rotary or linear feedback for encoder 2.	Default: Options:	0 = "Rev" 0 = "Rev" (Rotary) 1 = "mm" (Linear)	RW	8-bit Integer
		35	**Fbk 2 Polarity** Feedback 2 Polarity Defines the direction polarity for encoder 2.	Default: Options:	0 = "Normal" 0 = "Normal" (Same as encoder) 1 = "Reversed"	RW	8-bit Integer
		36	**Fbk 2 Resolution** Feedback 2 Resolution Counts/Revolution. 0…65,535 pulses/revolution or pulses/mm based on rotary or linear configuration defined by P34 [Fbk 2 Units].	Default: Min/Max:	0 0 / 65535	RW	16-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		**Read-Write**	**Data Type**
Safe Speed Monitor	**Feedback**	**37**	**Fbk 2 Volt Mon** Feedback 2 Voltage Monitor Encoder 2 voltage to be monitored.	Default: Options:	0 = Voltage not monitored 0 = Voltage not monitored 5 = 5V +/- 5% 9 = 7…12V 12 = 12V +/- 5% 24 = 24V - 10%…24V + 5%	RW	8-bit Integer
		38	**Fbk 2 Speed** Feedback 2 Speed Displays the output speed of encoder 2. Units based on rotary or linear configuration defined by P34 [Fbk 2 Units].	Units: Min/Max:	RPM mm/s -214748364.8/214748364.7 RPM -214748364.8/214748364.7 mm/s	RO	32-bit Integer
		39	**Fbk Speed Ratio** Feedback Speed Ratio Defines the ratio of the expected speed of encoder 2 divided by the expected speed of encoder 1. Ratio based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Default: Min/Max:	0.0000 0.0000 / 10000.0	RW	Real
		40	**Fbk Speed Tol** Feedback Speed Tolerance Acceptable difference in speed between P33 [Fbk 1 Speed] and P38 [Fbk 2 Speed]. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Min/Max:	RPM mm/s 0 / 6553.5 RPM 0 / 6553.5 mm/s	RW	16-bit Integer
		41	**Fbk Pos Tol** Feedback Position Tolerance Acceptable difference in position between encoder 1 and encoder 2. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	Deg mm 0 0 / 65535 deg 0 / 65535 mm	RW	16-bit Integer
		42	**Direction Mon** Direction Monitoring Defines the allowable direction if Safe Direction Monitoring is enabled. “Pos Always” (1) – Positive always “Neg Always” (2) – Negative always “Pos in SLS” (3) – Positive during safe limited speed monitoring “Neg in SLS” (4) – Negative during safe limited speed monitoring	Default: Options:	0 = “Disable” 0 = “Disable” 1 = “Pos Always” 2 = “Neg Always” 3 = “Pos in SLS” 4 = “Neg in SLS”	RW	8-bit Integer
		43	**Direction Tol** Direction Tolerance The position limit in encoder units tolerated in the wrong direction when Safe Direction Monitoring is active. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	Deg mm 10 0 / 65535 deg 0 / 65535 mm	RW	16-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Safe Speed Monitor	**Stop**	**44**	**Safe Stop Input** Safe Stop Input Configuration for Safe Stop input (SS_In). "2NC" (1) – Dual-channel equivalent "2NC 3s" (2) – Dual-channel equivalent 3 s "1NC+1NO" (3) – Dual-channel complementary "1NC+1NO 3s" (4) – Dual-channel complementary 3 s "2 OSSD 3s" (5) – Dual-channel SS equivalent 3 s "1NC" (6) – Single channel equivalent	Default: Options:	1 = "2NC" 0 = "Not Used" 1 = "2NC" 2 = "2NC 3s" 3 = "1NC+1NO" 4 = "1NC+1NO 3s" 5 = "2 OSSD 3s" 6 = "1NC"	RW	8-bit Integer
		45	**Safe Stop Type** Safe Stop Type Safe operating stop type selection. This defines the type of Safe Stop that is performed if the Safe Stop function is initiated by a stop type condition. "Torque Off" (0) – Safe Torque Off With Standstill Checking "Torque Off NoCk" (3) – Safe Torque Off Without Standstill Checking	Default: Options:	0 = "Torque Off" 0 = "Torque Off" 1 = "Safe Stop 1" 2 = "Safe Stop 2" 3 = "Torque Off NoCk"	RW	8-bit Integer
		46	**Stop Mon Delay** Stop Monitoring Delay Defines the monitoring delay between the request and the Max Stop Time when the request for a Safe Stop 1 or a Safe Stop 2 is initiated by an SS_In input ON to OFF transition. If the Safe Stop Type is Safe Torque Off With or Without Standstill Speed Checking, the Stop Monitor Delay must be 0 or a Invalid Configuration Fault occurs.	Units: Default: Min/Max:	Secs 0 0 / 6553.5	RW	16-bit Integer
		47	**Max Stop Time** Maximum Stop Time Defines the maximum stop delay time that is used when the Safe Stop function is initiated by a stop type condition.	Units: Default: Min/Max:	Secs 0 0 / 6553.5	RW	16-bit Integer
		48	**Standstill Speed** Standstill Speed Defines the speed limit that is used to declare motion as stopped. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units]. Not valid for Safe Torque Off without Standstill Checking.	Units: Default: Min/Max:	RPM mm/s 0.001 0.001/ 65535 RPM 000/ 65535 mm/s	RW	16-bit Integer
		49	**Standstill Pos** Standstill Position Defines the position limit window in encoder 1 degrees or mm that will be tolerated after a safe stop condition has been detected. Degrees (360° = 1 revolution) or mm based on rotary or linear configuration defined by P29 [Fbk 1 Units]. Not valid for Safe Torque Off without Standstill Checking.	Units: Default: Min/Max:	Deg mm 10 0 / 65.535 deg 0 / 65.535 mm	RW	16-bit Integer
		50	**Decel Ref Speed** Deceleration Reference Speed Determines deceleration rate to monitor for Safe Stop 1 or Safe Stop 2. Units are based on rotary or linear configuration defined by encoder 1 feedback configuration, P29 [Fbk 1 Units].	Units: Default: Min/Max:	RPM mm/s 0 0 / 65535 RPM 0 / 65535 mm/s	RW	16-bit Integer
		51	**Stop Decel Tol** Stop Deceleration Tolerance This is the acceptable tolerance above the deceleration rate set by the Decel Ref Speed parameter.	Units: Default: Min/Max:	% 0 0 / 100	RW	8-bit Integer

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Safe Speed Monitor	Limited Speed	52	**Lim Speed Input** Limited Speed Input Configuration for Safe Limited Speed input (SLS_In). "2NC" (1) – Dual-channel equivalent "2NC 3s" (2) – Dual-channel equivalent 3 s "1NC+1NO" (3) – Dual-channel complementary "1NC+1NO 3s" (4) – Dual-channel complementary 3 s "2 OSSD 3s" (5) – Dual-channel SS equivalent 3 s "1NC" (6) – Single channel equivalent	Default: Options:	0 = "Not Used" 0 = "Not Used" 1 = "2NC" 2 = "2NC 3s" 3 = "1NC+1NO" 4 = "1NC+1NO 3s" 5 = "2 OSSD 3s" 6 = "1NC"	RW	8-bit Integer
		53	**LimSpd Mon Delay** Limited Speed Monitoring Delay Defines the Safe Limited Speed Monitoring Delay between the SLS_In ON to OFF transition and the initiation of the Safe Limited Speed (SLS) or Safe Maximum Speed (SMS) monitoring.	Units: Default: Min/Max:	Secs 0 0 / 6553.5	RW	16-bit Integer
		54	**Enable SW Input** Enable Switch Input Configuration for the Enabling Switch input (ESM_In). "2NC" (1) – Dual-channel equivalent "2NC 3s" (2) – Dual-channel equivalent 3 s "1NC+1NO" (3) – Dual-channel complementary "1NC+1NO 3s" (4) – Dual-channel complementary 3 s "2 OSSD 3s" (5) – Dual-channel SS equivalent 3 s "1NC" (6) – Single channel equivalent	Default: Options:	0 = "Not Used" 0 = "Not Used" 1 = "2NC" 2 = "2NC 3s" 3 = "1NC+1NO" 4 = "1NC+1NO 3s" 5 = "2 OSSD 3s" 6 = "1NC"	RW	8-bit Integer
		55	**Safe Speed Limit** Safe Speed Limit Defines the speed limit that will be monitored in Safe Limited Speed (SLS) mode. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	RPM mm/s 0 0 / 6553.5 RPM 0 / 6553.5 mm/s	RW	16-bit Integer
		56	**Speed Hysteresis** Speed Hysteresis Provides hysteresis for SLS_Out output when Safe Limited Speed monitoring is active. 0% when P21 [Safety Mode] = 1, 2, 3, 4, 5, 6, 8, or 9 10…100% when P21 [Safety Mode] = 7 or 10	Units: Default: Min/Max:	% 0 0 / 100	RW	8-bit Integer

File	Group	No.	**Display Name** Full Name Description	**Values**		Read-Write	Data Type
Safe Speed Monitor	Door Control	57	**Door Out Type** Door Output Type Defines the lock and unlock state for door control output (DC_Out). When Door Out Type equals power to release, DC_Out is OFF in the lock state and ON in the unlock state. When Door Out Type equals power to lock, DC_Out is ON in the lock state and OFF in the unlock state. The first and middle units of a multi-axis system must be configured as cascading (2).	Default: Options:	0 = "Pwr to Rel" 0 = "Pwr to Rel" 1 = "Pwr to Lock" 2 = "2 Ch Sourcing"	RW	8-bit Integer
		58	**DM Input** Door Monitor Input Configuration for the Door Monitor input (DM_In). "2NC" (1) – Dual-channel equivalent "2NC 3s" (2) – Dual-channel equivalent 3 s "1NC+1NO" (3) – Dual-channel complementary "1NC+1NO 3s" (4) – Dual-channel complementary 3 s "2 OSSD 3s" (5) – Dual-channel SS equivalent 3 s "1NC" (6) – Single channel equivalent	Default: Options:	0 = "Not Used" 0 = "Not Used" 1 = "2NC" 2 = "2NC 3s" 3 = "1NC+1NO" 4 = "1NC+1NO 3s" 5 = "2 OSSD 3s" 6 = "1NC"	RW	8-bit Integer
		59	**Lock Mon Enable** Lock Monitor Enable Lock Monitoring can only be enabled when the speed monitoring safety option is a single unit or as the first unit in a multi-axis system (P20 [Cascaded Config] = 0 or 1).	Default: Options:	0 = "Disable" 0 = "Disable" 1 = "Enable"	RW	8-bit Integer
		60	**Lock Mon Input** Lock Monitor Input Configuration for the Lock Monitor input (LM_In). "2NC" (1) – Dual-channel equivalent "2NC 3s" (2) – Dual-channel equivalent 3 s "1NC+1NO" (3) – Dual-channel complementary "1NC+1NO 3s" (4) – Dual-channel complementary 3 s "2 OSSD 3s" (5) – Dual-channel SS equivalent 3 s "1NC" (6) – Single channel equivalent	Default: Options:	0 = "Not Used" 0 = "Not Used" 1 = "2NC" 2 = "2NC 3s" 3 = "1NC+1NO" 4 = "1NC+1NO 3s" 5 = "2 OSSD 3s" 6 = "1NC"	RW	8-bit Integer
		74	**Door Out Mode** Door Output Mode Defines whether the DC_Out output is pulse-tested. If pulse-testing is turned off for any output, the SIL, Category, and PL rating is reduced for the entire safety system.	Default: Options:	0 = "Pulse Test" 0 = "Pulse Test" 1 = "No Pulse Tst"	RW	8-bit Integer

File	Group	No.	Display Name Full Name Description	Values		Read-Write	Data Type
Safe Speed Monitor	Max Speed	**61**	**Max Speed Enable** Maximum Speed Enable Enable Safe Maximum Speed Monitoring.	Default: Options:	0 = "Disable" 0 = "Disable" 1 = "Enable"	RW	8-bit Integer
		62	**Safe Max Speed** Safe Maximum Speed Defines the maximum speed limit that will be tolerated if Safe Maximum Speed monitoring is enabled.	Units: Default: Min/Max:	RPM mm/s 0 0 / 65535 RPM 0 / 65535 mm/s	RW	16-bit Integer
		63	**Max Spd Stop Typ** Maximum Speed Stop Type Defines the safe stop type that will be initiated in the event of a SMS Speed Fault. "Torque Off" (0) – Safe Torque Off With Standstill Checking "Safe Stp Typ" (1) – Safe Torque Off Without Standstill Checking	Default: Options:	0 = "Torque Off" 0 = "Torque Off" 1 = "Safe Stp Typ"	RW	8-bit Integer
		64	**Max Accel Enable** Maximum Acceleration Enable Enable Safe Maximum Acceleration Monitoring.	Default: Options:	0 = "Disable" 0 = "Disable" 1 = "Enable"	RW	8-bit Integer
		65	**Safe Accel Limit** Safe Acceleration Limit Defines the Safe Maximum Acceleration Limit, relative to encoder 1, for which the system is being monitored. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	Rev/s^2 mm/s^2 0 0 / 65535 rev/s^2 0 / 65535 mm/s^2	RW	16-bit Integer
		66	**Max Acc Stop Typ** Maximum Acceleration Stop Type Defines the safe stop type that will be initiated in the event of an Acceleration Fault. "Torque Off" (0) – Safe Torque Off With Standstill Checking "Safe Stp Typ" (1) – Safe Torque Off Without Standstill Checking	Default: Options:	0 = "Torque Off" 0 = "Torque Off" 1 = "Safe Stp Typ"	RW	8-bit Integer

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Safe Speed Monitor	Faults	**67**	**Fault Status** Fault Status Bit-encoded faults.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Fbk 2 V Flt	Fbk 1 V Flt	ESM Mon Flt	ESM In Flt	Lock Mon Flt	LM In Flt	DC Out Flt	Door Mon Flt	DM In Flt	Dir Flt	Accel Flt	SMS Spd Flt	SLS Spd Flt	SLS Out Flt	SLS In Flt	Mov in Stop	Stop Spd Flt	Decel Flt	SS Out Flt	SS In Flt	Dual Fbk Pos	Dual Fbk Spd	Fbk 2 Flt	Fbk 1 Flt	Reset PwrUp	MP Out Flt	Invalid Cfg	Critical Flt	Combined Flt
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Combined Flt” – Combined Fault Status
Bit 1 “Critical Flt” – Critical Fault
Bit 2 “Invalid Cfg” – Invalid Configuration Fault
Bit 3 “MP Out Flt” – MP Out Fault
Bit 4 “Reset PwrUp” – Reset On at PwrUp Fault
Bit 5 “Fbk 1 Flt” – Feedback 1 Fault
Bit 6 “Fbk 2 Flt” – Feedback 2 Fault
Bit 7 “Dual Fbk Spd” – Dual FB Speed Fault
Bit 8 “Dual Fbk Pos” – Dual FB Position Fault
Bit 9 “SS In Flt” – SS_In Fault
Bit 10 “SS Out Flt” – SS_Out Fault
Bit 11 “Decel Flt” – Deceleration Fault
Bit 12 “Stop Spd Flt” – Stop Speed Fault
Bit 13 “Mov in Stop” – Motion After Stopped Fault
Bit 14 “SLS In Flt” – SLS_In Fault
Bit 15 “SLS Out Flt” – SLS_Out Fault
Bit 16 “SLS Spd Flt” – SLS_Speed Fault
Bit 17 “SMS Spd Flt” – SMS_Speed Fault
Bit 18 “Accel Flt” – Acceleration Fault
Bit 19 “Dir Flt” – Direction Fault
Bit 20 “DM In Flt” – DM_In Fault
Bit 21 “Door Mon Flt” – Door Monitoring Fault
Bit 22 “DC Out Flt” – DC_Out Fault
Bit 23 “LM In Flt” – LM_In Fault
Bit 24 “Lock Mon Flt” – Lock Monitoring Fault
Bit 25 “ESM In Flt” – ESM_In Fault
Bit 26 “ESM Mon Flt” – ESM Monitoring Fault
Bit 27 “Fbk 1 V Flt” – Encoder 1 Voltage Fault
Bit 28 “Fbk 2 V Flt” – Encoder 2 Voltage Fault

File	Group	No.	**Display Name** Full Name Description	Values	Read-Write	Data Type
Safe Speed Monitor	Faults	68	**Guard Status** Guard Status Indicates the state of the safety functions while in Run mode.		RO	32-bit Integer

Options	Reserved	Reserved	Reserved	Stop Cmd	SLS Cmd	Wait No Stop	Wait SS Cyc	Wait Reset	Reset In	ESM In Prog	ESM In	LM In	DM In Prog	DM In	DC Out	DC Lock	SDM In Prog	SMA In Prog	SMS In Prog	SLS Out	SLS In Prog	SLS Req	SLS In	SS Out	SS Stopped	SS Decel	SS In Prog	SS Req	SS In	MP Out	Config Lock	StatusOK
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Status OK” – 0 = Fault; 1 = OK
Bit 1 “Config Lock” – Configuration_Lock: 0 = Unlock; 1 = Lock
Bit 2 “MP Out” – MP_Out_Value: 0 = Off; 1 = On
Bit 3 “SS In” – SS_In_Value: 0 = Off; 1 = On
Bit 4 “SS Req” – SS_Request_Status: 0 = Inactive; 1 = Active
Bit 5 “SS In Prog” – SS_In_Progress: 0 = Inactive; 1 = Active
Bit 6 “SS Decel” – SS_Decelerating_Status: 0 = Inactive; 1 = Active
Bit 7 “SS Stopped” – SS_Axis_Stopped_Status: 0 = Inactive; 1 = Active
Bit 8 “SS Out” – SS_Output_Value: 0 = Off; 1 = On
Bit 9 “SLS In” – SLS_In_Value: 0 = Off; 1 = On
Bit 10 “SLS Req” – SLS_Request_Status: 0 = Inactive; 1 = Active
Bit 11 “SLS In Prog” – SLS_In_Progress: 0 = Inactive; 1 = Active
Bit 12 “SLS Out” – SLS_Output_Value: 0 = Off; 1 = On
Bit 13 “SMS In Prog” – SMS_In_Progress: 0 = Inactive; 1 = Active
Bit 14 “SMA In Prog” – SMA_In_Progress: 0 = Inactive; 1 = Active
Bit 15 “SDM In Prog” – SDM_In_Progress: 0 = Inactive; 1 = Active
Bit 16 “DC Lock” – DC_Lock_Status: 0 = Lock; 1 = Unlock
Bit 17 “DC Out” – DC_Out_Value: 0 = Off; 1 = On
Bit 18 “DM In” – DM_In_Value: 0 = Off; 1 = On
Bit 19 “DM In Prog” – DM_In_Progress: 0 = Inactive; 1 = Active
Bit 20 “LM In” – LM_In_Value: 0 = Off; 1 = On
Bit 21 “ESM In” – ESM_In_Value: 0 = Off; 1 = On
Bit 22 “ESM In Prog” – ESM_In_Progress: 0 = Inactive; 1 = Active
Bit 23 “Reset In” – Reset_In_Value: 0 = Off; 1 = On
Bit 24 “Wait Reset” – Waiting_for_SS_Reset: 0 = Inactive; 1 = Active
Bit 25 “Wait SS Cyc” – Waiting_for_Cycle_SS_In: 0 = Inactive; 1 = Active
Bit 26 “Wait No Stop” – Waiting_for_Stop_Request_Removal: 0 = Inactive; 1 = Active
Bit 27 “SLS Cmd” – SLS_Command: 0 = Off; 1 = On
Bit 28 “Stop Cmd” – Stop_Command: 0 = Off; 1 = On

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Safe Speed Monitor	Faults	69	**IO Diag Status** I/O Diagnostics Status		RO	32-bit Integer

Indicates present state of I/O used for diagnostics.
Important: When the safety option is not in the Run mode, this parameter is not updated.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	MP Out Ch 1	MP Out Ch 0	Stop Cmd	SLS Cmd	Reserved	Reset In	LM In Ch 1	LM In Ch 0	DC Out Ch 1	DC Out Ch 0	DM In Ch 1	DM In Ch 0	ESM In Ch 1	ESM In Ch 0	SLS Out Ch 1	SLS Out Ch 0	SLS In Ch 1	SLS In Ch 0	SS Out Ch 1	SS Out Ch 0	SS In Ch 1	SS In Ch 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Open
1 = Closed

Bit 0 “SS In Ch 0” – SS_in_ch_0 status
Bit 1 “SS In Ch 1” – SS_in_ch_1 status
Bit 2 “SS Out Ch 0” – SS_out_ch_0 status
Bit 3 “SS Out Ch 1” – SS_out_ch_1 status
Bit 4 “SLS In Ch 0” – SLS_in_ch_0 status
Bit 5 “SLS In Ch 1” – SLS_in_ch_1 status
Bit 6 “SLS Out Ch 0” – SLS_out_ch_0 status
Bit 7 “SLS Out Ch 1” – SLS_out_ch_1 status
Bit 8 “ESM In Ch 0” – ESM_in_ch_0 status
Bit 9 “ESM In Ch 1” – ESM_in_ch_1 status
Bit 10 “DM In Ch 0” – DM_in_ch_0 status
Bit 11 “DM In Ch 1” – DM_in_ch_1 status
Bit 12 “DC Out Ch 0” – DC_out_ch_0 status
Bit 13 “DC Out Ch 1” – DC_out_ch_1 status
Bit 14 “LM In Ch 0” – LM_in_ch_0 status
Bit 15 “LM In Ch 1” – LM_in_ch_1 status
Bit 16 “Reset In” – Reset_In status
Bit 17 “Reserved”
Bit 18 “SLS Cmd” – SLS_command status
Bit 19 “Stop Cmd” – Stop_command status
Bit 20 “MP Out Ch 0” – MP_Out_Ch_0 status
Bit 21 “MP Out Ch 1” – MP_Out_Ch_1 status

File	Group	No.	Display Name Full Name Description	Values	Read-Write	Data Type
Safe Speed Monitor	Faults	70	See page 290.			
		72	See page 291.			
		73	See page 291.			
		74	See page 296.			

Chapter 6

Troubleshooting

This chapter provides information to guide you through troubleshooting PowerFlex® 750-Series faults and alarms.

Faults, Alarms, and Configurable Conditions

Faults

A fault identifies a condition that stops the drive. Faults are classified in two ways: Major/Minor and Auto Reset Run/Resettable/Non-Resettable/Automatic Drive Reset.

Type	Description
Major	This type of fault in an exception event that stops the drive while the drive is active. The drive goes to the Not Ready state. No faults can be present for the drive to be in the Ready state.
Minor	This type of fault is an exception event that does not stop the drive while the drive is active. To enable the drive from the Drive Not Ready state to the Ready state, the exception must no longer be present and the fault must be cleared.
Auto Reset Run	When this type of fault occurs, and P348 [Auto Rstrt Tries] is set to a value greater than "0," a user-configurable timer, P349 [Auto Rstrt Delay] begins. When the timer reaches zero, the drive attempts to reset the fault automatically. If the condition that caused the fault is no longer present, the fault is reset and the drive is restarted. A "Y" in the "Auto Reset" column in Table 10 on page 309 identifies an "Auto Reset Run" fault.
Resettable	This type of fault can be cleared. "Resettable Fault" in the "Type" column in Table 10 on page 309 identifies a Resettable fault.
Non-Resettable	This type of fault normally requires drive or motor repair. The cause of the fault must be corrected before the fault can be cleared. The fault will be reset on power-up after repair. "Non-Reset Fault" in the "Type" column in Table 10 on page 309 identifies a Non-Resettable fault.
Automatic Drive Reset	When this type of fault occurs, the drive resets. "Automatic Drive Reset" in the "Type" column in Table 10 on page 309 identifies an Automatic Drive Reset fault.

Alarms

An alarm identifies a condition that, if left unaddressed, can stop the drive if running or prevent the drive from starting. There are two types of alarms.

Type	Description
Alarm 1	Alarms of type 1 indicate that a condition exists. Type 1 alarms are configurable.
Alarm 2	Alarms of type 2 indicate that a configuration error exists and the drive cannot be started. Type 2 alarms are non-configurable.

Configurable Conditions

Configurable conditions can be enabled as an alarm or fault.

Type	Description
Configurable	The parameter identified in the "Configuration Parameter" column of Table 10 on page 309 enables/disables the event action. **Options** Ignore (0) – No action is taken. Alarm (1) – Type 1 alarm indicated. Flt Minor (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Cfg]. If not enabled, acts like a major fault. FltCoastStop (3) – Major fault indicated. Coast to Stop. Flt RampStop (4) – Major fault indicated. Ramp to Stop. Flt CL Stop (5) – Major fault indicated. Current Limit Stop. FltNonRest (6) – Major fault indicated. Cycle power to clear the fault.

View Faults and Alarms

Diagnostic parameters indicate fault and alarm conditions. See the Fault/Alarm Info Group that begins on page 162.

To view fault history access Diagnostics and select Faults or Alarms.

Drive Status Indicators

The condition or state of the drive is constantly monitored and is indicated through the LEDs and/or the HIM (if present).

IMPORTANT	The Status Indicator LEDs on the HIM cradle do not indicate the status of an installed Communication Adapter option. If an optional Communication Adapter is installed, refer to the option module user manual for a description of LED location and indication.

Table 6 - PowerFlex 753 Drive Status Indicator Descriptions

Name	Color	State	Description
STS (Status)	Green	Flashing	Drive ready but not running, and no faults are present.
		Steady	Drive running, no faults are present.
	Yellow	Flashing	Drive is not running, a start inhibit condition exists and the drive cannot be started. See parameter 933 [Start Inhibits].
		Steady	A type 1 (configurable) alarm exists. A stopped drive cannot start until the alarm condition is cleared. If the drive is running, it continues to run but cannot restart until the alarm condition is cleared. See parameters 959 [Alarm Status A] and 960 [Alarm Status B].
	Red	Flashing	A major fault has occurred. The drive stops. Drive cannot be started until fault condition is cleared. See parameter 951 [Last Fault Code].
		Steady	A non-resettable fault has occurred.
	Red / Yellow	Flashing Alternately	A minor fault has occurred. When running, the drive continues to run. System is brought to a stop under system control. Fault must be cleared to continue. Use parameter 950 [Minor Flt Cfg] to enable. If not enabled, acts like a major fault.
	Yellow / Green	Flashing Alternately	When running, a type 1 alarm exists. See parameters 959 [Alarm Status A] and 960 [Alarm Status B].
	Green / Red	Flashing Alternately	Drive is flash updating.

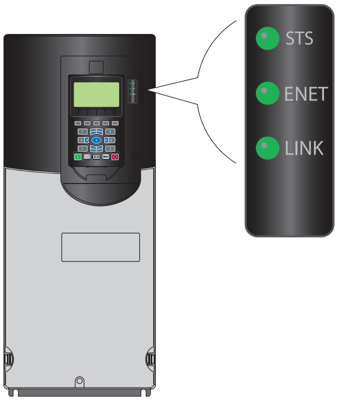


Table 7 - PowerFlex 755 Drive Status Indicator Descriptions

Name	Color	State	Description
STS (Status)	Green	Flashing	Drive ready but not running, and no faults are present.
		Steady	Drive running, no faults are present.
	Yellow	Flashing	Drive is not running, a type 2 (non-configurable) alarm condition exists and the drive cannot be started. See parameter 961 [Type 2 Alarms].
		Steady	A type 1 (configurable) alarm exists. A stopped drive cannot start until the alarm condition is cleared. If the drive is running, it continues to run but cannot restart until the alarm condition is cleared. See parameters 959 [Alarm Status A] and 960 [Alarm Status B].
	Red	Flashing	A major fault has occurred. The drive stops. The drive cannot start until the fault condition is cleared. See parameter 951 [Last Fault Code].
		Steady	A non-resettable fault has occurred.
	Red / Yellow	Flashing Alternately	A minor fault has occurred. A running drive continues to run. System is brought to a stop under system control. Fault must be cleared to continue. Use parameter 950 [Minor Flt Cfg] to enable. If not enabled, acts like a major fault.
	Yellow / Green	Flashing Alternately	When running, a type 1 alarm exists. See parameters 959 [Alarm Status A] and 960 [Alarm Status B].
	Green / Red	Flashing Alternately	Drive is flash updating.
ENET	Unlit	Off	Embedded EtherNet/IP is not properly connected to the network or needs an IP address.
	Red	Flashing	An EtherNet/IP connection has timed out.
		Steady	Adapter failed the duplicate IP address detection test.
	Red / Green	Flashing Alternately	Adapter is performing a self-test.
	Green	Flashing	Adapter is properly connected but is not communicating with any devices on the network.
		Steady	Adapter is properly connected and communicating on the network.
LINK	Unlit	Off	Adapter is not powered or is not transmitting on the network.
	Green	Flashing	Adapter is properly connected and transmitting data packets on the network.
		Steady	Adapter is properly connected but is not transmitting on the network.

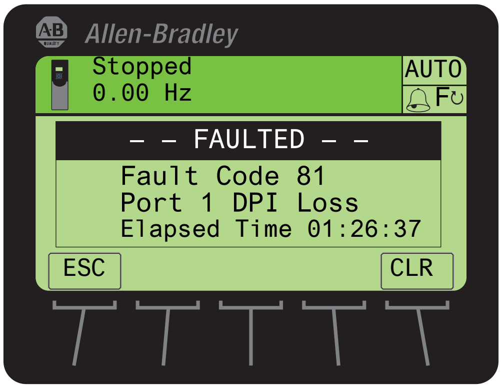
HIM Indication

Fault Display Screen

The pop-up Fault Display screen automatically appears when a fault condition for the Host Drive or any connected peripheral is detected. The pop-up Fault Display screen flashes to alert that a fault condition exists. This screen displays the:

- Fault Code number (See Fault and Alarm Display Codes on page 308.)
- Fault description
- Elapsed time (in hh:mm:ss format) from fault detection

Figure 3 - Pop-Up/Flashing Fault Display Screen



– – FAULTED – –
Fault Code 81
Port 1 DPI Loss
Elapsed Time 01:26:37

Soft Key Functions

Label	Name	Description
ESC	Escape	Reverts to the previous screen without clearing the fault.
CLR	Clear	Removes the pop-up Fault Display screen from the display and clears the fault.

Single Function Key

Key	Name	Description
○	Stop	Removes the pop-up Fault Display screen from the display and clears the fault.

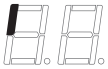
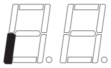
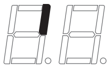
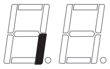
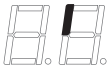
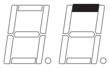
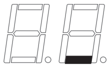
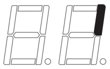
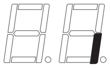
Manually Clearing Faults

Step	Key
1. To acknowledge the fault, press the "Clear" soft key. The fault information is removed so that you can use the HIM. 2. Address the condition that caused the fault. The cause must be corrected before the fault can be cleared. 3. After corrective action has been taken, clear the fault by one of these methods: Press Stop (if running the drive stops) Cycle drive power Select the "Clear" soft key on the HIM Diagnostic folder Faults menu.	CLR ○

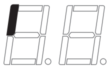
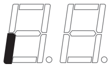
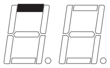
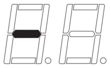
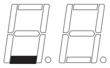
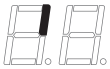
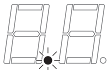
Power Layer Interface (PLI) Board 7-Segment Display

PowerFlex 755 Frame 8 and larger drives provide a pair of 7-segment displays to indicate drive status and conditions.

Series A Display

Lit Segment	Indication	Description
	Fault Clear	Indicates that a fault condition has been cleared.
	Fault	Indicates that a fault condition exists.
	Power On	Indicates that power is applied to the PLI board.
	Charged	Indicates the state of the pre-charge pin.
	PWM Enable	IGBT gating is enabled. When disabled, all IGBT signal inputs to the PLI IGBT driver chip are low. IGBT gating is enabled by setting bit 0 of the Config Register. IGBT gating is disabled by clearing bit 0 or by "POE" fault (IOC, Bus Overvoltage, or Ground Fault).
	Fiber Loss Fault	Turns on when a Fiber Loss fault occurs. A Fiber Loss fault occurs when the LOS signal is high or when a valid data packet has not been received for 1024 µs. The fault is latched and is cleared by setting bit 8 of the Config Register. The Fiber Loss fault inhibits IGBT firing in the same manner as a "POE" fault.
	Fiber Loss Pin	Indicates that the actual state of the LOS pin described in Write Enable.
	SAFE Vcc Power On	Power is applied to the PLI IGBT driver chip (U14). Delayed for 12 seconds after power-up.
	Write Enable	Data writes from the fiber-optic link are enabled to PLI registers. Data writes are disabled for ten seconds (time that is required for the Control Board to initialize) after negation of the LOS pin of the PLI fiber-optic transceiver. LOS is driven high when the optical power into the fiber-optic receiver is too low (broken, crimped, disconnected fiber, or transmitter at opposite end of fiber is not operating.

Series B Display

Lit Segment	Indication	Description
	PWM Enable	IGBT gating is enabled. IGBT gating is enabled by setting bit 0 of the Config Register. IGBT gating is disabled by clearing bit 0 or by fault.
	Fault	Indicates that a fault condition exists.
	Initialization Done	Indicates that the control has initialized the PLI board.
	Fiber Loss	Actual state of the LOS pin. LOS is driven high when the optical power into the fiber-optic receiver is too low (broken, crimped, disconnected fiber, or transmitter at opposite end of fiber is not operating.
	On Line	The PLI is powered.
	System Safety Enable B	Pin 1 of the 541 PLI IGBT driver chip (U14) is low. This pin must be low to fire the IGBTs.
	Aux Power	A 24V auxiliary supply provide power for the PLI board.

Setting Factory Defaults

The PowerFlex 20-HIM-A6 / -C6S HIM User Manual, publication 20HIM-UM001, provides detailed Human Interface Module (HIM) use instructions and explains the HIM capabilities, including setting PowerFlex 750-Series drive to factory settings.

The following parameters are not reset when Set Defaults “Most” is executed: P300 [Speed Units], P301 [Access Level], P302 [Language], P305 [Voltage Class], P306 [Duty Rating], P471 [PredMaint Rst En], and P472 [PredMaint Reset].

System Resource Allocation

Each option that is installed in the drive requires a percentage of the available system resources. Some options configurations can exceed the available resources of the main control board processor. If 90 % of the available system resources is reached, an F19 Task Overrun alarm results, which indicates that system resource utilization is excessive.

Table 8 - System Resource Allocation - Drive Frames 1…7

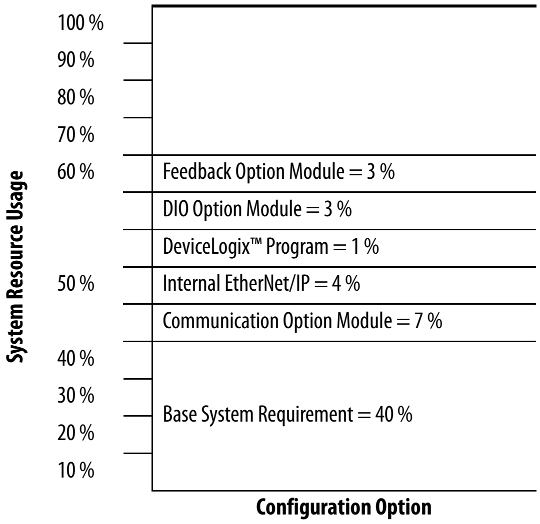
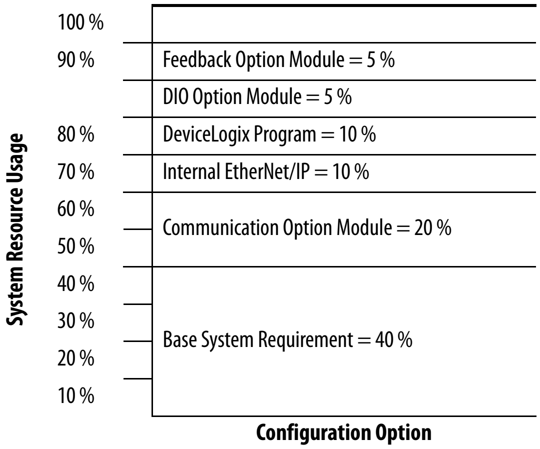


Table 9 - System Resource Allocation - Drive Frames 8…10



Hardware Service Manual

The PowerFlex 750-Series AC Drive Hardware Service Manual, publication 750-TG001, provides schematics and detailed instructions on part replacement for Frame 8 drives and larger.

Integrated Motion Applications

When a PowerFlex 755 is used in Integrated Motion on EtherNet/IP mode, the Logix controller and RSLogix 5000® are the exclusive owners of the drive (same as Kinetix®). A HIM or other drive software tools, such as DriveExplorer™ and DriveTools™ SP, cannot be used to control the drive or change configuration settings. These tools can only be used for monitoring.

Fault and Alarm Display Codes

Event numbers for PowerFlex 750-Series faults and alarms are displayed in one of three formats.

- Port 00 (Host Drive) displays the event number only. For example, Fault 3 “Power Loss” is displayed as:
  Fault Code 3.
- Ports 01…09 use the format PEEE, which identifies the port number (P) and event number (EEE). For example, Fault 1 “Analog In Loss” on an I/O module that is installed in Port 4 is displayed as:
  Fault Code 4001.
- Ports 10…14 use the format PPEEE, which identifies the port number (PP) and event number (EEE). For example, Fault 37 “Net IO Timeout” on Port 14 is displayed as:
  Fault Code 14037.

Parameter Access Level

Three parameter access level options are selectable by P301 [Access Level].

- Option 0 “Basic” is the most limited view that only displays commonly used parameters and options.
- Option 1 “Advanced” is an expanded view that can be required to access more advanced drive features.
- Option 2 “Expert” provides a comprehensive view of the entire drive parameter set.

If a parameter is not displaying, you can need to select the “Advanced” or “Expert” view to make that parameter visible in the list.

Drive Fault and Alarm Descriptions

Table 10 contains a list of drive-specific faults and alarms and includes the following information:

- The fault or alarm type
- The action that is taken when the drive faults
- The parameter that is used to configure the fault or alarm (if applicable)
- A description and action (where applicable)

The faults and alarms that are listed in Table 10 only apply to non-Integrated Motion applications. See Table 39 on page 527 for a list of Integrated Motion faults.

Table 10 - Drive Fault and Alarm Types, Descriptions, and Actions

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
0	No Entry					
2	Auxiliary Input	Resettable Fault	Coast	157 [DI Aux Fault]	Y	An auxiliary input interlock is open. A condition within the application is not allowing the drive to energize the motor and the digital input that is assigned in P157 [DI Aux Fault] has forced this fault.
3	Power Loss	Configurable		449 [Power Loss Actn]	Y	The DC bus voltage remained below the [Pwr Loss *n* Level] of nominal for longer than the time programmed in [Pwr Loss *n* Time].
4	UnderVoltage	Configurable		460 [UnderVltg Action]	Y	If the bus voltage indicated in P11 [DC Bus Volts] falls below the value set in P461 [UnderVltg Level] an undervoltage condition exists.
5	OverVoltage	Resettable Fault	Coast		Y	The DC bus voltage exceeded the maximum value. See P11 [DC Bus Volts].
7	Motor Overload	Configurable		410 [Motor OL Actn]	Y	An internal electronic overload trip has occurred. See P7 [Output Current], P26 [Motor NP Amps, P413 [Mtr OL Factor], and/or P414 [Mtr OL Hertz].
8	Heatsink OvrTemp	Resettable Fault	Coast		Y	The heatsink temperature has exceeded 100 % of the drive temperature. Heatsink over temperature occurs between 115…120 °C. The exact value is stored in drive firmware. See P943 [Drive Temp Pct] and/or P944 [Drive Temp C].
9	Trnsistr OvrTemp	Resettable Fault	Coast		Y	The output transistors have exceeded the maximum operating temperature. See P941 [IGBT Temp Pct] and/or P942 [IGBT Temp C]. If using the drive on a chiller plate, P38 [PWM Frequency] must be set to 2 kHz.
10	DynBrake OvrTemp	Alarm 1				The dynamic brake resistor has exceeded its maximum operating temperature. Check settings of parameters P382 [DB Resistor Type] through P385 [DB ExtPulseWatts].
12	HW OverCurrent	Resettable Fault	Coast		Y	The drive output current has exceeded the hardware current limit. Insulation Resistance (IR) test the wiring to motor.
13	Ground Fault	Resettable Fault	Coast		Y	A current path to earth ground greater than 25 % of drive rating has occurred.
14	Ground Warning	Configurable		466 [Ground Warn Actn]		The ground current has exceeded the level set in P467 [Ground Warn Lvl].
15	Load Loss	Configurable		441 [Load Loss Action]		The output torque current is below the value programmed in P442 [Load Loss Level] for a time period greater than the time programmed in P443 [Load Loss Time].

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
17	Input Phase Loss	Configurable		462 [InPhase LossActn]		The DC bus ripple has exceeded a preset level. Make these checks and adjustments in this order. • Check input impedance balance. • Increase the setting of P463 [InPhase Loss Lvl] to make the drive less sensitive. • Tune the bus regulator or speed regulator to mitigate the effects of dynamic cyclic loads on DC bus ripple. • Disable the fault by setting P462 [InPhase LossActn] to 0 "Ignore" and use an external phase loss detector such as a Bulletin 809S relay.
18	Motor PTC Trip	Configurable		250 [PTC Cfg]		Motor PTC (Positive Temperature Coefficient) over temperature.
19	Task Overrun	Alarm 1				System resource utilization is at or above 90 % of capacity. Review the system resource allocation table on page 307.
20	TorqPrv Spd Band	Resettable Fault	Coast			The difference between P2 [Commanded SpdRef] and P3 [Mtr Vel Fdbk] has exceeded the level programmed in P1105 [Speed Dev Band] for a time period greater than the time programmed in P1106 [SpdBand Intgrtr].
21	Output PhaseLoss	Configurable		444 [OutPhaseLossActn]		The current in one or more phases has been lost or remains below the threshold set in P445 [Out PhaseLossLvl] for 1 second. Decreasing the threshold makes the drive less sensitive to tripping. A deceased threshold is necessary when the motor is smaller than the drive rating. If TorqProve™ is active, the current in one or more phases has been lost or remains below a threshold for five msecs. The phases are checked at start to be sure that torque is delivered to the load. If the drive is faulting on start, increase P44 [Flux Up Time]. If TorqProve is active, and the brake is slipping, this fault occurs. When TorqProve is used, before the signal to the brake is applied to release it, the flux up time is used to check the three phases. The angle is adjusted to be sure that current is flowing through all three phases. If the motor moves during this test, the brake is not holding and a phase loss can occur. If TorqProve is active, and no brake is present, this fault occurs. Check for an open output contactor. ⚠ **ATTENTION:** If a PM motor is used and motor phase is lost, lower P445 [OutPhaseLossLvl] to 0 if TorqProve is not used or the drive output (motor) contacts are not used. Otherwise, lower P445 [OutPhaseLossLvl] until the drive is able to start and run without faulting.
24	Decel Inhibit	Configurable		409 [Dec Inhibit Actn]		The drive is not following a commanded deceleration because it is attempting to limit the bus voltage. For high inertia loads, set P621 [Slip RPM at FLA] to 0 (V/Hz and SVC modes only).
25	OverSpeed Limit	Resettable Fault	Coast		Y	The motor operating speed exceeds the limit set by the maximum speed setting P524 [Overspeed Limit]. For forward motor rotation, this limit is P520 [Max Fwd Speed] + P524 [Overspeed Limit]. For reverse motor rotation, this limit is P521 [Max Rev Speed] - P524 [Overspeed Limit]. When flux vector control modes are selected in P35 [Motor Ctrl Mode], P131 [Active Vel Fdbk] determines the motor operating speed. For all other non-flux vector control modes, P1 [Output Frequency] determines the motor operating speed.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
26	Brake Slipped	Alarm 1				The encoder movement has exceeded the level in P1110 [Brk Slip Count] after the brake was set and the brake slip maneuver is controlling the drive. (Drive is active.) Cycle power to the drive to reset.
		Alarm 2				The encoder movement has exceeded the level in P1110 [Brk Slip Count] after the brake was set and the brake slip maneuver is finished. (Drive is stopped.) Cycle power to the drive to reset.
27	Torq Prove Cflct	Alarm 2				When P1100 [Trq Prove Cfg] is enabled, these parameters must be properly configured: • P35 [Motor Ctrl Mode] • P125 [Pri Vel Fdbk Sel] and P135 [Mtr Psn Fdbk Sel] must be set to a valid feedback device. The feedback device does not have to be the same device. However, Open Loop and Simulation Feedback are not considered valid feedback devices. If parameters 125 and 135 are set to a feedback module, verify that the module parameters are set properly. On the module, the feedback loss action CANNOT be set to 0 "Ignore." Does not work in PM FV mode. Does not work with single ended or channel A only encoders.
28	TP Encls Config	Alarm 2				Encoderless TorqProve has been enabled but the application concerns of encoderless operation have not read and understood. Read the "Attention" on page 356 relating to the use of TorqProve with no encoder.
29	Analog In Loss	Configurable		263 [Anlg In0 LssActn]		Analog input has a lost signal.
33	AuRsts Exhausted	Resettable Fault	Coast	348 [Auto Rstrt Tries]		The drive attempted to reset a fault and resume running for the programmed number of tries, unsuccessfully.
35	IPM OverCurrent	Resettable Fault	Coast			The current magnitude has exceeded the trip level set by P1640 [IPM Max Cur]. Set this value to 0 only when the drive is set to the V/Hz or SVC mode.
36	SW OverCurrent	Resettable Fault	Coast		Y	The drive output current has exceeded the 1 ms current rating. This rating is greater than the 3 second current rating and less than the hardware overcurrent fault level. It is typically 200…250% of the drive continuous rating.
38 39 40	Phase U to Grnd Phase V to Grnd Phase W to Grnd	Resettable Fault	Coast			A phase to ground fault has been detected between the drive and motor in this phase. Rotate U/T1, V/T2, W/T3 connections. • If the problem follows the wire, suspect a field wiring problem. • If no change, suspect a problem with the drive.
41 42 43	Phase UV Short Phase VW Short Phase WU Short	Resettable Fault	Coast			Excessive current has been detected between these two output terminals. Rotate U/T1, V/T2, W/T3 connections. • If the problem follows the wire, suspect a field wiring problem. • If no change, suspect a problem with the drive.
44 45 46	Phase UNegToGrnd Phase VNegToGrnd Phase WNegToGrnd	Resettable Fault	Coast			A phase to ground fault has been detected between the drive and motor in this phase. Rotate U/T1, V/T2, W/T3 connections. • If the problem follows the wire, suspect a field wiring problem. • If no change, suspect a problem with the drive.
48	System Defaulted	Resettable Fault	Coast			The drive was commanded to write default values.
49	Drive Powerup	–				A Power Up Marker in the Fault Queue indicating that the drive power cycled.
51	Clr Fault Queue	–				Indication that the fault queue has been cleared.
55	Ctrl Bd Overtemp	Resettable Fault	Coast			The temperature sensor on the main control board detected excessive heat. See product temperature requirement.
58	Module Defaulted	Resettable Fault	Coast			The module was commanded to write default values.
59	Invalid Code	Resettable Fault	Coast			Internal error.
61	Shear Pin 1	Configurable		435 [Shear Pin 1 Actn]	Y	The programmed value in P436 [Shear Pin1 Level] has been exceeded.
62	Shear Pin 2	Configurable		438 [Shear Pin 2 Actn]	Y	The programmed value in P439 [Shear Pin2 Level] has been exceeded.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
64	Drive OverLoad	Alarm 1			Y	P940 [Drive OL Count] has exceeded 50 % but is less than 100 %.
		Resettable Fault	Coast			P940 [Drive OL Count] has exceeded 100 %. Reduce the mechanical load on the drive. Inverter fiber-optic connection is not detected on Frame 8 drive. This fault can occur on power-up if the control detects that no inverter is detected via the fiber-optic communication on a Frame 8 drive.
67	Pump Off	Alarm 1				Pump Off condition has been detected.
71 72 73 74 75 76	Port 1 Adapter Port 2 Adapter Port 3 Adapter Port 4 Adapter Port 5 Adapter Port 6 Adapter	Resettable Fault	Coast			The DPI communications option has a fault. See device event queue.
77	IR Volts Range	Alarm 2				The value for P73 [IR Voltage Drop], which is calculated from the motor nameplate data, is not within the range of acceptable values, as determined by the Calculated Autotune procedure. Check the motor nameplate data against parameters P25 [Motor NP Volts] through P30 [Motor NP Power].
		Resettable Fault	Coast			The measured value for P73 [IR Voltage Drop] is not within the range of acceptable values, as determined by the Static or Rotate Autotune procedure.
78	FluxAmpsRef Rang	Alarm 2				The value for flux amps exceeds the value programmed in P26 [Motor NP Amps], as calculated by the Autotune procedure. Check motor nameplate data against parameters P25 [Motor NP Volts] through P30 [Motor NP Power].
		Resettable Fault	Coast			The value for flux amps exceeds the value programmed in P26 [Motor NP Amps], as measured by the Static or Rotate Autotune procedure.
79	Excessive Load	Resettable Fault	Coast			The motor did not come up to speed in the allotted time during Autotune.
80	AutoTune Aborted	Resettable Fault	Coast			The Autotune function was manually canceled or a fault occurred.
81 82 83 84 85 86	Port 1 DPI Loss Port 2 DPI Loss Port 3 DPI Loss Port 4 DPI Loss Port 5 DPI Loss Port 6 DPI Loss	Resettable Fault	Coast	324 [Logic Mask]		The DPI port stopped communicating. Check connections and drive grounding.
87	IXo VoltageRange	Alarm 2				The default for P70 [Autotune] is 1 “Calculate” and the voltage that is calculated for motor inductive impedance exceeds 25 % of the value of P25 [Motor NP Volts].
		Resettable Fault	Coast			P70 [Autotune] is set to 2 “Static Tune” or 3 “Rotate Tune” and the voltage that is measured for motor inductive impedance exceeds 25 % of the value of P25 [Motor NP Volts].
91	Pri VelFdbk Loss	Configurable		Note: See option module for configuration parameter number		A Feedback Loss has been detected for the source of P127 [Pri Vel Feedback]. The feedback loss could be due to a problem detected by the feedback option module selected by P125 [Pri Vel Fdbk Sel] or due to a loss in communication between the feedback option module and main control board. The source of primary velocity feedback must be configured not to fault if the feedback loss switchover feature is used.
93	Hw Enable Check	Resettable Fault	Coast			The hardware enable is disabled (a jumper is installed) but indicates not enabled.
94	Alt VelFdbk Loss	Configurable		Note: See option module for configuration parameter number		A Feedback Loss has been detected for the source of P128 [Alt Vel Fdbk Sel]. The feedback loss could be due to a problem detected by the feedback option module selected by P128 [Alt Vel Fdbk Sel], or due to a loss in communication between the feedback option module and main control board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
95	Aux VelFdbk Loss	Configurable		Note: See option module for configuration parameter number		A Feedback Loss has been detected for the source of P132 [Aux Vel Fdbk Sel]. The feedback loss could be due to a problem detected by the feedback option module selected by P132 [Aux Vel Fdbk Sel], or due to a loss in communication between the feedback option module and main control board.
96	PositionFdbkLoss	Configurable		Note: See option module for configuration parameter number		A Feedback Loss has been detected for the source of P847 [Psn Fdbk]. The feedback loss could be due to a problem detected by the feedback option module selected by P135 [Mtr Psn Fdbk Sel], or due to a loss in communication between the feedback option module and main control board.
97	Auto Tach Switch	Resettable Fault	Coast	635 [Spd Options Ctrl] Bit 7 "Auto Tach SW"		Indication that either of the two following conditions exists. • Tach switch has occurred and alternate feedback device has failed. • Tach switch has not occurred, Auto Tach Switch Option is enabled and both primary and alternate devices have failed.
100	Parameter Chksum	Resettable Fault	Coast			The checksum read from the non-volatile storage does not match the checksum calculated. The data is set to the default value.
101	PwrDn NVS Blank	Resettable Fault	Coast			Internal data error. • Reset parameter defaults. See publication 20HIM-UM001 for instructions. • Reload parameters. • If problem persists, replace main control board. Fault normally occurs after a flash update to correct F117 fault.
102	NVS Not Blank	Resettable Fault	Coast			Internal data error.
103	PwrDn NVS Incomp	Resettable Fault	Coast			Internal data error.
104	Pwr Brd Checksum	Non-Reset Fault				The checksum read from the non-volatile storage does not match the checksum calculated. The data is set to the default value.
106	Incompat MCB-PB	Non-Reset Fault	Coast			The main control board did not recognize the power structure. Flash with newer Application revision.
107	Replaced MCB-PB	Resettable Fault	Coast			The main control board was moved to another power structure. The data is set to the default values.
108	Anlg Cal Chksum	Non-Reset Fault	Coast			The checksum read from the analog calibration data does not match the checksum calculated. Replace main control board.
110	Ivld Pwr Bd Data	Non-Reset Fault	Coast			Power structure data invalid. • Verify ribbon cable connection between the main control board and the power interface board. • Replace power interface board.
111	PwrBd Invalid ID	Non-Reset Fault	Coast			Power structure ID invalid. • Verify ribbon cable connection between the main control board and the power interface board. • Replace power interface board.
112	PwrBd App MinVer	Resettable Fault	Coast			Power structure needs newer Application revision. Flash with newer Application revision.
113	Tracking DataErr	Resettable Fault	Coast			Internal data error.
115	PwrDn Table Full	Resettable Fault	Coast			Internal data error.
116	PwrDnEntry2Large	Resettable Fault	Coast			Internal data error.
117	PwrDn Data Chksm	Resettable Fault	Coast			Internal data error.
118	PwrBd PwrDn Chks	Resettable Fault	Coast			Internal data error.
124	App ID Changed	Resettable Fault	Coast			Application Firmware changed. Verify Application revision.
125	Using Backup App	Resettable Fault	Coast			Application did not flash correctly. Reflash.
134	Start On PowerUp	Alarm 1				When P345 [Start At PowerUp] is enabled, an alarm is set for the time programmed in P346 [PowerUp Delay].
137	Ext Prechrg Err	Configurable		323 [Prchrg Err Cfg]		The seal contact on the external precharge contactor has opened (as signalled by P190 [DI Prchrg Seal]) while the drive was running (PWM was active).

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
138	Precharge Open	Resettable Fault	Coast	321 [Prchrg Control] 190 [DI Prchrg Seal] 189 [DI Precharge]		The internal precharge was commanded to open while the drive was running (PWM was active). The internal fault latch is automatically cleared when PWM is disabled.
141	Autn Enc Angle	Resettable Fault	Coast			P78 [Encdrlss AngComp] is out of range.
142	Autn Spd Rstrct	Resettable Fault	Coast			Frequency limit settings are preventing the drive from reaching a suitable speed during an Inertia Tune test.
143	Autotune CurReg	Resettable Fault	Coast			Calculated values for P96 [VCL Cur Reg Kp] and/or P97 [VCL Cur Reg Ki] are out of range.
144	Autotune Inertia	Resettable Fault	Coast			Results from the Inertia Tune test out of range for P76 [Total Inertia].
145	Autotune Travel	Resettable Fault	Coast			When P77 [Inertia Test Lmt] is set, the Inertia Tune test was prevented from reaching a suitable speed to run the test.
152	No Stop Source	Resettable Fault	Coast			Last stop source has been removed.
155	Bipolar Conflict	Alarm 2				P308 [Direction Mode] is set to 1 "Bipolar" or 2 "Rev Disable" and one or more digital inputs is enabled for direction control.
157	DigIn Cfg B	Alarm 2				Digital input conflict. Input functions that cannot exist simultaneously have been selected (for example run and start). Correct Digital Input configuration.

Digital Input combinations marked "●" cause an alarm.

	DI Stop Mode B	DI Speed Sel 2	DI Speed Sel 1	DI Speed Sel 0	DI Manual Ctrl	DI Decel 2	DI Accel 2	DI Fwd Reverse	DI Jog 2 Reverse	DI Jog 2 Forward	DI Jog 2	DI Jog 1 Reverse	DI Jog 1 Forward	DI Jog 1	DI Run Reverse	DI Run Forward	DI Run	DI Start	DI HOA Start	DI Clear Fault	DI Aux Fault	DI Cur Lmt Stop	DI Coast Stop	DI Stop
DI Stop																								■
DI Coast Stop																							■	
DI Cur Lmt Stop																						■		
DI Aux Fault																		●	●		■			
DI Clear Fault																			●	■				
DI HOA Start									●	●		●	●		●	●	●	●	■	●	●			
DI Start									●	●		●	●		●	●	●	■	●		●			
DI Run									●	●		●	●		●	●	■	●	●					
DI Run Forward								●			●			●		■	●	●	●					
DI Run Reverse								●			●			●	■		●	●	●					
DI Jog 1									●	●		●	●	■	●	●								
DI Jog 1 Forward								●			●		■	●			●	●	●					
DI Jog 1 Reverse								●			●	■		●			●	●	●					
DI Jog 2									●	●	■	●	●		●	●								
DI Jog 2 Forward								●		■	●			●			●	●	●					
DI Jog 2 Reverse								●	■		●			●			●	●	●					
DI Fwd Reverse								■	●	●		●	●		●	●								
DI Accel 2							■																	
DI Decel 2						■																		
DI Manual Ctrl					■																			
DI Speed Sel 0				■																				
DI Speed Sel 1			■																					
DI Speed Sel 2		■																						
DI Stop Mode B	■																							

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
158	DigIn Cfg C	Alarm 2				Digital input conflict. Input functions that cannot be assigned to the same digital input have been selected (for example run and stop). Correct Digital Input configuration.

Digital Input combinations marked “●” cause an alarm.

	DI Stop Mode B	DI Speed Sel 2	DI Speed Sel 1	DI Speed Sel 0	DI Manual Ctrl	DI Decel 2	DI Accel 2	DI Fwd Reverse	DI Jog 2 Reverse	DI Jog 2 Forward	DI Jog 2	DI Jog 1 Reverse	DI Jog 1 Forward	DI Jog 1	DI Run Reverse	DI Run Forward	DI Run	DI Start	DI HOA Start	DI Clear Fault	DI Aux Fault	DI Cur Lmt Stop	DI Coast Stop	DI Stop
DI Stop		●	●	●	●	●	●	●	●	●		●	●		●	●	●	●	●	●	●	●	●	■
DI Coast Stop		●	●	●	●	●	●	●	●	●		●	●		●	●	●	●	●	●	●	●	■	●
DI Cur Lmt Stop		●	●	●	●	●	●	●	●	●		●	●		●	●	●	●	●	●	●	■	●	●
DI Aux Fault		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	●	●	●
DI Clear Fault		●	●	●	●	●	●	●	●	●		●	●		●	●	●			■	●	●	●	●
DI HOA Start		●	●	●		●	●	●			●			●					■		●	●	●	●
DI Start		●	●	●		●	●	●			●			●				■			●	●	●	●
DI Run		●	●	●	●	●	●	●			●			●			■			●	●	●	●	●
DI Run Forward		●	●	●	●	●	●		●	●		●	●		●	■				●	●	●	●	●
DI Run Reverse		●	●	●	●	●	●		●	●		●	●		■	●				●	●	●	●	●
DI Jog 1		●	●	●		●	●	●			●			■			●	●	●		●			
DI Jog 1 Forward		●	●	●	●	●	●		●	●		●	■		●	●				●	●	●	●	●
DI Jog 1 Reverse		●	●	●	●	●	●		●	●		■	●		●	●				●	●	●	●	●
DI Jog 2		●	●	●		●	●	●			■			●			●	●	●		●			
DI Jog 2 Forward		●	●	●	●	●	●		●	■		●	●		●	●				●	●	●	●	●
DI Jog 2 Reverse		●	●	●	●	●	●		■	●		●	●		●	●				●	●	●	●	●
DI Fwd Reverse		●	●	●	●	●	●	■			●			●			●	●	●	●	●	●	●	●
DI Accel 2		●	●	●	●		■	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DI Decel 2		●	●	●	●	■		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DI Manual Ctrl		●	●	●	■	●	●	●	●	●		●	●		●	●	●			●	●	●	●	●
DI Speed Sel 0		●	●	■	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DI Speed Sel 1		●	■	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DI Speed Sel 2		■	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DI Stop Mode B	■																							

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
161	Sleep Config	Alarm 2				There is a Sleep/Wake configuration error. With Sleep Wake Mode = Direct, possible causes include: Drive is stopped and Wake Level < Sleep Level. Stop=CF, Run, Run Fwd, or Run Rev is not configured in Digital Input functions.
162	Waking	Alarm 1				The Wake timer is counting toward a value that starts the drive.
168	HeatSinkUnderTmp	Resettable Fault				Heatsink temperature sensor is reporting a value below -18.7 °C (-1.66 °F) or the sensor feedback circuit is open. See P943 [Drive Temp Pct] and/or P944 [Drive Temp C].
169	PWM Freq Reduced	Alarm 1				The PWM Frequency has been reduced from the value set in P38 [PWM Frequency] due to excessive IGBT junction temperatures. See also P420 [Drive OL Mode].
170	CurLimit Reduced	Alarm 1				The current limit value has been reduced from the value set in [Current Limit *n*] due to excessive IGBT junction temperatures or P940 [Drive OL Count] = 95 %. See also P420 [Drive OL Mode].

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
171	Adj Vltg Ref	Alarm 1				Invalid adjustable-voltage reference selection conflict.
175	Travel Lim Cflct	Non-Reset Fault	Current Limit Stop			Travel limits are in conflict. Both the forward and reverse travel limits indicate that they are simultaneously active. If digital limits (hardware signals) are in use, ensure that the following forward and reverse digital input pairs are not both off simultaneously: fwd/rev decel travel limit digital inputs and fwd/rev end stop travel limit digital inputs. The travel limit digital inputs are meant to be connected to normally closed switch contacts, so the digital input status reads an off (0 = False) bit status when the machine is on limit and the switch contact opens. A possible cause for this condition is loss of common power to both the forward and reverse travel limit switches. If software travel limits are in use, check the state of the fwd/rev travel limit bits in P1101 [Trq Prove Setup]. These bits read an on (1 = Enabled) bit status when the machine is on limit. Bit 2 "Decel Fwd" and Bit 4 "Decel Rev" should not be on simultaneously. Similarly, Bit 3 "End Stop Fwd" and Bit 5 "End Stop Rev" should not be on simultaneously.
177	Profiling Active	Alarm 1				The Profile/Indexer is active.
178	Homing Active	Alarm 1				The Homing function is active.
179	Home Not Set	Alarm 1				The Home position was not set before profile operation.
181	Fwd End Limit	Resettable Fault	Current Limit Stop			The selected digital input for one of the end limit switches, P196 [DI Fwd End Limit] or P198 [DI Rev End Limit], has detected a falling edge and P313 [Actv SpTqPs Mode] is not set to 1 "Speed Reg." If digital limits (hardware signals) are in use, ensure that the digital inputs are connected to normally closed contacts. When the end limit is reached the contacts open.
182	Rev End Limit	Resettable Fault	Current Limit Stop			The selected digital input for one of the end limit switches, P196 [DI Fwd End Limit] or P198 [DI Rev End Limit], has detected a falling edge and P313 [Actv SpTqPs Mode] is not set to 1 "Speed Reg." If digital limits (hardware signals) are in use, ensure that the digital inputs are connected to normally closed contacts. When the end limit is reached the contacts open.
185	Freq Conflict	Alarm 2				Indicates that the values of P520 [Max Fwd Speed] and P521 [Max Rev Speed] are in conflict with the value of P63 [Break Frequency].
186	VHz Neg Slope	Alarm 2				Indicates that the V/Hz curve segment resulted in a negative V/Hz slope. See P60 [Start Acc Boost] through P63 [Break Frequency].
187	VHz Boost Limit	Alarm 2				Indication that one of the two following conditions exists. • P60 [Start/Acc Boost] and P61 [Run Boost] are greater than P25 [Motor NP Volts] x 0.25 when P65 [VHz Curve] = 0 "Custom V/Hz." • P61 [Run Boost] is greater than P25 [Motor NP Volts] x 0.25 when P65 [VHz Curve] = 1 "Fan/Pump."
190	PM FV Pri Fdbk	Alarm 2				Indicates a control mode and primary-feedback device configuration error. P35 [Motor Ctrl Mode] is set to the permanent magnet flux vector "PM FV" control mode, P125 [Pri Vel Fdbk Sel] is set to P137 [Open Loop Fdbk] (port 0).
191	PM FV Alt Fdbk	Alarm 2				Indicates a control mode and alternate-feedback device configuration error. P35 [Motor Ctrl Mode] is set to the permanent magnet flux vector "PM FV" control mode, P635 [Spd Options Ctrl] is set to bit 7 "Auto Tach SW," P128 [Alt Vel Fdbk Sel] is set to P137 [Open Loop Fdbk] (port 0).
192	Fwd Spd Lim Cfg	Alarm 2				The forward speed reference is out of range. Verify the settings of P38 [PWM Frequency] and P520 [Max Fwd Speed]. Lower carrier frequencies reduce the output frequency range. Verify that P522 [Min Fwd Speed] is less than or equal to P520 [Max Fwd Speed].

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
193	Rev Spd Lim Cfg	Alarm 2				The reverse speed reference is out of range. Verify the settings of P38 [PWM Frequency] and P521 [Max Rev Speed]. Lower carrier frequencies reduce the output frequency range. Verify that P523 [Min Rev Speed] is greater than or equal to P521 [Max Rev Speed].
194	PM Offset Conflict	Alarm 2				Both P80 [PM Cfg] bit 0 "AutoOfstTest" and bit 2 "StaticTestEn" are set. Select only one.
195	IPMSpdEstErr	Resettable Fault	Coast			Speed Estimator failed to track High-Speed angle.
196	PM FS Cflct	Alarm 2				Attempted to set P356 [FlyingStart Mode] to 2 "Sweep" with a permanent magnet motor selected in P35 [Motor Ctrl Mode].
197	PM Offset Failed	Resettable Fault	Coast			Indicates that the PM Offset test failed due to interruption of the test before completion or the motor movement failed to reach the proper amount of rotation during the test. The test is rescheduled when this fault occurs. If failure occurred because of movement limitations, increase the [PM OfstTst Cur]. If this solution fails to correct the problem, the load on the motor maybe too large.
201	SpdReg DL Err	Alarm 2				Attempted to establish a Datalink to P644 [Spd Err Flt BW], P645 [Speed Reg KP], or P647 [Speed Reg Ki] and P636 [Speed Reg BW] is set to a value other than zero.
202	AltSpdReg DL Err	Alarm 2				Attempted to establish a Datalink to P649 [Alt Speed Reg Kp], P650 [Alt Speed Reg Ki], or P651 AltSpdErr FltrBW] and P648 [Alt Speed Reg BW] is set to a value other than zero.
203	Port 13 Adapter	Resettable Fault	Coast			The embedded EtherNet/IP adapter has a fault. See EtherNet event queue.
204	Port 14 Adapter	Resettable Fault	Coast			The DeviceLogix adapter has a fault.
205	DPI TransportErr	Alarm 1				A DPI Communication Error has occurred.
210	HW Enbl Jmpr Out	Resettable Fault	Coast			A Safety Option module is present and ENABLE Jumper is removed. Install the jumper. This fault occurs only on frames 1…7.
211	Safety Brd Fault	Resettable Fault	Coast			A Safety option module has indicated a fault. Verify that ENABLE Jumper is installed. Reset or power cycle drive. Safe Speed Monitor (20-750-S1): • See P67 [Fault Status] on page 298 for more information on the fault statuses. • See publication 750-RM001 for more information. Safe Torque Off (20-750-S): • If DC power drops below 17V DC "Not Enable" is indicated. • If voltage drops below 11V DC the module faults. • See publication 750-UM002 for more information. ATEX (20-750-ATEX): • Possible hardware damage. • The motor to the thermal sensor is shorted. • Excessive EMC noise due to improper grounding/shielding. • See publication 750-UM003 for more information.
212	Safety Jmpr Out	Resettable Fault	Coast			SAFETY Jumper is not installed and a Safety option module is not present. Install the jumper.
213	Safety Jumper In	Resettable Fault	Coast			SAFETY Jumper is installed and a Safety option module is present. Remove the jumper.
214	SafetyPortCnflct	Alarm 2				Allowable number of safety options exceeded. Only one safety option module can be installed at a time.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
224	Port 4 Comm Loss	Resettable Fault	Coast			The device at the port has stopped communicating with the main control board. Verify that the device is present and functional. Verify network connections. Verify options that are installed in ports 4…8 are seated in the port and secured with mounting screws.
225	Port 5 Comm Loss					
226	Port 6 Comm Loss					
227	Port 7 Comm Loss					
228	Port 8 Comm Loss					
229	Port 9 Comm Loss					
230	Port10 Comm Loss					
231	Port11 Comm Loss					
232	Port12 Comm Loss					
233	Port13 Comm Loss					
234	Port14 Comm Loss					
244	Port 4 Cfg	Alarm 2				The main control board does not have the correct option in the port. Option may not be compatible with product or MCB firmware must be updated to support it. Option may have to be moved or removed, accept option configuration change.
245	Port 5 Cfg					
246	Port 6 Cfg					
247	Port 7 Cfg					
248	Port 8 Cfg					
249	Port 9 Cfg					
250	Port 10 Cfg					
251	Port 11 Cfg					
252	Port 12 Cfg					
253	Port 13 Cfg					
254	Port 14 Cfg					
264	Port 4 Checksum	Resettable Fault	Coast			An option module storage checksum failed. Option data has been set to default values.
265	Port 5 Checksum					
266	Port 6 Checksum					
267	Port 7 Checksum					
268	Port 8 Checksum					
269	Port 9 Checksum					
270	Port10 Checksum					
271	Port11 Checksum					
272	Port12 Checksum					
273	Port13 Checksum					
274	Port14 Checksum					
281	Enet Checksum	Resettable Fault	Coast			EtherNet/IP storage checksum failed. Data set to default values.
282	DLX Checksum	Resettable Fault	Coast			DeviceLogix storage checksum failed. Data set to default values.
290	Prev Maint Reset	Alarm 1				Predictive maintenance function has reset an elapsed life parameter.
291	HSFan Life	Configurable		493 [HSFan EventActn]		Predictive maintenance function has reached the event level. Perform maintenance.
292	InFan Life	Configurable		500 [InFan EventActn]		
293	MtrBrng Life	Configurable		506 [MtrBrngEventActn]		
294	MtrBrng Lube	Configurable		510 [MtrLubeEventActn]		
295	MachBrng Life	Configurable		515 [MtrBrngEventActn]		
296	MachBrng Lube	Configurable		519 [MchLubeEventActn]		
307	Port7InvalidCard	Non-Reset Fault	Coast			Option not valid in that port. Remove option module.
308	Port8InvalidCard	Non-Reset Fault	Coast			
310	Regeneration OK	Resettable Fault	Coast			The drive has detected that the 'Regeneration OK' input has transition to an 'inactive' state.
315	Excess Psn Err	Configurable		Configured with Logix controller.		The absolute maximum Position Error value has been exceeded.
318	OutCurShare PhU	Alarm 1				There is output current sharing imbalance between parallel inverters in the phase indicated that is greater than 15 % of the inverter rated current.
319	OutCurShare PhV					
320	OutCurShare PhW					

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
322	N-1 Operation	Alarm 1		20 (Port 10) [Recfg Acknowledg] 21 (Port 10) [Effctv I Rating]		Drive is operating with fewer inverters than the original parallel configuration.
324	DC Bus Mismatch	Non-Reset Fault	Coast			There is a bus voltage imbalance between parallel inverters that is greater than 50V DC.
327 328 329	HS Temp Imbal U HS Temp Imbal V HS Temp Imbal W	Alarm 1				There is a heatsink temperature imbalance between parallel inverters in the phase indicated that is greater than 11.5 °C (52.7 °F).
331 332 333	I1 Comm Loss I2 Comm Loss I3 Comm Loss	Resettable Fault	Coast			A communications fault has occurred between the main control board and the power layer interface board on inverter *n*.
341 342 343	C1 Comm Loss C2 Comm Loss C3 Comm Loss	Resettable Fault	Coast			A communications fault has occurred between the main control board and the converter gate board on converter *n*.
351 352 353	In Cur Share L1 In Cur Share L2 In Cur Share L3	Alarm 1				There is an input current sharing imbalance between parallel converters in the AC line indicated that is greater than 15 % of the converter rated current.
357 358 359	In Vlt Imbal L12 In Vlt Imbal L23 In Vlt Imbal L31	Alarm 1				There is an input line voltage imbalance between parallel converters in the AC lines indicated that is greater than 5 % of the converter rated voltage.
360	N-1 See Manual	Resettable Fault	Coast			The number of active inverters has been reduced from the original parallel configuration. See N-1 and Re-Rate Functions on page 337.
361	Rerate See Manual	Resettable Fault	Coast			The drive rating has changed from the original parallel configuration. See N-1 and Re-Rate Functions on page 337.
362	Cnv/Inv Mismatch	Alarm 2				There is a voltage class mismatch between the installed parallel inverters and converters.
363	CBP/Inv Mismatch	Alarm 2				There is a voltage class mismatch between the installed parallel inverters and common DC bus precharge units.
364	CBP Num Mismatch	Alarm 2				The number of active inverters and active common DC bus precharge units does not match.
365	Zero Cnv/Prechrg	Alarm 2				No converter or common DC bus precharge unit exists.
366	Cnv Num Mismatch	Alarm 2				The number of active inverters and active converters does not match.
371 372	P1 Comm Loss P2 Comm Loss	Resettable Fault	Coast			A communications fault has occurred between the main control board and the DC precharge control board on the common DC bus precharge unit *n*.
380	PWM FPGA Overrun	Alarm 1				The time limit on the PWM write to the FPGA was exceeded.
900	900	Automatic Drive Reset	Coast			Critical input exception. Contact technical support.
901	Machine Check	Automatic Drive Reset	Coast			Internal error. Replace the main control board.
902	Data Storage Error	Automatic Drive Reset	Coast			Cache memory corrupt. Replace the main control board.
903	Instruction Storage Error	Automatic Drive Reset	Coast			Cache memory corrupt. Replace the main control board.
905	Alignment Error	Automatic Drive Reset	Coast			Pointer is pointing to a non-boundary member. Obtain test points and check grounding.
906	Program Error	Automatic Drive Reset	Coast			Bad memory read. Check grounding or replace the main control board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
907	Floating Point Unit Not On	Automatic Drive Reset	Coast			Firmware issue. Obtain test points.
909	Aux Processor Not On	Automatic Drive Reset	Coast			Auxiliary processor interrupt. Contact technical support.
912	Watchdog	Automatic Drive Reset	Coast			The timer counted down, reached 0, and fault occurred. Replace the main control board.
913	Data TLB Error	Automatic Drive Reset	Coast			Processor attempted to access non-boundary memory. Check grounding or replace the main control board.
914	Instruction TLB Error	Automatic Drive Reset	Coast			Processor attempted to access non-boundary memory. Check grounding or replace the main control board.
916	FPGA Failed to Load	Automatic Drive Reset	Coast			MCB failed to load on powerup. Replace the main control board.
917	FPGA CRC Failure	Resettable Fault (753) Disabled (755 LP) Automatic Drive Reset (755 HP)	Coast	964 [CRC Flt Cfg] 753 only		Change fault configuration (753). Replace the main control board.
918	Control Task Overrun	Automatic Drive Reset	Coast			Carrier frequency changes when passing through 7 Hz. In P40 [Mtr Option Cfg], set the PWM to 2 kHz or turn on the “PWM FreqLock” Bit 9. Or flash the drive to 8.001.
919	System Task Overrun	Automatic Drive Reset	Coast			The control task not finished and being told to run again. If fault does not clear, replace the main control board.
920	5 mSec Task Overrun	Automatic Drive Reset	Coast			The control task not finished and being told to run again. If fault does not clear, replace the main control board.
921	Control Task Stall	Automatic Drive Reset	Coast			Control task stalled. Check grounding or replace the main control board.
922	System Task Stall	Automatic Drive Reset	Coast			System task stalled. Check grounding or replace the main control board.
923	5 mSec Task Stall	Automatic Drive Reset	Coast			5 msec task stalled. Check grounding or replace the main control board.
924	Background Task Stall	Automatic Drive Reset	Coast			Background task stalled. Check grounding or replace the main control board.
925	Stack Overflow	Automatic Drive Reset	Coast			Firmware overflow. Obtain test points.
926	Ethernet Error	Automatic Drive Reset	Coast			Ethernet error. Contact technical support.
927	CIP Motion Error	Automatic Drive Reset	Coast			Integrated motion error. Contact technical support.
14037	Net IO Timeout	Configurable		52 [DLX Prog Cond]		DeviceLogix has been disabled.

IMPORTANT A module installed in a port generate fault and alarm event numbers 3000…13999. See Fault and Alarm Display Codes on page 308 for an explanation. For event numbers that fall from 13000 to 13999, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001 for descriptions.

Table 11 - Drive Fault and Alarm Cross Reference By Name

Fault/Alarm Text	Number	Fault/Alarm Text	Number
Adj Vltg Ref	171	Fwd Spd Lim Cfg	192
Alt VelFdbk Loss	94	Ground Fault	13
AltSpdReg DL Err	202	Ground Warning	14
Analog In Loss	29	Heatsink OvrTemp	8
Anlg Cal Chksum	108	HeatSinkUnderTmp	168
App ID Changed	124	Home Not Set	179
AuRsts Exhausted	33	Homing Active	178
Autn Enc Angle	141	HS Temp Imbal U	327
Autn Spd Rstrct	142	HS Temp Imbal V	328
Auto Tach Switch	97	HS Temp Imbal W	329
AutoTune Aborted	80	HSFan Life	291
Autotune CurReg	143	Hw Enable Check	93
Autotune Inertia	144	HW Enbl Jmpr Out	210
Autotune Travel	145	HW OverCurrent	12
Aux VelFdbk Loss	95	I1 Comm Loss	331
Auxiliary Input	2	I2 Comm Loss	332
Bipolar Conflict	155	In Cur Share L1	351
Brake Slipped	26	In Cur Share L2	352
C1 Comm Loss	341	In Cur Share L3	353
C2 Comm Loss	342	In Vlt Imbal L12	357
CBP Num Mismatch	364	In Vlt Imbal L23	358
CBP/Inv Mismatch	363	In Vlt Imbal L31	359
Clr Fault Queue	51	Incompat MCB-PB	106
Cnv Num Mismatch	366	InFan Life	292
Cnv/Inv Mismatch	362	Input Phase Loss	17
Comm Loss Net	280	Invalid Code	59
Ctrl Bd Overtemp	55	IPM OverCurrent	35
CurLimit Reduced	170	IPMSpdEstErr	195
DC Bus Mismatch	324	IR Volts Range	77
Decel Inhibit	24	Ivld Pwr Bd Data	110
DigIn Cfg B	157	IXo VoltageRange	87
DigIn Cfg C	158	Load Loss	15
DLX Checksum	282	MachBrng Life	295
DPI TransportErr	205	MachBrng Lube	296
Drive OverLoad	64	Module Defaulted	58
Drive Powerup	49	Motor Overload	7
DynBrake OvrTemp	10	Motor PTC Trip	18
Enet Checksum	281	MtrBrng Life	293
Excess Psn Err	315	MtrBrng Lube	294
Excessive Load	79	N-1 Operation	322
Ext Prechrg Err	137	N-1 See Manual	360
FluxAmpsRef Rang	78	Net IO Timeout	14037
Freq Conflict	185	No Stop Source	152
Fwd End Limit	181	NVS Not Blank	102

Fault/Alarm Text	Number
OutCurShare PhU	318
OutCurShare PhV	319
OutCurShare PhW	320
Output PhaseLoss	21
OverSpeed Limit	25
OverVoltage	5
P1 Comm Loss	371
P2 Comm Loss	372
Parameter Chksum	100
Phase U to Grnd	38
Phase UNegToGrnd	44
Phase UV Short	41
Phase V to Grnd	39
Phase VNegToGrnd	45
Phase VW Short	42
Phase W to Grnd	40
Phase WNegToGrnd	46
Phase WU Short	43
PM FS Cflct	196
PM FV Alt Fdbk	191
PM FV Pri Fdbk	190
PM Offset Conflict	194
PM Offset Failed	197
Port 1 Adapter	71
Port 1 DPI Loss	81
Port 10 Cfg	250
Port 11 Cfg	251
Port 12 Cfg	252
Port 13 Adapter	203
Port 13 Cfg	253
Port 14 Adapter	204
Port 14 Cfg	254
Port 2 Adapter	72
Port 2 DPI Loss	82
Port 3 Adapter	73
Port 3 DPI Loss	83
Port 4 Adapter	74
Port 4 Cfg	244
Port 4 Checksum	264
Port 4 Comm Loss	224
Port 4 DPI Loss	84
Port 5 Adapter	75
Port 5 Cfg	245

Fault/Alarm Text	Number
Port 5 Checksum	265
Port 5 Comm Loss	225
Port 5 DPI Loss	85
Port 6 Adapter	76
Port 6 Cfg	246
Port 6 Checksum	266
Port 6 Comm Loss	226
Port 6 DPI Loss	86
Port 7 Cfg	247
Port 7 Checksum	267
Port 7 Comm Loss	227
Port 8 Cfg	248
Port 8 Checksum	268
Port 8 Comm Loss	228
Port 9 Cfg	249
Port 9 Checksum	269
Port 9 Comm Loss	229
Port10 Checksum	270
Port10 Comm Loss	230
Port11 Checksum	271
Port11 Comm Loss	231
Port12 Checksum	272
Port12 Comm Loss	232
Port13 Checksum	273
Port13 Comm Loss	233
Port14 Checksum	274
Port14 Comm Loss	234
Port7InvalidCard	307
Port8InvalidCard	308
PositionFdbkLoss	96
Power Loss	3
Precharge Open	138
Prev Maint Reset	290
Pri VelFdbk Loss	91
Profiling Active	177
Pump Off	67
PWM FPGA Overrun	380
PWM Freq Reduced	169
Pwr Brd Checksum	104
PwrBd App MinVer	112
PwrBd Invalid ID	111
PwrBd PwrDn Chks	118
PwrDn Data Chksm	117

Fault/Alarm Text	Number
PwrDn NVS Blank	101
PwrDn NVS Incomp	103
PwrDn Table Full	115
PwrDnEntry2Large	116
Regeneration OK	310
Replaced MCB-PB	107
Rerate See Manual	361
Rev End Limit	182
Rev Spd Lim Cfg	193
Safety Brd Fault	211
Safety Jmpr Out	212
Safety Jumper In	213
SafetyPortCnflct	214
Shear Pin 1	61
Shear Pin 2	62
Sleep Config	161
SpdReg DL Err	201

Fault/Alarm Text	Number
Start On PowerUp	134
SW OverCurrent	36
System Defaulted	48
Task Overrun	19
Torq Prove Cflct	27
TorqPrv Spd Band	20
TP Encls Config	28
Tracking DataErr	113
Travel Lim Cflct	175
Trnsistr OvrTemp	9
UnderVoltage	4
Using Backup App	125
VHz Boost Limit	187
VHz Neg Slope	186
Waking	162
Zero Cnv/Prechrg	365

Inverter (Port 10) Faults and Alarms (Frame 8 and Larger)

Table 12 contains a list of Inverter-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable). These faults and alarms only apply to Frame 8 drives and larger.

Table 12 - Inverter Fault and Alarm Types, Descriptions, and Actions

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
10101 10201 10301	I1 Comm Loss I2 Comm Loss I3 Comm Loss	Non-Reset Fault	Coast			Indicates that the communication connection from the fiber optic interface board to the power layer interface board has been lost. Once the root cause of the communication fault has been resolved, power must be cycled or a drive reset must be initiated to clear this fault. • Verify the status of the Fiber Loss pin segment of the power-layer interface board LED. ⚠ **ATTENTION:** Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into fiber-optic ports or fiber-optic cable connectors. Remove power from the drive before disconnecting fiber optic cables. • Verify that the fiber optic cables are properly connected to the transceivers. • Verify that the transceivers are properly seated in the ports. • Verify that the fiber optic cable is not cracked or broken. • Verify that power is applied to the fiber optic interface board and power layer interface board.
10102 10202 10302	I1 Thermal Const I2 Thermal Const I3 Thermal Const	Non-Reset Fault	Coast			The thermal model data sent to the power layer interface board is incorrect. • Verify that the inverter is the correct rating for the drive. • Compare the firmware revisions of the power layer interface and control board for compatibility. • If necessary, reflash the application firmware in control board.
10103 10203 10303	I1 HSFan Slow I2 HSFan Slow I3 HSFan Slow	Alarm 1				The inverter heatsink fan is running below normal operating speed. • Verify the actual fan speed in [*In* HSFan Speed] (Port 10). • Check for debris in the fan. If necessary, clean the fan and housing. • Check for noise at the fan, indicating motor bearing failure. • Verify that the fan power and feedback connections are not loose or disconnected. • Replace the fan, if necessary.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
10104 10204 10304	I1 Overcurr UPos I2 Overcurr UPos I3 Overcurr UPos	Resettable Fault	Coast		Y	An instantaneous overcurrent (IOC) has occurred in the U, V, or W phase, positive or negative leg. • Reduce the mechanical load. • Check the motor and connections. • With motor disconnected, run the drive in open loop, in V/Hz mode and check for sufficient output phase-to-phase voltages. If an IOC occurs immediately after restarting the drive, check the appropriate current sensor. • Check the power and signal connections to the gate driver board for the phase that is identified, or replace it. The IGBT could also have failed open (and the opposite leg is receiving excess current).
10105 10205 10305	I1 Overcurr UNeg I2 Overcurr UNeg I3 Overcurr UNeg					
10106 10206 10306	I1 Overcurr VPos I2 Overcurr VPos I3 Overcurr VPos					
10107 10207 10307	I1 Overcurr VNeg I2 Overcurr VNeg I3 Overcurr VNeg					
10108 10208 10308	I1 Overcurr WPos I2 Overcurr WPos I3 Overcurr WPos					
10109 10209 10309	I1 Overcurr WNeg I2 Overcurr WNeg I3 Overcurr WNeg					
10110 10210 10310	I1 Bus Overvolt I2 Bus Overvolt I3 Bus Overvolt	Resettable Fault	Coast		Y	The DC bus has exceeded the maximum value. • Verify the correct voltage on the AC input line. • Reduce the mechanical load and/or rate of deceleration. • Compare the DC bus voltage displayed in [I*n* DC Bus Volt] (port 10), in [C*n* DC Bus Volt] (port 11), and with a meter using the DC+ and DC- test points at the top of the inverter. If the measurements do not match, the components that are used for DC bus voltage feedback sensing can be damaged or incorrect. Replace the power supply, power control, and power-layer interface circuit boards.
10111 10211 10311	I1 Ground Fault I2 Ground Fault I3 Ground Fault	Resettable Fault	Coast		Y	A current path to earth ground greater than 25 % of drive rating has occurred. • Perform a Megger or surge test on a disconnected motor. Replace the motor, if necessary. • Check the output phase current displayed in [I*n* U Phase Curr], [I*n* V Phase Curr], and [I*n* W Phase Curr] (port 10) for an imbalance. [I*n* Gnd Current] (port 10) is the calculated (not measured) ground current based on the phase currents. • If the ground fault happens immediately when the drive is started, view the values of the output phase current parameters (noted in the second bullet) when running the drive with a light load or perform a trending analysis. • Reseat the rating plug and current transducer wiring harness.
10112 10212 10312	I1 IGBT OvrTemp I2 IGBT OvrTemp I3 IGBT OvrTemp	Resettable Fault	Coast		Y	An IGBT over temperature has been detected. This power layer interface board calculated this value based on the NTC temperature plus a rise based on recent currents through the inverter. • Check the NTC temperature that is displayed in [I*n* Heatsink Temp] (port 10) and verify that it is not near the limit. If this value is near the limit, check for cooling problems caused by a blocked or slow heatsink fan. • Check the output phase current displayed in [I*n* U Phase Curr], [I*n* V Phase Curr], and [I*n* W Phase Curr] (port 10) for an imbalance. • Check for high-current operation at low speeds, since nearly all current goes through one IGBT in this case. • Replace the power layer interface board.
10113 10213 10313	I1 HS OvrTemp I2 HS OvrTemp I3 HS OvrTemp	Resettable Fault	Coast		Y	A heatsink over temperature has occurred in inverter 1. • Verify that the NTC is not disconnected or shorted. • Check for cooling problems - the heatsink cooling fan is running slow, the enclosure filter or heatsink fins are dirty, or the ambient temperature is too high. • Check the NTC resistance with a meter. If the resistance is correct, replace the power layer interface board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
10114 10214 10314	I1 Main PS Low I2 Main PS Low I3 Main PS Low	Resettable Fault	Coast			The main power supply is producing a low voltage. The inverter power board provides +/- 24V for the stirring fans, LEMs, and floating supply for the gate driver boards. This fault can occur during a power-down sequence. • If this fault occurs when the drive is started, check the stirring fans for a short. • Disconnect the individual loads that are powered by this board and look for a short or excessive current. • Replace the inverter power supply board.
10115 10215 10315	I1 IPwrIF PS Low I2 IPwrIF PS Low I3 IPwrIF PS Low	Resettable Fault	Coast			The local power supply is producing a low voltage. The inverter power supply board generates +/-12V from the system power supply and provides power to the power control and power layer interface (PLI) boards. • Check for a short on the power layer interface or backplane board and replace as necessary. • If no short is present on the power layer interface or backplane board, replace the inverter power board.
10116 10216 10316	I1 Sys PS Low I2 Sys PS Low I3 Sys PS Low	Alarm 1				A system power supply under voltage has occurred. • Using a meter, check for 24V on the inverter power supply board. Replace the board if necessary.
10117 10217 10317	I1 SysPS Overcur I2 SysPS Overcur I3 SysPS Overcur	Resettable Fault	Coast			A system power supply over current has occurred. This fault can occur during a power-down sequence. • Check the wiring harness from the inverter power supply board to the converter gate firing board and control pod for shorts/reversals. • Check for a short on incoming power to the converter gate firing board or fiber interface board. • Disconnect P6 on the inverter power board to remove the load from this power supply. If the breaker remains tripped, replace the inverter power supply board.
10118 10218 10318	I1 HSFan PS Low I2 HSFan PS Low I3 HSFan PS Low	Alarm 1				A heatsink fan power-supply undervoltage has occurred. • Check for 230V supply on the inverter power supply board at connector P6. If there is voltage, replace the inverter power supply board. • If there is no voltage, check the control power transformer, its primary and secondary fuses, and wiring harness.
10119 10219 10319	I1 CT Harness I2 CT Harness I3 CT Harness	Non-Reset Fault	Coast			The drive has detected a connection loss to a current transducer. • Verify that the current transducer wiring harness is connected to J22, J23, and J24 on the power interface board.
10120 10220 10320	I1 PLI OvrTemp I2 PLI OvrTemp I3 PLI OvrTemp	Resettable Fault	Coast		Y	The power-layer interface circuit board is over temperature. • Verify that the ambient temperature is not too high. • Verify that the stirring fans are operational. • Check the temperature sensor test point on the power layer interface board to verify that the output is within range. If necessary, replace the power layer interface board.
10121 10221 10321	I1 PSBrd OvrTemp I2 PSBrd OvrTemp I3 PSBrd OvrTemp	Resettable Fault	Coast		Y	The power supply board is over temperature. • Verify that the ambient temperature is not too high. • Verify that the stirring fans are operational. • Check the temperature sensor test point on the power layer interface board to verify that the output is within range. The temperature sensor is on the inverter power supply board but the A/D processing is on the power layer interface board. If necessary, replace the inverter power supply board. If this problem persists after replacing the inverter power supply board, replace the power layer interface board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
10122 10222 10322	I1 InFan1 Slow I2 InFan1 Slow I3 InFan1 Slow	Alarm 1 / Resettable Fault				Stirring fan 1 is under speed. • Visually verify that fan 1 is turning. • Check the measured fan speed displayed in [I*n* InFan *n* Speed] (port 10). • Check the wiring harness to the stirring fans to verify that the power and tachometer signals are connected. • If necessary, replace both stirring fans. When the fans are replaced, the elapsed hours, displayed in [I*n* PredMainReset] (port 10) must be reset.
10123 10223 10323	I1 InFan2 Slow I2 InFan2 Slow I3 InFan2 Slow					
10124 10224 10324	I1 NTC Open I2 NTC Open I3 NTC Open	Non-Reset Fault	Coast			An NTC open condition has occurred. • Check the ribbon cable that runs between the backplane board and gate driver board for loose connections or damage. The capacitor bank must be removed to check this cable. • If the drive is located in cold conditions, raise the ambient temperature. • Check the power-layer interface board testpoints for the individual phase NTC temperatures to determine which is open. • Reseat the power layer interface board. If this problem persists, replace the power layer interface board.
10125 10225 10325	I1 Incompat UBrd I2 Incompat UBrd I3 Incompat UBrd	Non-Reset Fault	Coast			The power layer interface and power control board do not detect the correct gate driver board on the U, V, or W phase. This fault can occur during a power-down sequence. • Check the ribbon cable that runs between the backplane board and gate driver board for loose connections or damage and verify that the correct gate driver board is installed. The capacitor bank must be removed to check this cable and the board. • Reflash the control board. • Check the rating plug.
10126 10226 10326	I1 Incompat VBrd I2 Incompat VBrd I3 Incompat VBrd					
10127 10227 10327	I1 Incompat WBrd I2 Incompat WBrd I3 Incompat WBrd					
10128 10228 10328	I1 Incompat Brdn I2 Incompat Brdn I3 Incompat Brdn	Non-Reset Fault	Coast			The drive detected an incompatible burden resistor. • Verify that the correct rating plug is installed. Reseat the rating plug.
10129 10229 10329	I1 DC Bus Imbal I2 DC Bus Imbal I3 DC Bus Imbal	Resettable Fault	Coast			Either the lower or upper leg of the capacitor bank is getting too much voltage (based on the bus voltage, measured voltage across the lower leg, and a calculation to find the voltage across the upper leg) or the voltage sensing components are damaged. • Check the value of the bus bleeder resistor and bus balancing resistor and replace as necessary. • Inspect the capacitor bank for leakage or damage and replace as necessary. Replacing the capacitor bank assembly also replaces the bus balancing resistor. **ATTENTION:** The DC bus voltage can only be measured when the drive is energized. Servicing energized equipment can be hazardous. Severe injury or death can result from electrical shock, burn, or unintended actuation of controlled equipment. Follow Safety related practices of NFPA 70E, ELECTRICAL SAFETY FOR EMPLOYEE WORKPLACES. DO NOT work alone on energized equipment! • Measure the voltage on each half of the bus to confirm the calculations. If the bus measurements aren't correct, replace the power interface board and/or inverter power supply board.
10130 10230 10330	I1 Curr Offset I2 Curr Offset I3 Curr Offset	Alarm 1				The calculated current offset for any phase is larger than expected. • Check the current sensor offset reading inverter testpoint and power supply. If necessary, replace the current sensor. • If this problem persists, replace the inverter power supply board and/or the power layer interface board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
10131 10231 10331	I1 Fault Q Full I2 Fault Q Full I3 Fault Q Full	Resettable Fault	Coast			The fault queue is full. There are at least three other faults in the queue. Troubleshooting and clearing the existing faults makes room for additional faults in the queue (if any). This fault can occur during a power-down sequence.
10132 10232 10332	I1 Incompat PS I2 Incompat PS I3 Incompat PS	Resettable Fault	Coast			The drive has detected an incompatible power supply for the drive AC input rating. • Check the power supply and replace it if incorrect. • If the power supply is correct, reflash the control board. • If this problem persists, replace the inverter power supply board or power layer interface board.
10134 10234 10334	I1 UBrd Fault I2 UBrd Fault I3 UBrd Fault	Resettable Fault	Coast			The power supply on the U, V, or W phase gate driver board has failed. • If this fault occurred on this phase only, replace the appropriate gate driver board. • If this fault occurred on all three phases, check the 24V power supply on the inverter power supply board that feeds the gate driver boards and replace the inverter power supply board if necessary.
10135 10235 10335	I1 VBrd Fault I2 VBrd Fault I3 VBrd Fault					
10136 10236 10336	I1 WBrd Fault I2 WBrd Fault I3 WBrd Fault					
10137 10237 10337	I1 Flash Failed I2 Flash Failed I3 Flash Failed	Resettable Fault	Coast			This fault will be asserted if an attempt to flash the FPGA configuration device fails.
10138 10238 10338	I1 Powering Down I2 Powering Down I3 Powering Down	Resettable Fault	Coast			This fault will be asserted at 80% of the rated DC bus voltage.

Converter (Port 11) Faults and Alarms (Frame 8 and Larger)

Table 13 contains a list of Converter-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable). These faults and alarms only apply to Frame 8 drives and larger.

Table 13 - Converter Fault and Alarm Types, Descriptions, and Actions

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11101 11201 11301	C1 Precharge C2 Precharge C3 Precharge	Alarm 1				1. The AC line voltage is in the range of 50…300V (for 400V class drives) or 50…400V (for 600V class drives). Precharge begins when the AC line voltage reaches 300V or 400V. 2. The drive has been in precharge for more than 12 seconds. If the "C*n* Precharge" alarm persists for more than 30 seconds the drive will fault. Following powerup or a fault reset, the converter does not issue any voltage-related alarms until the AC input voltage exceeds 50V to prevent an alarm when a customer-supplied auxiliary power supply is used. 3. The DC bus open circuit test can be cycling. If this test cycles for more than 10 seconds, event 144/244 "C*n* DC Bus Open" occurs. Alarm: • Check the line voltage displayed in [C*n* L12 Line Volt], [C*n* L23 Line Volt], and [CV L31 Line Volt] (port 11). • Check the phase current displayed in [C*n* L1 Phase Curr], [C*n* L2 Phase Curr], and [C*n* L3 Phase Curr] (port 11) and the bus voltage in [C*n* DC Bus Volt] (port 11). Line current, line voltage, and bus voltage sensing are all performed on the converter gate firing board. If this alarm persists, replace the converter gate firing board. Fault: • Verify that the current transducers have not all failed. If necessary, replace all three current transducers. • Verify that the DC link inductor has not failed. If necessary, replace the DC link choke. • Verify that the converter line and DC bus wiring is connected. • Verify that the capacitor bank is properly installed and connected.
		Non-Reset Fault	Coast			
11102 11202 11302	C1 Phase Loss L1 C2 Phase Loss L1 C3 Phase Loss L1	Alarm 1				The AC line-to-line voltages are imbalanced, indicating an open AC input phase. • Check for an upstream AC line loss. • Verify that the AC input line wiring is properly connected. • Check the wiring harness to the converter gate firing board for loose connections and/or damage. If necessary, replace the converter gate-firing board wiring harness.
11103 11203 11303	C1 Phase Loss L2 C2 Phase Loss L2 C3 Phase Loss L2					
11104 11204 11304	C1 Phase Loss L3 C2 Phase Loss L3 C3 Phase Loss L3					
11111 11211 11311	C1 SCR OvrTemp C2 SCR OvrTemp C3 SCR OvrTemp	Alarm 1			Y	An alarm occurs if the calculated SCR temperature exceeds 125 °C (257 °F) and a fault occurs when the calculated SCR temperature exceeds 135 °C (275 °F). • Check for cooling problems - the heatsink cooling fan is running slow, the enclosure filter or heatsink fins are dirty, or the ambient temperature is too high.
		Resettable Fault	Coast			
11112 11212 11312	C1 HS OvrTemp C2 HS OvrTemp C3 HS OvrTemp	Alarm 1			Y	An alarm when the heatsink temperature exceeds 95 °C (203 °F) and a fault when the heatsink temperature exceeds 100 °C (212 °F). • Check the NTC for a short or verify that it is connected. • Measure the resistance of the NTC. The reading should be approximately 11.5 Ω, at room temperature. • Check for cooling problems - the heatsink cooling fan is running slow, the enclosure filter or heatsink fins are dirty, or the ambient temperature is too high.
		Resettable Fault	Coast			

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11113 11213 11313	C1 TVSS Blown C2 TVSS Blown C3 TVSS Blown	Alarm 1				The MOV block is reporting that the transient voltage suppression system (TVSS) has blown. • Check the MOV wiring harness for loose connections and/or damage and replace if necessary. • Replace the MOV block. • If the MOV block is not blown and the wiring harness is properly connected and not damaged, replace the converter gate firing board.
11114 11214 11314	C1 Blower Speed C2 Blower Speed C3 Blower Speed	Alarm 1				The converter cooling fan is running below normal operating speed. • Check for debris in the fan. If necessary, clean the fan and housing. • Check for noise at the fan, indicating motor bearing failure. • Verify that the fan power and feedback connections are not loose or disconnected. • Replace the fan, if necessary.
11115 11215 11315	C1 Line Dip C2 Line Dip C3 Line Dip	Alarm 1			Y	The bus voltage has fallen below the value specified in P451 [Pwr Loss A Level] or P454 [Pwr Loss B Level] (port 0) minus 20 volts. Until the converter has established communications with the main control board, this value defaults to 180V below the converter bus memory. The converter stops firing the SCRs until the nominal value of the DC bus voltage for the present AC line voltage is within 60 volts of P12 [DC Bus Memory] (port 0). If the line dip condition persists for more than 60 seconds the alarm becomes a fault. • Verify the power wiring connections. • Compare the actual DC bus voltage to the value displayed in [C*n* DC Bus Volt]. If the values are different, replace the converter gate firing board.
		Resettable Fault	Coast			
11116 11216 11316	C1 Minimum Line C2 Minimum Line C3 Minimum Line	Alarm 1				The AC line voltage is less than 280V (for a 400V class drive) / 400V (for a 600V class drive). • The AC line voltage must exceed 320V / 440V to recover from this alarm.
11117 11217 11317	C1 Line Freq C2 Line Freq C3 Line Freq	Alarm 1				The measured line frequency is out of the range (below 40 Hz, or above 65 Hz). This alarm becomes a fault if the condition persists for more than 30 seconds. • Check the incoming power line frequency. • Check the wiring harness to the converter gate firing board for loose connections and/or damage and replace if necessary. • If the wiring harness is properly connected and not damaged, replace the converter gate firing board.
		Resettable Fault	Coast			
11118 11218 11318	C1 Single Phase C2 Single Phase C3 Single Phase	Alarm 1				The converter was intentionally powered up in single-phase mode with only AC phase L1-L2 present. Intentional single-phase mode is only detected at the initial application of AC line voltage. Application of 3-phase voltage after the converter has entered single-phase mode results in the single phase alarm becoming a fault. • Verify that only one phase is applied to a drive in single-phase mode.
		Resettable Fault	Coast			
11134 11234 11334	C1 Overcurrent C2 Overcurrent C3 Overcurrent	Resettable Fault	Coast			The peak AC input current has exceeded 3000 A for five line cycles. • Verify that the current transducers are connected. • Check the wiring harness to the converter gate firing board for loose connections or damage and replace if necessary. • If the current transducers are properly connect and the wiring harness for the gate firing board is OK, replace the converter gate firing board. • Check for an open SCR or DC bus short.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11135 11235 11335	C1 Ground Fault C2 Ground Fault C3 Ground Fault	Resettable Fault	Coast		Y	The converter input ground current (peak) has exceeded the threshold set P16 [Gnd Cur Flt Lvl] (port 11) for 5 line cycles. A possible internal short in the drive between a phase, ground, or the DC bus can have occurred. • Verify that the current transducer wiring harness is connected to the converter gate firing board and that they are functioning properly. If necessary, replace all three current transducers (CTs). • If the current transducer wiring harness is connected and the CTs are functioning properly, replace the converter gate firing board. • To determine if there is an imbalance between the phases, view the input phase current values in [C*n* L1 Phase Curr], [C*n* L2 Phase Curr], and [C*n* L3 Phase Curr] (port 11). [C*n* Gnd Current] (port 11) is the calculated (not measured) ground current based on the phase currents. If necessary, use trending when the ground fault occurs upon drive power-up.
11136 11236 11336	C1 HS NTC Open C2 HS NTC Open C3 HS NTC Open	Non-Reset Fault	Coast			The converter heatsink NTC is open. The heatsink NTC is mounted on the converter heatsink and is wired to the converter gate firing board. An open NTC is assumed when the heatsink temperature is below -40 °C (-40 °F). • Check for loose connections or damage to the NTC wiring harness. • Measure the resistance of the NTC and verify that it is within range. • If the NTC wiring harness and resistance measurement is OK, replace the converter gate firing board.
11137 11237 11337	C1 HS NTC Short C2 HS NTC Short C3 HS NTC Short	Non-Reset Fault	Coast			The converter heatsink NTC is shorted. The heatsink NTC is mounted on the converter heatsink and is wired to the converter gate firing board. A shorted NTC is assumed when the heatsink temperature is above 200 °C (392 °F). • Check for loose connections or damage to the NTC wiring harness. • Measure the resistance of the NTC and verify that it is within range. • If the NTC wiring harness and resistance measurement is OK, replace the converter gate firing board.
11138 11238 11338	C1 Brd OvrTemp C2 Brd OvrTemp C3 Brd OvrTemp	Resettable Fault	Coast		Y	The gate firing board is over temperature. This fault occurs when the gate firing board temperature exceeds 70 °C (158 °F). • Check the cabinet fan wiring harness for loose connections or damage and that the fan is running. If necessary, replace the fan wiring harness and/or fan. • Lower the ambient temperature. • Replace the converter gate firing board.
11139 11239 11339	C1 Brd NTC Open C2 Brd NTC Open C3 Brd NTC Open	Non-Reset Fault	Coast			The converter gate firing board NTC is open. An open NTC is assumed when the temperature is below -40 °C (-40 °F). • Replace the converter gate firing board.
11140 11240 11340	C1 Brd NTC Short C2 Brd NTC Short C3 Brd NTC Short	Non-Reset Fault	Coast			The converter gate firing board NTC is shorted. A shorted NTC is assumed when the temperature is above 200 °C (392 °F). • Replace the converter gate firing board.
11141 11241 11341	C1 Power Supply C2 Power Supply C3 Power Supply	Resettable Fault	Coast			A power supply input voltage (24V input and/or +/-12V internal supply) is operating outside of the acceptable range. • Check input power to the converter gate firing board. The following thresholds are used: 24V is below 20.1V 12V is below 10.0V 12V is above 15.0V -12V is above -10.0V • If the power supply voltage is within the acceptable range, replace the converter gate firing board.

Event No.	**Fault/Alarm Text**	**Type**	**Fault Action**	**Configuration Parameter**	**Auto Reset**	**Description/Action(s)**
11142 11242 11342	C1 Comm Loss C2 Comm Loss C3 Comm Loss	Resettable Fault	Coast			The converter gate firing board lost communications (through the power layer interface board) to the main control board. Once the root cause of the communication fault has been resolved, power must be cycled or a drive reset must be initiated to clear this fault. ⚠ **ATTENTION:** Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into fiber-optic ports or fiber-optic cable connectors. Remove power from the drive before disconnecting fiber optic cables. • Verify that the fiber optic cables are properly connected to the transceivers. • Verify that the transceivers are properly seated in the ports. • Verify that the fiber optic cable is not cracked or broken. • Verify that power is applied to the fiber optic interface board, gate firing board, and power layer interface board. If necessary, replace the fiber optic interface, gate firing board, and/or power layer interface board.
11143 11243 11343	C1 Firmware Flt C2 Firmware Flt C3 Firmware Flt	Non-Reset Fault	Coast			A firmware fault has occurred. • Reset the drive. If this fault persists, replace the converter gate firing board.
11144 11244 11344	C1 DC Bus Open C2 DC Bus Open C3 DC Bus Open	Non-Reset Fault	Coast			The DC bus voltage did not rise above 12V (for 400V class drives) or 20V (for 600V class drives) as the SCRs began to ramp on. In this case, the converter tries to turn on the SCRs for approximately 10 seconds before issuing this fault. Event 101/201 "C*n* Precharge" is issued following the first retry. • Verify that the current transducers have not all failed. If necessary, replace all three current transducers. • Verify that the DC link inductor has not failed. If necessary, replace the DC link choke. • Verify that the converter line and DC bus wiring is connected. • Verify that the capacitor bank is properly installed and connected.
11145 11245 11345	C1 DC Bus Short C2 DC Bus Short C3 DC Bus Short	Non-Reset Fault	Coast			The peak current has exceeded 150 % of the converter rating during the precharge sequence. Peak charging current is normally limited to 50 % of the converter rating. • Check for a DC bus short, internally and externally. • Verify that the wiring harness to P10 on the converter gate firing board is connected and not damaged. Replace the harness as necessary. • Verify that the capacitor bank is properly installed and connected. • Check for an IGBT short and replace as necessary.
11146 11246 11346	C1 CT Harness C2 CT Harness C3 CT Harness	Non-Reset Fault	Coast			A current transducer (CT) wiring harness connection loss has been detected. • Verify that the CT wiring harness is not damaged and is connected to P6 on the converter gate firing board. Replace the wiring harness if necessary. • If this problem persists, replace the converter gate firing board.
11147 11247 11347	C1 LFuse Harness C2 LFuse Harness C3 LFuse Harness	Non-Reset Fault	Coast			A line-fuse wiring harness connection loss has been detected. • Verify that the line fuse wiring harness is not damaged and is connected to P7 on the converter gate firing board. Replace the wiring harness if necessary. • If this problem persists, replace the converter gate firing board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11148 11248 11348	C1 Line Fuse L1 C2 Line Fuse L1 C3 Line Fuse L1	Non-Reset Fault	Coast			The line fuse for Line *n* has blown. • Check the fuse and replace if necessary. • Verify that the line fuse wiring harness for line 1 is not damaged and is connected to P7 on the converter gate firing board. Replace the wiring harness if necessary. • If this problem persists, replace the converter gate firing board.
11149 11249 11349	C1 Line Fuse L2 C2 Line Fuse L2 C3 Line Fuse L2					
11150 11250 11350	C1 Line Fuse L3 C2 Line Fuse L3 C3 Line Fuse L3					
11157 11257 11357	C1 BFuse Harness C2 BFuse Harness C3 BFuse Harness	Non-Reset Fault	Coast			A bus-fuse wiring harness connection loss has been detected. • Check the bus fuse harness and replace if necessary. • If this problem persists, replace the converter gate firing board.
11158 11258 11358	C1 BFuse Pos C2 BFuse Pos C3 BFuse Pos	Non-Reset Fault	Coast			The DC+ bus fuse is blown. • Check the DC+ bus fuse and wiring harness and replace if necessary. • If this problem persists, replace the converter gate firing board.
11159 11259 11359	C1 BFuse Neg C2 BFuse Neg C3 BFuse Neg	Non-Reset Fault	Coast			The DC- bus fuse is blown. • Check the DC- bus fuse and wiring harness and replace if necessary. • If this problem persists, replace the converter gate firing board.
11160 11260 11360	C1 Command Stop C2 Command Stop C3 Command Stop	Resettable Fault	Coast		Y	The main control board has commanded the converter gate firing board to stop due to an asymmetrical bus condition. • Check the DC bus connections and wiring.
11161 11261 11361	C1 AC Line High C2 AC Line High C3 AC Line High	Resettable Fault	Coast			The AC line voltage has exceeded 565V (for 400V class drives) or 815V (for 600V class drives), which corresponds to the nominal bus voltage of 799V DC (for 400V class drives) or 1150V DC (for 600V class drives). This fault is intended to protect the capacitor bank from an overvoltage condition especially if a 400V class drive is inadvertently placed in a 600V system. • Verify the incoming line voltage.
11162 11262 11362	C1 Line Loss C2 Line Loss C3 Line Loss	Resettable Fault	Coast		Y	An AC line loss has occurred. • Monitor the incoming AC line for low voltage or line power interruption.
11163 11263 11363	C1 Fault Q Full C2 Fault Q Full C3 Fault Q Full	Resettable Fault	Coast			The fault queue is full. There are at least three other faults in the queue. • Troubleshooting and clearing the existing faults make room for additional faults in the queue (if any).

Precharge (Port 11) Faults and Alarms (Frame 8 and Larger)

Table 14 contains a list of Precharge-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable). These faults and alarms only apply to Frame 8 drives and larger.

Table 14 - Converter Fault and Alarm Types, Descriptions, and Actions

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11101 11201 11301	P1 Precharge P2 Precharge P3 Precharge	Alarm 1				The DC bus delta voltage (Vbus_in - Vbus_out) is greater than 25V when the molded case switch (MCS) is open. This alarm is suppressed when the Precharge Fault is present.
		Resettable Fault	Coast			The DC bus voltage did not meet the conditions that are required to close the molded case switch (MCS) within the timeout period. 1. DC bus input is not overvoltage 2. DC bus input is not undervoltage 3. DC bus delta voltage (Vbus_in - Vbus_out) is less than 25V
11115 11215 11315	P1 Bus Dip P2 Bus Dip P3 Bus Dip	Alarm 1				Only occurs when the drive is offline or in stand-alone mode. The bus voltage has dipped more than 180V below the drive bus memory. The alarm is released when the bus voltage rises back to within 60V of the drive bus memory.
11119 11219 11319	P1 240 V AC Loss P2 240 V AC Loss P3 240 V AC Loss	Alarm 1				240V AC not present while the drive is in the inactive state. This alarm is suppressed when the 240V AC Loss Fault is present.
		Resettable Fault	Coast			240V AC was lost while in the active state. Active state whenever the drive is not stopped, for example, the molded case switch (MCS) is opening or closing or is closed.
11120 11220 11320	P1 240V AC Discon P2 240V AC Discon P3 240V AC Discon	Alarm 1				The 240V AC disconnect is open when the precharge controller is in the ready state (MCS is not closed).
11121 11221 11321	P1 Bus Undervolt P2 Bus Undervolt P3 Bus Undervolt	Alarm 1				The input bus voltage is below 400V DC while the molded case switch (MCS) is open. Hysteresis level 420V DC. This alarm is suppressed when the Bus Undervoltage Fault is present.
		Resettable Fault	Coast			The bus input voltage fell below 400V while the molded case switch (MCS) was closed. Hysteresis level at 420V. The system SMPS cuts out near 340V DC.
11122 11222 11322	P1 Bus Overvolt P2 Bus Overvolt P3 Bus Overvolt	Alarm 1				The input bus voltage exceeds 820V DC. Hysteresis level 800V DC.
11123 11223 11323	P1 Door Open P2 Door Open P3 Door Open	Alarm 1				Door closure contact is open.
11130 11230 11330	P1 MCS ShuntTrip P2 MCS ShuntTrip P3 MCS ShuntTrip	Resettable Fault	Coast			The molded case switch (MCS) auxiliary contact did not open within 1 second following the shunt trip coil activation.
11131 11231 11331	P1 MCS CloseFail P2 MCS CloseFail P3 MCS CloseFail	Resettable Fault	Coast			The molded case switch (MCS) auxiliary contact did not close within 2 seconds following the close coil activation.
11132 11232 11332	P1 MCSAuxContact P2 MCSAuxContact P3 MCSAuxContact	Resettable Fault	Coast			The molded case switch (MCS) auxiliary contact was open when the MCS was closed or closed when the MCS was open. If the MCS Failed to Close Fault is present, then this fault is not reported.
11133 11233 11333	P1 MCS Closed P2 MCS Closed P3 MCS Closed	Resettable Fault	Coast			The voltage across the molded case switch (MCS) when it was closed exceeded 10V.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11138 11238 11338	P1 Brd Overtemp P2 Brd Overtemp P3 Brd Overtemp	Resettable Fault	Coast		Y	The gate firing board is over temperature. This fault occurs when the gate firing board temperature exceeds 70 °C (158 °F). • Check the cabinet fan wiring harness for loose connections or damage and that the fan is running. If necessary, replace the fan wiring harness and/or fan. • Lower the ambient temperature. • Replace the converter gate firing board.
11139 11239 11339	P1 Brd NTC Open P2 Brd NTC Open P3 Brd NTC Open	Non-Reset Fault	Coast			The converter gate firing board NTC is open. An open NTC is assumed when the temperature is below -40 °C (-40 °F). • Replace the converter gate firing board.
11140 11240 11340	P1 Brd NTC Short P2 Brd NTC Short P3 Brd NTC Short	Non-Reset Fault	Coast			The converter gate firing board NTC is shorted. A shorted NTC is assumed when the temperature is above 200 °C (392 °F). • Replace the converter gate firing board.
11141 11241 11341	P1 Power Supply P2 Power Supply P3 Power Supply	Resettable Fault	Coast			A power supply input voltage (24V input and/or +/-12V internal supply) is operating outside of the acceptable range. • Check input power to the converter gate firing board. The following thresholds are used: 24V is below 20.1V 12V is below 10.0V 12V is above 15.0V -12V is above -10.0V • If the power supply voltage is within the acceptable range, replace the converter gate firing board.
11142 11242 11342	P1 Comm Loss P2 Comm Loss P3 Comm Loss	Resettable Fault	Coast			The converter gate firing board lost communications (through the power layer interface board) to the main control board. Once the root cause of the communication fault has been resolved, power must be cycled or a drive reset must be initiated to clear this fault. ⚠ **ATTENTION:** Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into fiber-optic ports or fiber-optic cable connectors. Remove power from the drive before disconnecting fiber-optic cables. • Verify that the fiber optic cables are properly connected to the transceivers. • Verify that the transceivers are properly seated in the ports. • Verify that the fiber optic cable is not cracked or broken. • Verify that power is applied to the fiber optic interface board, gate firing board, and power layer interface board. If necessary, replace the fiber optic interface, gate firing board, and/or power layer interface board.
11143 11243 11343	P1 Firmware Flt P2 Firmware Flt P3 Firmware Flt	Non-Reset Fault	Coast			A firmware fault has occurred. • Reset the drive. If this fault persists, replace the converter gate firing board.
11145 11245 11345	P1 DC Bus Short P2 DC Bus Short P3 DC Bus Short	Non-Reset Fault	Coast			The peak current has exceeded 150 % of the converter rating during the precharge sequence. Peak charging current is normally limited to 50 % of the converter rating. • Check for a DC bus short, internally and externally. • Verify that the wiring harness to P10 on the converter gate firing board is connected and not damaged. Replace the harness as necessary. • Verify that the capacitor bank is properly installed and connected. • Check for an IGBT short and replace as necessary.
11157 11257 11357	P1 BFuse Harness P2 BFuse Harness P3 BFuse Harness	Non-Reset Fault	Coast			A bus-fuse wiring harness connection loss has been detected. • Check the bus fuse harness and replace if necessary. • If this problem persists, replace the converter gate firing board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11158 11258 11358	P1 BFuse Pos P2 BFuse Pos P3 BFuse Pos	Non-Reset Fault	Coast			The DC+ bus fuse is blown. • Check the DC+ bus fuse and wiring harness and replace if necessary. • If this problem persists, replace the converter gate firing board.
11159 11259 11359	P1 BFuse Neg P2 BFuse Neg P3 BFuse Neg	Non-Reset Fault	Coast			The DC- bus fuse is blown. • Check the DC- bus fuse and wiring harness and replace if necessary. • If this problem persists, replace the converter gate firing board.
11160 11260 11360	P1 Command Stop P2 Command Stop P3 Command Stop	Resettable Fault	Coast		Y	The main control board has commanded the converter gate firing board to stop due to an asymmetrical bus condition. • Check the DC bus connections and wiring.
11163 11263 11363	P1 Fault Q Full P2 Fault Q Full P3 Fault Q Full	Resettable Fault	Coast			The fault queue is full. There are at least three other faults in the queue. • Troubleshooting and clearing the existing faults make room for additional faults in the queue (if any).

N-1 and Re-Rate Functions

The N-1 feature is available on Frame 9 and larger drives. This feature allows the drive to be run at reduced current limits if one of the paralleled inverter/converter drive assemblies fails.

The letter N represents the number of drive assemblies in the drive. For example, a frame 9 drive has two drive assemblies, therefore N=2. A Frame 9 drive running the N-1 feature is running on one drive assembly, that is, N-1 =1.

The N-1 feature does not change the rating of the drive. It is a way to impose temporary output restrictions on the drive until the damaged inverter/converter drive assembly is repaired and reinstalled. Some customers can elect to oversize their drives, to have redundant inverter/converter assemblies.

The Re-Rate function allows the rating of the drive to be changed. This procedure is used when making long-term changes.

N-1 and Re-Rating with Integrated Motion on EtherNet/IP

These features cannot be used while the drive is in Integrated Motion on EtherNet/IP mode. If these features are needed, disconnect the drive from the EtherNet/IP network, perform the N-1 or Re-Rate procedure, then reconnect the drive to the network.

Use the N-1 Feature

This procedure describes how to use the N-1 feature to run the drive at reduced limits because an inverter/converter assembly has failed.

IMPORTANT You cannot flash update a drive that is using the N-1 feature.

For information on assembly removal and general safety precautions that are related to AC input and Common DC input PowerFlex 755 drives, refer to the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001.

1. Remove all incoming power to the drive.
2. Disconnect and remove the failed drive assembly from the cabinet.

   The control pod can need to be moved from the disabled drive assembly to one of the remaining drive assemblies. See the PowerFlex 750-Series AC Drives Hardware Service Manual, publication 750-TG001.
3. Energize the drive.

   With the drive assembly removed, an F360 “N-1 See Manual” fault is indicated.

4. Verify the new rating shown in Port 10, P21 [Effctv I Rating].

   Set Port 10, P20 [Recfg Acknowledg] to 1 “Acknowledge” to accept the reconfiguration.

5. To clear the fault, press the Stop key on the HIM.

   P20 [Recfg Acknowledg] automatically returns to 0 “Ready.”

   Alarm 322 “N-1 Operation” is indicated, and persists, while the drive is in this reconfigured state.

6. Run the reconfigured drive with reduced current and power limits.

Use the Re-Rate Feature

This procedure describes how to use the Re-Rate feature to run the drive at a reduced rating because a drive assembly has been removed.

1. Save the drive current parameter settings by using the Human Interface Module (HIM), DriveExecutive™, or DriveExplorer™.
2. Remove all incoming power to the drive.

   ATTENTION: o avoid an electric shock hazard, verify that the voltage on the buscapacitors has discharged completely before servicing. Measure the DC bus voltage at the DC+ and DC- TESTPOINT sockets on the front of the power module.

3. Disconnect all fiber-optic cables from the fiber interface board, including the connections to the drive assemblies not removed.
4. Remove the selected drive assembly from the cabinet.
5. Energize the drive.

   With all fiber-optic cables disconnected, “No Inverters” and “No Converters” port verification errors are indicated.

6. On the HIM, press FIX to acknowledge the error then Enter to confirm.
7. Remove all incoming power to the drive. Verify that the bus capacitors have discharged before continuing.
8. Reconnect the fiber-optic cables to the fiber interface board.
9. Energize the drive.

   With the drive assembly removed, a “One Inverter” port verification error is indicated.

10. On the HIM, press FIX to acknowledge the error then Enter to confirm.

    An F361 “Rerate See Manual” fault is indicated.

11. Verify the new rating shown in Port 10, P21 [Effctv I Rating].

    Set Port 10, P20 [Recfg Acknowledg] to 1 “Acknowledge” to accept the reconfiguration.

    IMPORTANT Drive parameters are set to factory defaults when the new rating is acknowledged. If a condition exists that does not allow the drive parameters to be set to factory defaults, setting P20 to 1 “Acknowledge” is not accepted. Such conditions include the drive is running, DeviceLogix is running, or the drive is communicating with a PLC.

12. To clear the fault, press the Stop key on the HIM.

    P20 [Recfg Acknowledg] automatically returns to 0 “Ready.”

13. Use the HIM download function, DriveExecutive download function, or DriveExplorer download function to download the parameter settings saved in Step1.

    IMPORTANT Do not use the Compare Screen Copy function in DriveExecutive or the Error Check Download function in DriveExplorer to perform this step.

14. Run the reconfigured drive at the reduced rating and power limits.

Use the Re-Rate Feature to Add or Replace a Drive Assembly

This procedure describes how to use the Re-Rate feature to increase the drive rating because a drive assembly has been added. For example, a drive assembly has been repaired and is being reinstalled. Because the drive was Re-Rated when the drive assembly was removed, it must be re-rated again to run at full rating and power limits.

1. Save the drive current parameter settings by using the Human Interface Module (HIM), DriveExecutive, or DriveExplorer.
2. Remove all incoming power to the drive.

    ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged completely before servicing. Measure the DC bus voltage at the DC+ and DC- TESTPOINT sockets on the front of the power module.

3. Add the drive assembly to the drive and connect it to the fiber interface board in consecutive order.

4. Energize the drive.

   With the addition of a drive assembly, port verification errors indicate the number of installed drive assemblies. For example, a frame 9 would indicate "Two Inverters" and "Two Converters."

5. On the HIM press FIX to acknowledge the error then Enter to confirm.

   An F361 "Rerate See Manual" fault is indicated.

6. Verify the new rating shown in Port 10, P21 [Effctv I Rating].

   Set Port 10, P20 [Recfg Acknowledg] to 1 "Acknowledge" to accept the reconfiguration.

IMPORTANT	Drive parameters are set to factory defaults when reconfiguration is acknowledged. If a condition exists that does not allow the drive parameters to be set to factory defaults, setting P20 to 1 "Acknowledge" is not accepted. Such conditions include the drive is running, DeviceLogix is running, or the drive is communicating with a PLC.

7. To clear the fault, press the Stop key on the HIM.

   P20 [Recfg Acknowledg] automatically returns to 0 "Ready."

8. Use the HIM download function, DriveExecutive download function, or DriveExplorer download function to download the parameter settings saved in Step1.

IMPORTANT	Do not use the Compare Screen Copy function in DriveExecutive or the Error Check Download function in DriveExplorer to perform this step.

9. Run the drive at the full rating and full power limits.

Embedded EtherNet/IP (Port 13) Events

The adapter has an event queue to record significant events that occur in the operation of the adapter. When such an event occurs, an entry consisting of the event numeric code and a timestamp is put into the event queue. You can view the event queue by using the PowerFlex 20-HIM-A6/-C6S HIM, DriveExplorer software (version 6.01 or later), DriveExecutive software (version 5.01 or later), or other clients by using the DPI Fault object. For details on how to view and clear events by using the HIM, see the PowerFlex 20-HIM-A6/-C6S HIM (Human Interface Module) User Manual, publication 20HIM-UM001.

Many events in the event queue occur under normal operation. If you encounter unexpected communications problems, the events can help you or Rockwell Automation personnel troubleshoot the problem. The following events can appear in the event queue.

Table 15 - Adapter Events

Code	Event	Description
13001	No Event	Text that is displayed in an empty event queue entry.
13002	Device Power Up	Power was applied to the adapter.
13003	Device Reset	The adapter was reset.
13004	EEPROM CRC Error	The EEPROM checksum/CRC is incorrect, which limits adapter functionality. Default parameter values must be loaded to clear this condition.
13005	App Updated	The adapter application firmware was flash updated.
13006	Boot Updated	The adapter boot firmware was flash updated.
13007… 13024	Reserved	–

Table 16 - DPI Events

Code	Event	Description
13025	DPI Manual Reset	The adapter was reset.
13026… 13028	Reserved	–

Table 17 - Network Events

Code	Event	Description
13029	Net Link Up	A network link was available for the adapter.
13030	Net Link Down	The network link was removed from the adapter.
13031	Net Dup Address	The adapter uses the same IP address as another device on the network.
13032	Net Comm Fault	The adapter detected a communications fault on the network.
13033	Net Sent Reset	The adapter received a reset from the network.
13034	Net IO Close	An I/O connection from the network to the adapter was closed.
13035	Net Idle Fault	The adapter received “idle” packets from the network.
13036	Net IO Open	An I/O connection from the network to the adapter has been opened.
13037	Net IO Timeout	An I/O connection from the network to the adapter has timed out.
13038	Net IO Size Err	The adapter received an incorrectly sized I/O packet.
13039	PCCC IO Close	The device sending PCCC Control messages to the adapter has set the PCCC Control Timeout to zero.
13040	PCCC IO Open	The adapter has begun receiving PCCC Control messages (the PCCC Control Timeout was previously set to a non-zero value).

Code	Event	Description
13041	PCCC IO Timeout	The adapter has not received a PCCC Control message for longer than the PCCC Control Timeout.
13042	Msg Ctrl Open	The timeout attribute in either the CIP Register or Assembly object was written with a non-zero value, allowing control messages to be sent to the adapter.
13043	Msg Ctrl Close	The timeout attribute in either the CIP Register or Assembly object was written with a zero value, disallowing control messages to be sent to the adapter.
13044	Msg Ctrl Timeout	The timeout attribute in either the CIP Register or Assembly object elapsed between accesses of those objects.
13045	Peer IO Open	The adapter received the first Peer I/O message.
13046	Peer IO Timeout	The adapter has not received a Peer I/O message for longer than the Peer I/O Timeout.
13047… 13054	Reserved	–
13055	BOOTP Response	The adapter received a response to its BOOTP request.
13056	E-mail Failed	The adapter encountered an error attempting to send a requested e-mail message.
13057	Option Card Flt	The adapter experienced a generic fault condition (drive only).
13058	Module Defaulted	The adapter has been set to defaults.
13059	Net Memory Mgmt	The adapter encountered an error with buffer counters or lists.

I/O Faults and Alarms

Table 18 contains a list of I/O-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable).

Table 18 - I/O Fault and Alarm Types, Descriptions, and Actions

Event No. (1)	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
*xx*000	No Entry					
*xx*001	Analog In Loss	Configurable		P53/P63 [Anlg InX LssActn]		Analog input has a lost signal.
*xx*002	Motor PTC Trip	Configurable		P40 [PTC Cfg]		Motor PTC (Positive Temperature Coefficient) over temperature.
*xx*005	Relay0 Life	Configurable		P106 [RO0 LifeEvntActn]		Predictive maintenance.
*xx*006	Relay1 Life	Configurable		P116 [RO1 LifeEvntActn]		Predictive maintenance.
xx010	Anlg Cal Chksum	Non-Reset Fault	Coast			The checksum read from the analog calibration data does not match the checksum calculated. Replace option module.
*xx*058	Module Defaulted	Fault	Coast			Module was commanded to write default values.

(1) *xx* indicates the port number. See Fault and Alarm Display Codes on page 308 for an explanation.

Safe Torque Off Fault

Table 19 lists the safe torque off-specific fault, the action taken when the drive faults, and its description.

Table 19 - Safe Torque Fault and Alarm Types, Descriptions, and Actions

Event No. (1)	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
*xx*000	No Entry					
*xx*058	Module Defaulted	Fault	Coast			Module was commanded to write default values.

(1) *xx* indicates the port number. See Fault and Alarm Display Codes on page 308 for an explanation.

ATEX Faults

Table 20 lists the ATEX-specific fault, the action taken when the drive faults, and its description.

Table 20 - ATEX Fault Types, Descriptions, and Actions

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
*xx*011	PTC Over Temp	Resettable Fault	Coast			An over-temperature condition has been detected in the motor, or the sensor path has been broken.
*xx*012	PTC ShortCircuit	Resettable Fault	Coast			A short circuit condition has been detected in the sensor path. If unable to clear fault, be sure the thermal sensor that is connected is a PTC type and not a thermostatic type.
*xx*013	ATX VoltageLoss	Resettable Fault	Coast			Possible hardware damage. The motor to the thermal sensor is shorted. Excessive EMC noise due to improper grounding/shielding.
*xx*014	ThermostatOvrTmp	Resettable Fault	Coast			An over-temperature condition has been detected in the motor, or the sensor path has been broken.

(1) *xx* indicates the port number where the ATEX option is installed.

Single Incremental Encoder Faults and Alarms

Table 21 contains a list of encoder-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable).

Table 21 - Single Incremental Encoder Fault and Alarm Types, Descriptions, and Actions

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
*xx*000	Open Wire	Configurable		P3 [Fdbk Loss Cfg]		The encoder module has detected an input signal (A, B, or Z) in the same state as its complement (A Not, B Not, or Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled. See P1 [Encoder Cfg].
*xx*001	Phase Loss	Configurable		P3 [Fdbk Loss Cfg]		More than 30-phase loss (open wire) events have occurred over an 8 millisecond time period. The same restrictions as for Open Wire detection apply.
*xx*002	Quadrature Loss	Configurable		P3 [Fdbk Loss Cfg]		Quadrature loss events occur when simultaneous edge transitions occur on both the A and B encoder channels. This fault occurs when more than 10 quad loss events over a 10 millisecond time period are detected. Only valid when both A and B channels are used (not Bit 1 "A Chan Only") in P1 [Encoder Cfg].
*xx*058	Module Defaulted	Fault	Coast			Module was commanded to write default values.

(1) *xx* indicates the port number. See Fault and Alarm Display Codes on page 308 for an explanation.

Dual Incremental Encoder Faults and Alarms

Table 22 contains a list of encoder-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable).

Table 22 - Dual Incremental Encoder Fault and Alarm Types, Descriptions, and Actions

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
*xx*000	Enc0 Open Wire	Configurable		P3 [Enc 0 FB Lss Cfg]		The dual encoder module has detected an encoder 0 input signal (A, B, or Z) in the same state as its complement (A Not, B Not, or Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled. See P1 [Enc 0 Cfg].
*xx*001	Enc0 Phase Loss	Configurable		P3 [Enc 0 FB Lss Cfg]		More than 30 encoder 0 phase loss (open wire) events have occurred over an 8 millisecond time period. The same restrictions as for Enc0 Open Wire detection apply.
*xx*002	Enc0 Quad Loss	Configurable		P3 [Enc 0 FB Lss Cfg]		Encoder 0 Quadrature loss events occur when simultaneous edge transitions occur on both the A and B channels of encoder 0. This fault occurs when more than 10 quad loss events over a 10 millisecond time period are detected. Only valid when both A and B channels are used (not Bit 1 "A Chan Only") in P1 [Enc 0 Cfg].
*xx*030	Enc1 Open Wire	Configurable		P13 [Enc 1 FB Lss Cfg]		The dual encoder module has detected an encoder 1 input signal (A, B, or Z) in the same state as its complement (A Not, B Not, or Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled. See P11 [Enc 1 Cfg].
*xx*031	Enc1 Phase Loss	Configurable		P13 [Enc 1 FB Lss Cfg]		More than 30 encoder 1 phase loss (open wire) events have occurred over an 8 millisecond time period. The same restrictions as for Enc1 Open Wire detection apply.
*xx*032	Enc1 Quad Loss	Configurable		P13 [Enc 1 FB Lss Cfg]		Encoder 1 Quadrature loss events occur when simultaneous edge transitions occur on both the A and B channels of encoder 1. This fault occurs when more than 10 quad loss events over a 10 millisecond time period are detected. Only valid when both A and B channels are used (not Bit 1 "A Chan Only") in P11 [Enc 1 Cfg].
*xx*058	Module Defaulted	Fault	Coast			Module was commanded to write default values.

(1) *xx* indicates the port number. See Fault and Alarm Display Codes on page 308 for an explanation.

Universal Feedback Faults and Alarms

Table 23 contains a list of universal feedback-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable).

Table 23 - Universal Feedback Fault and Alarm Types, Descriptions, and Actions

Event No. (1)	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*000	LightSrc Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Light source failure
*xx*001	Ch0 SigAmp Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface -Signal amplitude error
*xx*002	Ch0 PsnVal Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Position value error
*xx*003	Ch0 OverVolt Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Overvoltage error
*xx*004	Ch0 UndVolt Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Undervoltage error
*xx*005	Ch0 OverCur Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Overcurrent error
*xx*006	Ch0 Battery Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Battery empty
*xx*009	Ch0 AnalSig Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Analog signals outside specification
*xx*010	Ch0 IntOfst Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Faulty internal angular offset
*xx*011	Ch0 DataTabl Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Data field partitioning table damaged
*xx*012	Ch0 AnalLim Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Analog limit values not available
*xx*013	Ch0 Int I2C Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Internal I2C bus not operational
*xx*014	Ch0 IntChksm Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Internal checksum error
*xx*015	Ch0 PrgmResetErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Encoder reset occurred as a result of program monitoring
*xx*016	Ch0 CntOvrflwErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Counter overflow
*xx*017	Ch0 Parity Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Parity error
*xx*018	Ch0 Chksum Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Checksum of the data that are transmitted is incorrect
*xx*019	Ch0 InvCmd Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Unknown command code
*xx*020	Ch0 SendSize Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Number of data that are transmitted is incorrect
*xx*021	Ch0 CmdArgmt Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Command argument that is transmitted is not allowed
*xx*022	Ch0 InvWrtAdrErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - The selected data field must not be written to (invalid write address)

Event No. [(1)]	**Fault/Alarm Text**	**Type**	**Fault Action**	**Configuration Param**	**Auto Reset**	**Description**
*xx*023	Ch0 AccCode Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Incorrect access code
*xx*024	Ch0 FieldSizeErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Size of data field that is stated cannot be changed
*xx*025	Ch0 Address Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Word address that is stated is outside data field
*xx*026	Ch0 FieldAcc Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Access to non-existent data field
*xx*028	Ch0 SiTurnPsnErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Single turn position unreliable
*xx*029	Ch0 MulTrnPsnErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Multiple turn position unreliable
*xx*036	Ch0 AnalVal Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Analog value error (process data)
*xx*037	Ch0 SendCurr Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Transmitter current critical (dirt, broken transmitter)
*xx*038	Ch0 EncTemp Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Encoder temperature critical
*xx*039	Ch0 Speed Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Speed too high, no position formation possible
*xx*040	Ch0 General Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by an Encoder on Channel 0 with BiSS Interface - An error bit of the BiSS Single Cycle Data is set
*xx*046	Ch0 LED Curr Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by an Encoder on Channel 0 with BiSS Interface - LED current out of control range
*xx*047	Ch0 ExMulTurnErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by an Encoder on Channel 0 with BiSS Interface - External multi-turn error
*xx*048	Ch0 PsnCode Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by an Encoder on Channel 0 with BiSS Interface - Position code error (single-step error)
*xx*049	Ch0 Config Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by an Encoder on Channel 0 with BiSS Interface - failure configuring interface
*xx*050	Ch0 PsnVal Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by an Encoder on Channel 0 with BiSS Interface - Position data not valid
*xx*051	Ch0 SerialComErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by an Encoder on Channel 0 with BiSS Interface - Serial interface failure
*xx*052	Ch0 Ext Failure	Configurable		P9 [FB0 Loss Cfg]		Error reported by an Encoder on Channel 0 with BiSS Interface - External failure over NERR
*xx*053	Ch0 Temp Exc Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by an Encoder on Channel 0 with BiSS Interface - Temperature out of defined range
*xx*058	Module Defaulted	Fault	Coast			Parameter values for this encoder have been reset to their default settings.
*xx*064	Ch0 OutOfRailErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Rail is no longer present between the read head
*xx*068	Ch0 Read Head 1	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates that the read head must be cleaned or installed correctly
*xx*069	Ch0 Read Head 2	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates that the read head must be cleaned or installed correctly
*xx*070	Ch0 RAM Error	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates a RAM error. Reading head must be repaired
*xx*071	Ch0 EPROM Error	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates an EPROM error. Reading head must be repaired

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*072	Ch0 ROM Error	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates a ROM error. Reading head must be repaired
*xx*074	Ch0 No Position	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates that no position value was available - only possible following powerup or reset
*xx*081	Ch0 Msg Cheksum	Configurable		P9 [FB0 Loss Cfg]		Indicates that the option card has detected a serial communications checksum error while attempting to communicate with the encoder on channel 0.
*xx*082	Ch0 Timeout	Configurable		P9 [FB0 Loss Cfg]		Indicates that the option card has detected a serial communications timeout error while attempting to communicate with the encoder on channel 0.
*xx*083	Ch0 Comm	Configurable		P9 [FB0 Loss Cfg]		Indicates that the option card has detected a serial communications error (other than checksum or timeout) while attempting to communicate with the encoder on channel 0.
*xx*084	Ch0 Diagnostic	Configurable		P9 [FB0 Loss Cfg]		Indicates that the option card has detected a powerup diagnostic test failure for encoder channel 0.
*xx*085	Ch0 SpplyVltgRng	Configurable		P9 [FB0 Loss Cfg]		Indicates that the voltage source to the encoder 0 is out of range.
*xx*086	Ch0 SC Amplitude	Configurable		P9 [FB0 Loss Cfg]		Indicates that the encoder 0 signal amplitude is out of tolerance.
*xx*087	Ch0 Open Wire	Configurable		P9 [FB0 Loss Cfg]		Indicates that an open wire condition has been detected for encoder 0. Both Sine and Cosine signals fell below 0.3 volts.
*xx*088	Ch0 Quad Loss	Configurable		P9 [FB0 Loss Cfg]		Indicates that a signal quadrature error has been detected for encoder 0. Add ferite cores.
*xx*089	Ch0 Phase Loss	Configurable		P9 [FB0 Loss Cfg]		Indicates that an A or B signal of an A quad B incremental encoder on Channel 0 is disconnected.
*xx*090	Ch0 Unsupp Enc	Configurable		P9 [FB0 Loss Cfg]		Indicates that the connected encoder on Channel 0 is not supported
*xx*100	Ch0 FreqExc Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Frequency exceeded warning
*xx*101	Ch0 TempExc Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Temperature exceeded warning
*xx*102	Ch0 LightLim Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Limit of light control reserve reached
*xx*103	Ch0 Battery Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Battery warning
*xx*104	Ch0 RefPoint Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Reference point not reached
*xx*108	Ch0 General Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by an Encoder on Channel 0 with BiSS Interface - A warning bit of the BiSS Single Cycle Data is set
*xx*115	Ch0 Optics Alarm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by a linear Stahl encoder on Channel 0 - Displays an alarm when the Stahl optical system requires cleaning
*xx*116	Ch0 OutOfRailAlm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by a linear Stahl encoder on Channel 0 - Indicates that the read encoder count is at the maximum value (524287)
*xx*200	Ch1 LightSrc Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Light source failure
*xx*201	Ch1 SigAmp Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface -Signal amplitude error
*xx*202	Ch1 PsnVal Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Position value error
*xx*203	Ch1 OverVolt Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Overvoltage error

Event No. (1)	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*204	Ch1 UndVolt Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Undervoltage error
*xx*205	Ch1 OverCur Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Overcurrent error
*xx*206	Ch1 Battery Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Battery empty
*xx*209	Ch1 AnalSig Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Analog signals outside specification
*xx*210	Ch1 IntOfst Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Faulty internal angular offset
*xx*211	Ch1 DataTabl Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Data field partitioning table damaged
*xx*212	Ch1 AnalLim Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Analog limit values not available
*xx*213	Ch1 Int I2C Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Internal I2C bus not operational
*xx*214	Ch1 IntChksm Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Internal checksum error
*xx*215	Ch1 PrgmResetErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Encoder reset occurred as a result of program monitoring
*xx*216	Ch1 CntOvrflwErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Counter overflow
*xx*217	Ch1 Parity Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Parity error
*xx*218	Ch1 Chksum Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Checksum of the data that is transmitted is incorrect
*xx*219	Ch1 InvCmd Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Unknown command code
*xx*220	Ch1 SendSize Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Number of data that is transmitted is incorrect
*xx*221	Ch1 CmdArgmt Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Command argument that is transmitted is not allowed
*xx*222	Ch1 InvWrtAdrErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - The selected data field must not be written to (invalid write address)
*xx*223	Ch1 AccCode Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Incorrect access code
*xx*224	Ch1 FieldSizeErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Size of data field that is stated cannot be changed
*xx*225	Ch1 Address Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Word address that is stated is outside data field
*xx*226	Ch1 FieldAcc Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Access to non-existent data field
*xx*228	Ch1 SiTurnPsnErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Single turn position unreliable
*xx*229	Ch1 MulTrnPsnErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Multiple turn position unreliable
*xx*236	Ch1 AnalVal Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Analog value error (process data)

Event No. (1)	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*237	Ch1 SendCurr Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Transmitter current critical (dirt, broken transmitter)
*xx*238	Ch1 EncTemp Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Encoder temperature critical
*xx*239	Ch1 Speed Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Speed too high, no position formation possible
*xx*240	Ch1 General Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by an Encoder on Channel 1 with BiSS Interface - An error bit of the BiSS Single Cycle Data is set
*xx*246	Ch1 LED Curr Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by an Encoder on Channel 1 with BiSS Interface - LED current out of control range
*xx*247	Ch1 ExMulTurnErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by an Encoder on Channel 1 with BiSS Interface - External multi-turn error
*xx*248	Ch1 PsnCode Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by an Encoder on Channel 1 with BiSS Interface - Position code error (single step error)
*xx*249	Ch1 Config Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by an Encoder on Channel 1 with BiSS Interface - failure configuring interface
*xx*250	Ch1 PsnVal Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by an Encoder on Channel 1 with BiSS Interface - Position data not valid
*xx*251	Ch1 SerialComErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by an Encoder on Channel 1 with BiSS Interface - Serial interface failure
*xx*252	Ch1 Ext Failure	Configurable		P39 [FB1 Loss Cfg]		Error reported by an Encoder on Channel 1 with BiSS Interface - External failure over NERR
*xx*253	Ch1 Temp Exc Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by an Encoder on Channel 1 with BiSS Interface - Temperature out of defined range
*xx*256	Ch1 OutOfRailErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Rail is no longer present between the read head
*xx*260	Ch1 Read Head 1	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates that the read head must be cleaned or installed correctly
*xx*261	Ch1 Read Head 2	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates that the read head must be cleaned or installed correctly
*xx*262	Ch1 RAM Error	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates a RAM error. Reading head must be repaired
*xx*263	Ch1 EPROM Error	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates an EPROM error. Reading head must be repaired
*xx*264	Ch1 ROM Error	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates a ROM error. Reading head must be repaired
*xx*266	Ch1 No Position	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates that no position value was available - only possible following powerup or reset
*xx*281	Ch1 Msg Cheksum	Configurable		P39 [FB1 Loss Cfg]		Indicates that the option card has detected a serial communications checksum error while attempting to communicate with the encoder on channel 1.
*xx*282	Ch1 Timeout	Configurable		P39 [FB1 Loss Cfg]		Indicates that the option card has detected a serial communications timeout error while attempting to communicate with the encoder on channel 1.
*xx*283	Ch1 Comm	Configurable		P39 [FB1 Loss Cfg]		Indicates that the option card has detected a serial communications error (other than checksum or timeout) while attempting to communicate with the encoder on channel 1.
*xx*284	Ch1 Diagnostic	Configurable		P39 [FB1 Loss Cfg]		Indicates that the option card has detected a powerup diagnostic test failure for encoder channel 1.
*xx*285	Ch1 SpplyVltgRng	Configurable		P39 [FB1 Loss Cfg]		Indicates that the voltage source to the encoder 1 is out of range.

Event No. (1)	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*286	Ch1 SC Amplitude	Configurable		P39 [FB1 Loss Cfg]		Indicates that the encoder 1 signal amplitude is out of tolerance.
*xx*287	Ch1 Open Wire	Configurable		P39 [FB1 Loss Cfg]		Indicates that an open wire condition has been detected for encoder 1.
*xx*288	Ch1 Quad Loss	Configurable		P39 [FB1 Loss Cfg]		Indicates that a signal quadrature error has been detected for encoder 1
*xx*289	Ch1 Phase Loss	Configurable		P39 [FB1 Loss Cfg]		Indicates that an A or B signal of an A quad B incremental encoder on Channel 1 is disconnected.
*xx*290	Ch1 Unsupp Enc	Configurable		P39 [FB1 Loss Cfg]		Indicates that the connected encoder on Channel 1 is not supported
*xx*300	Ch1 FreqExc Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Frequency exceeded warning
*xx*301	Ch1 TempExc Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Temperature exceeded warning
*xx*302	Ch1 LightLim Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Limit of light control reserve reached
*xx*303	Ch1 Battery Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Battery warning
*xx*304	Ch1 RefPoint Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Reference point not reached
*xx*308	Ch1 General Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by an Encoder on Channel 1 with BiSS Interface - A warning bit of the BiSS Single Cycle Data is set
*xx*315	Ch1 Optics Alarm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by a linear Stahl encoder on Channel 1 - Displays an alarm when the Stahl optical system requires cleaning
*xx*316	Ch1 OutOfRailAlm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by a linear Stahl encoder on Channel 1 - Indicates that the read encoder count is at the maximum value (524287)
*xx*412	Hardware Err	Configurable		Either P9 [FB0 Loss Cfg] or P39 [FB1 Loss Cfg]		Indicates that there is a Hardware Error on the Feedback Option module.
*xx*413	Firmware Err	Configurable		Either P9 [FB0 Loss Cfg] or P39 [FB1 Loss Cfg]		Indicates that there is a Firmware Error on the Feedback Option module. A Firmware Error occurs if the Hardware and the downloaded Firmware are not compatible. This error could also indicate that communication between the Feedback Option module and the Main Control Board was interrupted during power-up. Cycle power to clear this fault.
*xx*416	EncOut Cflct	Alarm 1		Either P9 [FB0 Loss Cfg] or P39 [FB1 Loss Cfg]		Indicates that there is one of the following problems with the Encoder Output: • The selection in the P80 [Enc Out Sel] is not possible since the required pins on the terminal blocks are already used for Feedback 0 or 1 according to P6 [FB0 Device Sel] and P36 [FB1 Device Sel]. • P80 [Enc Out Sel] is set to 2 “Sine Cosine” and there is no signal connected to the pins 1…4 of TB 1. • P80 [Enc Out Sel] is set to 2 “Sine Cosine,” the value of P15/45 [FBX IncAndSC PPR] is not a power of two, and P84 [EncOut Z PPR] is not set to 0 “1 ZPulse.” The value of P15/45 [FBX IncAndSC PPR] must be a power of two. • P80 [Enc Out Sel] is set to 3 “Channel X” or 4 “Channel Y” and there is no encoder connected to that channel. • P80 [Enc Out Sel] is set to 3 “Channel X” or 4 “Channel Y” and there is a linear encoder connected to this channel.

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*417	Safety Cflct	Alarm 1		Either P9 [FB0 Loss Cfg] or P39 [FB1 Loss Cfg]		Indicates that the Safety DIP switches are in an invalid position.
*xx*420	FB0FB1 Cflct	Alarm 2				Indicates that the combination of the feedback selection that is done with P6 [FB0 Device Sel] and P36 [FB1 Device Sel] is invalid, i.e. both feedbacks have Sin-Cos-Signals (There is only place for one set of Sin-Cos-Signals on the Terminal Blocks). The drive cannot be started until this configuration conflict is resolved.
*xx*421	Initializing	Alarm 2				Indicates that the Universal Feedback State Machine is in the Initialize State. This Type 2 alarm is provided to be sure that the motor cannot be started during this state.

(1) *xx* indicates the port number. See Fault and Alarm Display Codes on page 308 for an explanation.

Port Verification

When connecting to select devices, such as PowerFlex 750-Series drives, the Port Verification dialog box displays if device conflicts are found during the connection process. These conflicts typically require resolution before the connection is established with the device.

The information and options available in this dialog box are detailed here:

Item	Description
Previous Setup	Identifies the device that was previously installed at this port.
Current Setup	Identifies the device that is currently installed at the port (if applicable).
(Device Not Found)	A message identifying the conflict at the identified port.
Changed	Indicates that the device previously installed at the port that is identified has been removed or changed to another device.
Not supported - Must remove device before connection	Indicates that the device currently installed at the port that is identified has a firmware revision that is not compatible with the drive. The drive must be flash updated to be able to use this device or the device must be removed from the port before a connection can be made.
Not functioning - Must remove device before connection	Indicates that the device currently installed at the port that is identified is not functioning. The device must be removed from the port before a connection can be made.
Invalid Duplicate - Must remove device before connection	Indicates that the device currently installed at the port that is identified is already installed at another port for the device to which you are attempting to connect and the device cannot support the number of devices installed. The duplicate device must be removed from the port before a connection can be made.
Requires Configuration	Indicates that the device installed at the port that is identified requires configuration before a connection can be made.
Accept All	Accepts all configuration changes and continues the device connection process.
Cancel	Cancels the device connection process.

Common Symptoms and Corrective Actions

Drive does not Start from Start or Run Inputs wired to the terminal block.

Cause(s)	Indication	Corrective Action
Drive is Faulted	Flashing red status light	Clear fault. • Press Stop • Cycle power • “Clear Faults” on the HIM Diagnostic menu.
Incorrect input wiring. See Installation Instructions, publication 750-IN001, for wiring examples. • 2 wire control requires Run, Run Forward, Run Reverse or Jog input. • 3 wire control requires Start and Stop inputs. • Verify 24 Volt Common is connected to Digital Input Common.	None	Wire inputs correctly.
Incorrect digital input programming. • Mutually exclusive choices have been made (i.e., Jog and Jog Forward). • 2 wire and 3 wire programming may be conflicting. • Start configured without a Stop configured.	None	Configure input function.
	Flashing yellow status light and “DigIn Cnfg B” or “DigIn Cnfg C” indication on LCD HIM. P936 [Drive Status 2] shows type 2 alarm(s).	Resolve input function conflicts.
Terminal block does not have control.	None	Check P324 [Logic Mask].

Drive does not Start from HIM.

Cause(s)	**Indication**	**Corrective Action**
Drive is configured for 2 wire level control.	None	Change P150 [Digital In Conf] to correct control function.
Another device has Manual control.	None	
Port does not have control.	None	Change P324 [Logic Mask] to enable correct port.

Drive does not respond to changes in speed command.

Cause(s)	**Indication**	**Corrective Action**
No value is coming from the source of the command.	LCD HIM Status Line indicates "At Speed" and output is 0 Hz.	1. If the source is an analog input, check wiring and use a meter to check for presence of signal. 2. Check P2 [Commanded SpdRef] for correct source. (See page 48)
Incorrect reference source has been programmed.	None	3. Check P545 [Spd Ref A Sel] for the source of the speed reference. (See page 110) 4. Reprogram P545 [Spd Ref A Sel] for correct source. (See page 110)
Incorrect Reference source is being selected via remote device or digital inputs.	None	5. Check P935 [Drive Status 1], page 154, bits 12 and 13 for unexpected source selections. 6. Check P220 [Digital In Sts], page 72 to see if inputs are selecting an alternate source. 7. Check configuration of P173…175 [DI Speed Sel *n*] functions

Motor and/or drive does not accelerate to commanded speed.

Cause(s)	**Indication**	**Corrective Action**
Acceleration time is excessive.	None	Reprogram P535/536 [Accel Time X]. (See page 109)
Excess load or short acceleration times force the drive into current limit, slowing or stopping acceleration.	None	Check P935 [Drive Status 1], bit 27 to see if the drive is in Current Limit. (See page 154) Remove excess load or reprogram P535/536 [Accel Time *n*].(See page 109)
Speed command source or value is not as expected.	None	Check for the proper Speed Command using Steps 1...7 in "Drive does not respond to changes in speed command."
Programming is preventing the drive output from exceeding limiting values.	None	Check P520 [Max Fwd Speed], P521 [Max Rev Speed] (See page 108) and P37 [Maximum Freq] (See page 51) to assure that speed is not limited by programming.

Motor operation is unstable.

Cause(s)	**Indication**	**Corrective Action**
Motor data was incorrectly entered or Autotune was not performed.	None	1. Correctly enter motor nameplate data. 2. Perform "Static Tune" or "Rotate Tune" Autotune procedure. See P70 [Autotune] on page 57

Drive does not reverse motor direction.

Cause(s)	Indication	Corrective Action
Digital input is not selected for reversing control.	None	Check that the DI Reversing function is correctly configured.
Digital input is incorrectly wired.	None	Check digital input wiring.
Direction mode parameter is incorrectly programmed.	None	Reprogram P308 [Direction Mode], page 81 for analog "Bipolar" or digital "Unipolar" control.
Motor wiring is improperly phased for reverse.	None	Switch two motor leads.
A bipolar analog speed command input is incorrectly wired or signal is absent.	None	1. Use meter to check that an analog input voltage is present. 2. Check bipolar analog signal wiring. Positive voltage commands forward direction. Negative voltage commands reverse direction.

A drive stop results in a Decel Inhibit fault.

Cause(s)	Indication	Corrective Action
The bus regulation feature is enabled and is halting deceleration due to excessive bus voltage. Excess bus voltage is normally due to excessive regenerated energy or unstable AC line input voltages. Internal timer has halted drive operation.	Decel Inhibit fault screen. LCD Status Line indicates "Faulted."	1. To eliminate any "Adjust Freq" selection, reprogram parameters 372/373 [Bus Reg Mode *n*]. 2. Disable bus regulation (parameters 372/373 [Bus Reg Mode *n*]) and add a dynamic brake. 3. Correct AC input line instability or add an isolation transformer. 4. Access P409 [Dec Inhibit Actn] to select desired fault action. 5. Reset drive.

A datalink cannot be established.

Cause(s)	Indication	Corrective Action
Another device is communicating with the processor.	None	1. Verify that DeviceLogix is not running (Port 14, P53 [DLX Operation] = 5 "Logic Disabled.") 2. Verify that a PLC is not communication with the drive. Disconnect communication cable or inhibit communication in PLC software.

PowerFlex 755 Lifting/ Torque Proving

Review the Attention statement that follows if you intend to use the TorqProve™ feature without an encoder. TorqProve only applies to PowerFlex 755 drives.

ATTENTION: You must read the following information before you can use TorqProve with no encoder.

Encoderless TorqProve must be limited to lifting applications where personal safety is not a concern. Encoders offer additional protection and must be used where personal safety is a concern. Encoderless TorqProve cannot hold a load at zero speed without a mechanical brake and does not offer additional protection if the brake slips/fails. Loss of control in suspended load applications can cause personal injury and/or equipment damage.

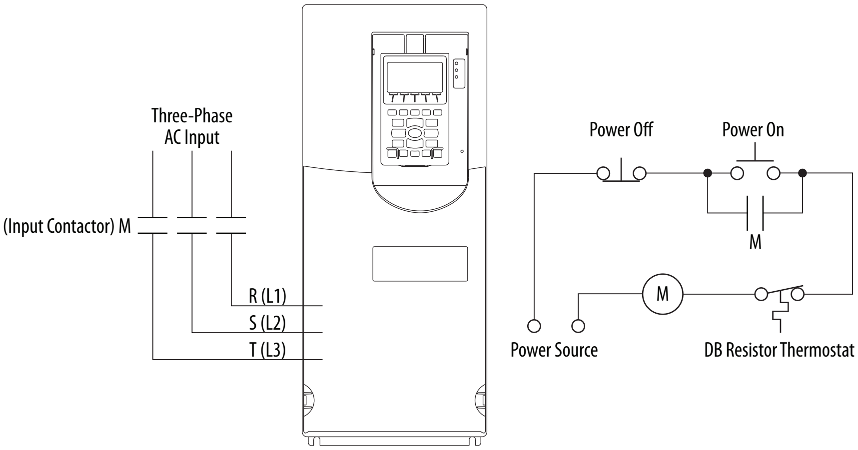
It is your responsibility to configure drive parameters, test any lifting functionality and meet safety requirements in accordance with all applicable codes and standards. If encoderless TorqProve is desired, you must certify the safety of the application. To acknowledge that you have read this "Attention" and properly certified their encoderless application, bit 3 ("EnclsTrqProv") of [Mtr Options Cfg], parameter 40 must be changed to a "1." This action removes Alarm 28, "TP Encls Config" and allow bit 1 of Parameter 1100 to be changed to a "1" enabling encoderless TorqProve.

For more information on TorqProve applications, refer to Appendix C on page 439.

External Brake Resistor

ATTENTION: The drive does not offer protection for externally mounted brake resistors. A risk of fire exists if external braking resistors are not protected. External resistor packages must be self-protected from over temperature or a circuit equivalent to the one shown here must be supplied.

Figure 4 - External Brake Resistor Circuitry



This circuit is designed to remove input voltage to the drive if the line voltage is high and forces dynamic braking to operate continuously.

Technical Support Options

What You Need When You Call Tech Support

When you contact Technical Support, please be prepared to provide the following information:

- Order number
- Product catalog number and drives series number (if applicable)
- Product serial number
- Firmware revision level
- Fault code listed in P951 [Last Fault Code]
- Installed options and port assignments

Also be prepared with:

- A description of your application
- A detailed description of the problem
- A brief history of the drive installation
- First-time installation, product has not been running
- Established installation, product has been running

The data that is contained in the following parameters help in initial troubleshooting of a faulted drive. You can use this table to record the data provided in each parameter listed.

Parameter(s)	Name	Description	Parameter Data
956	Fault Frequency	Captures and displays the output speed of drive at time of last fault.	
957	Fault Amps	Captures and displays motor amps at time of last fault.	
958	Fault Bus Volts	Captures and displays the DC bus voltage of drive at time of last fault.	
954	Status1 at Fault	Captures and displays [Drive Status 1] bit pattern at time of last fault.	
955	Status2 at Fault	Captures and displays [Drive Status 2] bit pattern at time of last fault.	
962	AlarmA at Fault	Captures and displays [Alarm Status A] bit pattern at time of last fault.	
963	AlarmB at Fault	Captures and displays [Alarm Status B] bit pattern at time of last fault.	
951	Last Fault Code	A code that represents the fault that tripped the drive.	

Technical Support Wizards

When you are connected to a drive via DriveExplorer™ or DriveExecutive™, you can run a Tech Support wizard to gather information that helps diagnose problems with your drive and/or peripheral device. The wizard gathers information and saves the data as a text file. This file can be emailed to your remote technical support contact.

To run a Tech Support wizard in DriveExplorer, select **Wizards** from the **Actions** menu. In DriveExecutive, select **Wizards** from the **Tools** menu. Or, click the button. Follow the prompts to complete the wizard.

IMPORTANT The Tech Support wizard cannot be accessed when the Control Bar is launched.

Appendix A

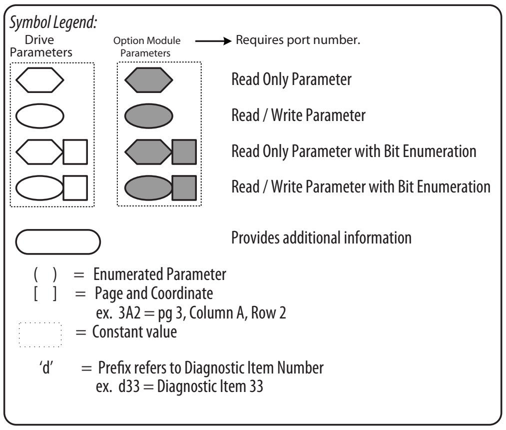
PowerFlex 753 Control Block Diagrams

The block diagrams in this appendix are applicable to firmware revision 11.002 and earlier only.

Flow diagrams on the following pages illustrate the PowerFlex 753 drive control algorithms.

Diagram Conventions and Definitions

Definitions of the Per Unit system:
1.0 PU Position = Distance traveled / 1sec at Base Spd
1.0 PU Speed = Base Speed of the Motor
1.0 PU Torque = Base Torque of the Motor



*** Notes,** ***Important*** :

(1) These diagrams are for reference only and may not accurately reflect all logical control signals; actual functionality is implied by the approximated diagrams. Accuracy of these diagrams is not guaranteed.

Figure 5 - Flux Vector Overview

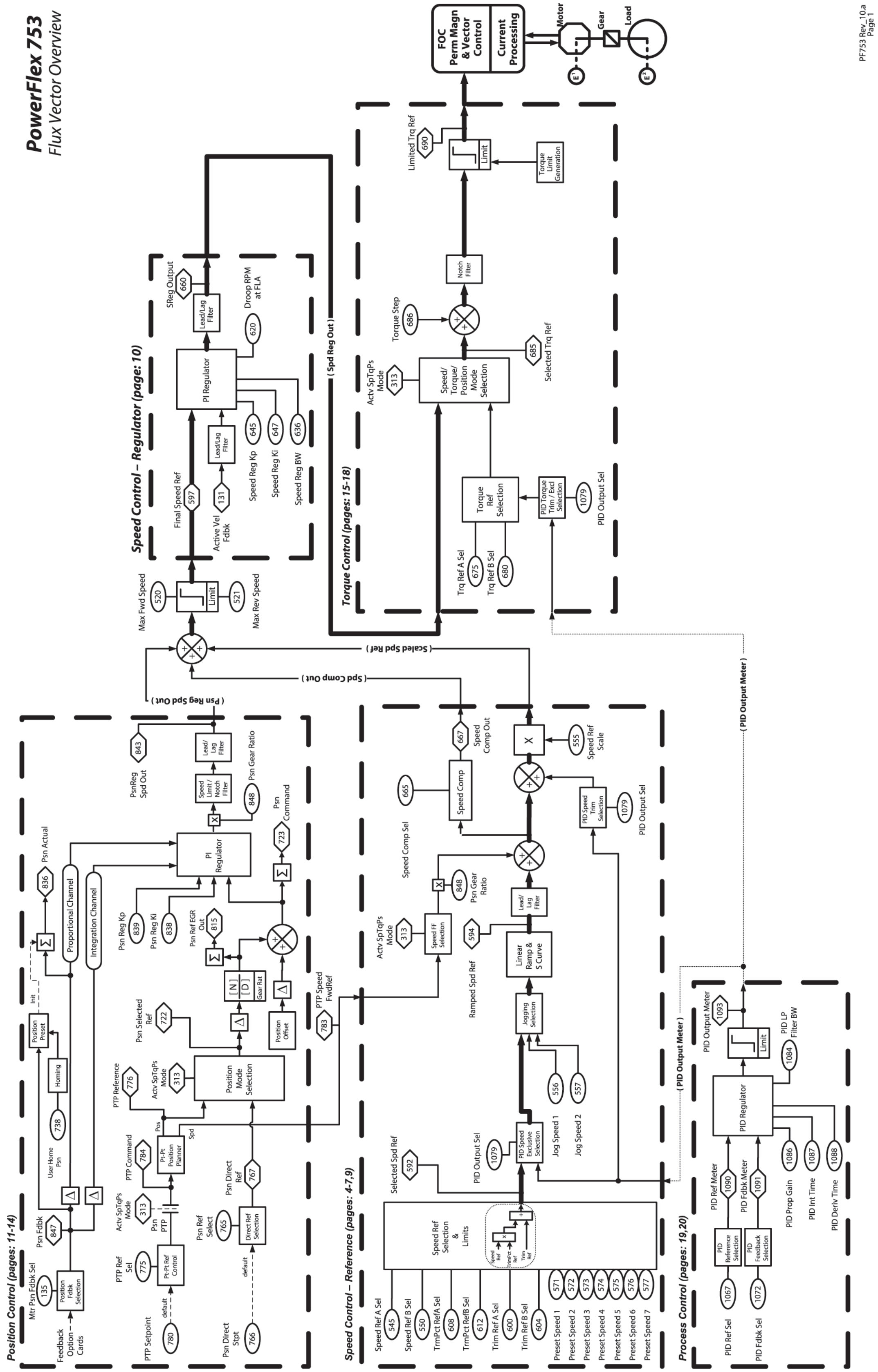


Figure 6 - VF, SV Overview

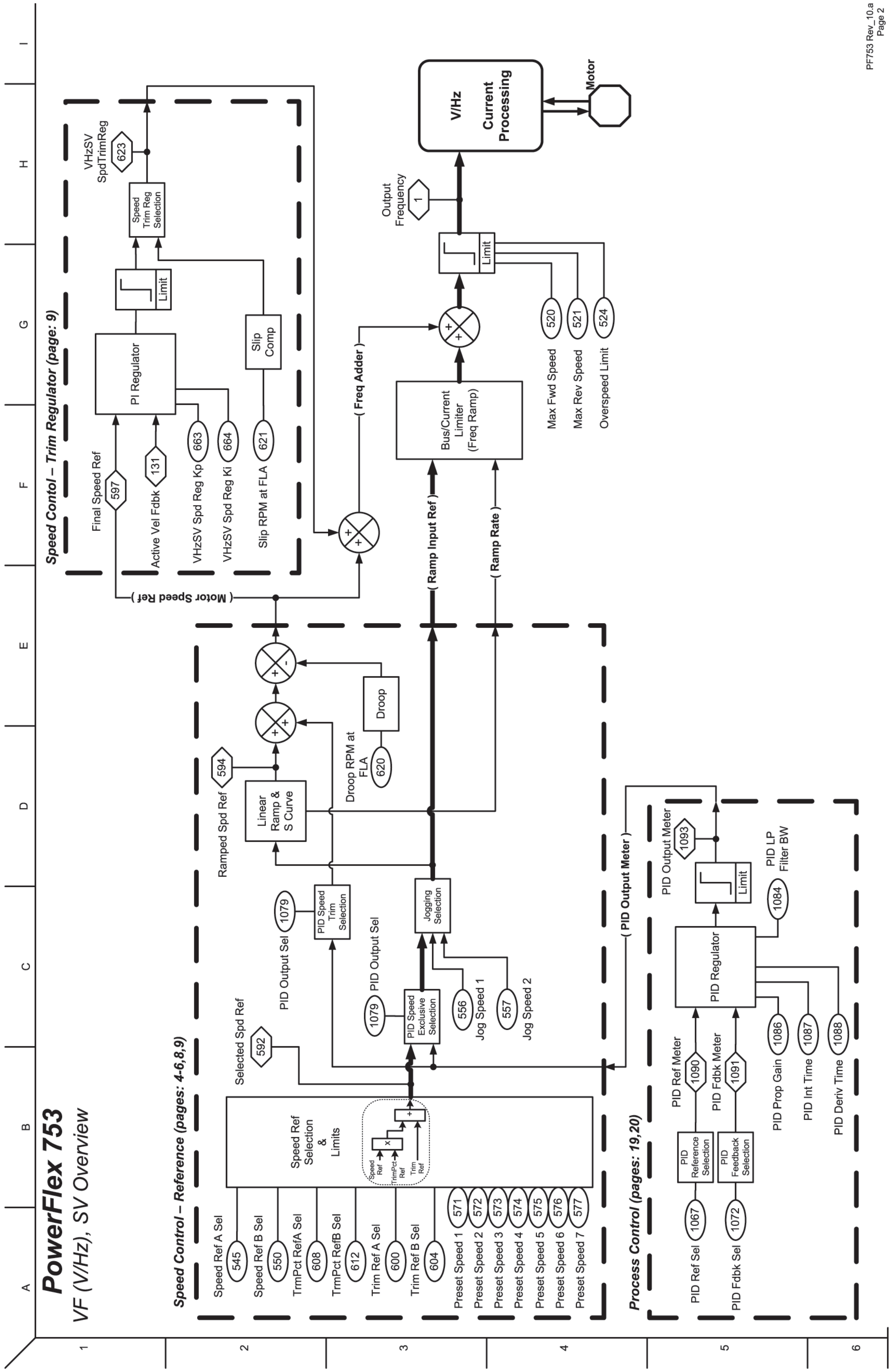


Figure 7 - Speed/Position Feedback

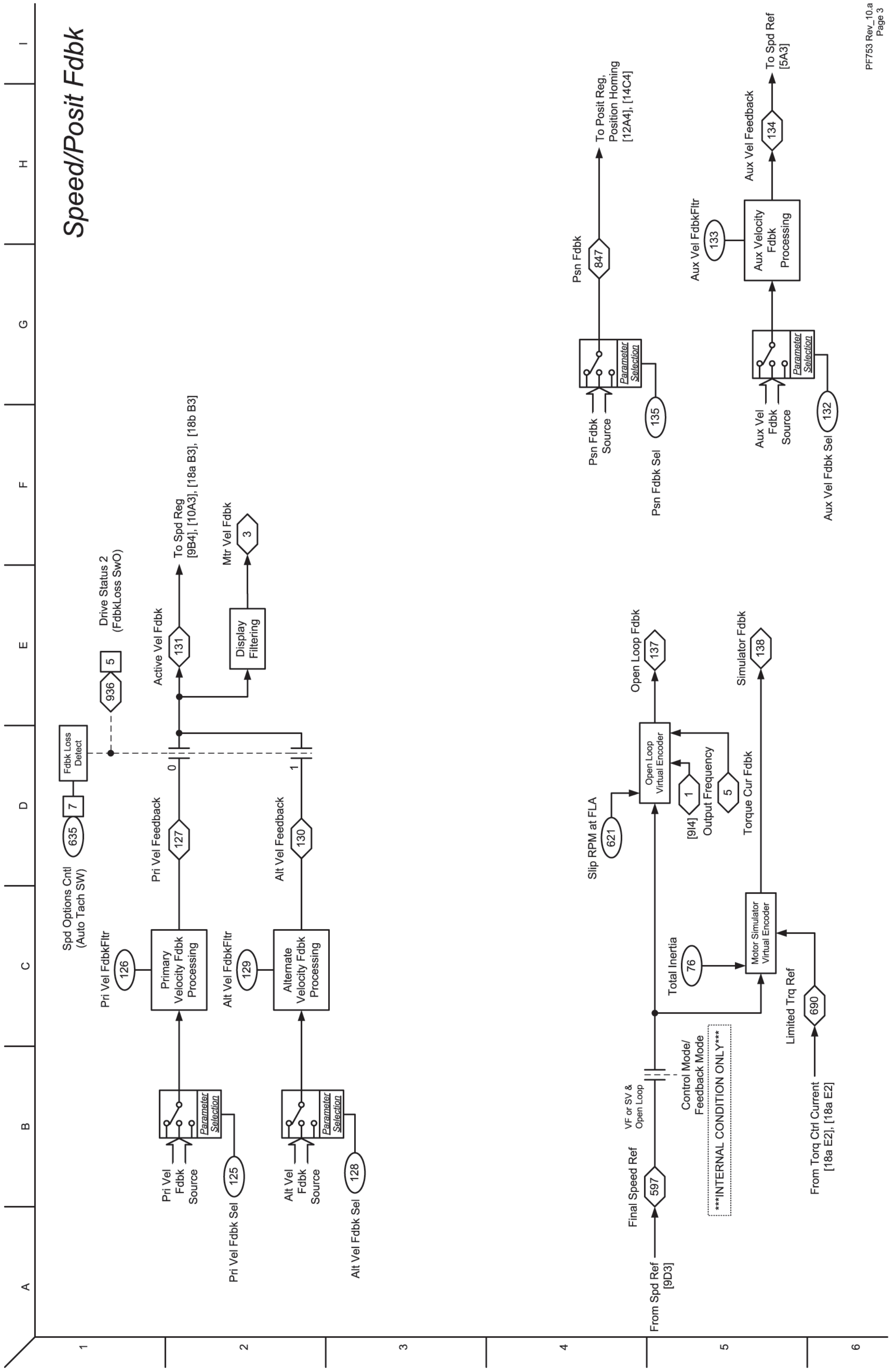


Figure 8 - Speed Control - Reference Overview

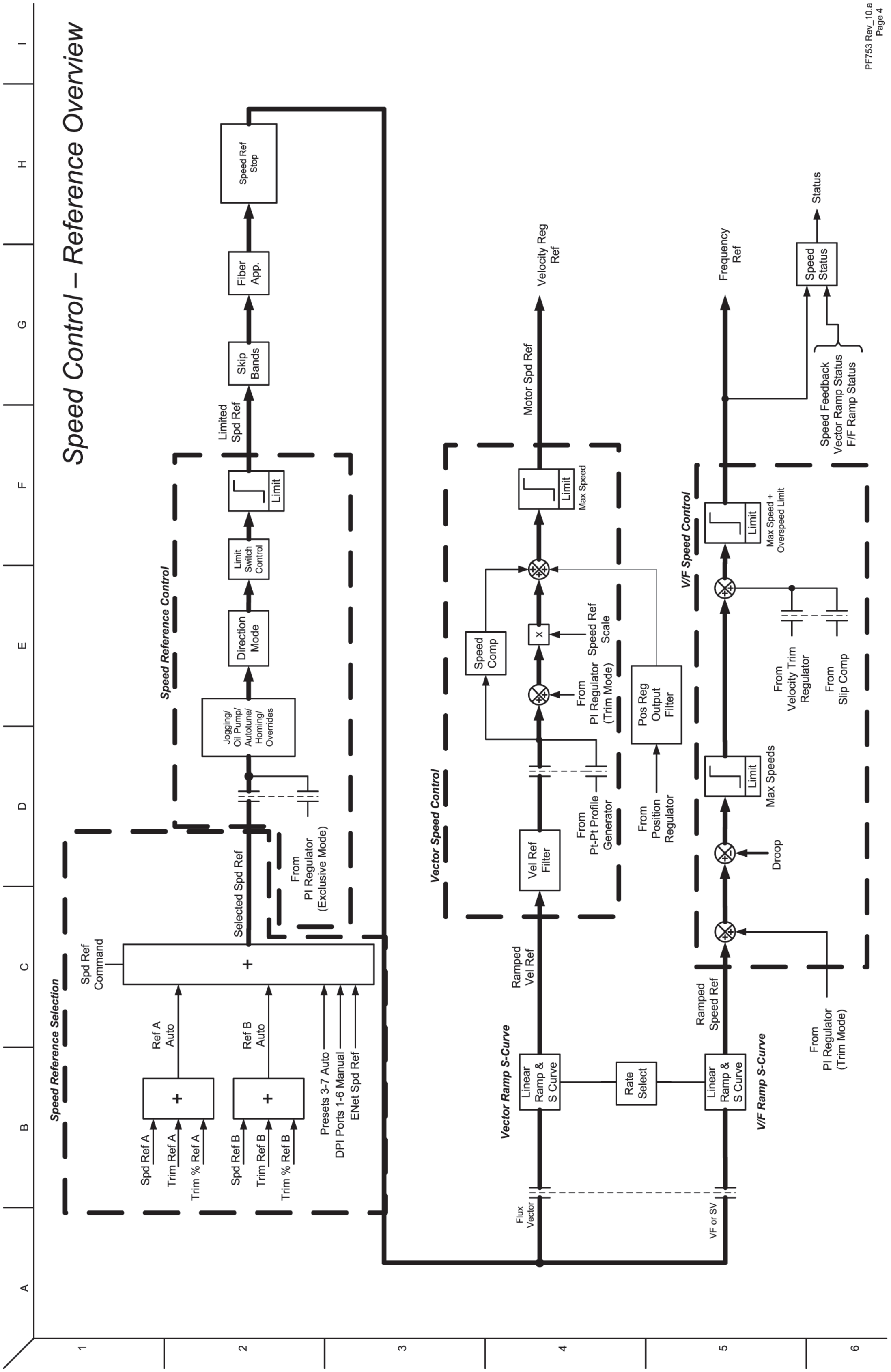


Figure 9 - Speed Control - Reference (1)

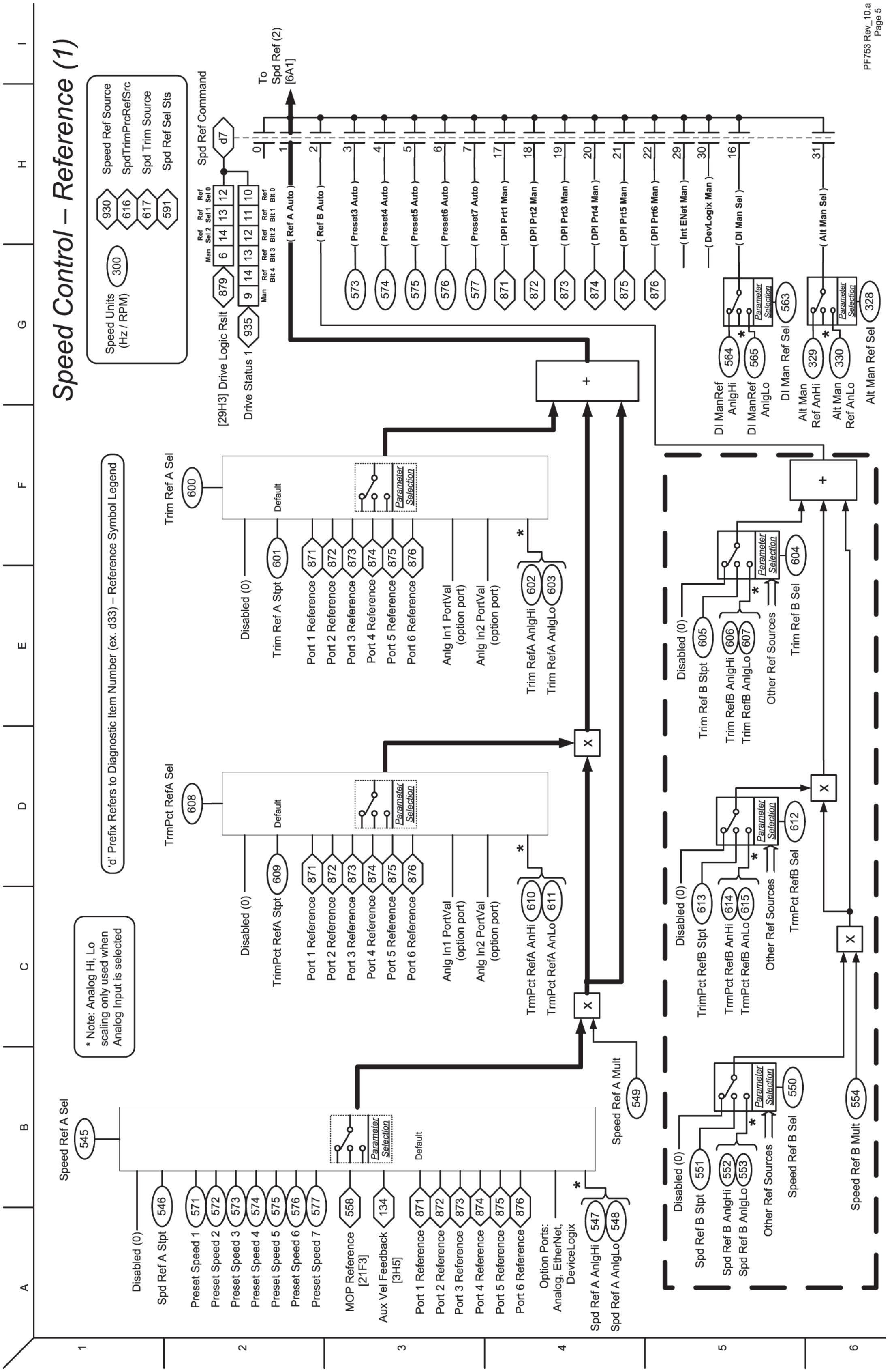


Figure 10 - Speed Control - Reference (2)

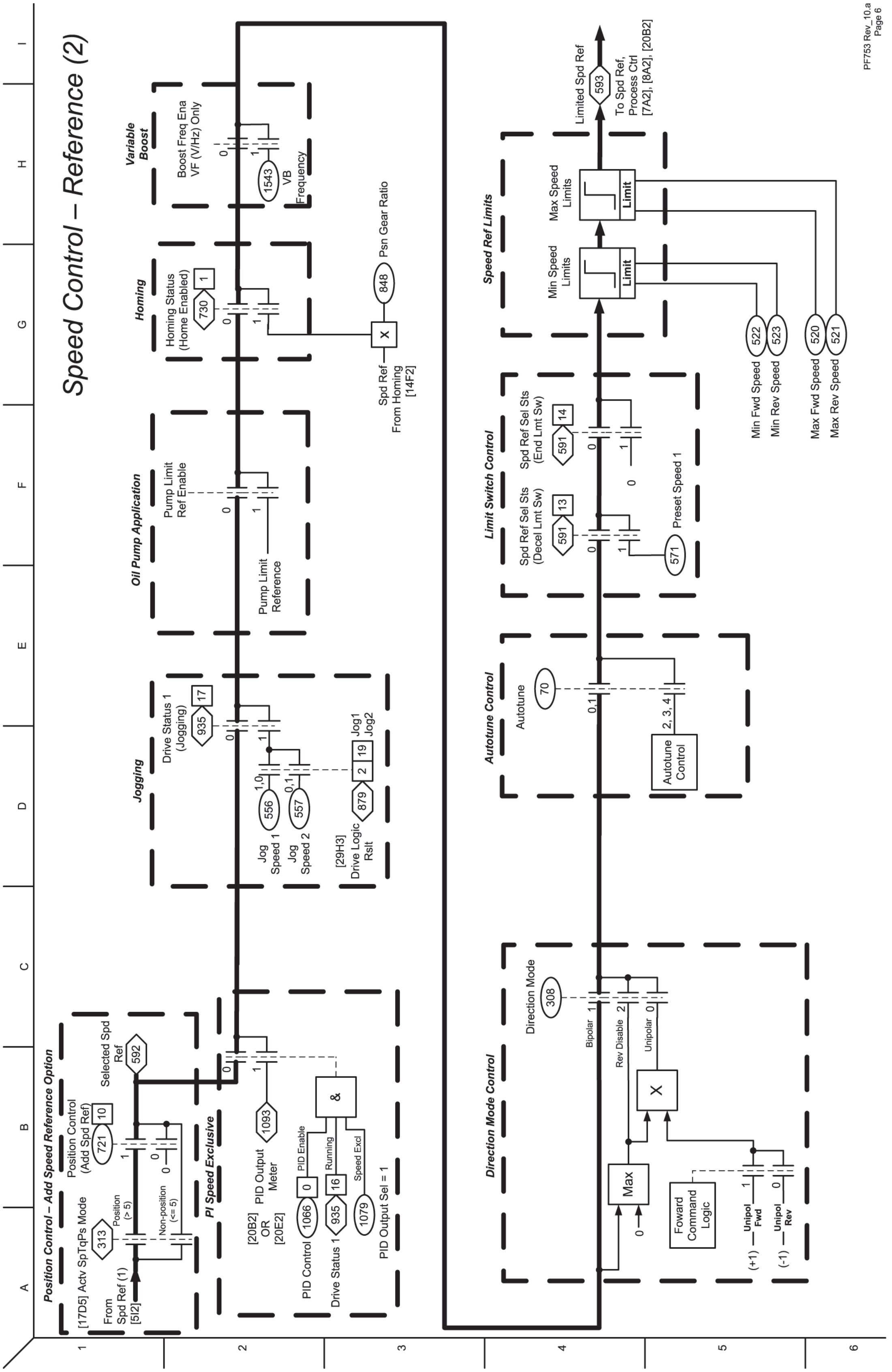


Figure 11 - Speed Control - Reference (3)

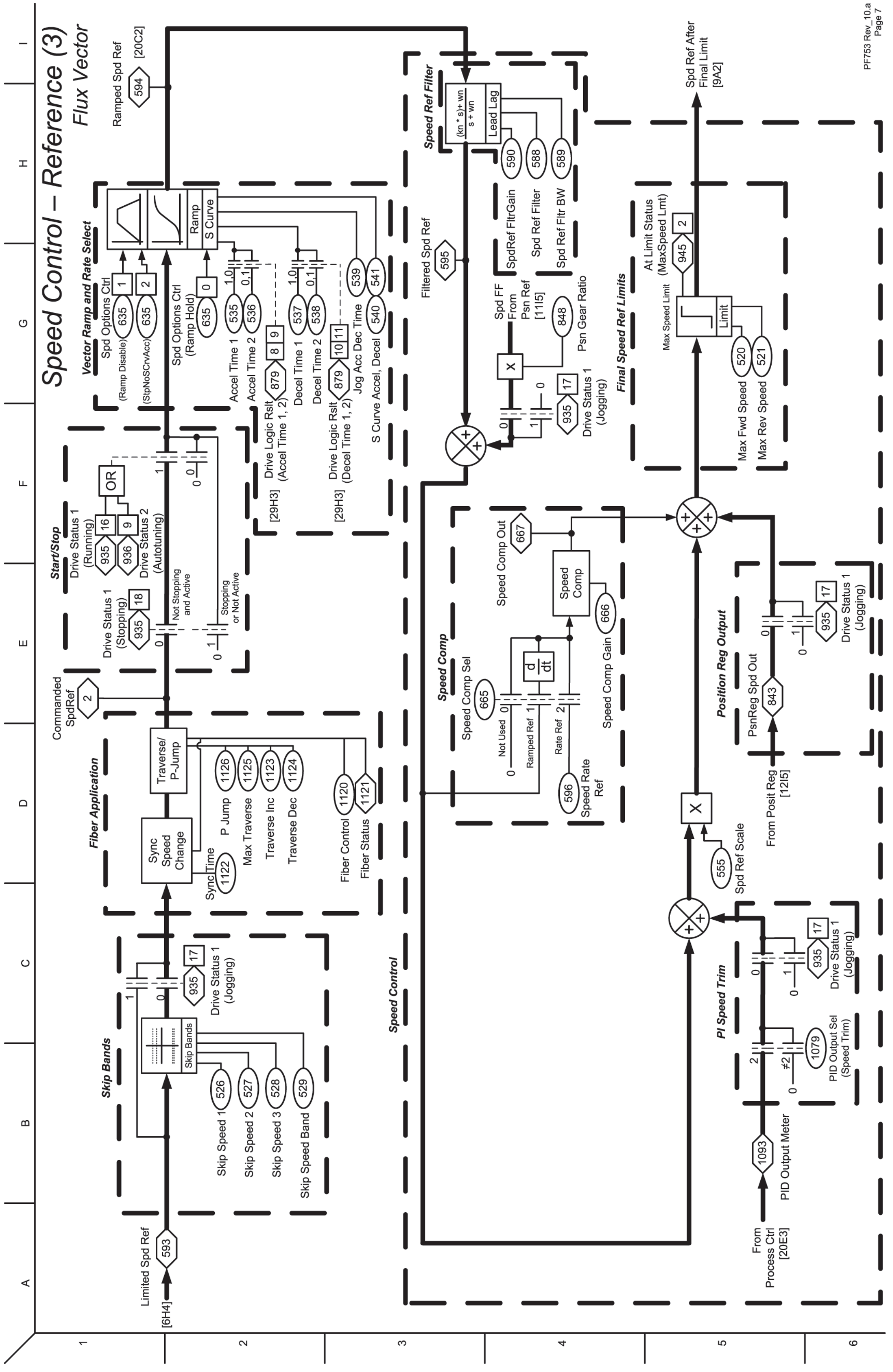


Figure 12 - Speed Control - Reference (4)

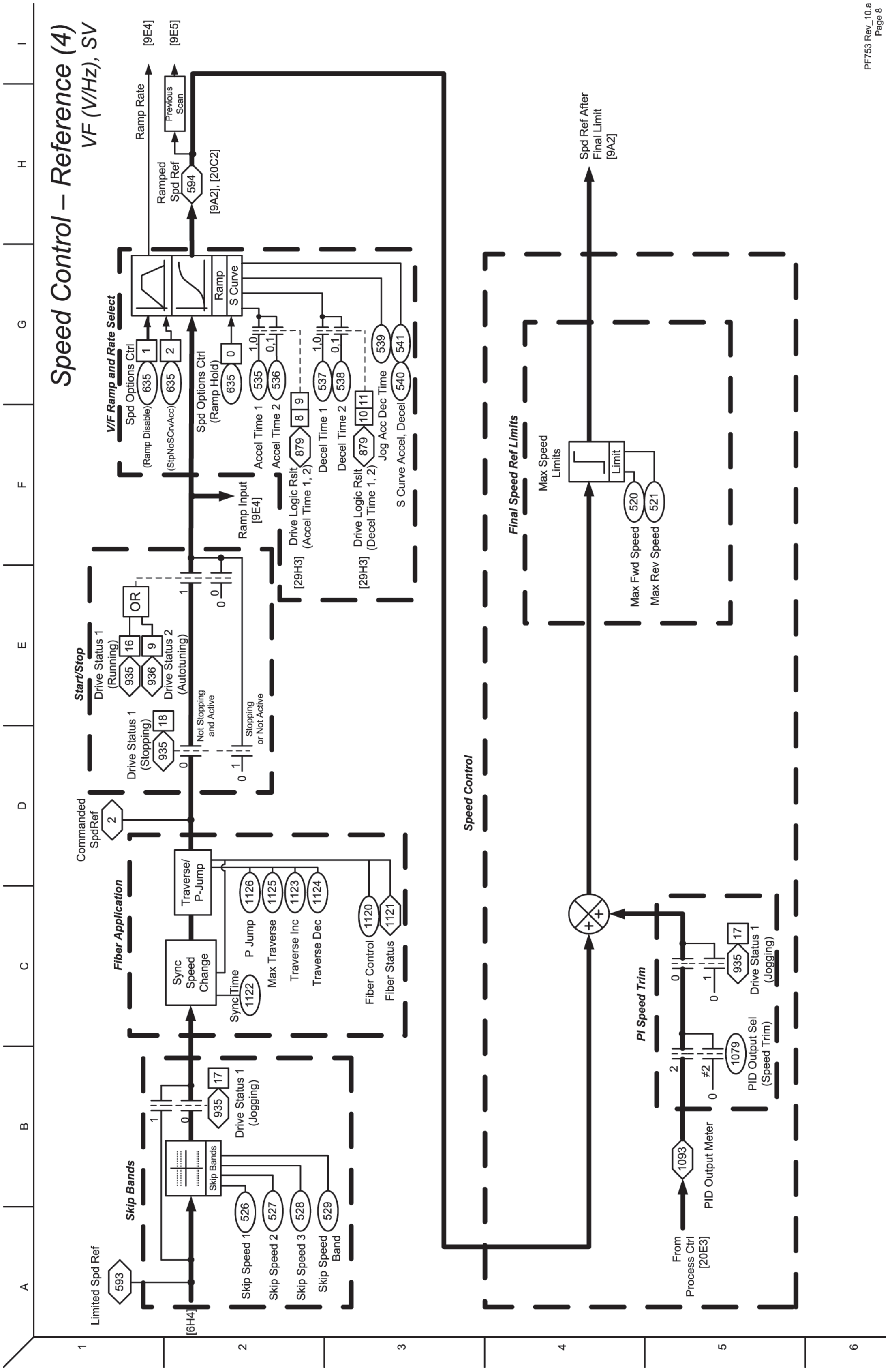


Figure 13 - Speed Control - Reference (5)

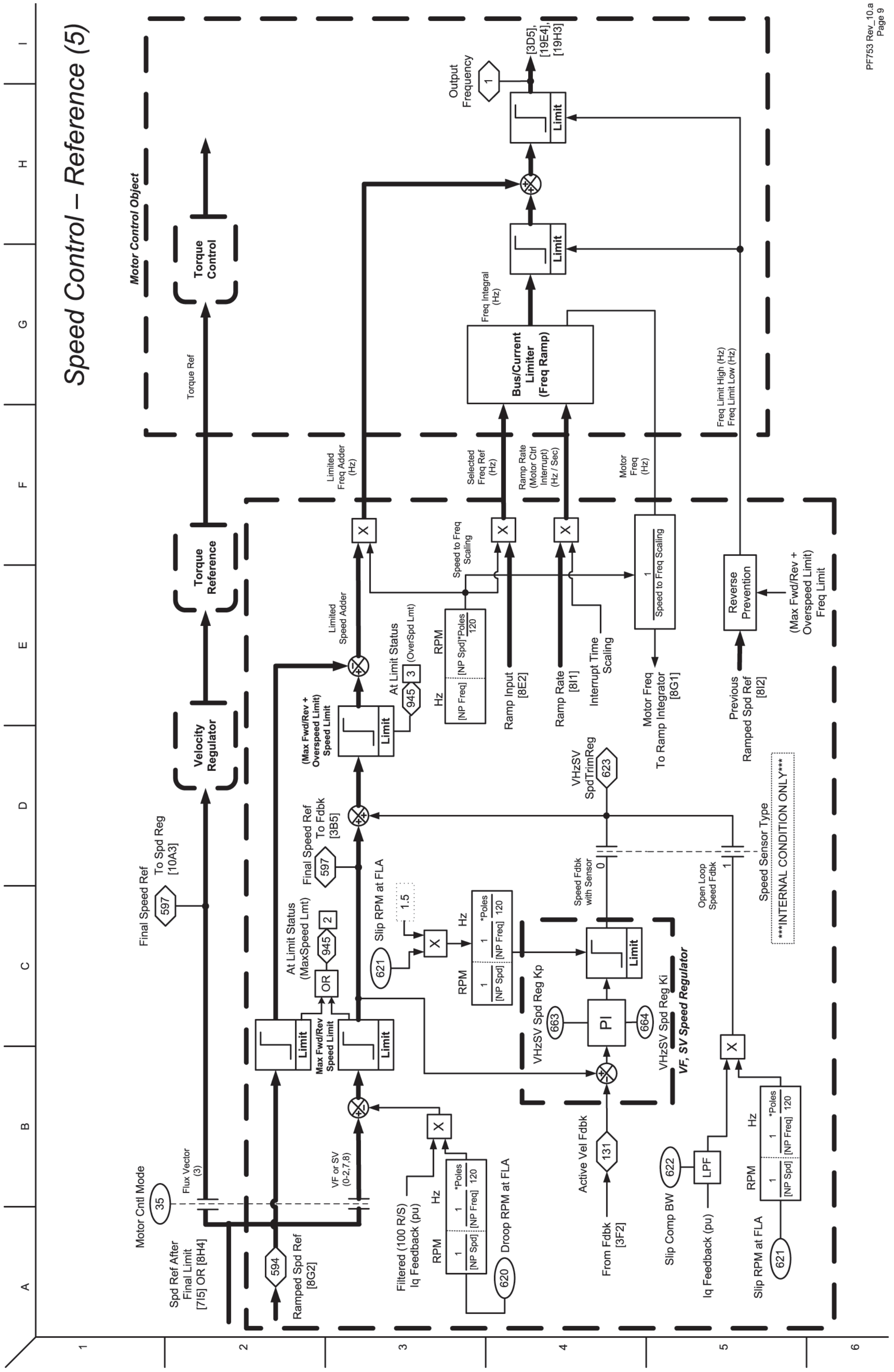


Figure 14 - Speed Control - Regulator (FV)

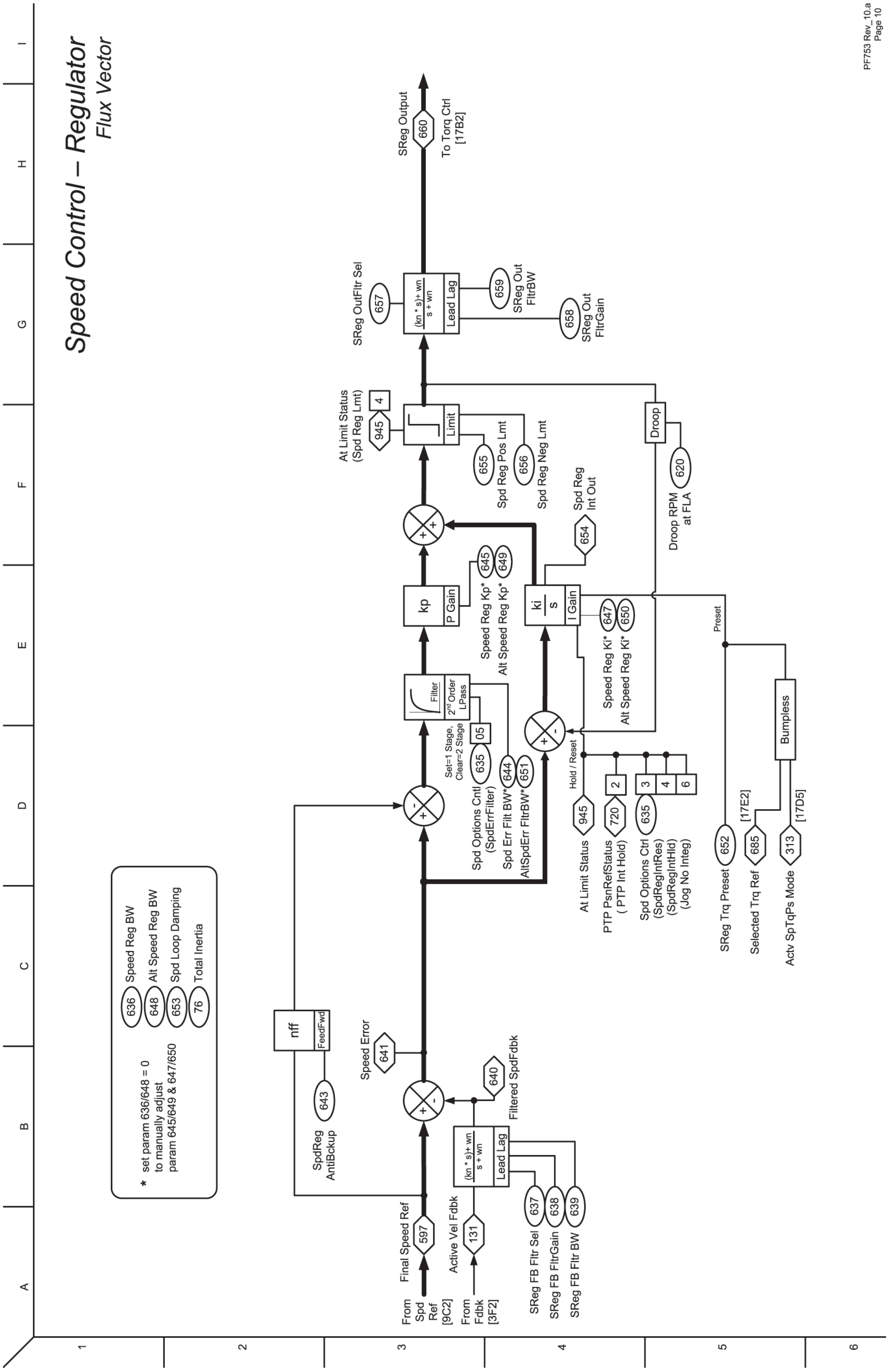


Figure 15 - Position Control - Reference

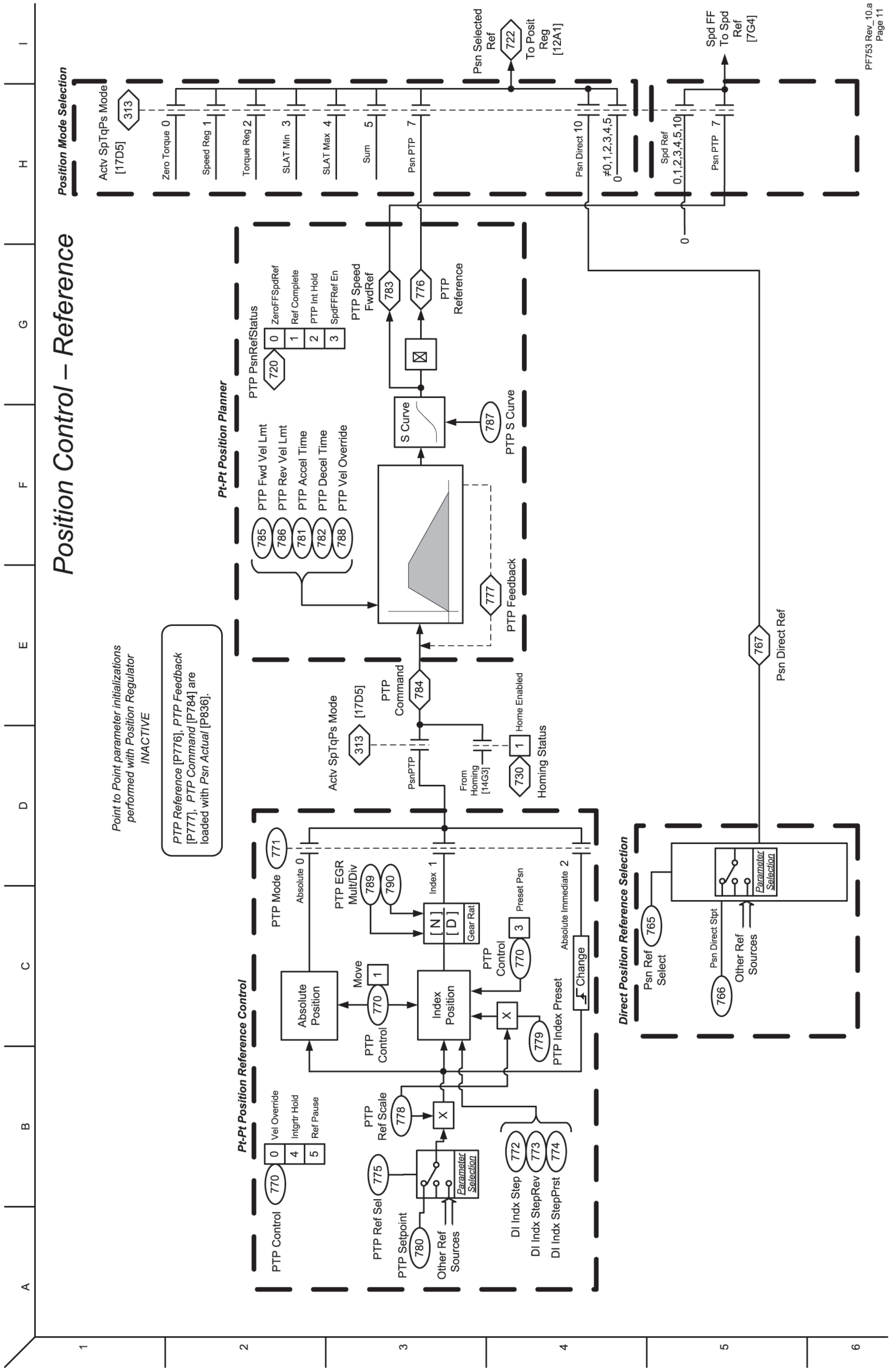


Figure 16 - Position Control - Regulator

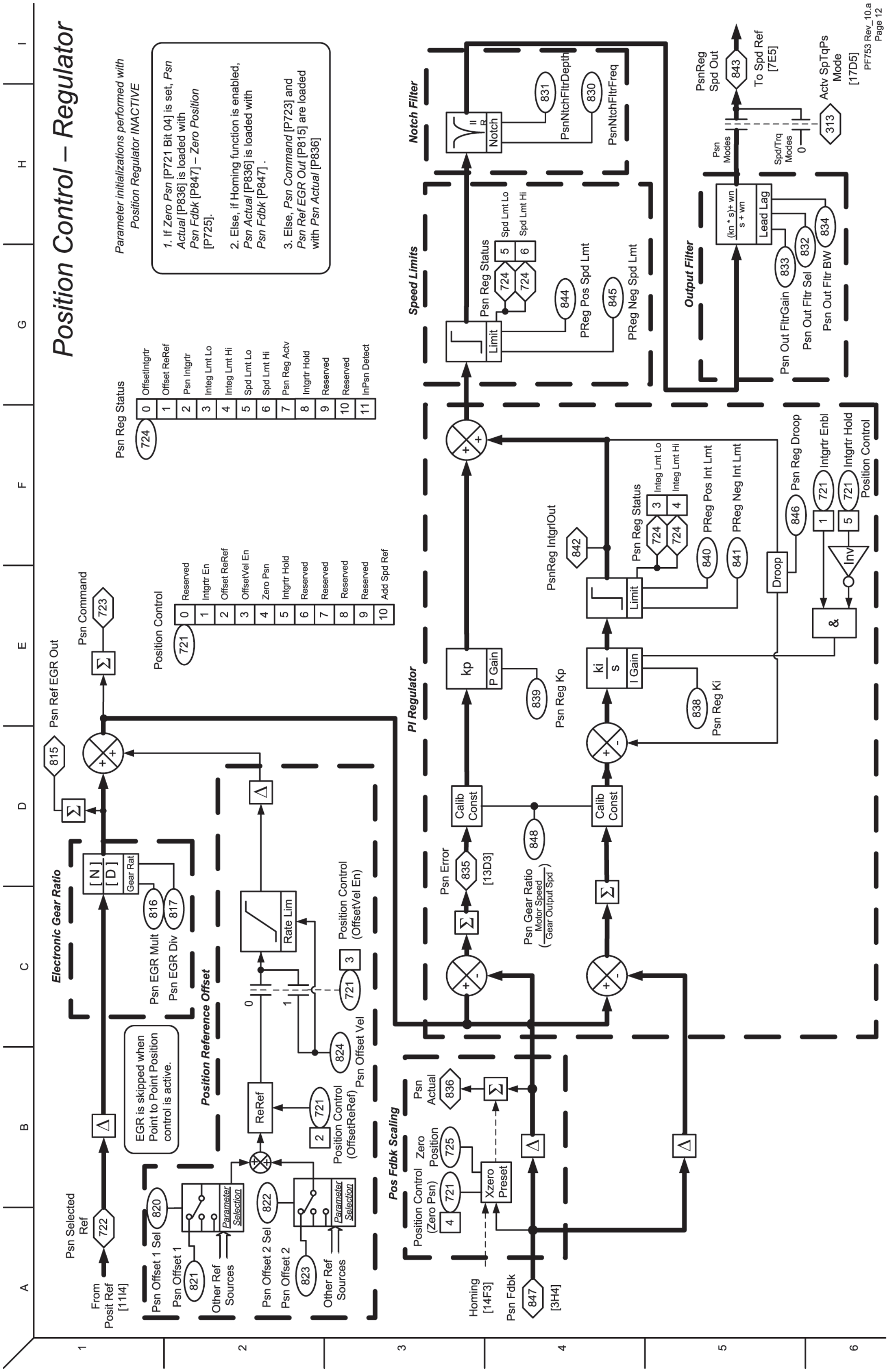


Figure 17 - Position Control - Aux Functions

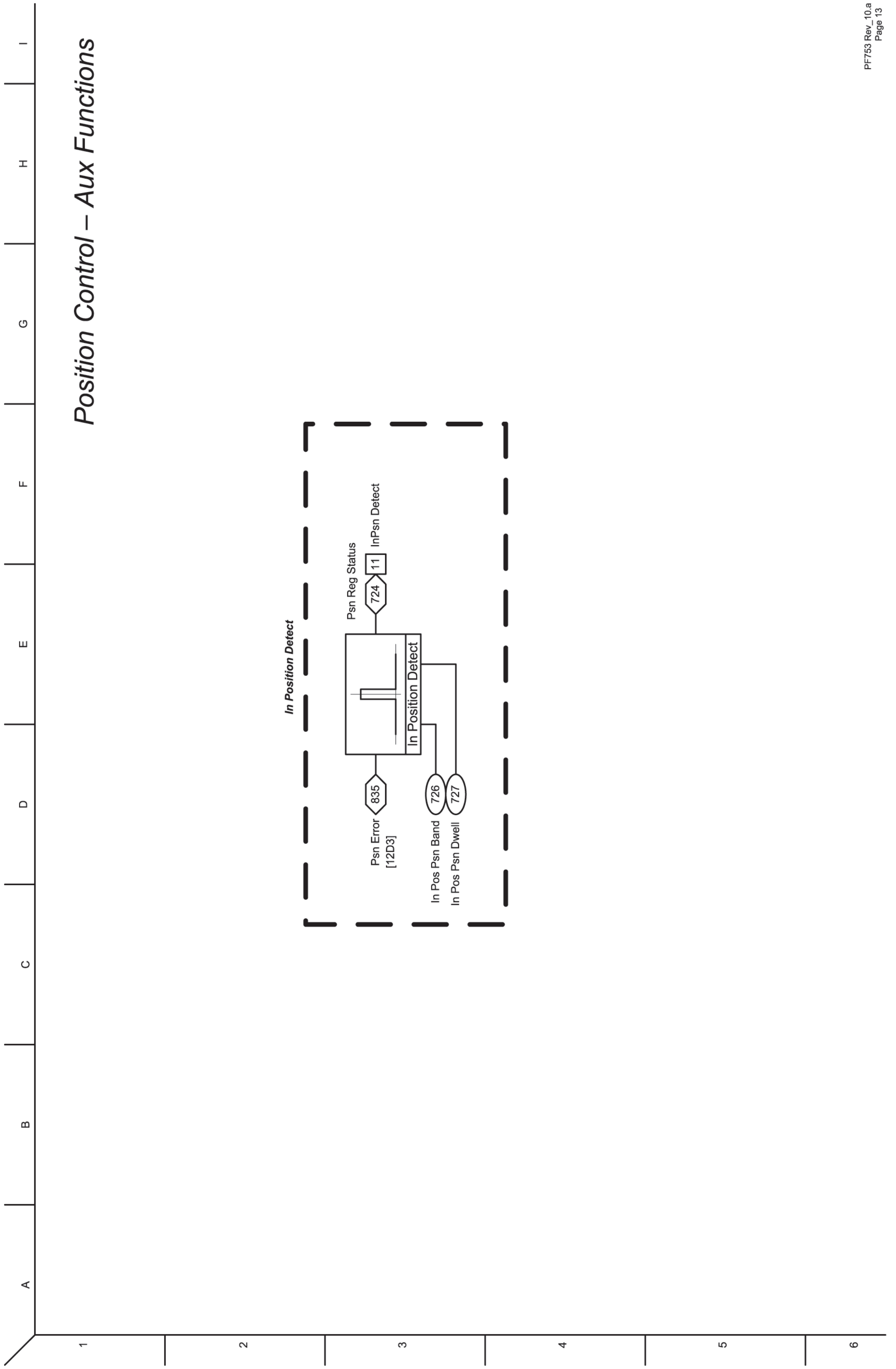
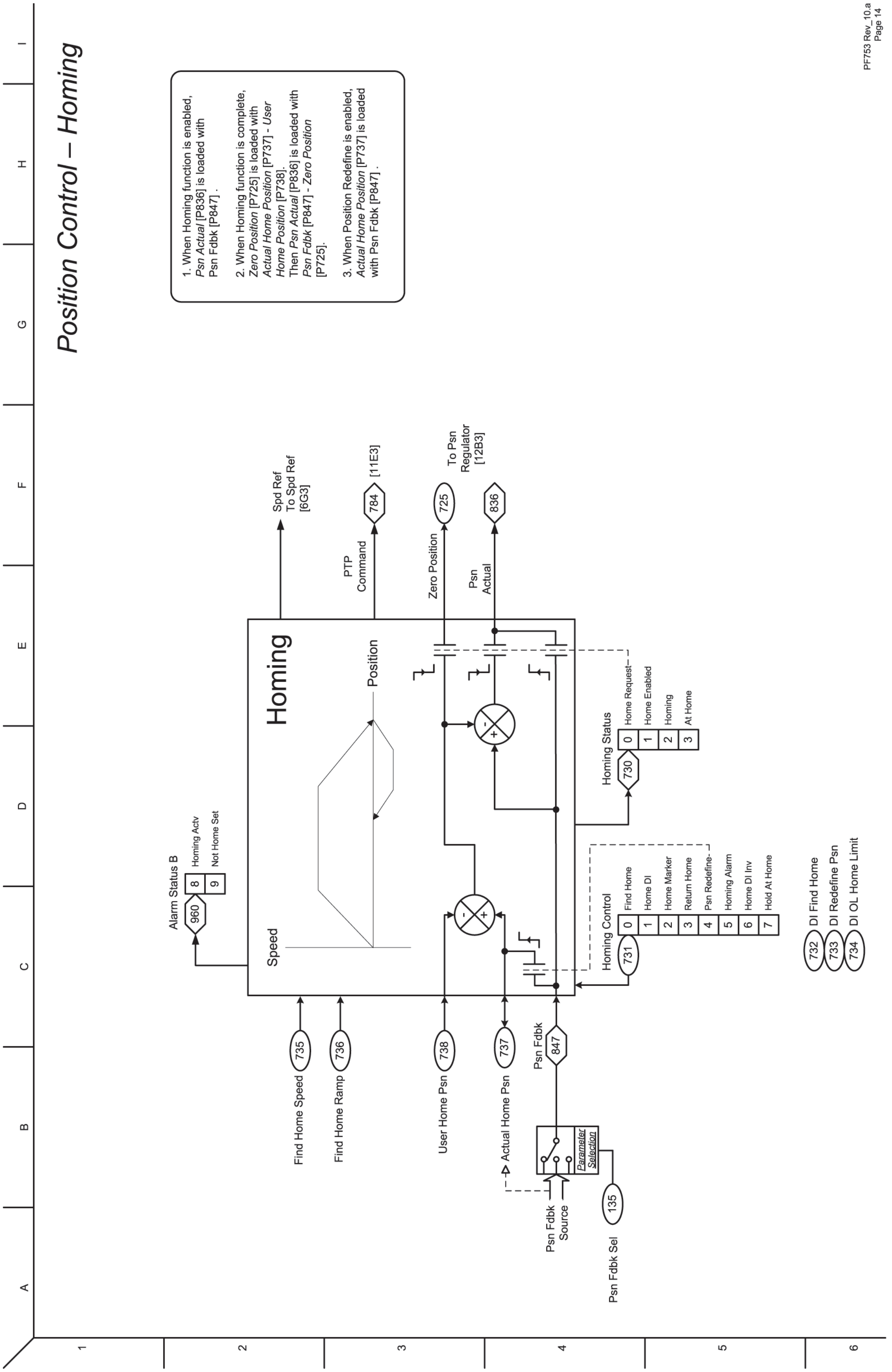


Figure 18 - Position Control - Homing



1. When Homing function is enabled, *Psn Actual* [P836] is loaded with Psn Fdbk [P847] .

2. When Homing function is complete, *Zero Position* [P725] is loaded with *Actual Home Position* [P737] - *User Home Position* [P738].
Then *Psn Actual* [P836] is loaded with *Psn Fdbk* [P847] - *Zero Position* [P725].

3. When Position Redefine is enabled, *Actual Home Position* [P737] is loaded with Psn Fdbk [P847] .

Figure 19 - Torque Control - Overview (IM)

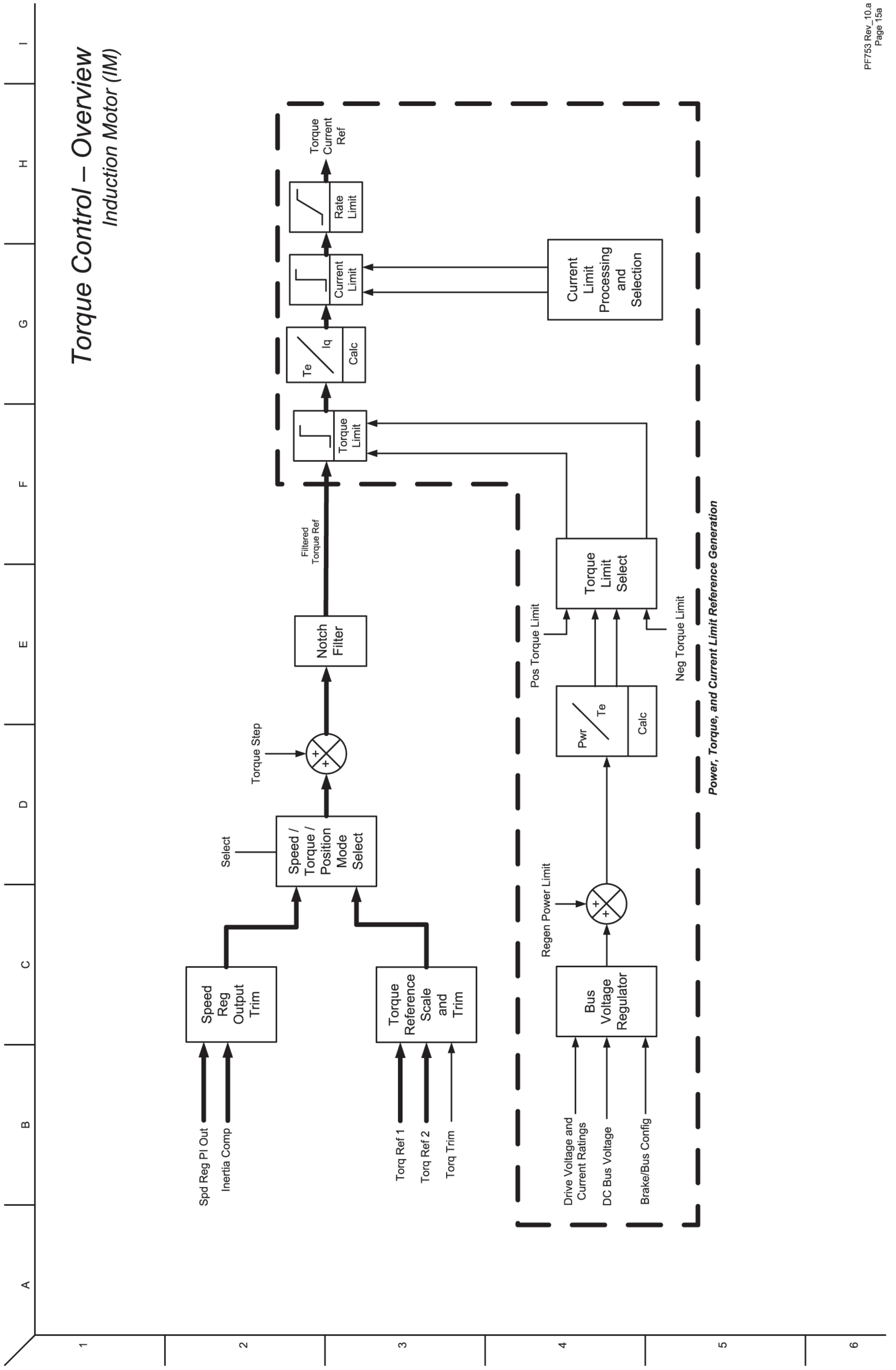


Figure 20 - Torque Control - Overview (IPM)

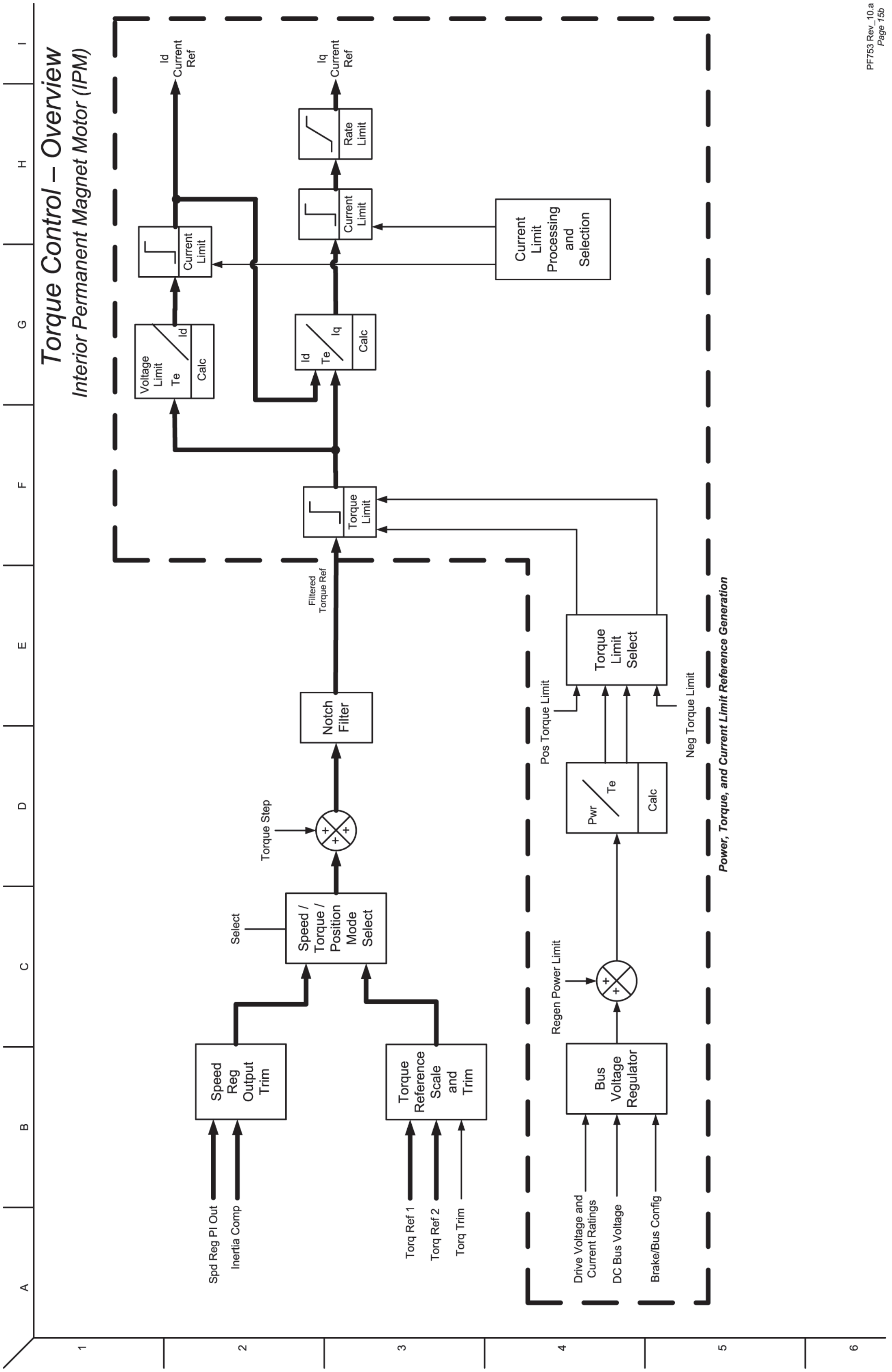


Figure 21 - Torque Control - Reference Scale & Trim

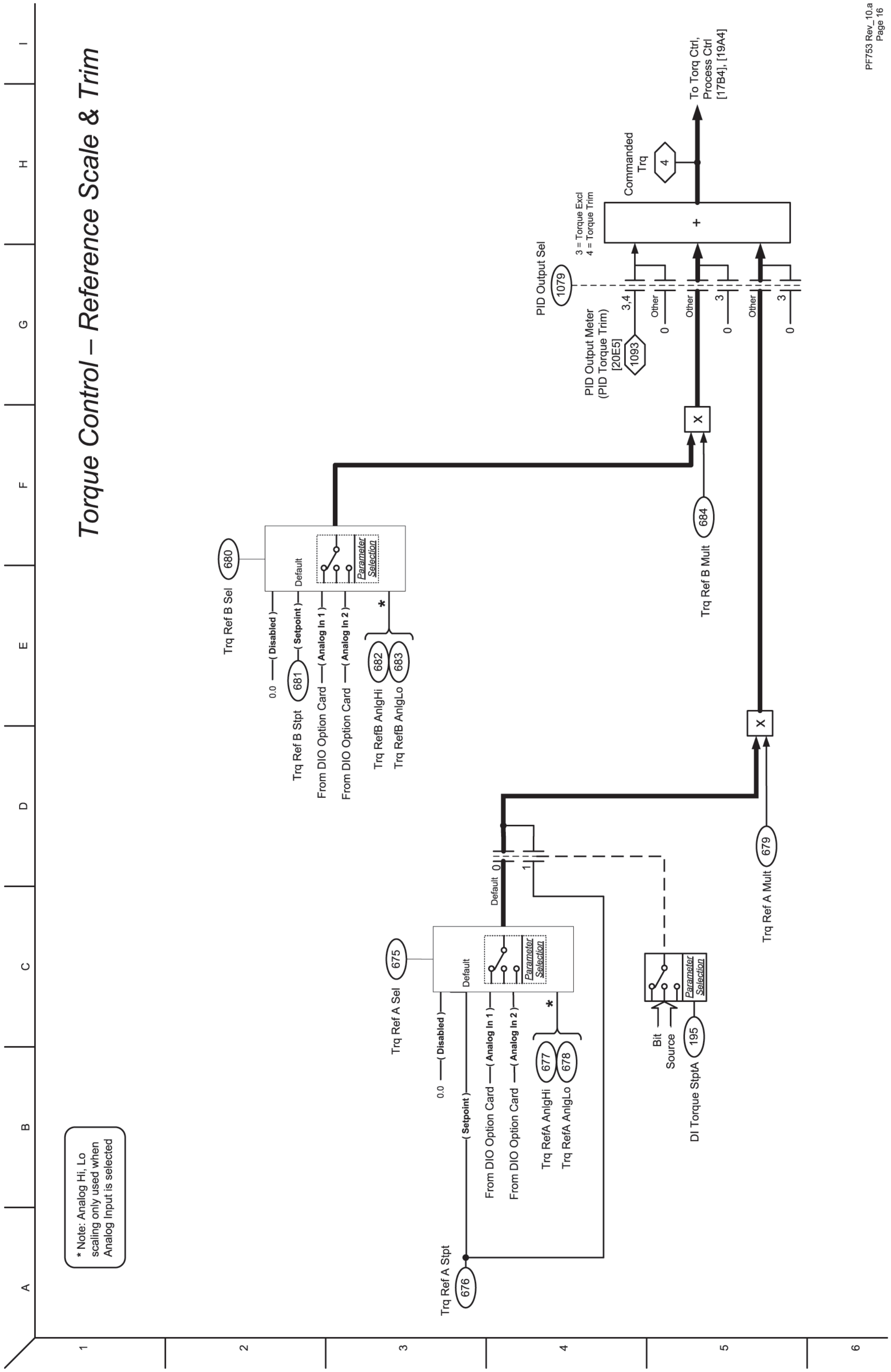


Figure 22 - Torque Control - Torque

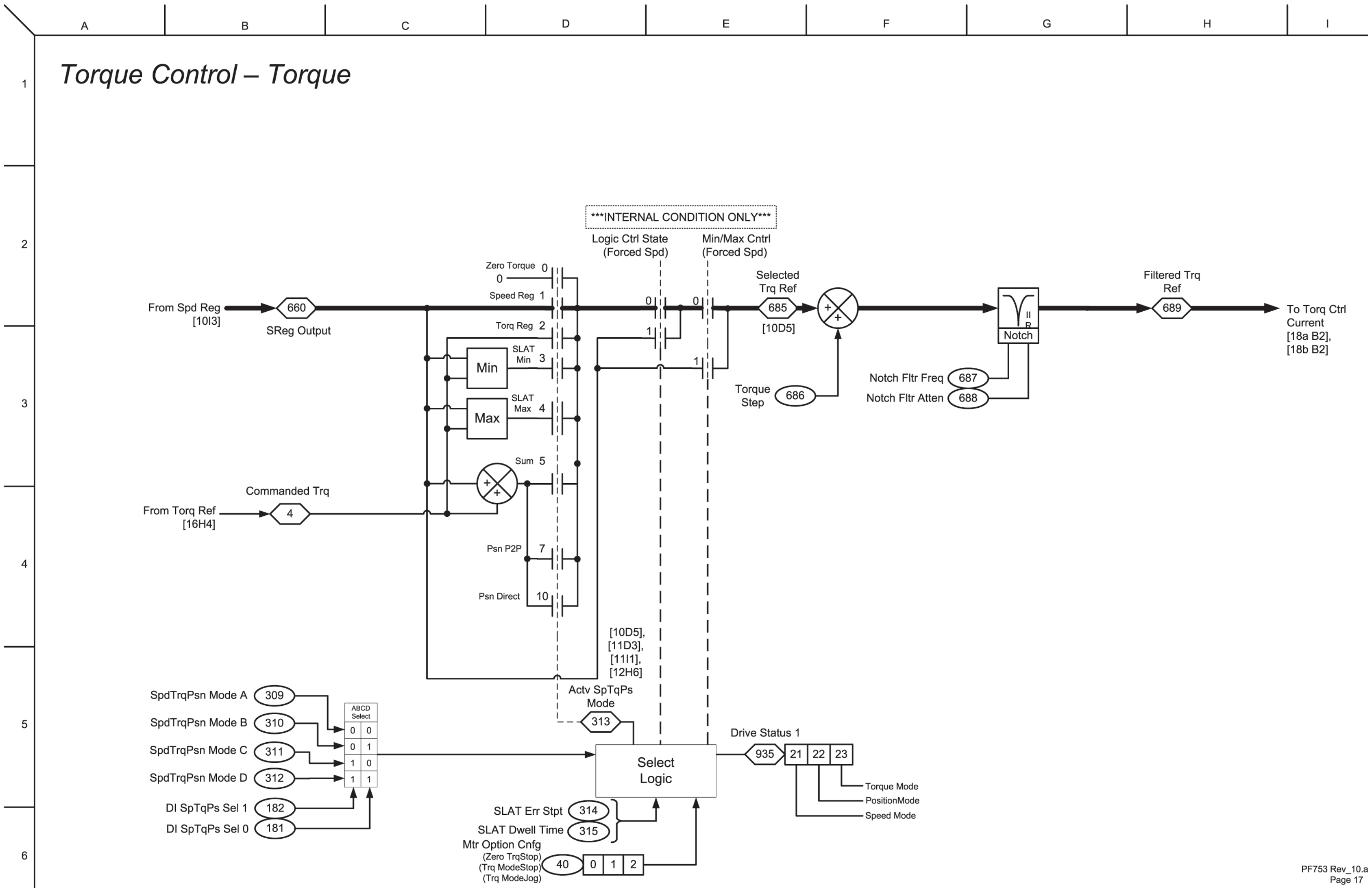


Figure 23 - Torque Control - Current (IM)

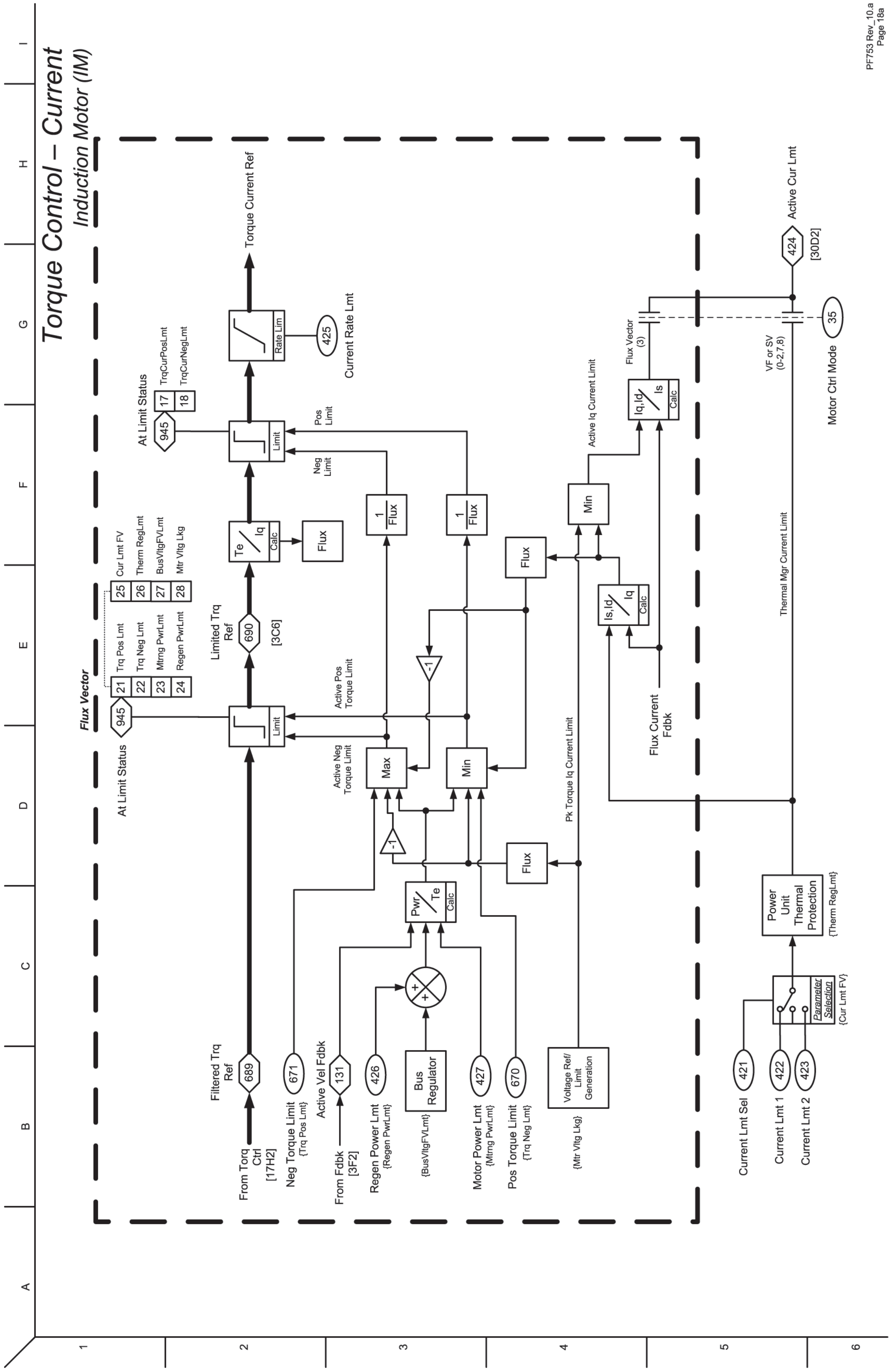


Figure 24 - Torque Control - Current (IPM)

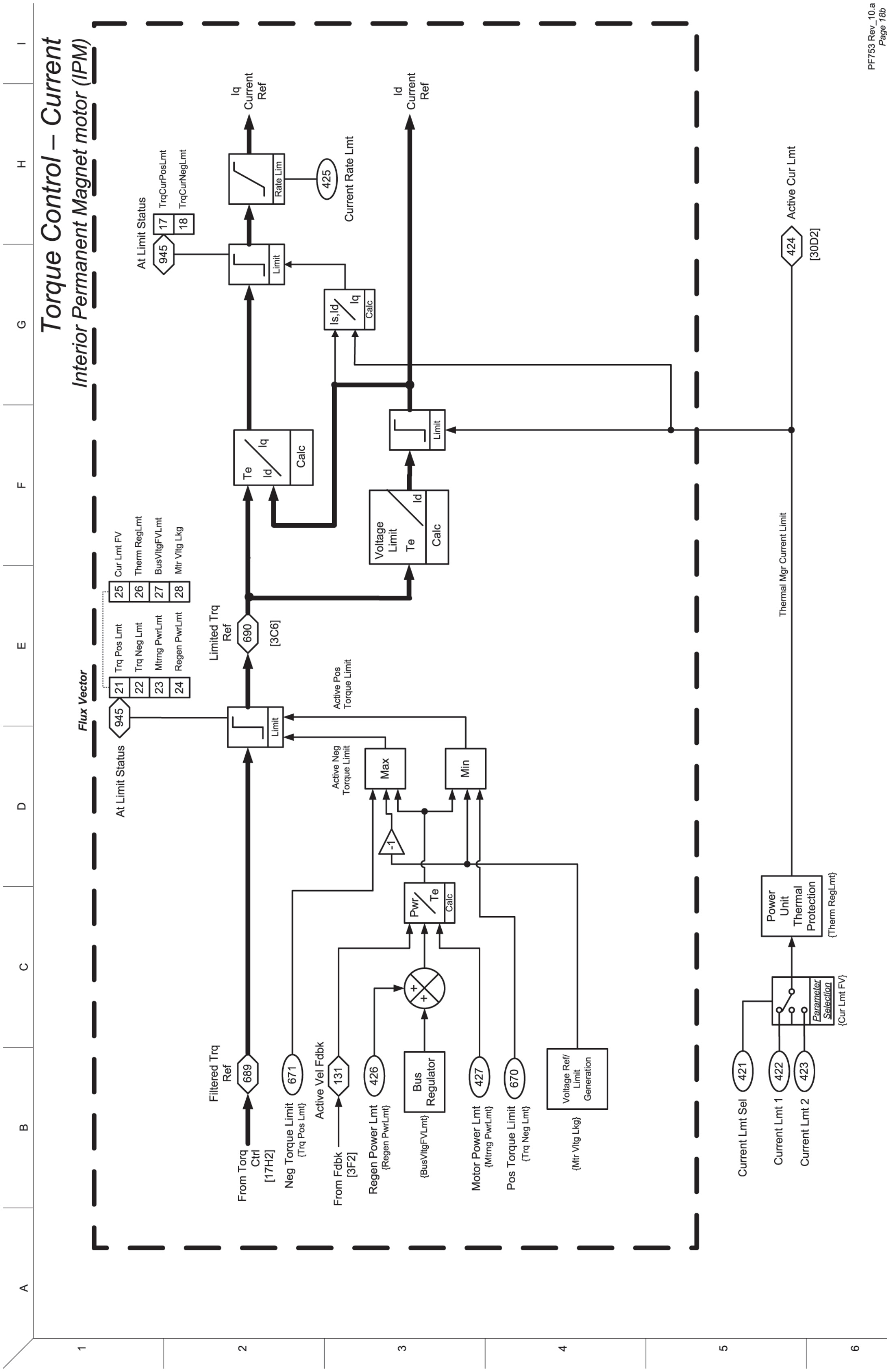


Figure 25 - Process Control (1)

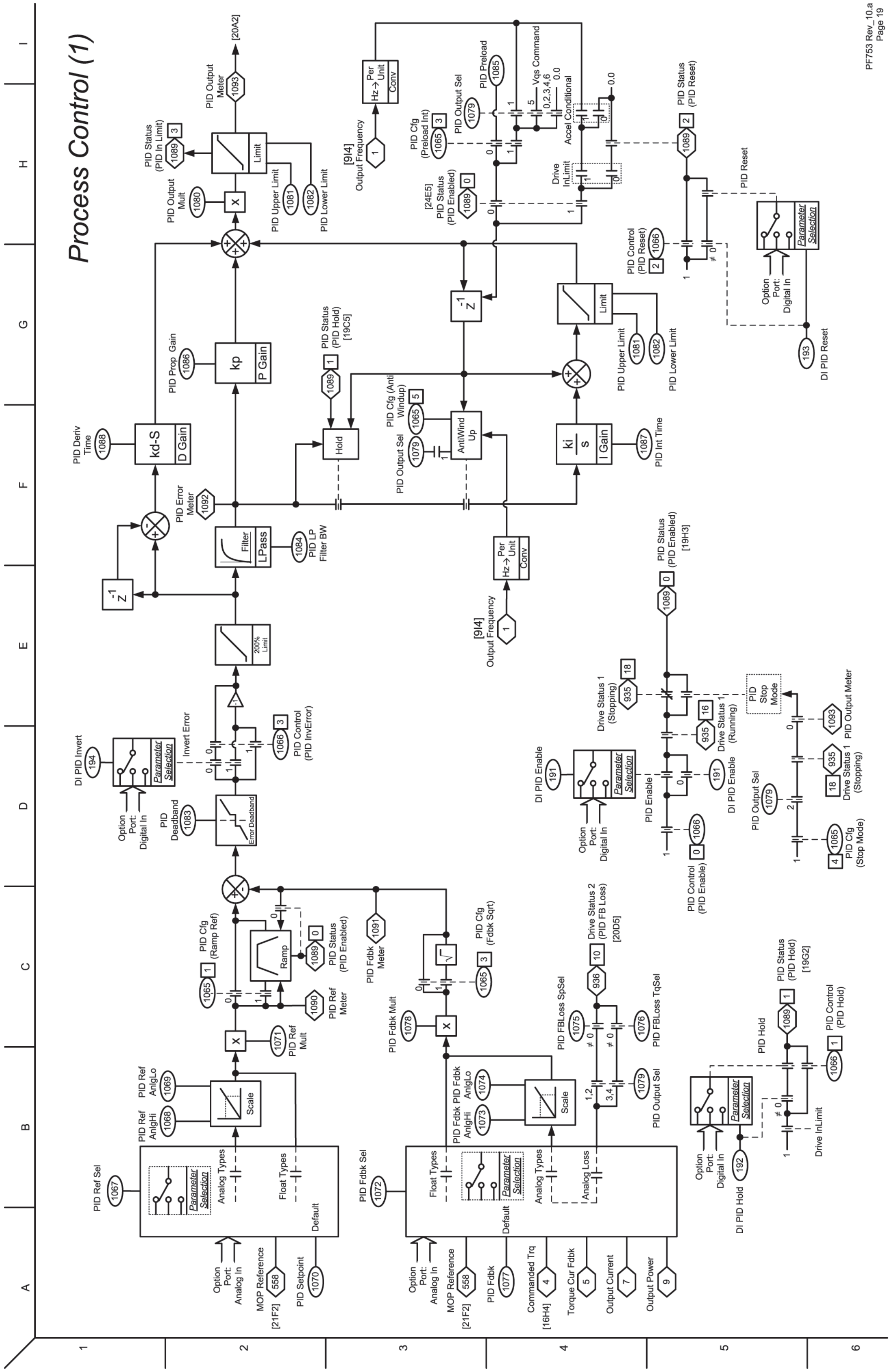


Figure 26 - Process Control (2)

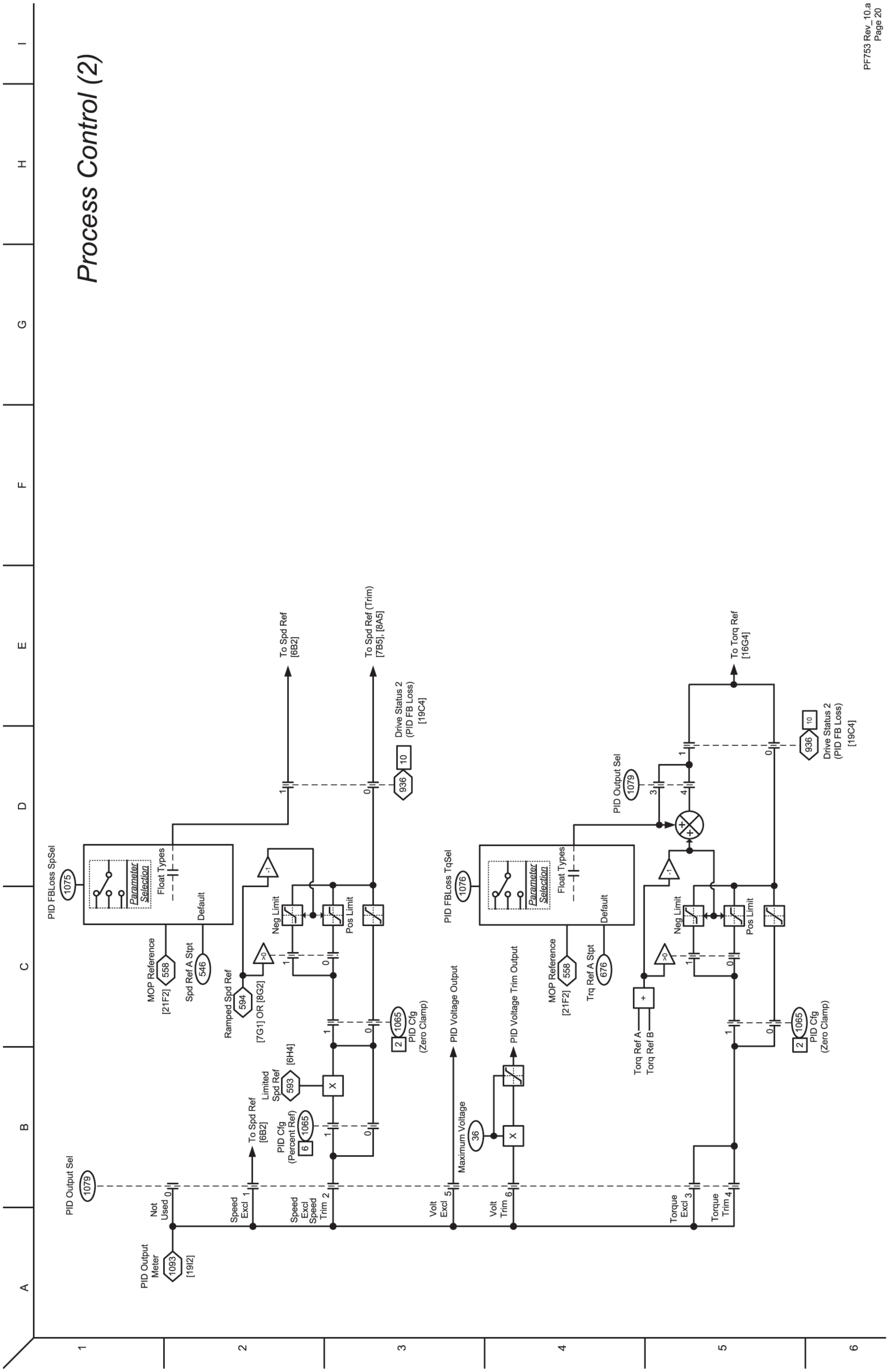


Figure 27 - MOP Control

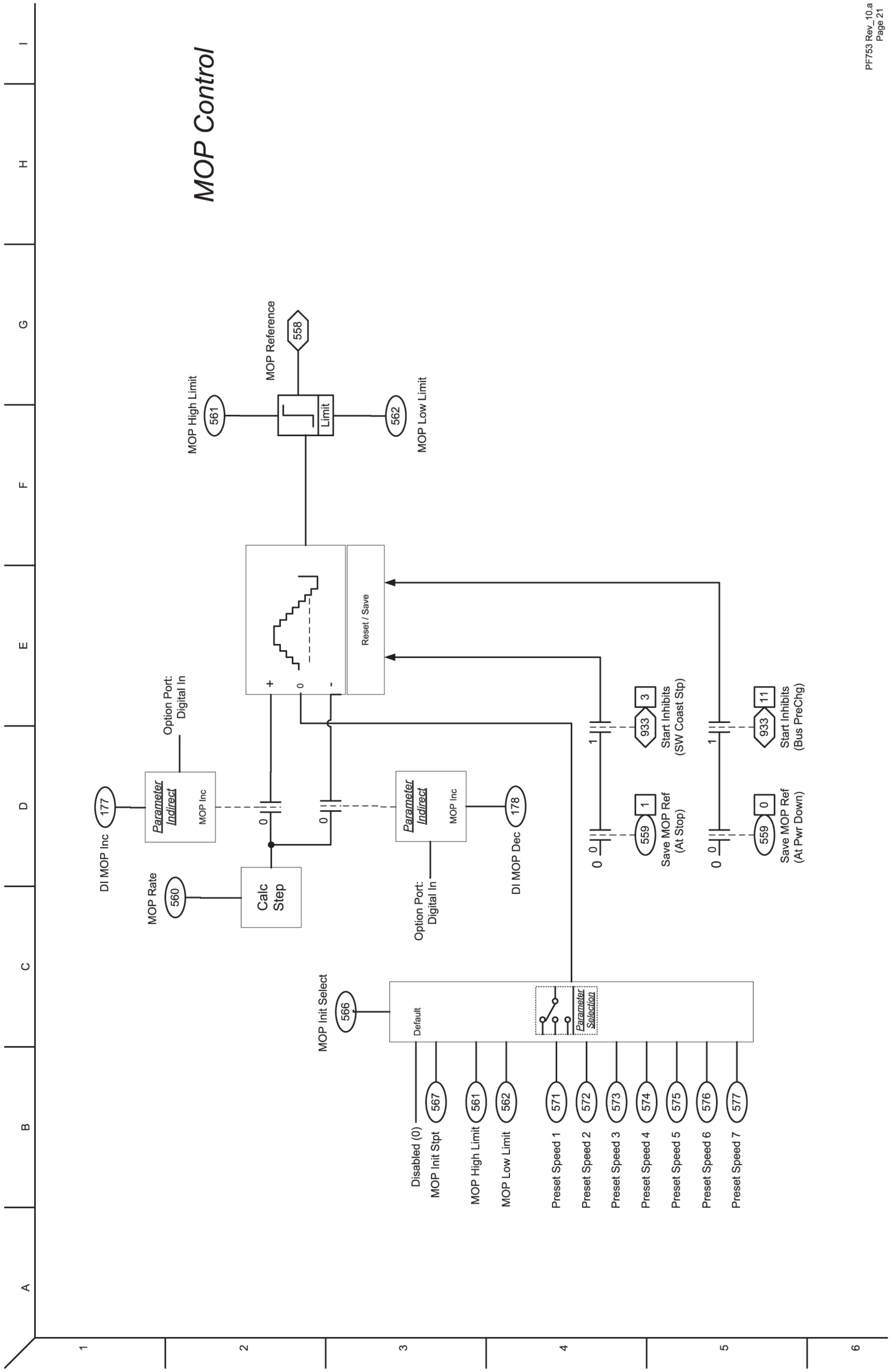


Figure 28 - Embedded Inputs & Outputs - Digital

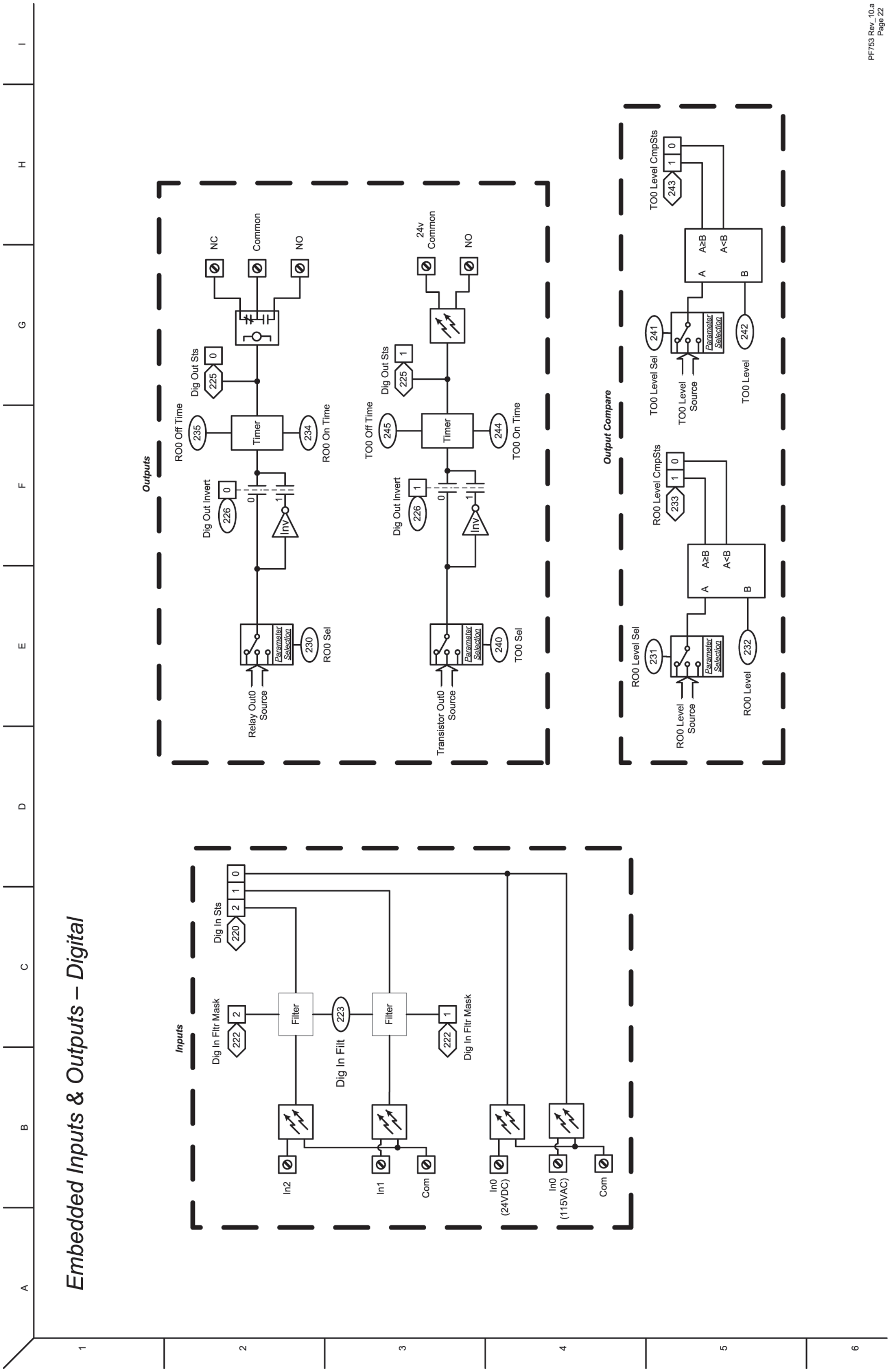


Figure 29 - Embedded Inputs & Outputs - Analog

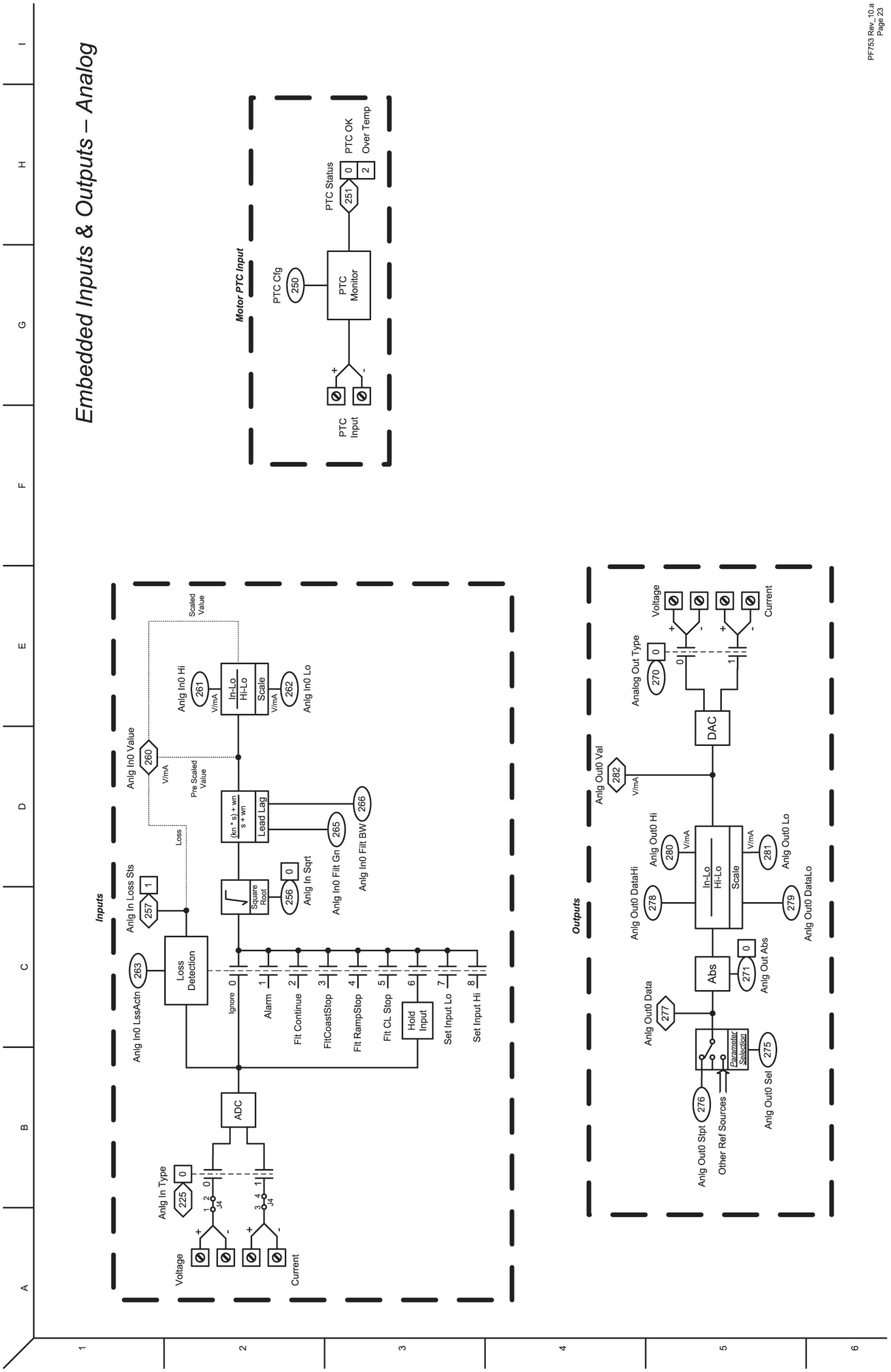


Figure 30 - 22-Series Option Inputs & Outputs - Digital

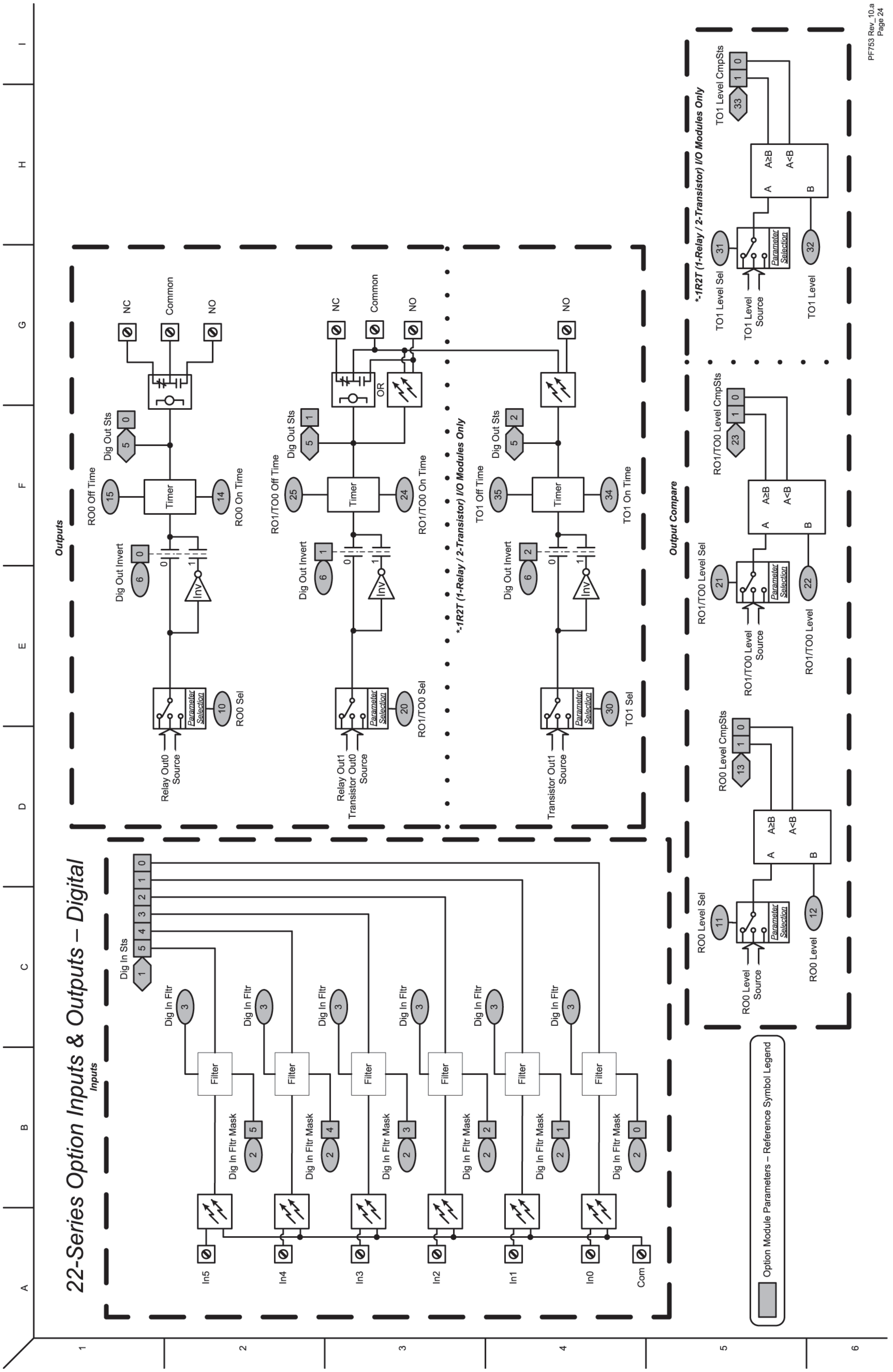


Figure 31 - 22-Series Option Inputs & Outputs - Analog

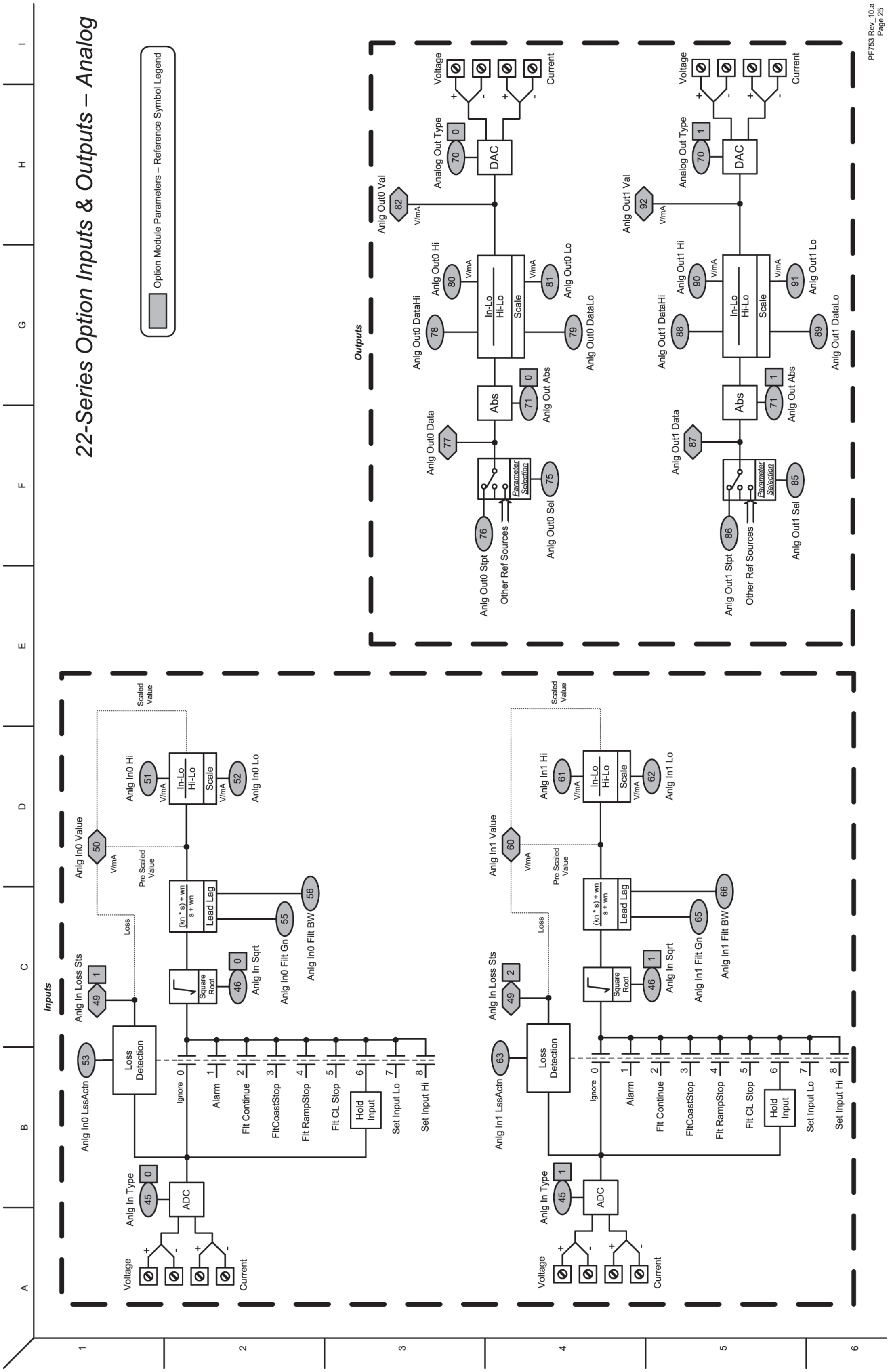


Figure 32 - 11-Series Inputs & Outputs - Digital

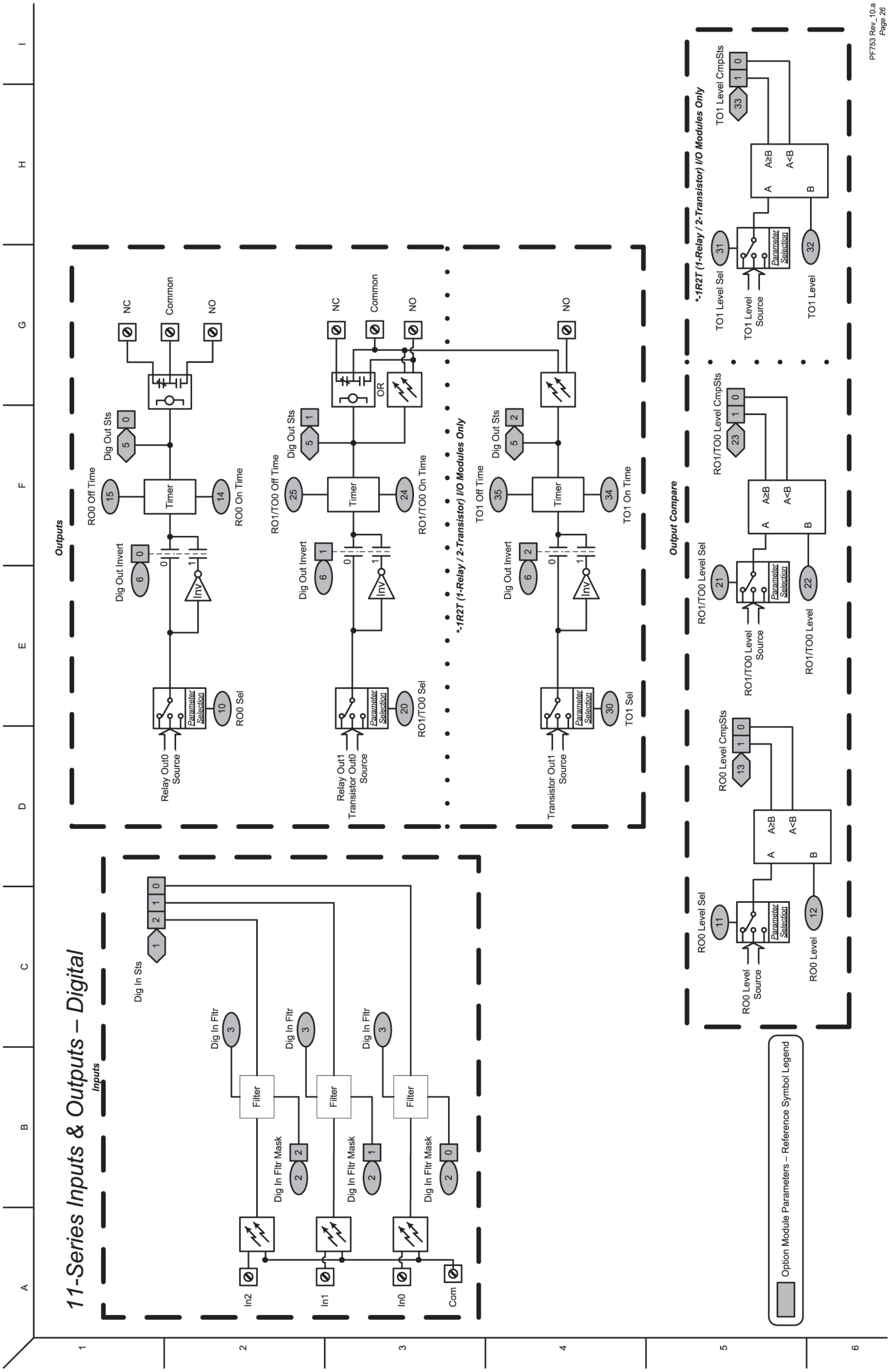
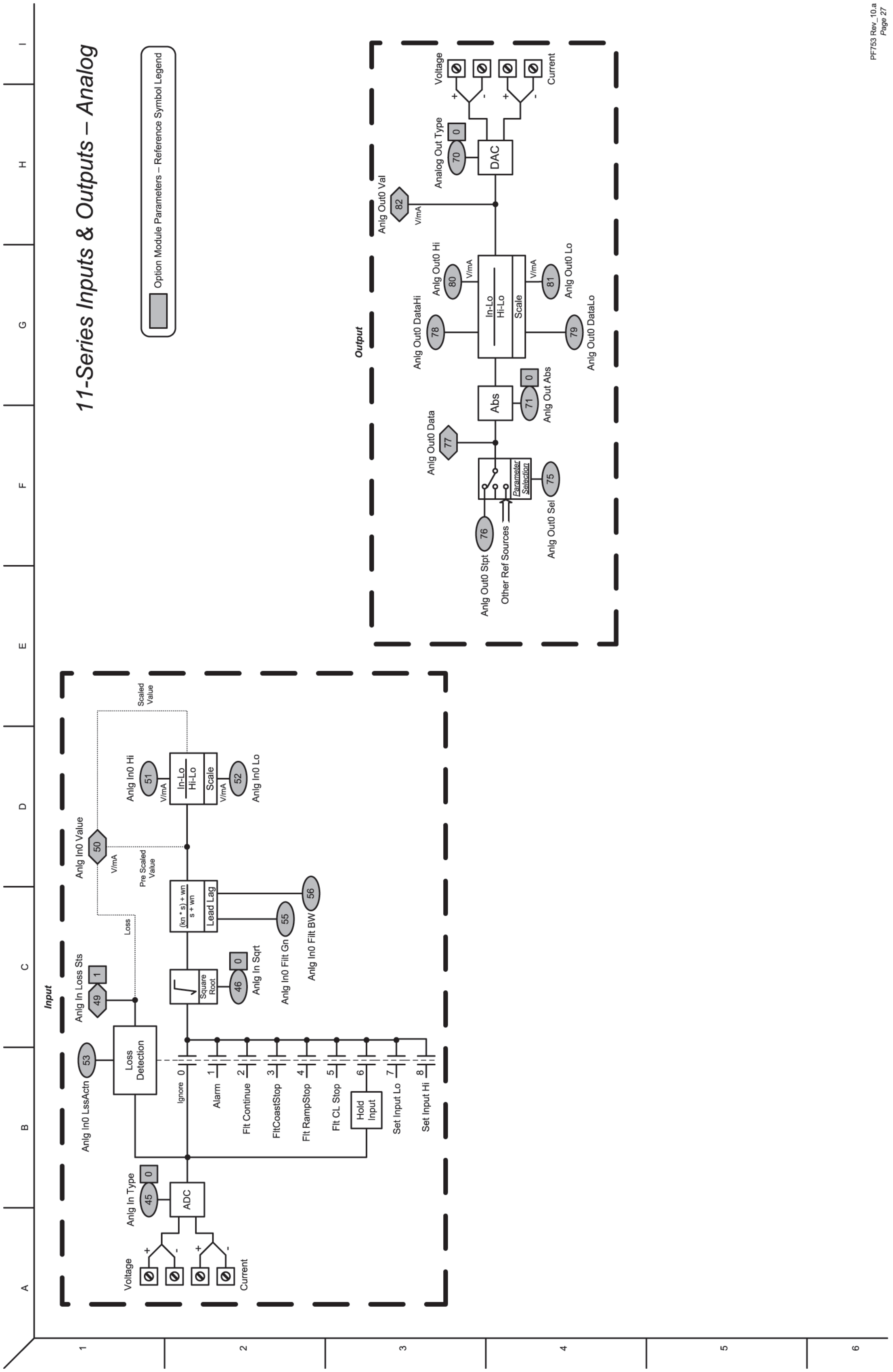


Figure 33 - 11-Series Inputs & Outputs - Analog



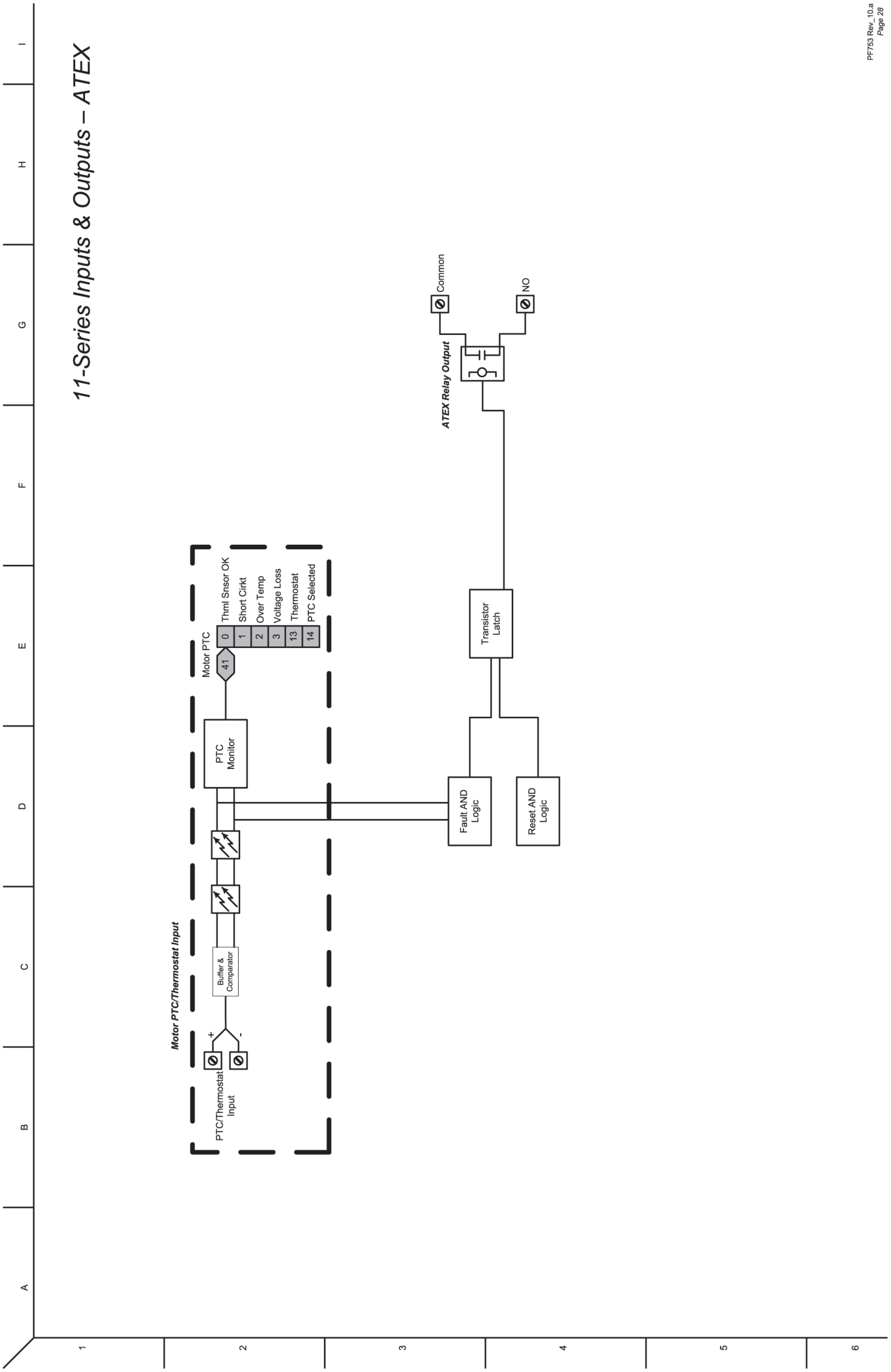
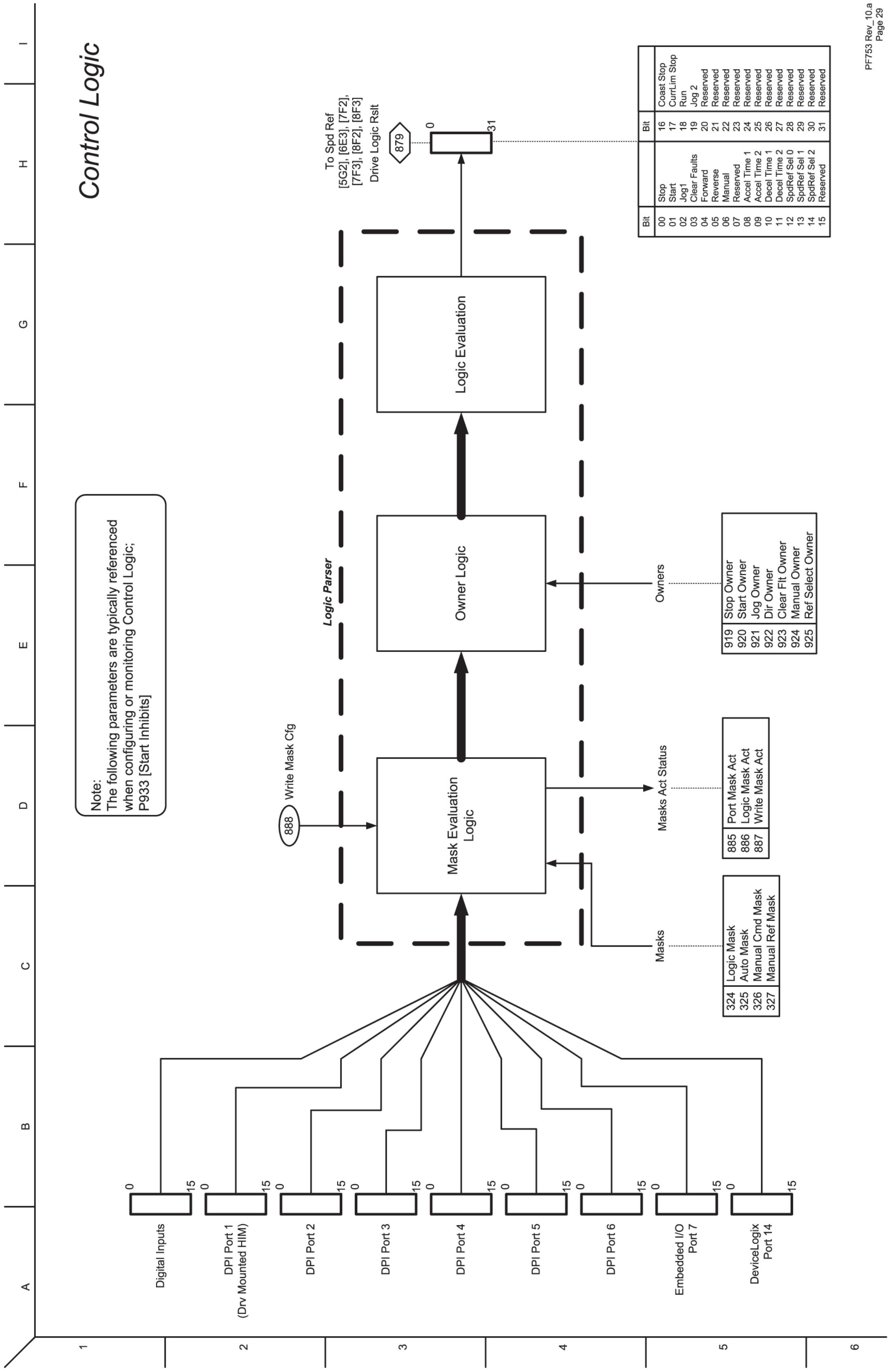


Figure 34 - 11-Series Inputs & Outputs - ATEX

Figure 35 - Control Logic



324	Logic Mask
325	Auto Mask
326	Manual Cmd Mask
327	Manual Ref Mask

885	Port Mask Act
886	Logic Mask Act
887	Write Mask Act

919	Stop Owner
920	Start Owner
921	Jog Owner
922	Dir Owner
923	Clear Flt Owner
924	Manual Owner
925	Ref Select Owner

Bit		Bit	
00	Stop	16	Coast Stop
01	Start	17	CurrLim Stop
02	Jog1	18	Run
03	Clear Faults	19	Jog 2
04	Forward	20	Reserved
05	Reverse	21	Reserved
06	Manual	22	Reserved
07	Reserved	23	Reserved
08	Accel Time 1	24	Reserved
09	Accel Time 2	25	Reserved
10	Decel Time 1	26	Reserved
11	Decel Time 2	27	Reserved
12	SpdRef Sel 0	28	Reserved
13	SpdRef Sel 1	29	Reserved
14	SpdRef Sel 2	30	Reserved
15	Reserved	31	Reserved

Figure 36 - Inverter Overload IT

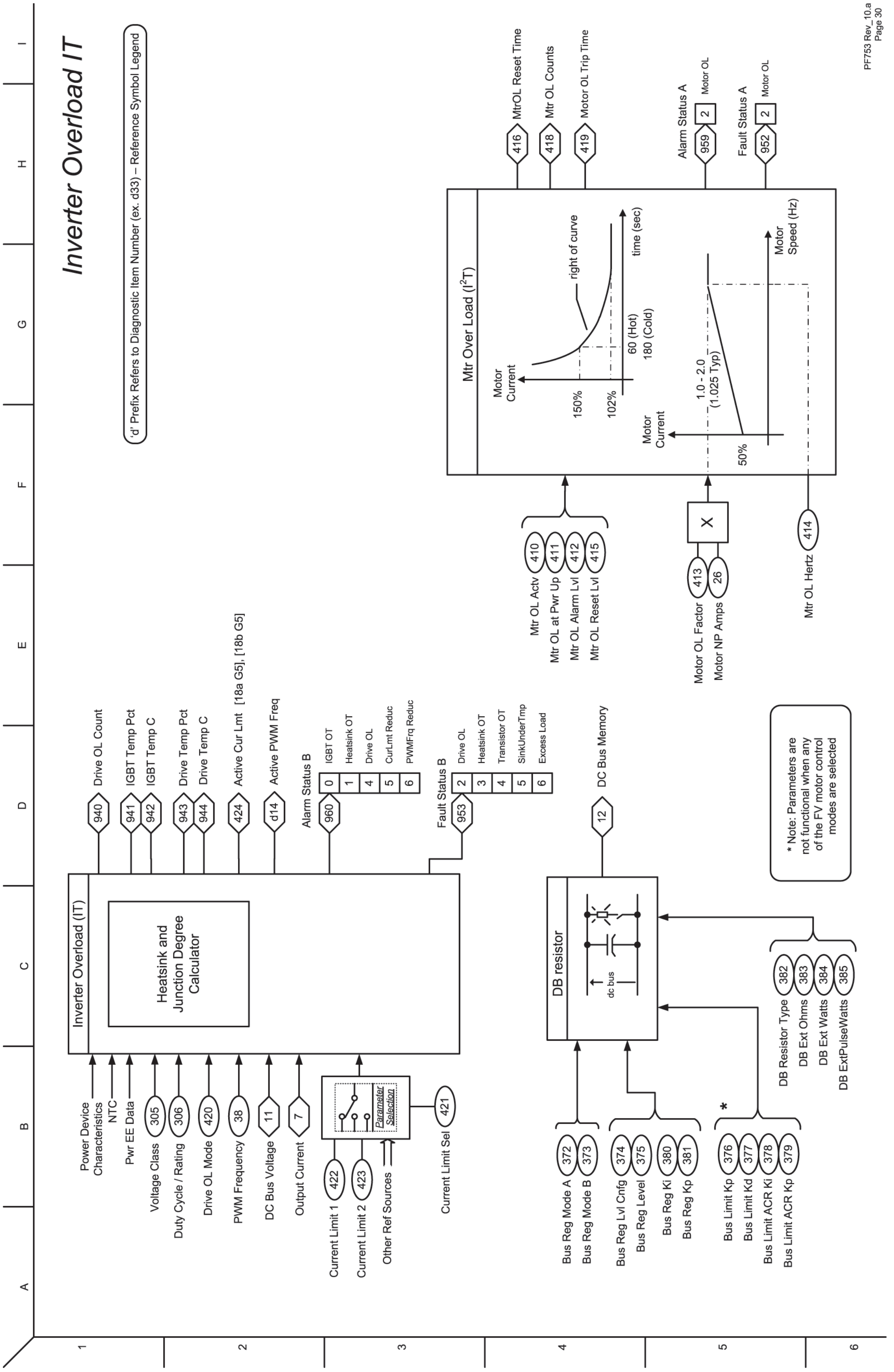
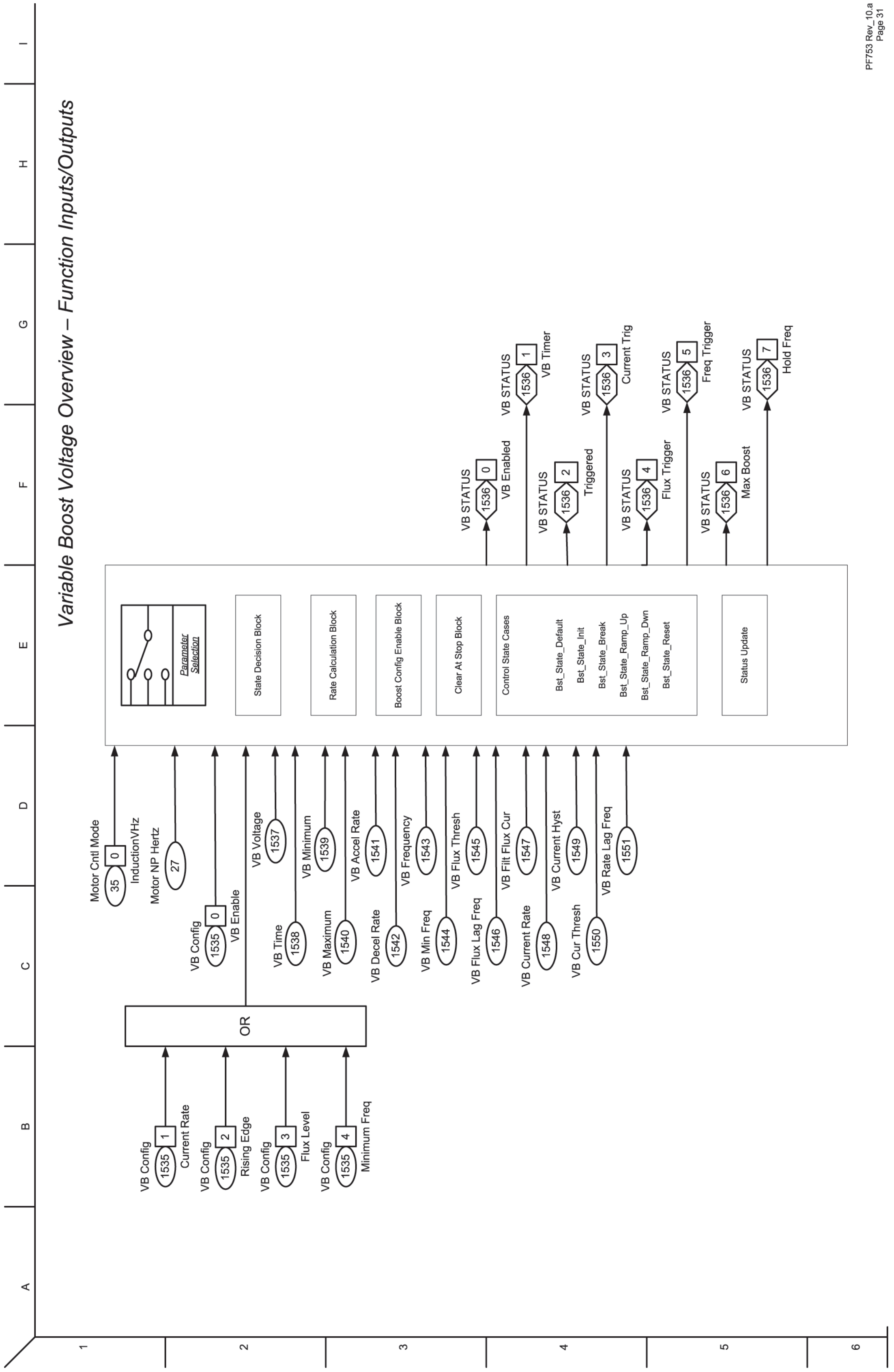


Figure 37 - Variable Boost Voltage Overview



Notes:

Appendix B

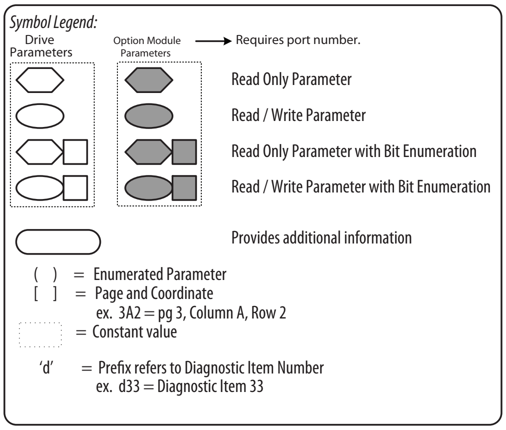
PowerFlex 755 Control Block Diagrams

The block diagrams in this appendix are applicable to firmware revision 11.002 and earlier only.

Flow diagrams on the following pages illustrate the PowerFlex® 755 drive control algorithms.

Diagram Conventions and Definitions

Definitions of the Per Unit system:
1.0 PU Position = Distance traveled / 1sec at Base Spd
1.0 PU Speed = Base Speed of the Motor
1.0 PU Torque = Base Torque of the Motor



*** Notes,** ***Important*** :

(1) These diagrams are for reference only and may not accurately reflect all logical control signals; actual functionality is implied by the approximated diagrams. Accuracy of these diagrams is not guaranteed.

Figure 38 - Flux Vector Overview

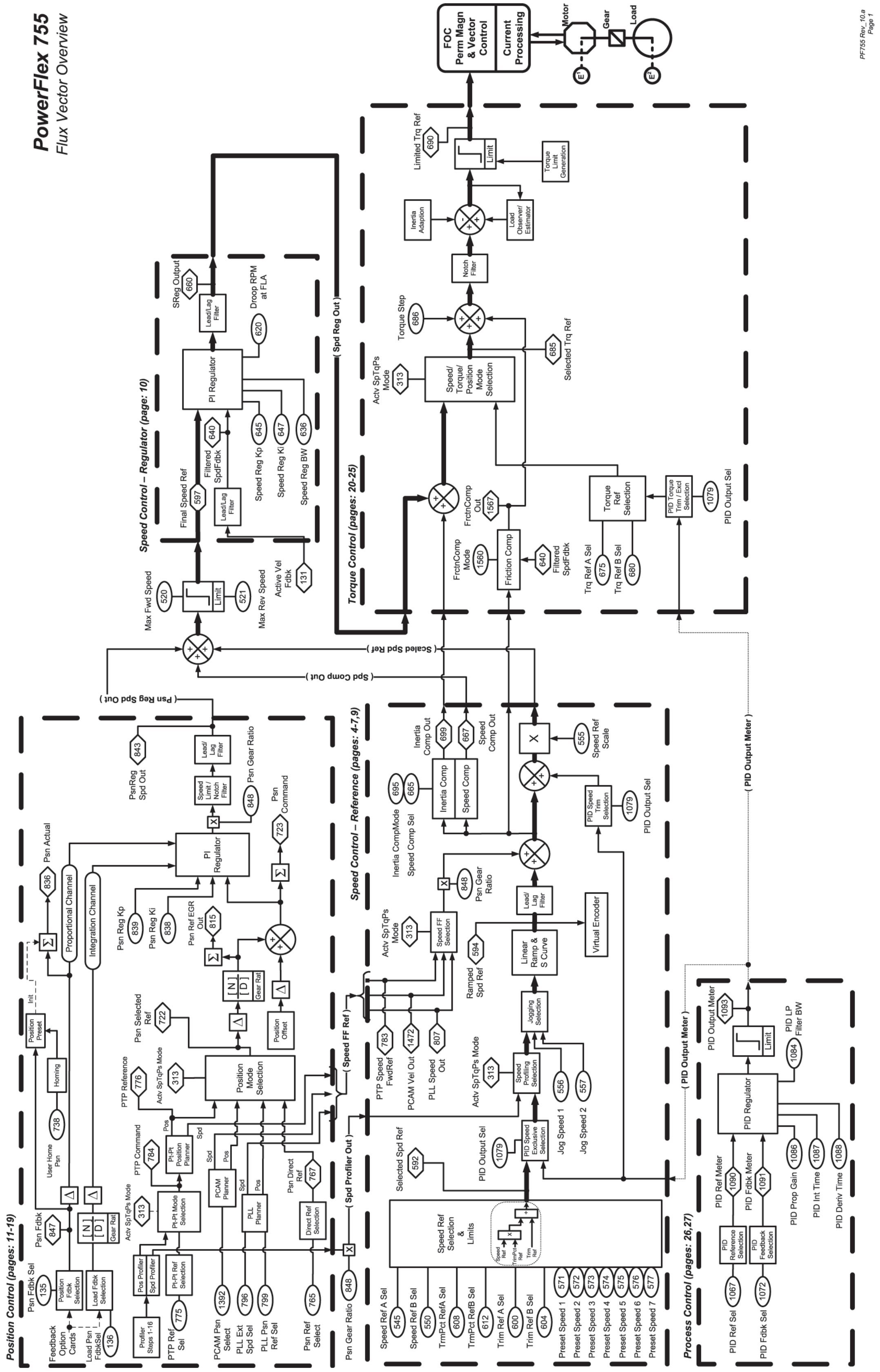


Figure 39 - VF, SV Overview

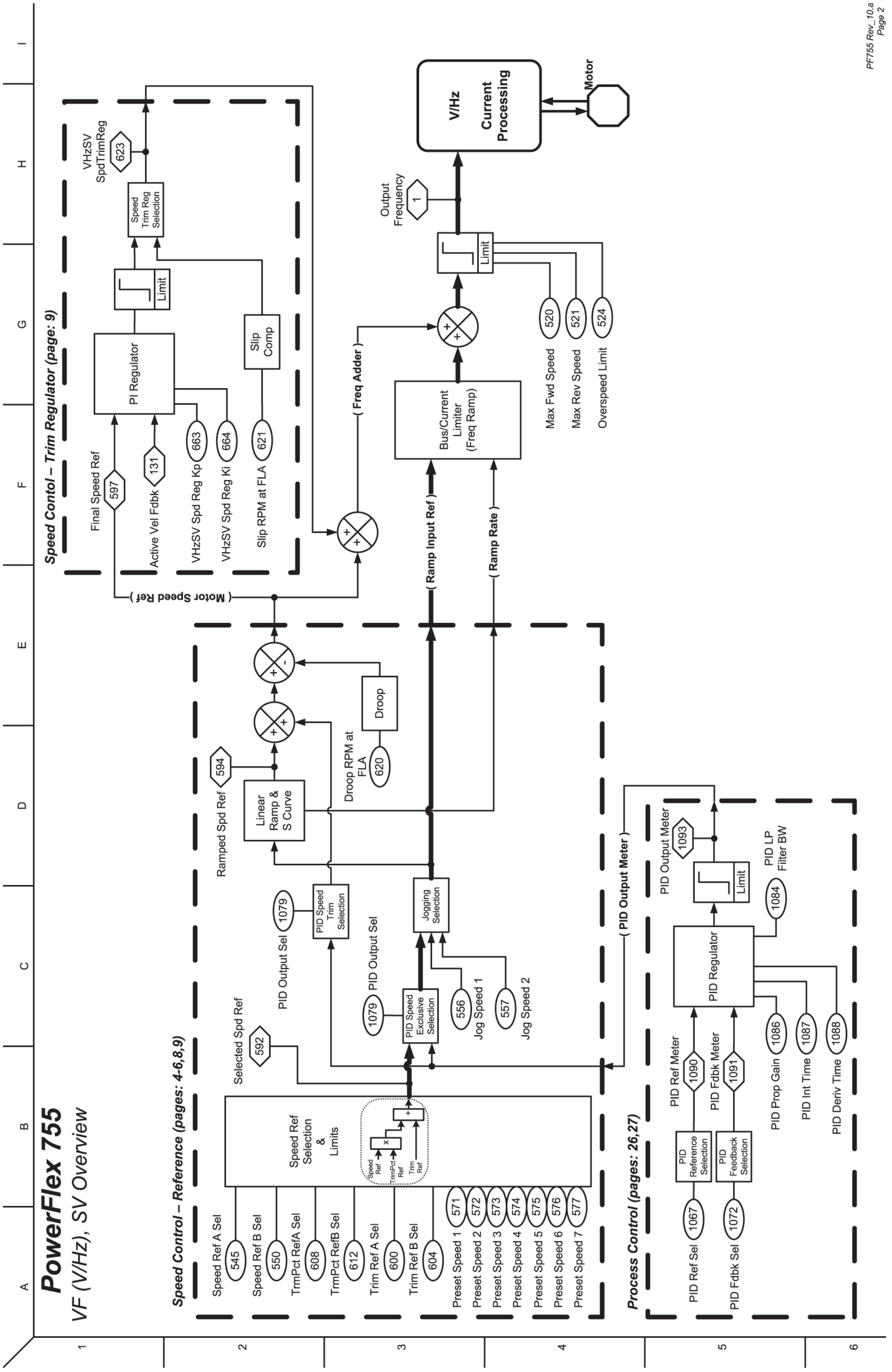


Figure 40 - Speed/Position Feedback

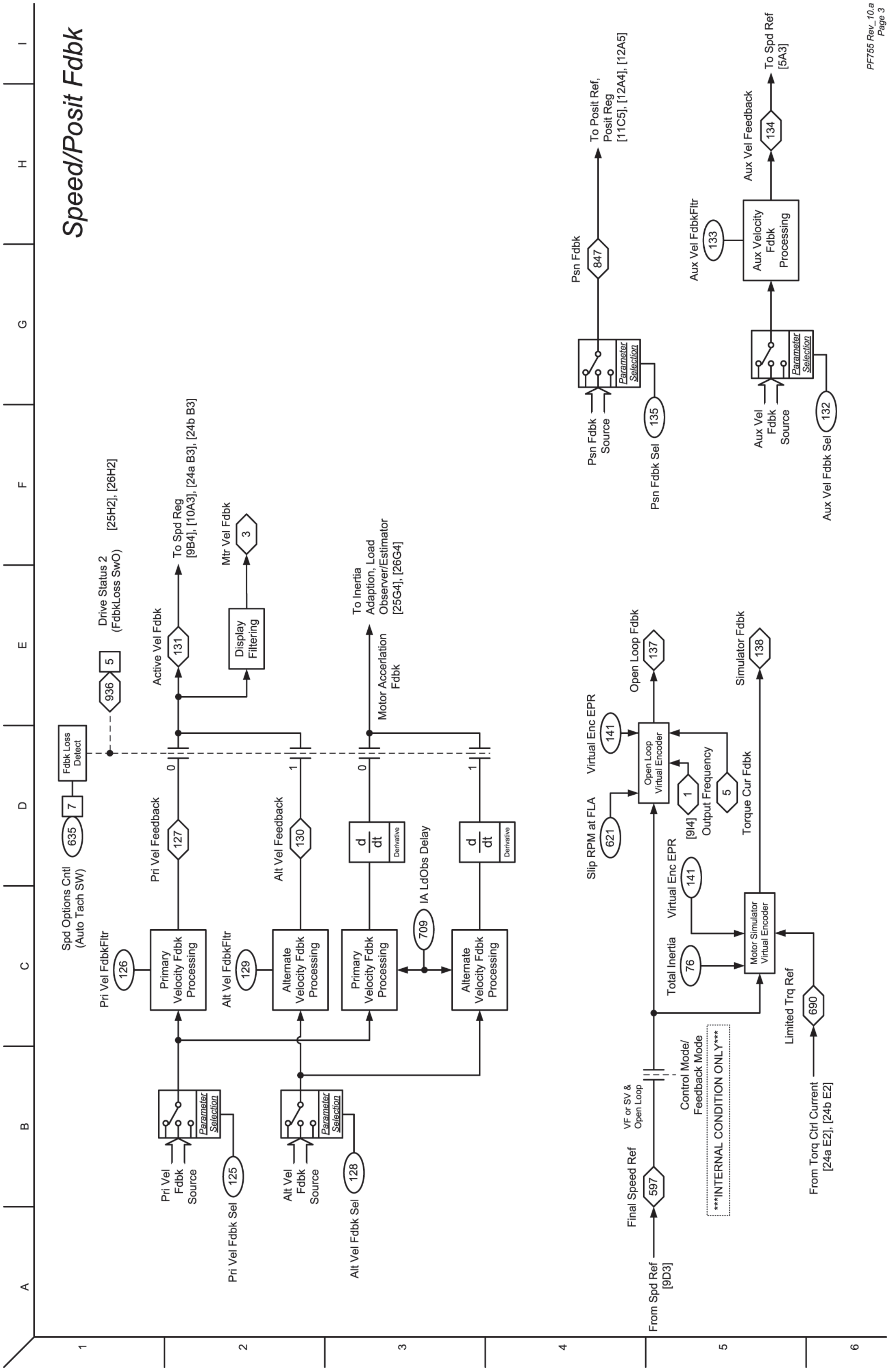


Figure 41 - Speed Control - Reference Overview

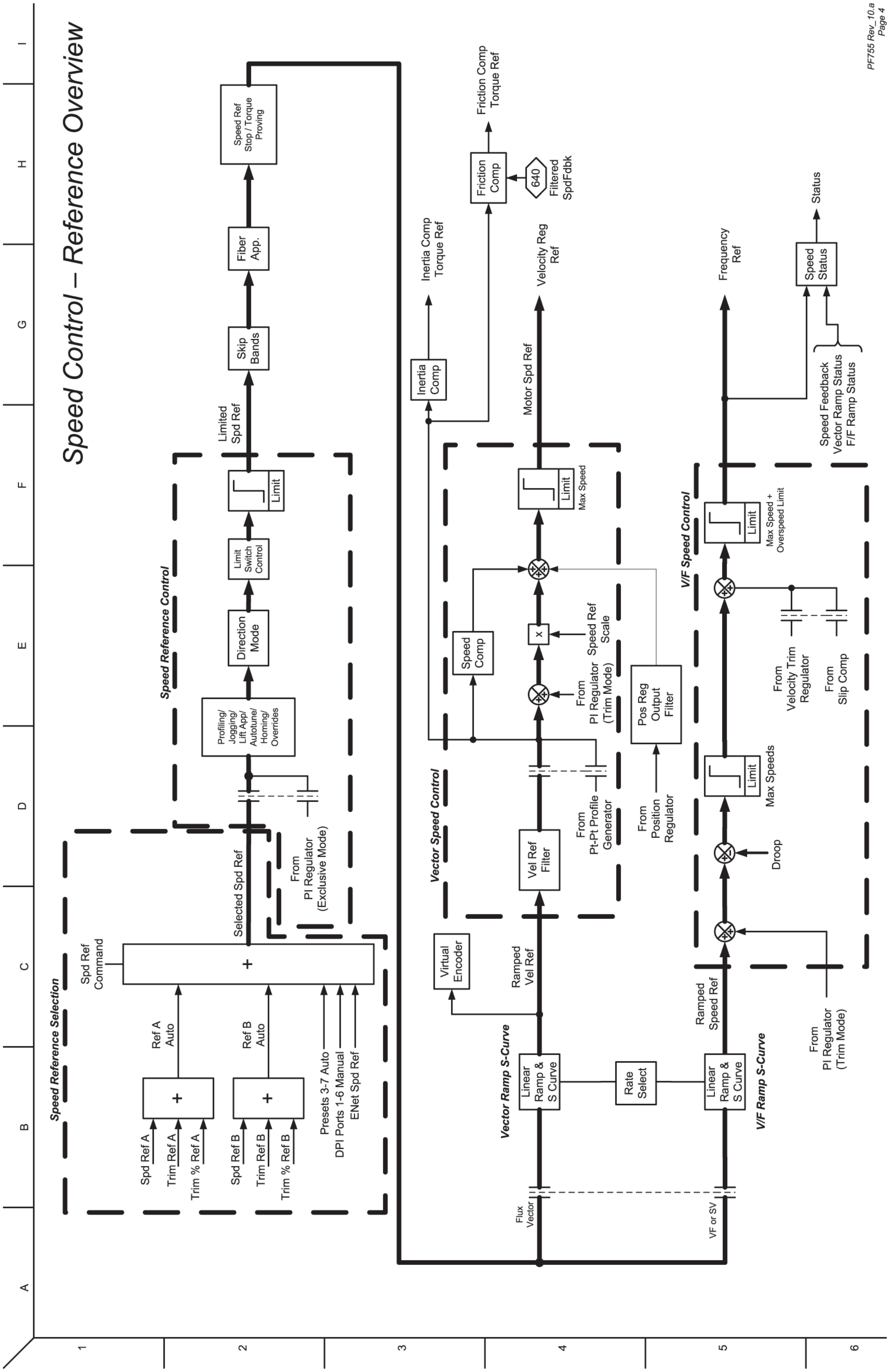


Figure 42 - Speed Control - Reference (1)

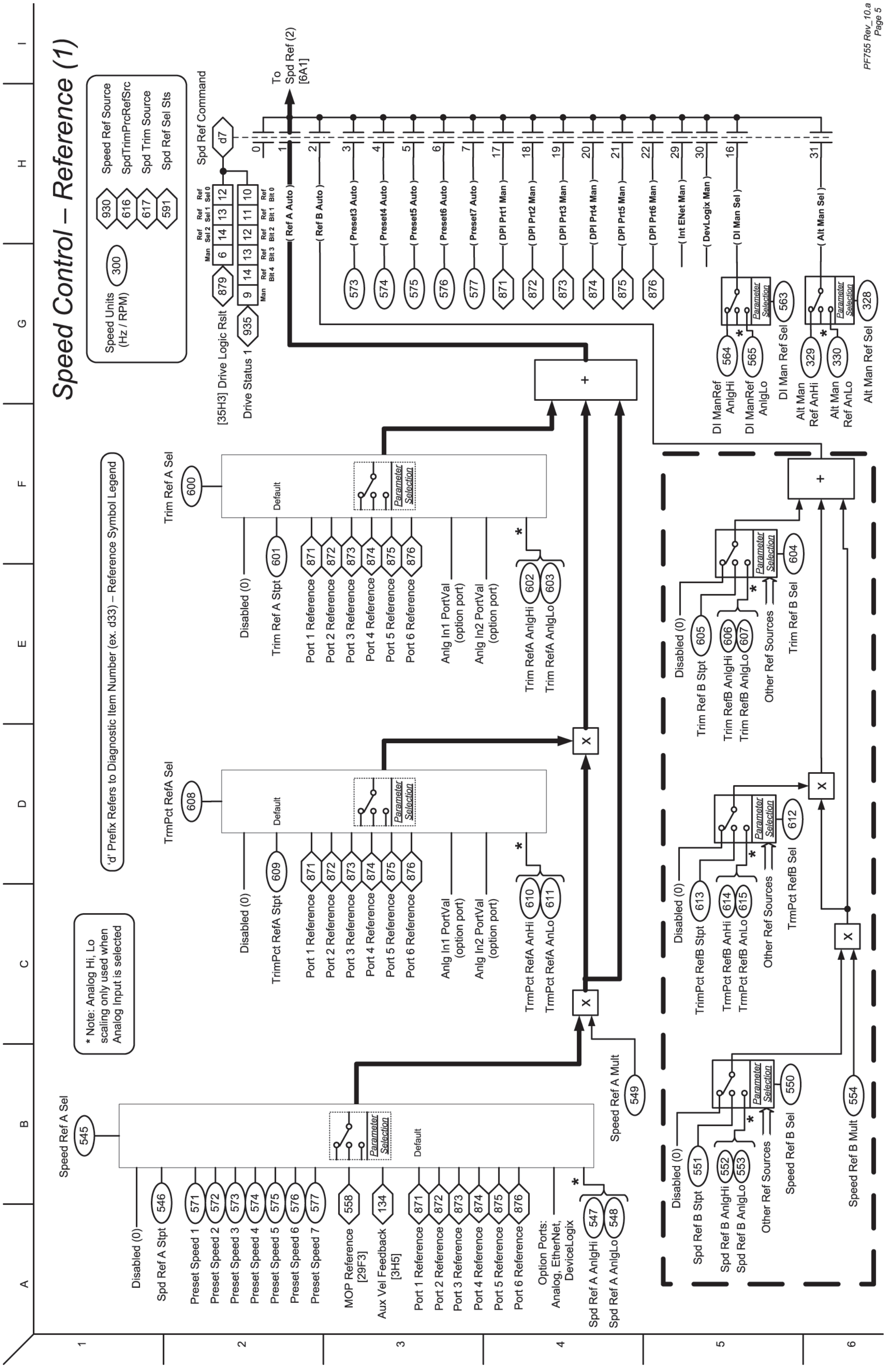


Figure 43 - Speed Control - Reference (2)

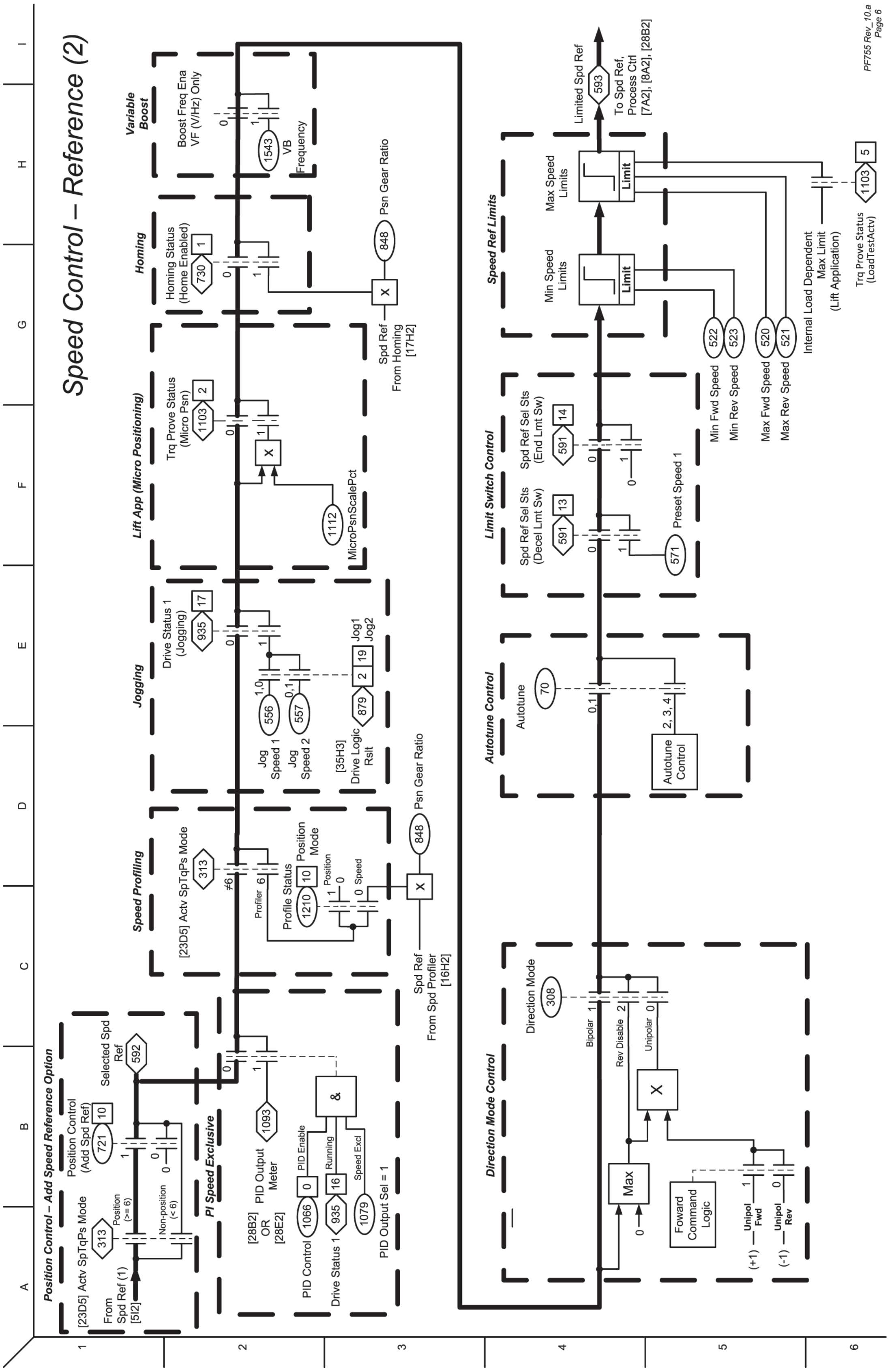


Figure 44 - Speed Control - Reference (3)

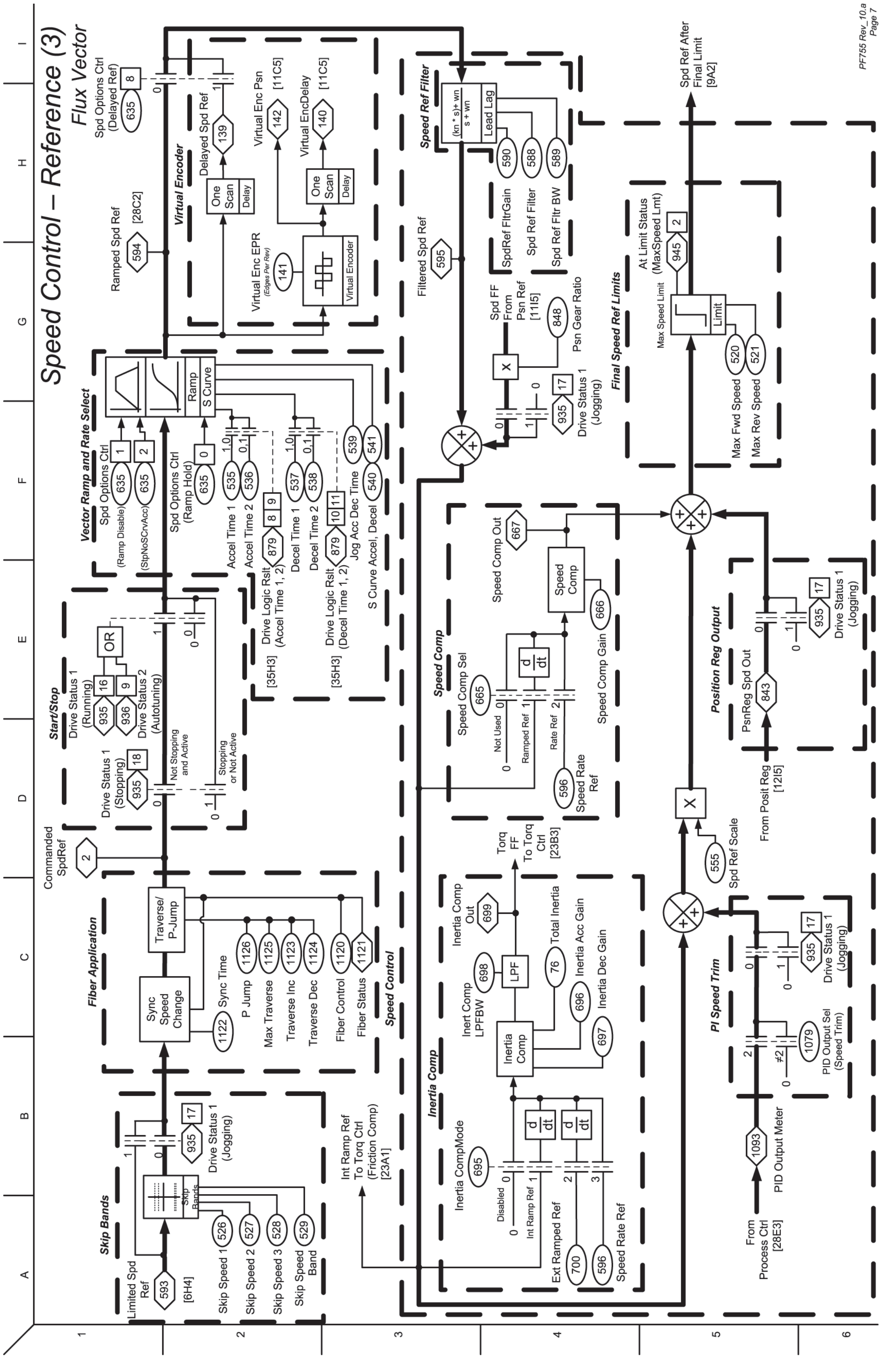


Figure 45 - Speed Control - Reference (4)

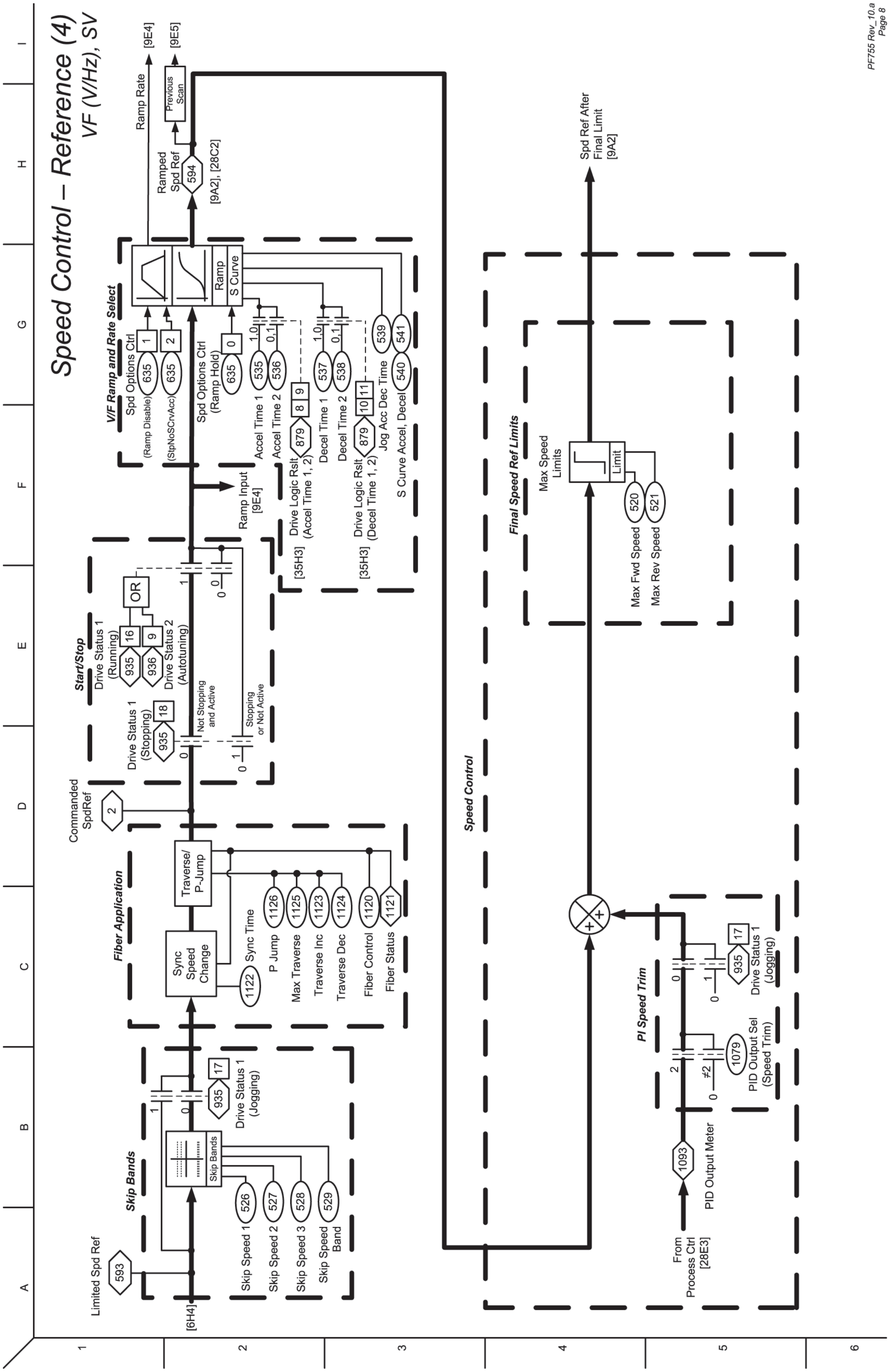


Figure 46 - Speed Control - Reference (5)

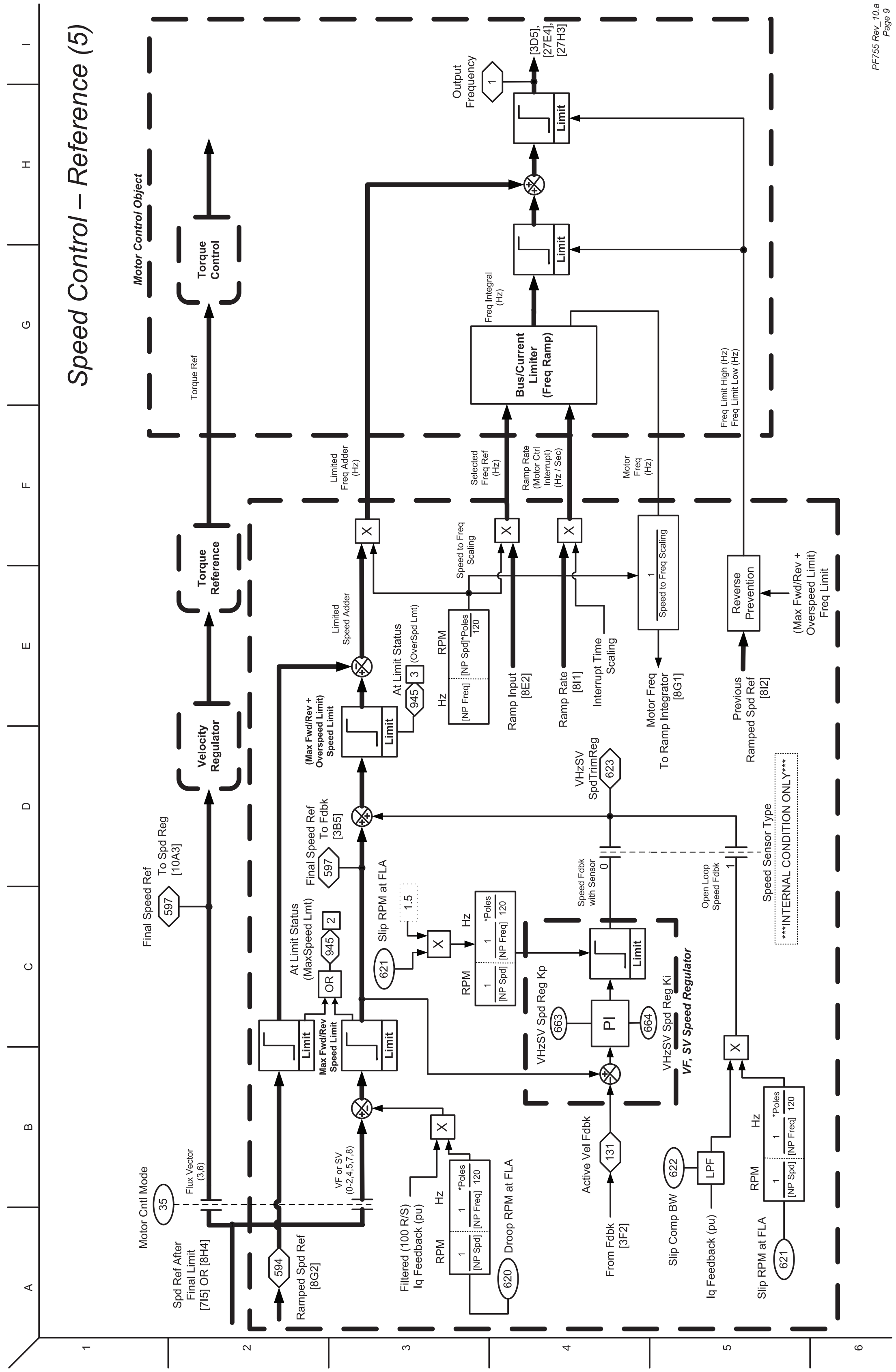


Figure 47 - Speed Control - Regulator (FV)

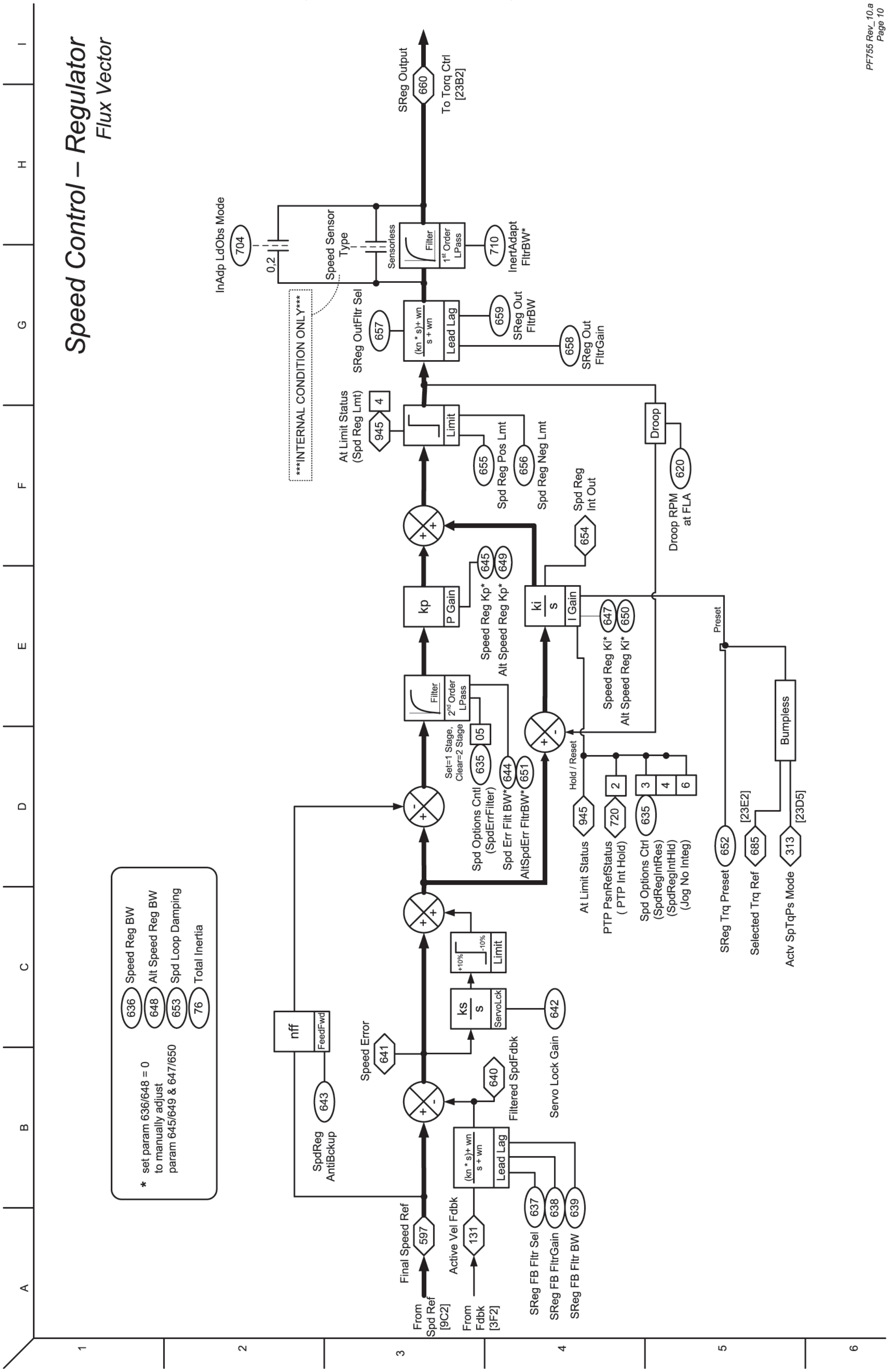


Figure 48 - Position Control - Reference

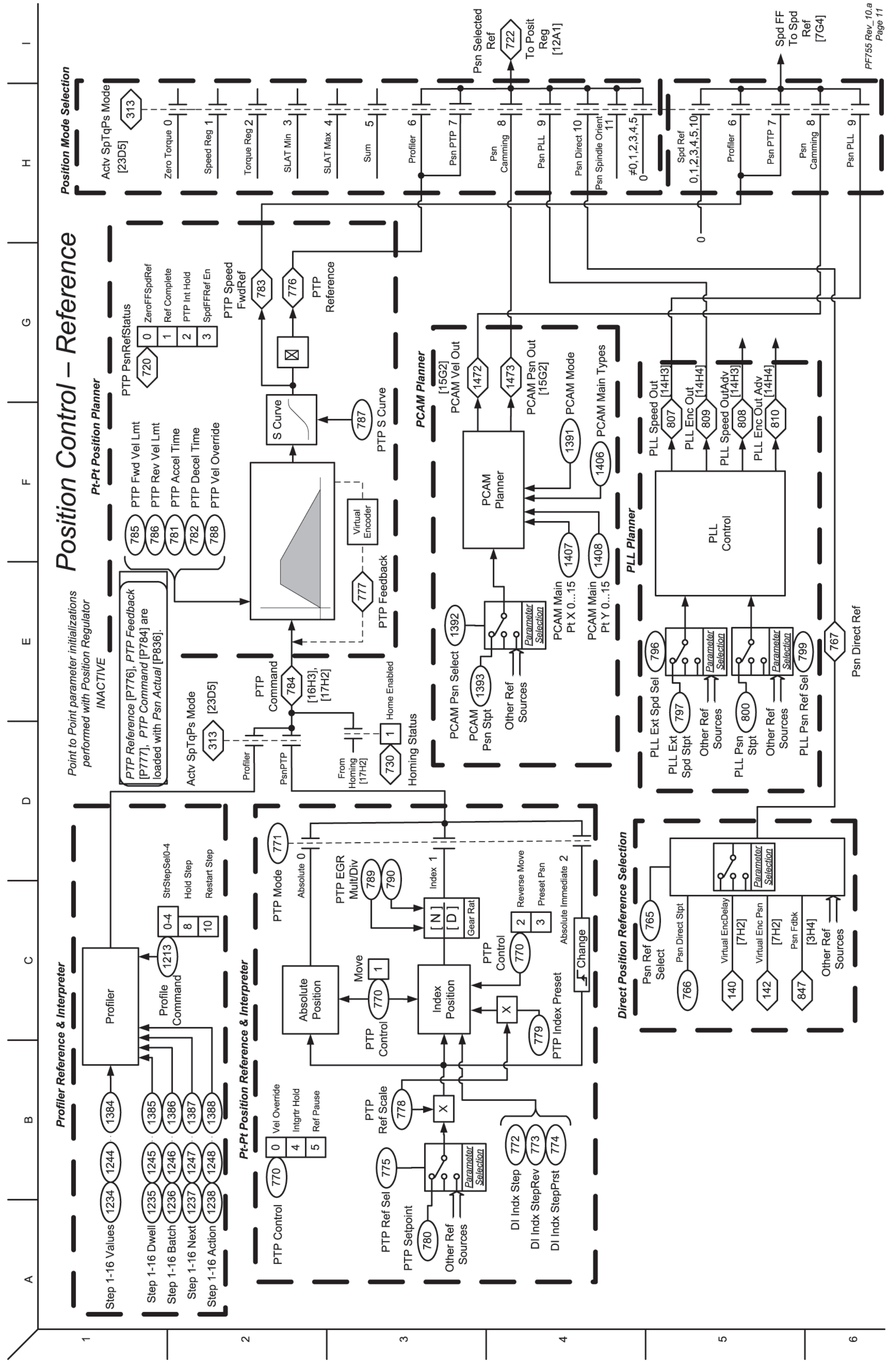


Figure 49 - Position Control - Regulator

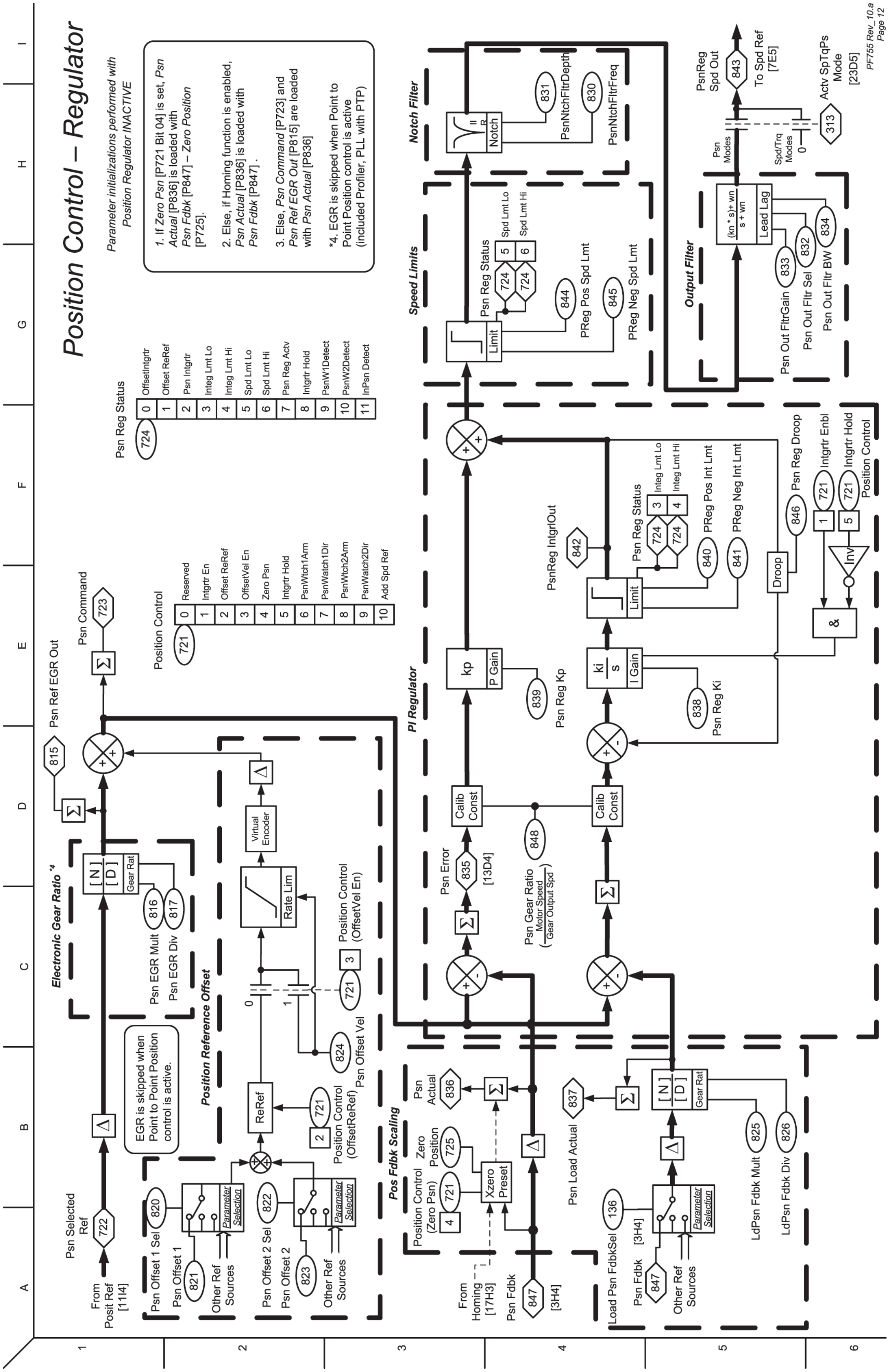


Figure 50 - Position Control - Aux Functions

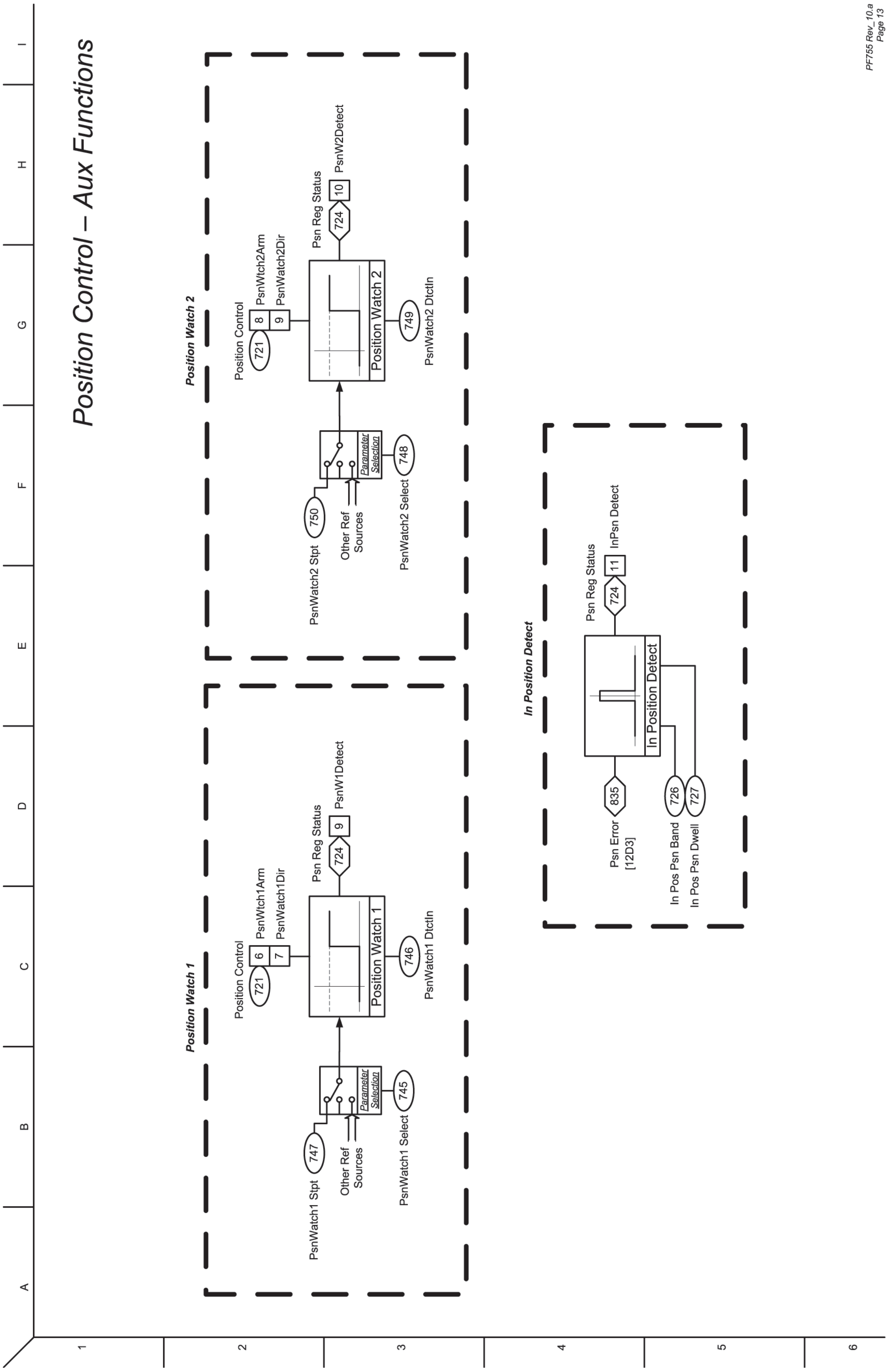


Figure 51 - Position Control - Phase Locked Loop

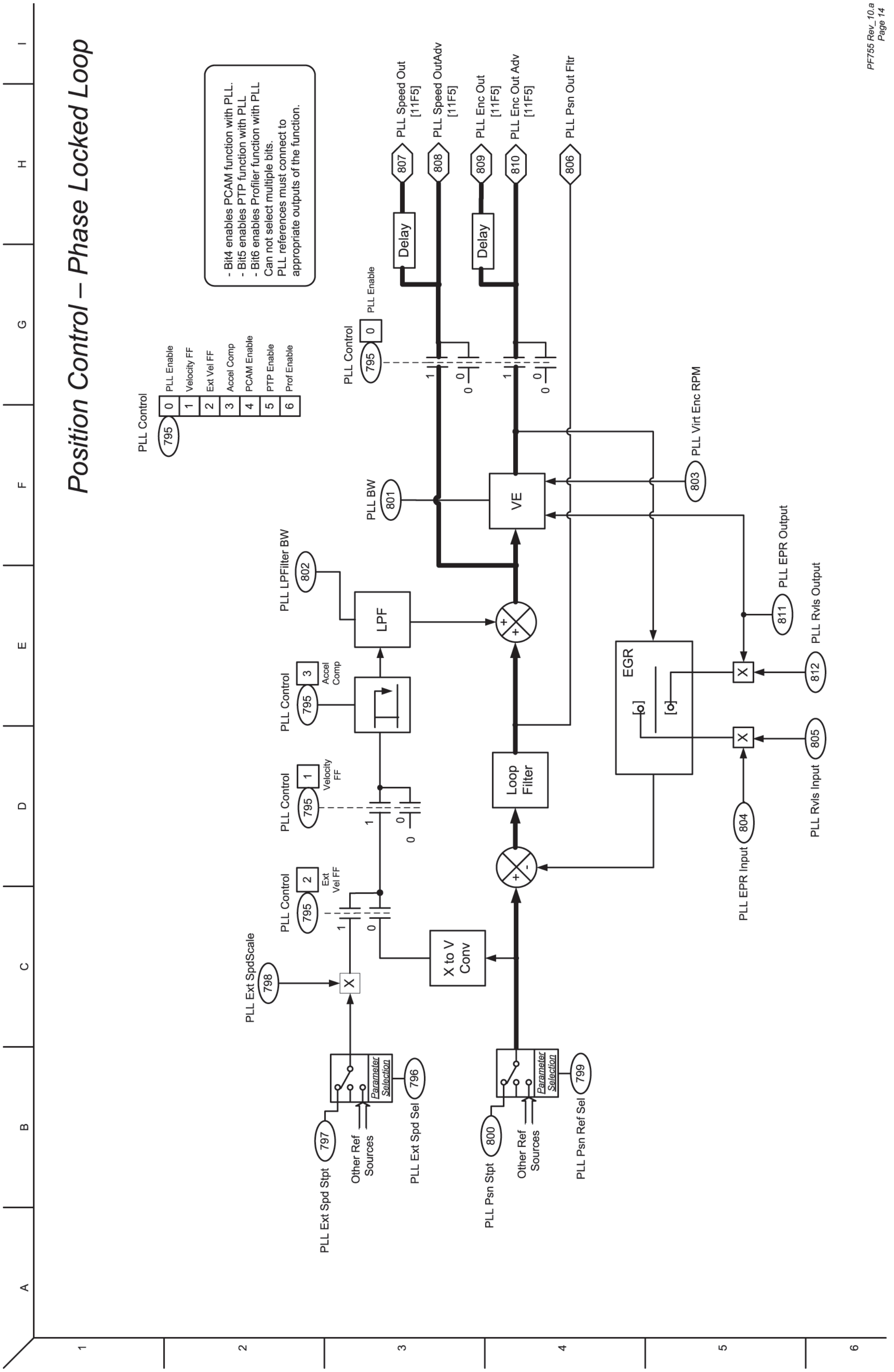


Figure 52 - Position Control - Position CAM

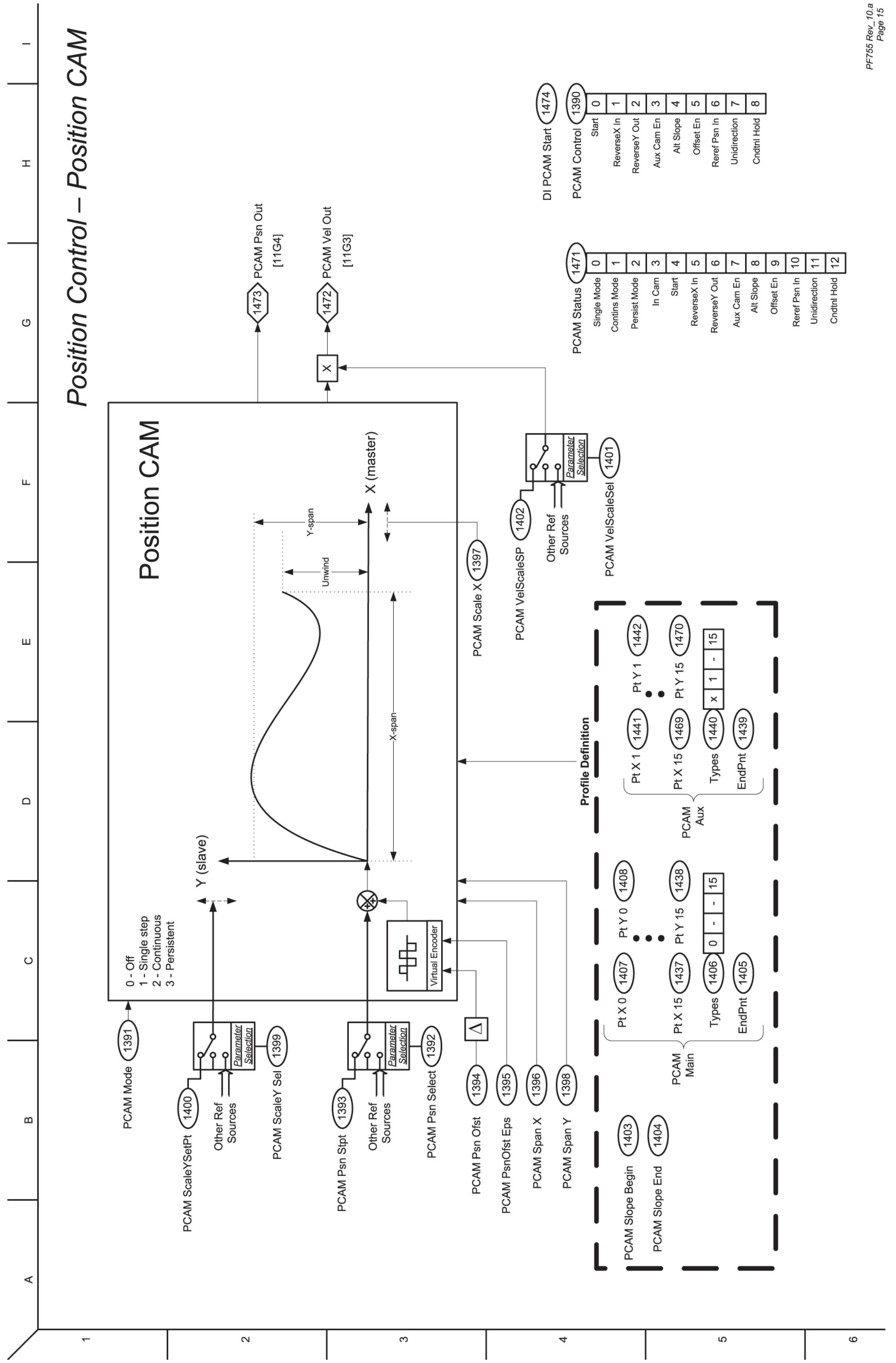


Figure 53 - Position Control - Profiler/Indexer (1)

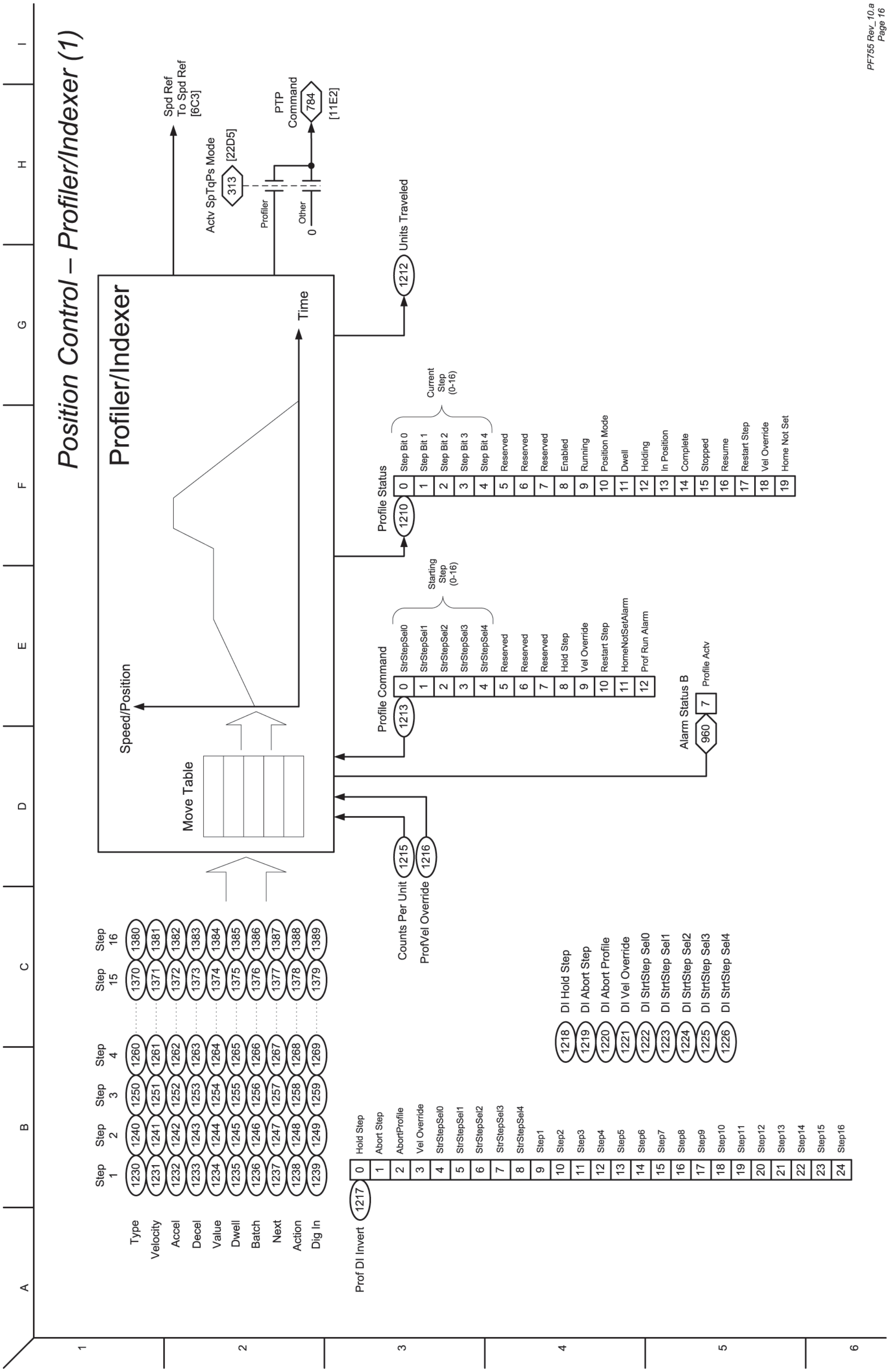
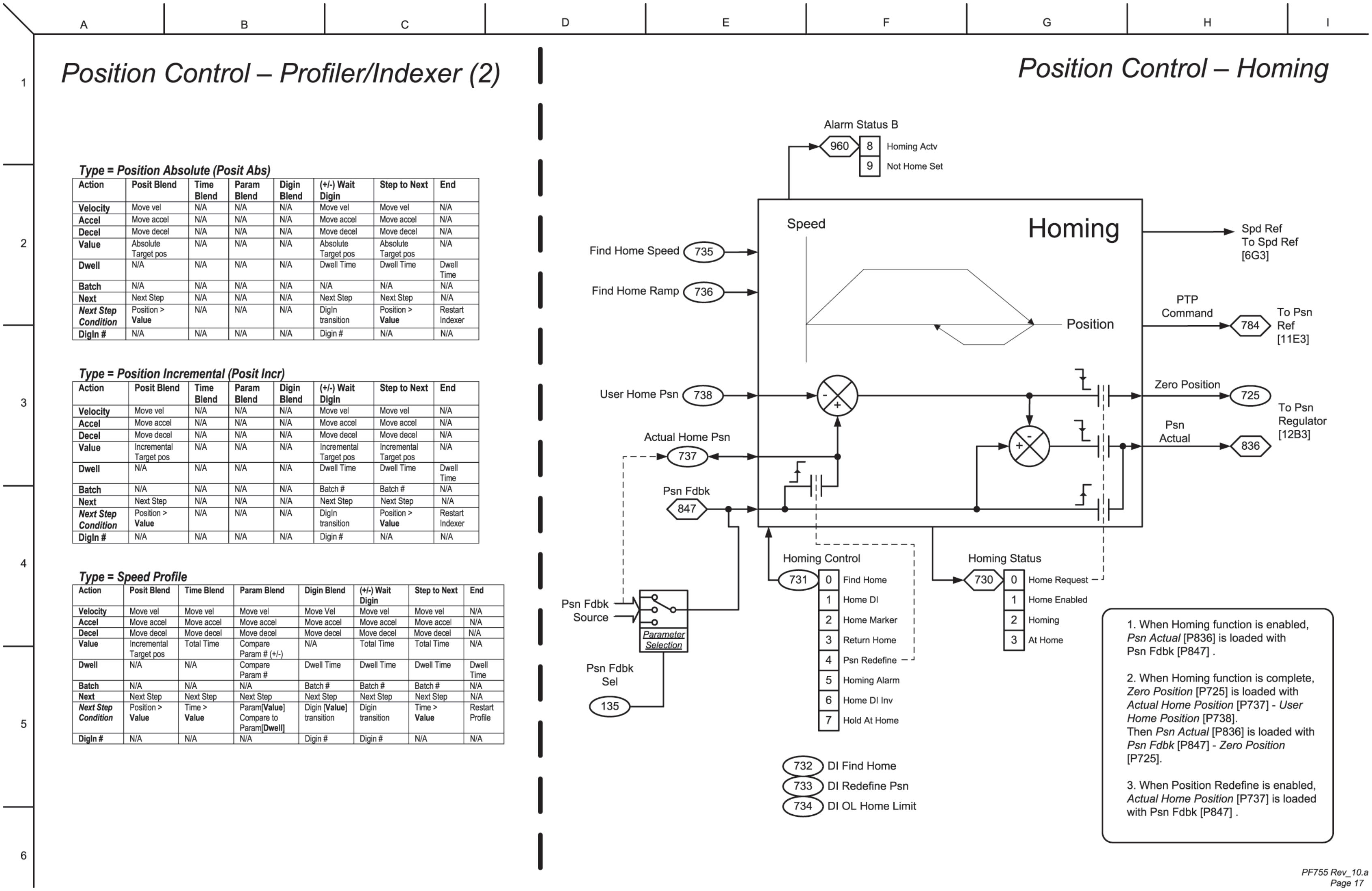


Figure 54 - Position Control - Profiler/Indexer (2), Homing



Type = Position Absolute (Posit Abs)

Action	**Posit Blend**	**Time Blend**	**Param Blend**	**Digin Blend**	**(+/-) Wait Digin**	**Step to Next**	**End**
Velocity	Move vel	N/A	N/A	N/A	Move vel	Move vel	N/A
Accel	Move accel	N/A	N/A	N/A	Move accel	Move accel	N/A
Decel	Move decel	N/A	N/A	N/A	Move decel	Move decel	N/A
Value	Absolute Target pos	N/A	N/A	N/A	Absolute Target pos	Absolute Target pos	N/A
Dwell	N/A	N/A	N/A	N/A	Dwell Time	Dwell Time	Dwell Time
Batch	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Next	Next Step	N/A	N/A	N/A	Next Step	Next Step	N/A
Next Step Condition	Position > **Value**	N/A	N/A	N/A	DigIn transition	Position > **Value**	Restart Indexer
DigIn #	N/A	N/A	N/A	N/A	Digin #	N/A	N/A

Type = Position Incremental (Posit Incr)

Action	**Posit Blend**	**Time Blend**	**Param Blend**	**Digin Blend**	**(+/-) Wait Digin**	**Step to Next**	**End**
Velocity	Move vel	N/A	N/A	N/A	Move vel	Move vel	N/A
Accel	Move accel	N/A	N/A	N/A	Move accel	Move accel	N/A
Decel	Move decel	N/A	N/A	N/A	Move decel	Move decel	N/A
Value	Incremental Target pos	N/A	N/A	N/A	Incremental Target pos	Incremental Target pos	N/A
Dwell	N/A	N/A	N/A	N/A	Dwell Time	Dwell Time	Dwell Time
Batch	N/A	N/A	N/A	N/A	Batch #	Batch #	N/A
Next	Next Step	N/A	N/A	N/A	Next Step	Next Step	N/A
Next Step Condition	Position > **Value**	N/A	N/A	N/A	DigIn transition	Position > **Value**	Restart Indexer
DigIn #	N/A	N/A	N/A	N/A	Digin #	N/A	N/A

Type = Speed Profile

Action	**Posit Blend**	**Time Blend**	**Param Blend**	**Digin Blend**	**(+/-) Wait Digin**	**Step to Next**	**End**
Velocity	Move vel	Move vel	Move vel	Move Vel	Move vel	Move vel	N/A
Accel	Move accel	Move accel	Move accel	Move accel	Move accel	Move accel	N/A
Decel	Move decel	Move decel	Move decel	Move decel	Move decel	Move decel	N/A
Value	Incremental Target pos	Total Time	Compare Param # (+/-)	N/A	Total Time	Total Time	N/A
Dwell	N/A	N/A	Compare Param #	Dwell Time	Dwell Time	Dwell Time	Dwell Time
Batch	N/A	N/A	N/A	Batch #	Batch #	Batch #	N/A
Next	Next Step	Next Step	Next Step	Next Step	Next Step	Next Step	N/A
Next Step Condition	Position > **Value**	Time > **Value**	Param[**Value**] Compare to Param[**Dwell**]	Digin [**Value**] transition	Digin transition	Time > **Value**	Restart Profile
DigIn #	N/A	N/A	N/A	Digin #	Digin #	N/A	N/A

1. When Homing function is enabled, *Psn Actual* [P836] is loaded with Psn Fdbk [P847] .

2. When Homing function is complete, *Zero Position* [P725] is loaded with *Actual Home Position* [P737] - *User Home Position* [P738].
Then *Psn Actual* [P836] is loaded with *Psn Fdbk* [P847] - *Zero Position* [P725].

3. When Position Redefine is enabled, *Actual Home Position* [P737] is loaded with Psn Fdbk [P847] .

Figure 55 - Position Control / Auxiliary Functions - Roll Position Indicator

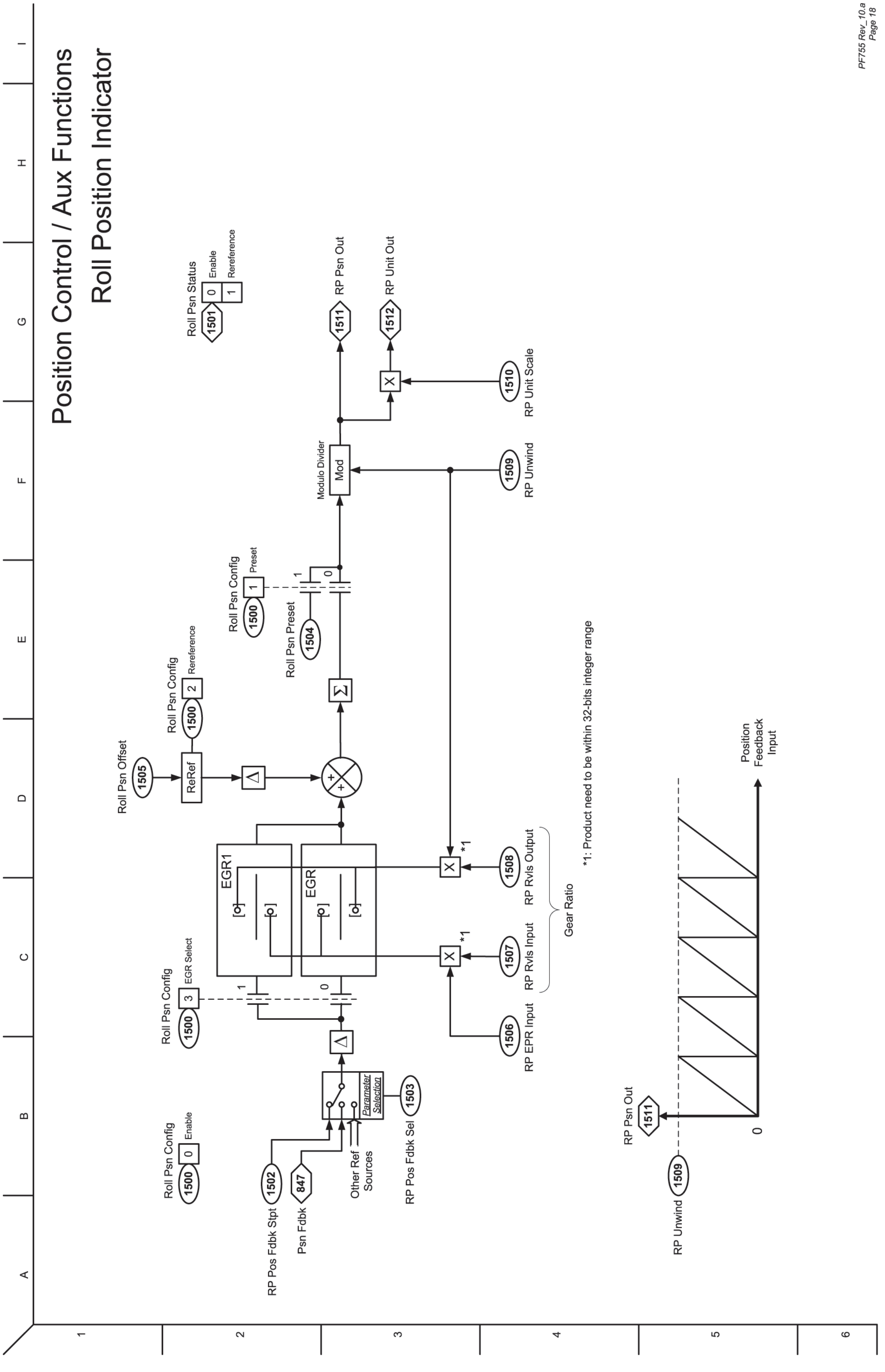


Figure 56 - Position Control - Spindle Orientation

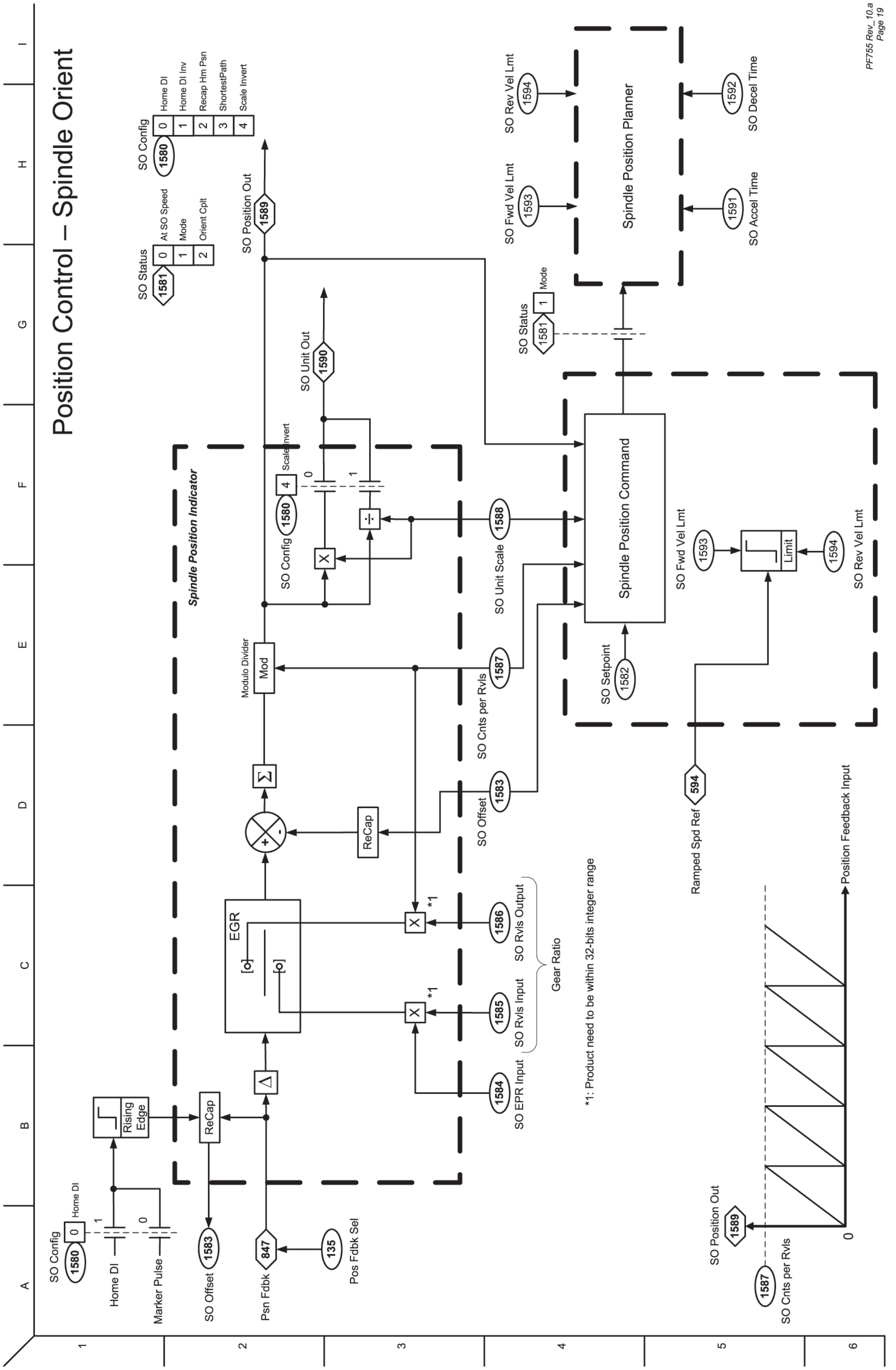


Figure 57 - Position Control / Auxiliary Functions - Position Oriented Torque Boost

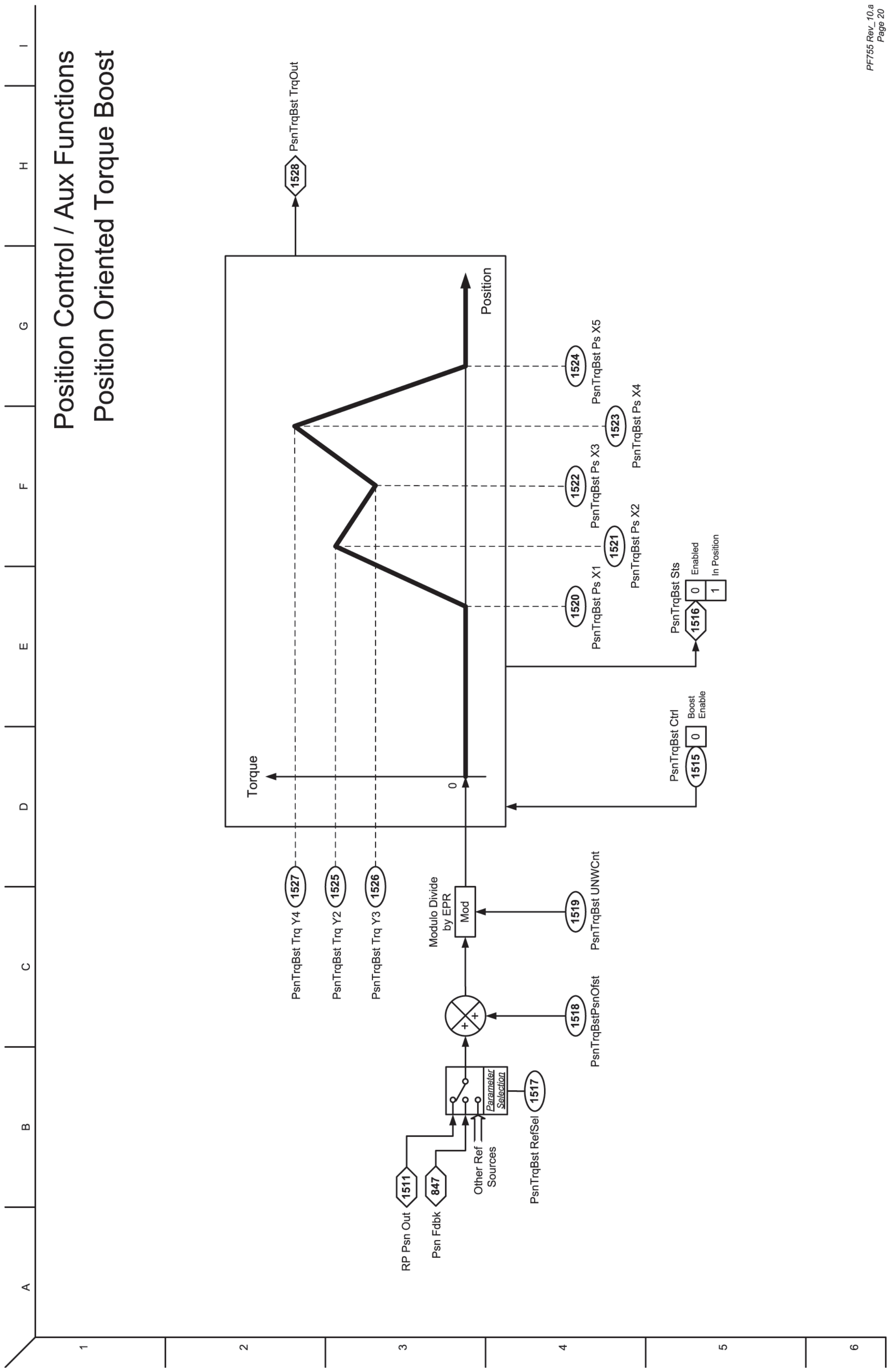


Figure 58 - Torque Control - Overview (IM & SPM)

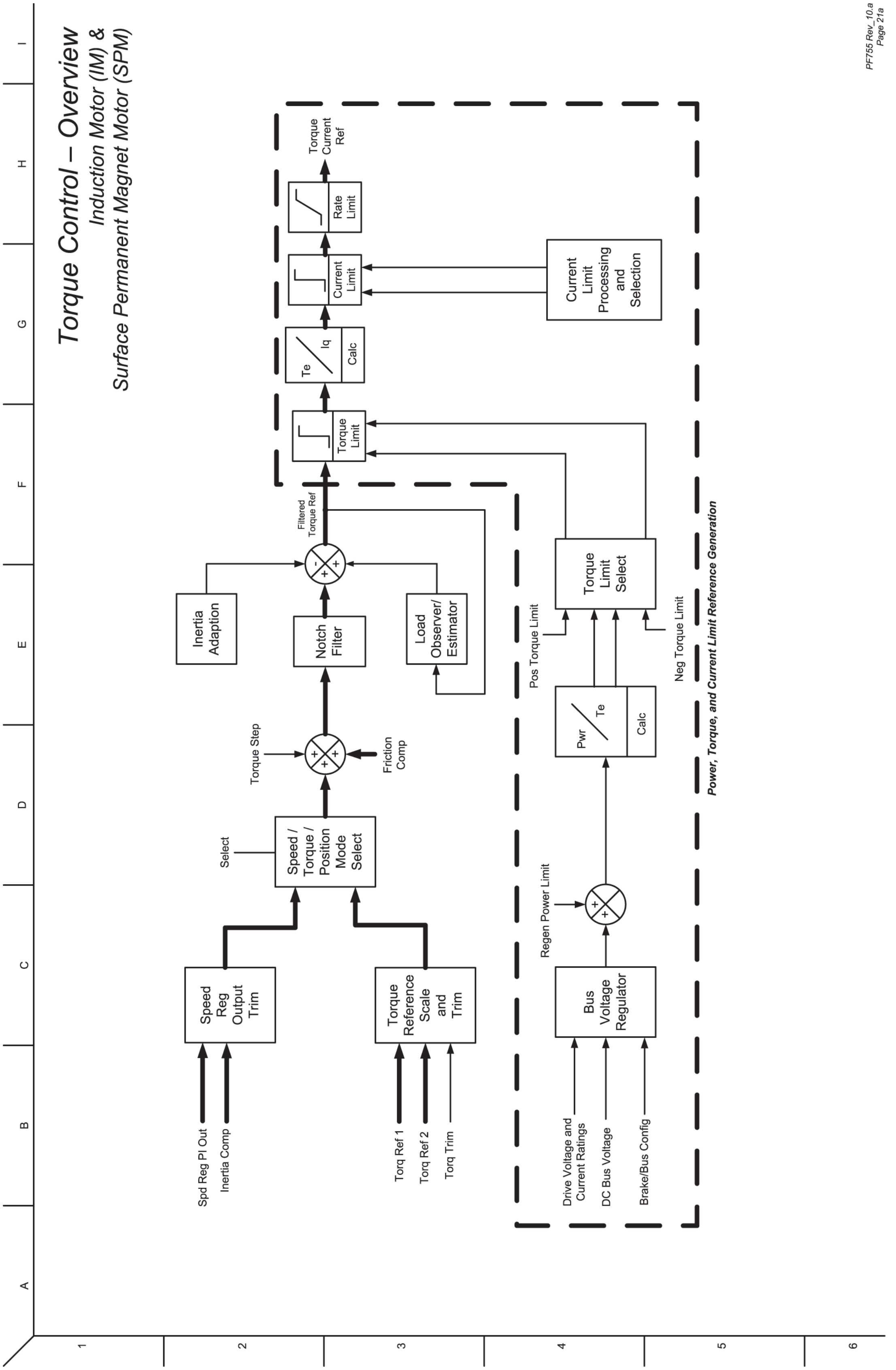


Figure 59 - Torque Control - Overview (IPM)

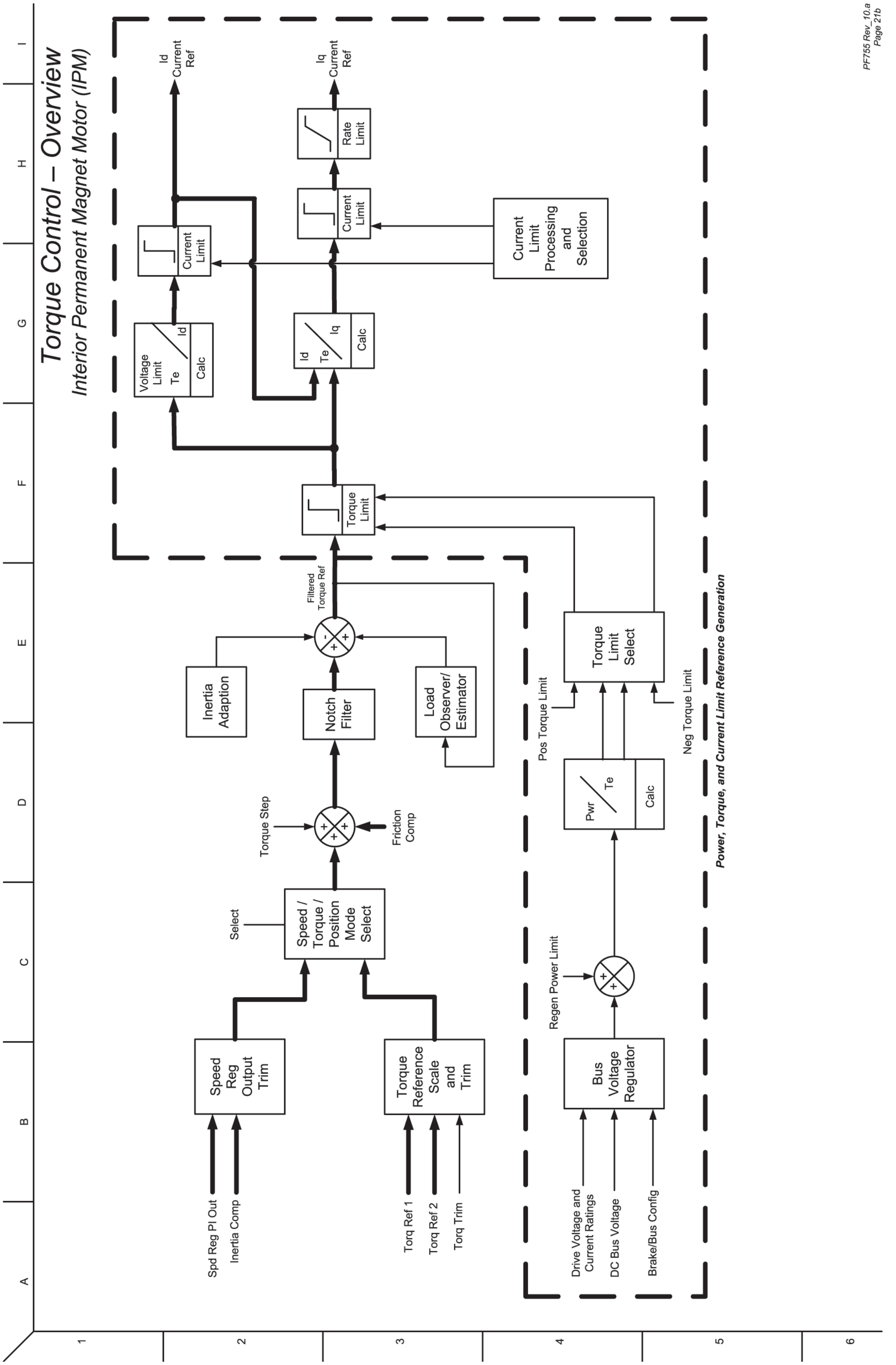


Figure 60 - Torque Control - Reference Scale & Trim

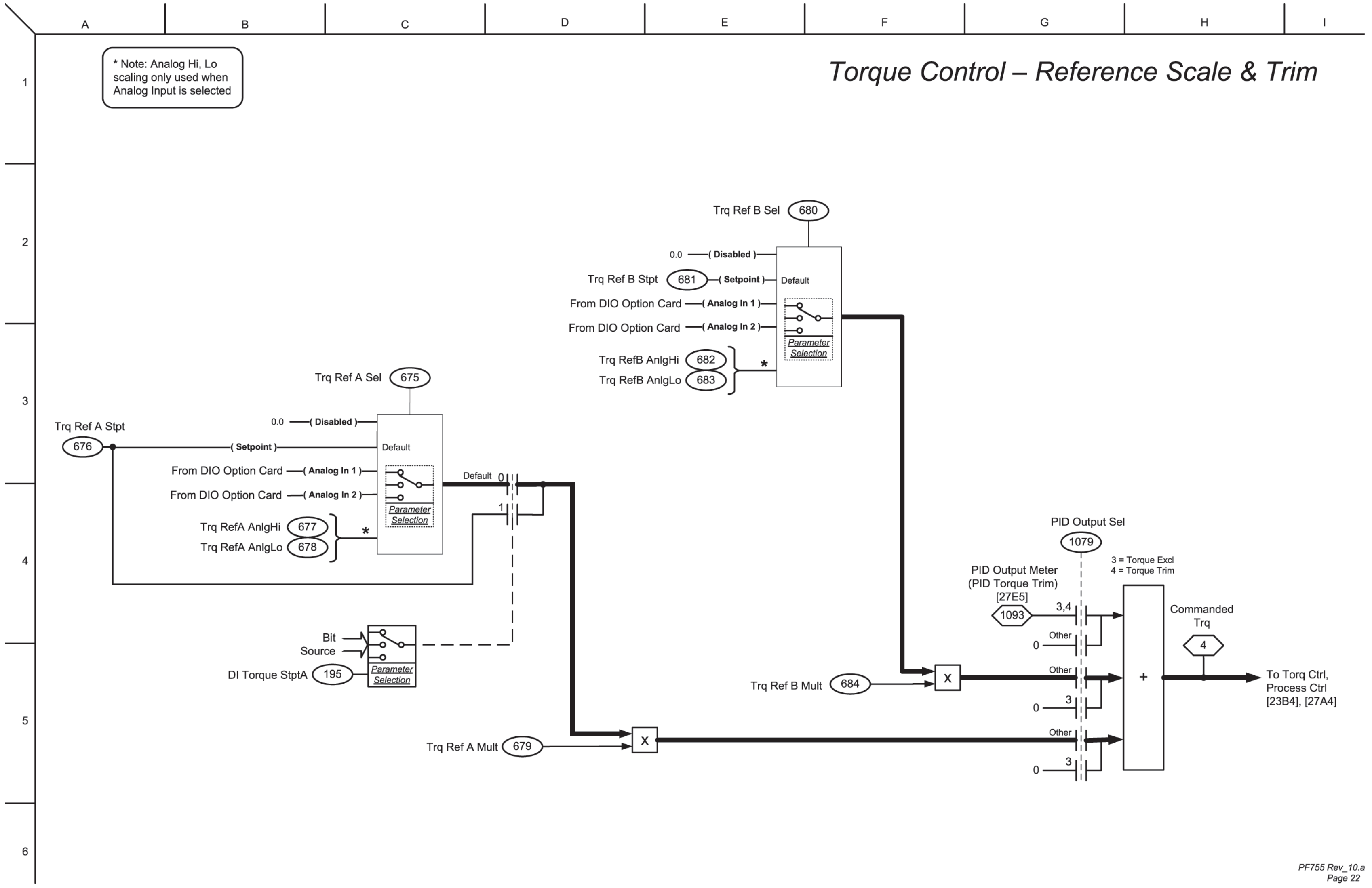


Figure 61 - Torque Control - Torque

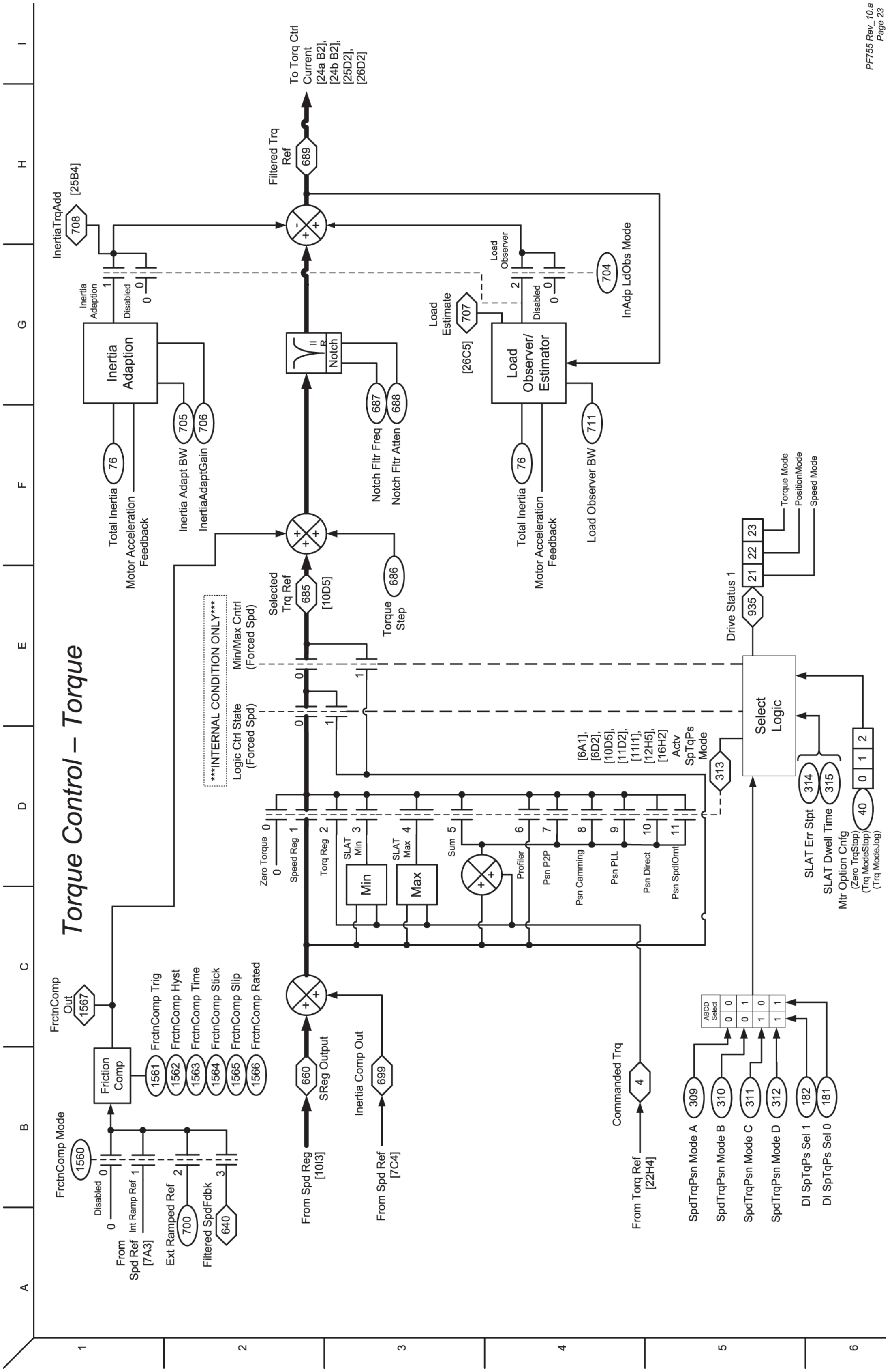


Figure 62 - Torque Control - Current (IM & SPM)

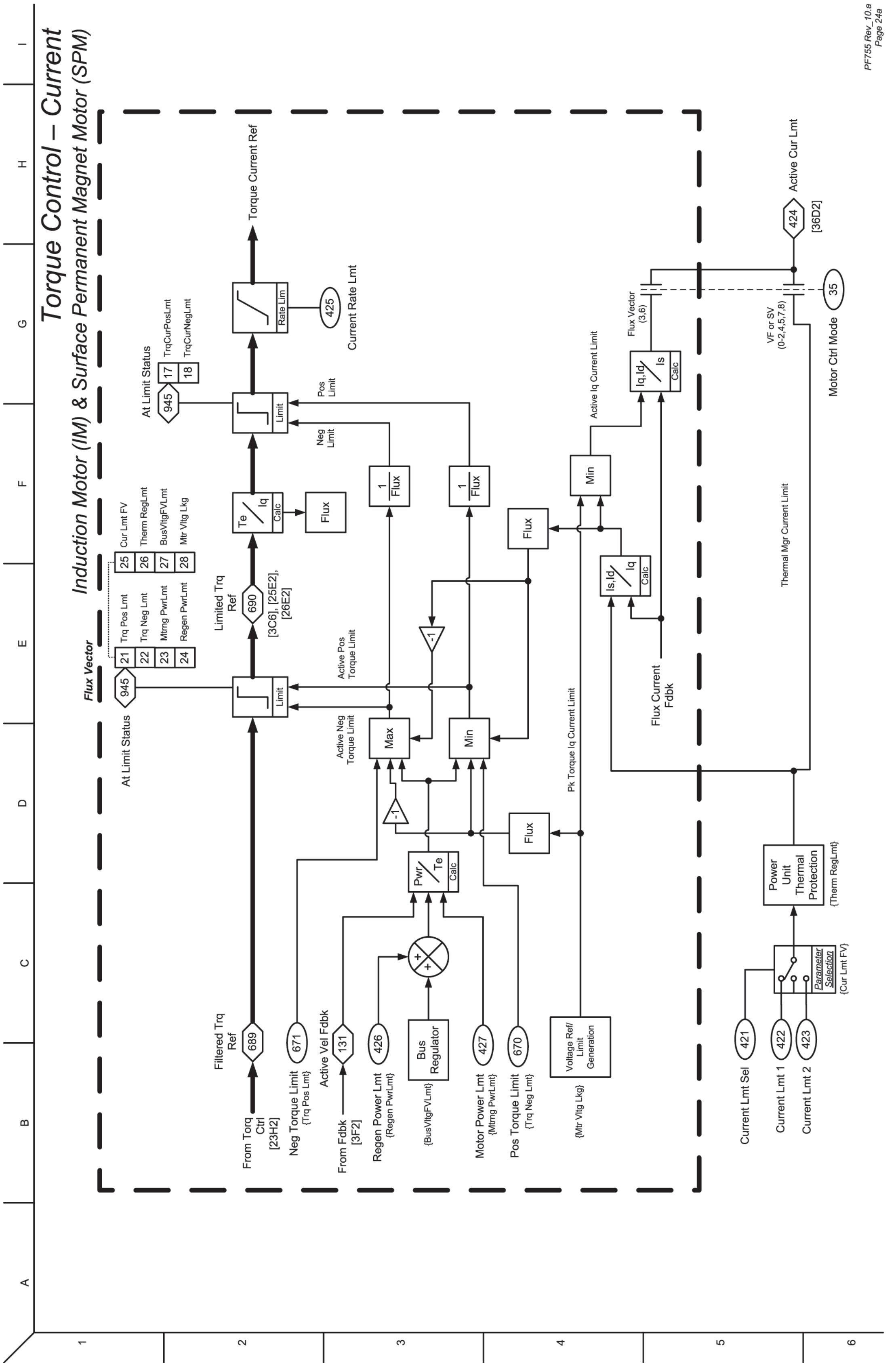


Figure 63 - Torque Control - Current (IPM)

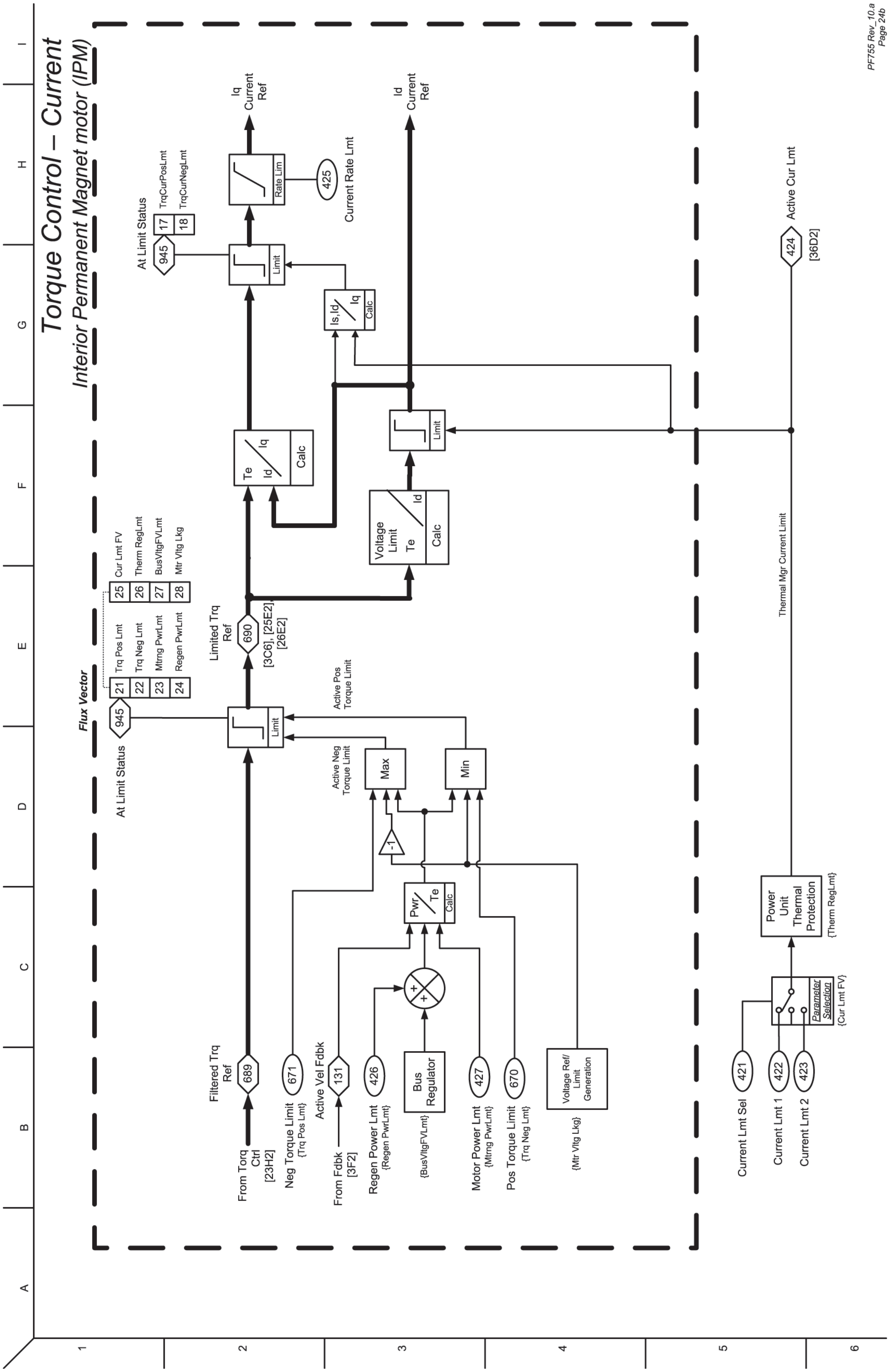


Figure 64 - Torque Control - Inertia Adaption

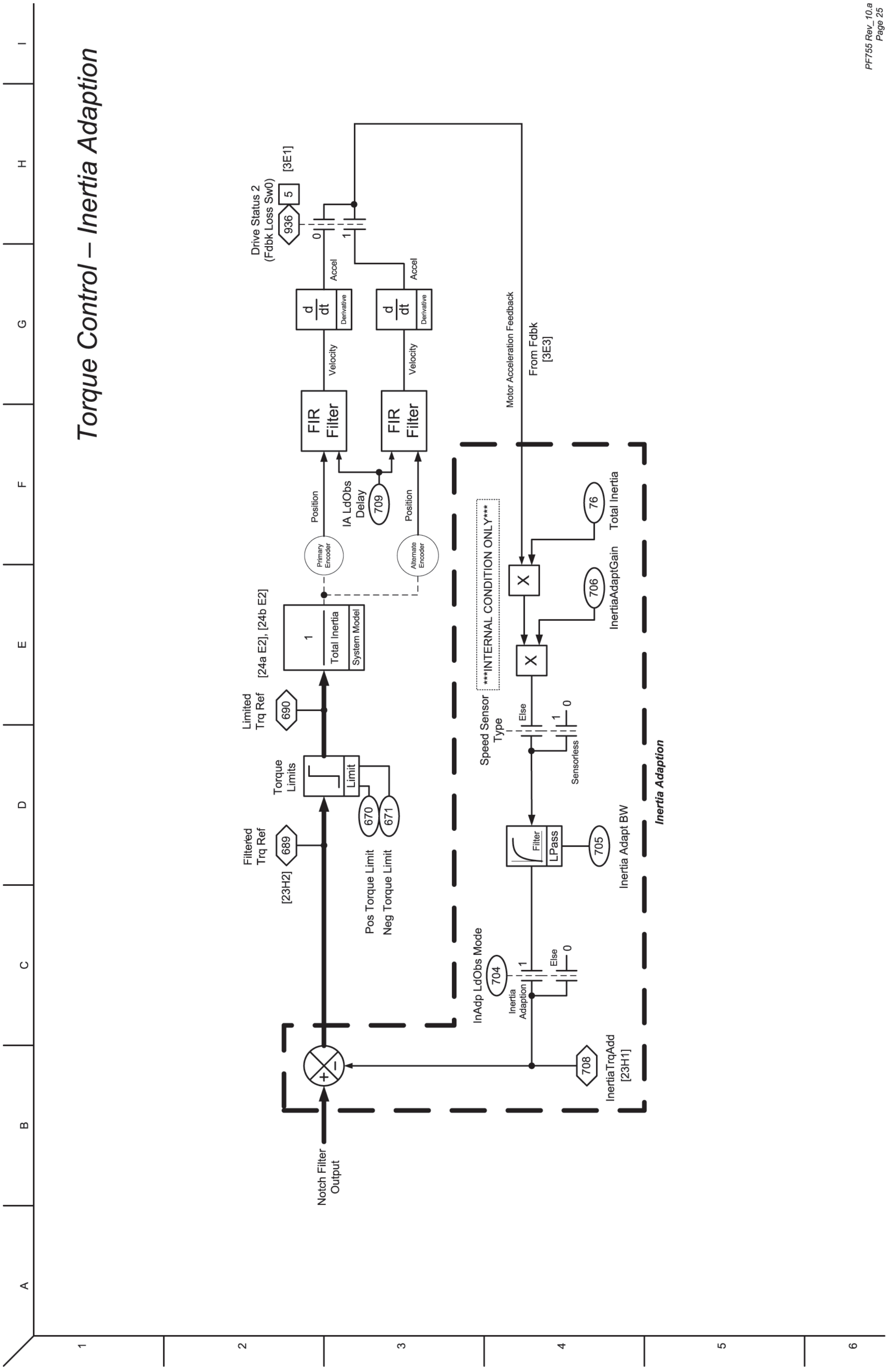


Figure 65 - Torque Control - Load Observer / Estimator

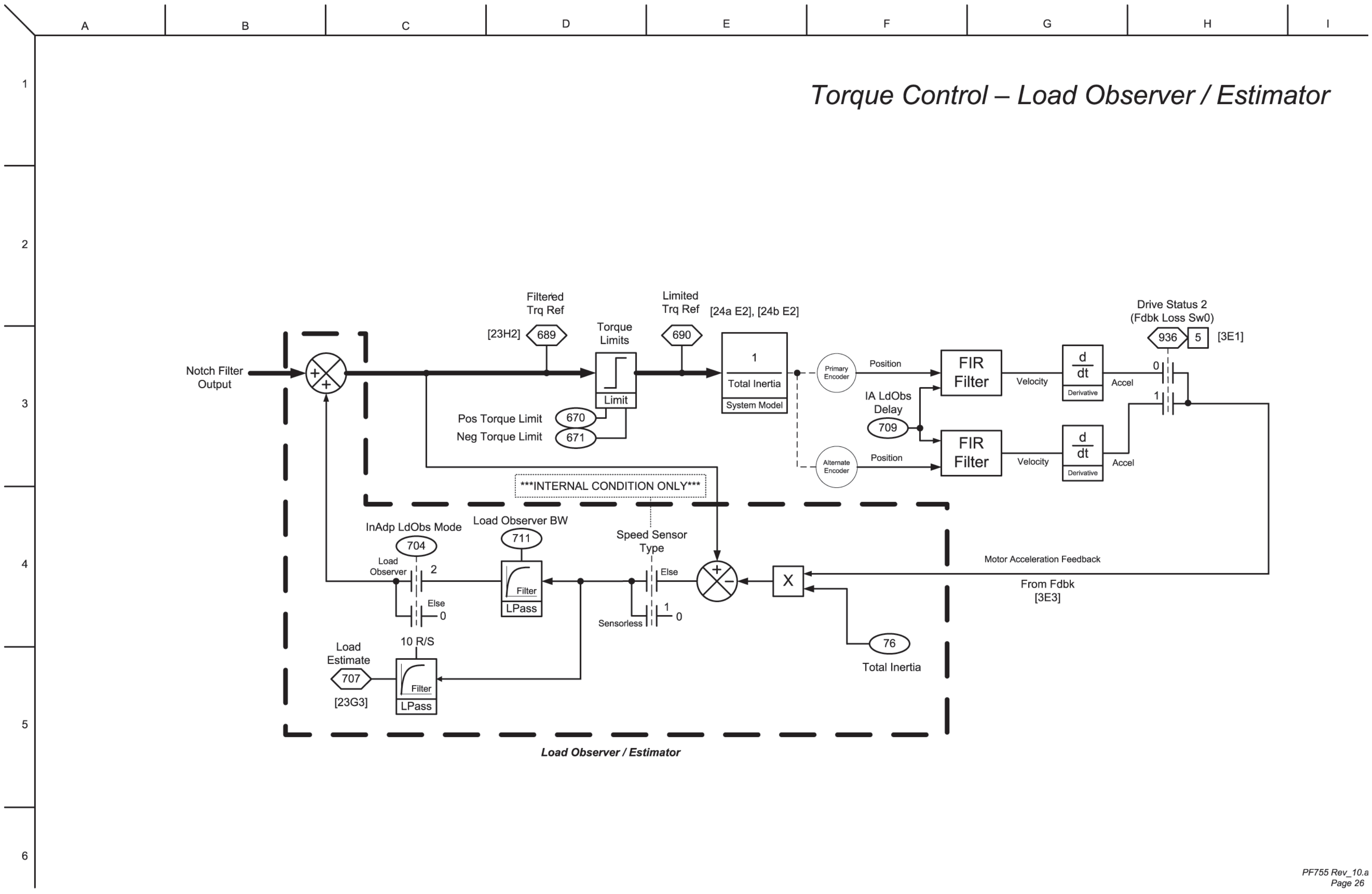


Figure 66 - Process Control (1)

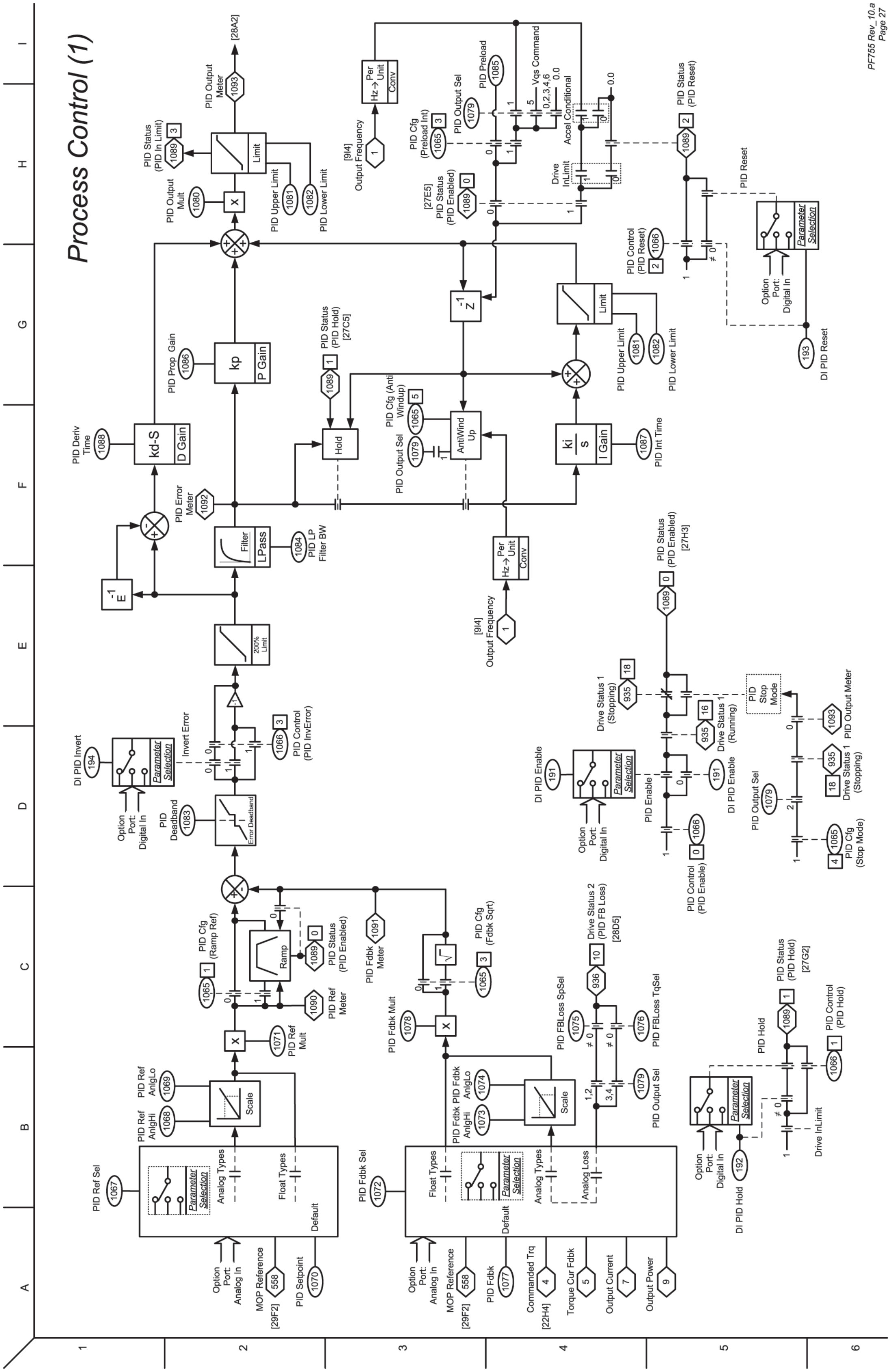


Figure 67 - Process Control (2)

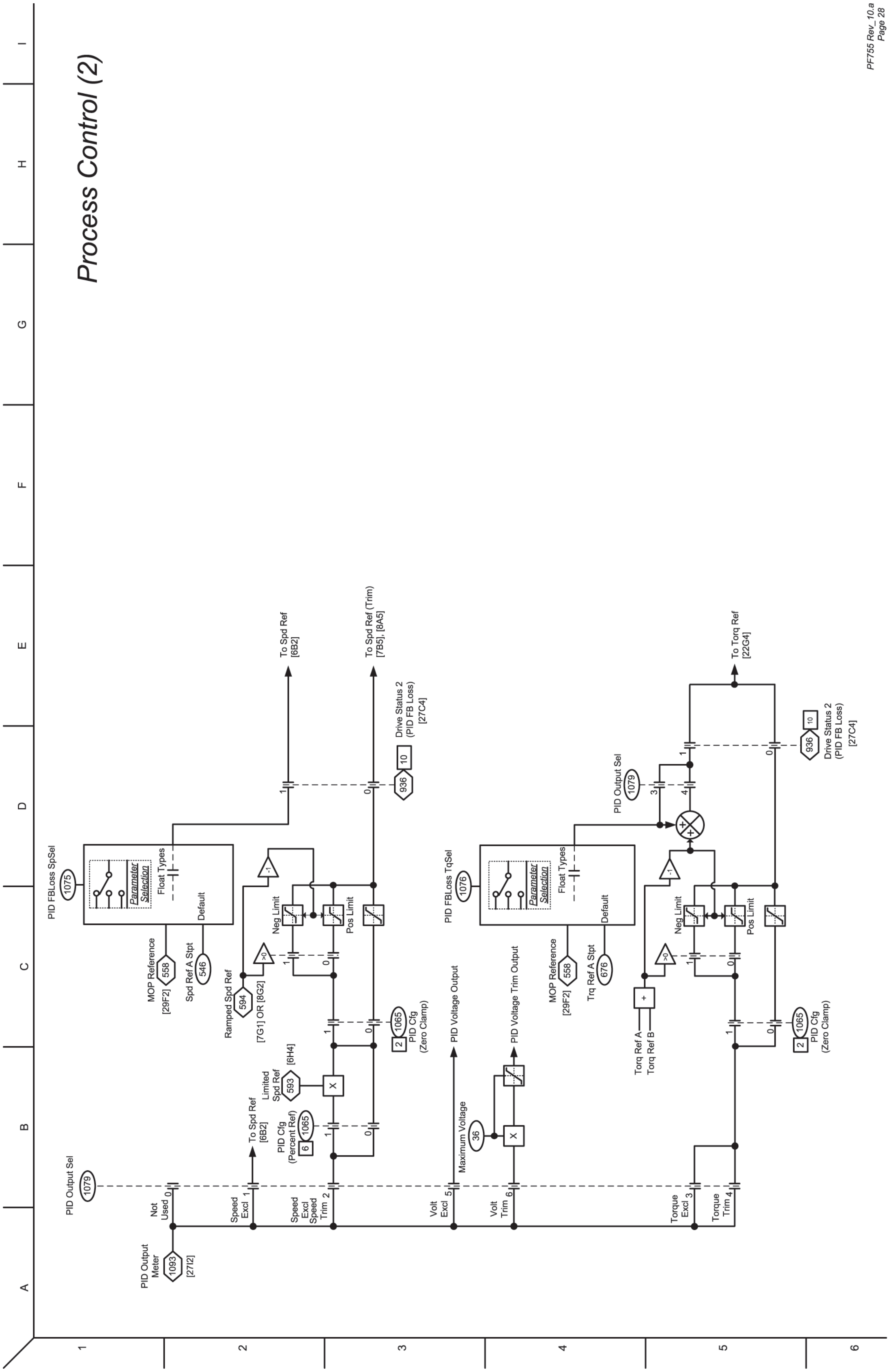


Figure 68 - MOP Control

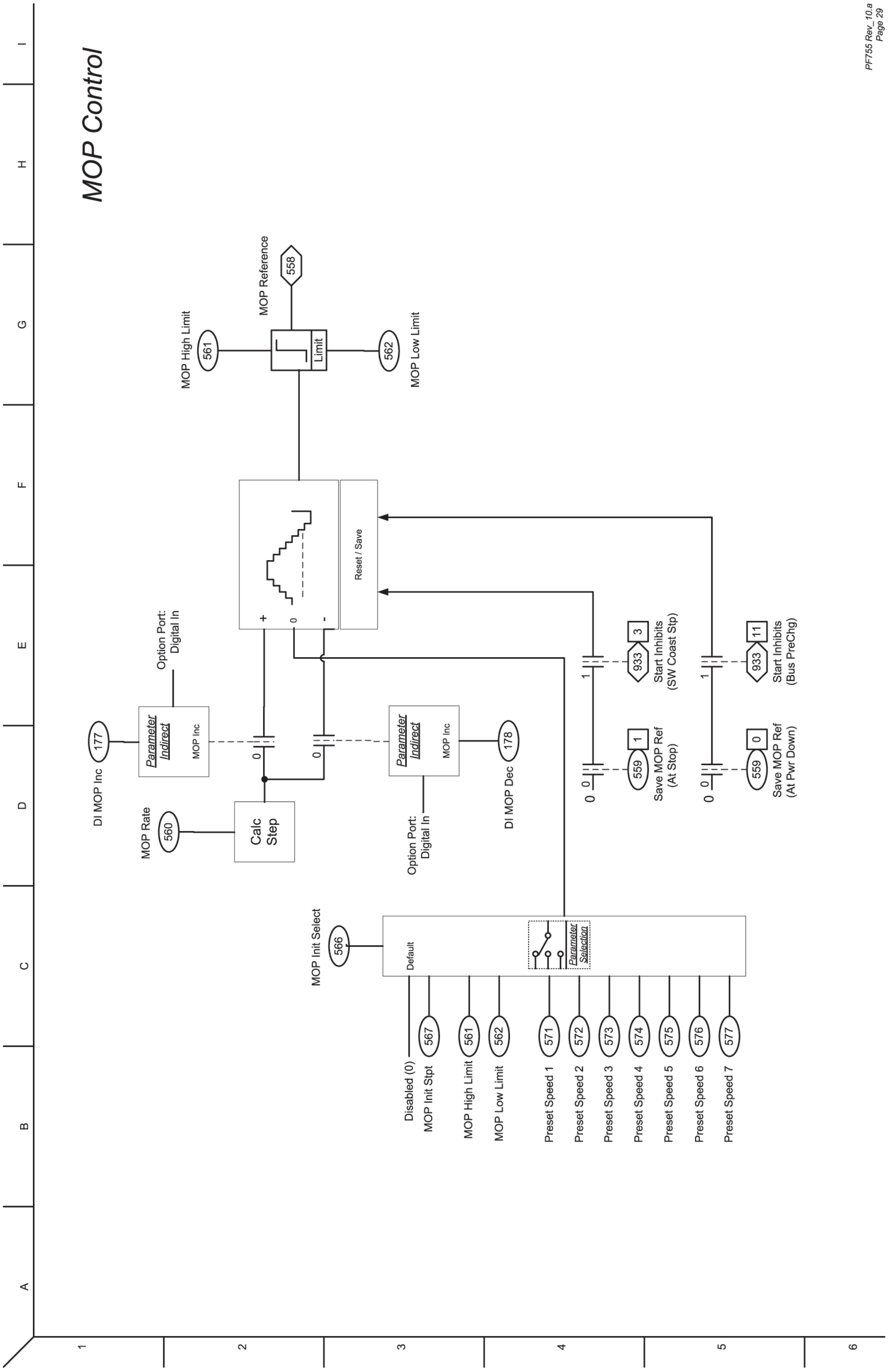


Figure 69 - 22-Series Inputs & Outputs - Digital

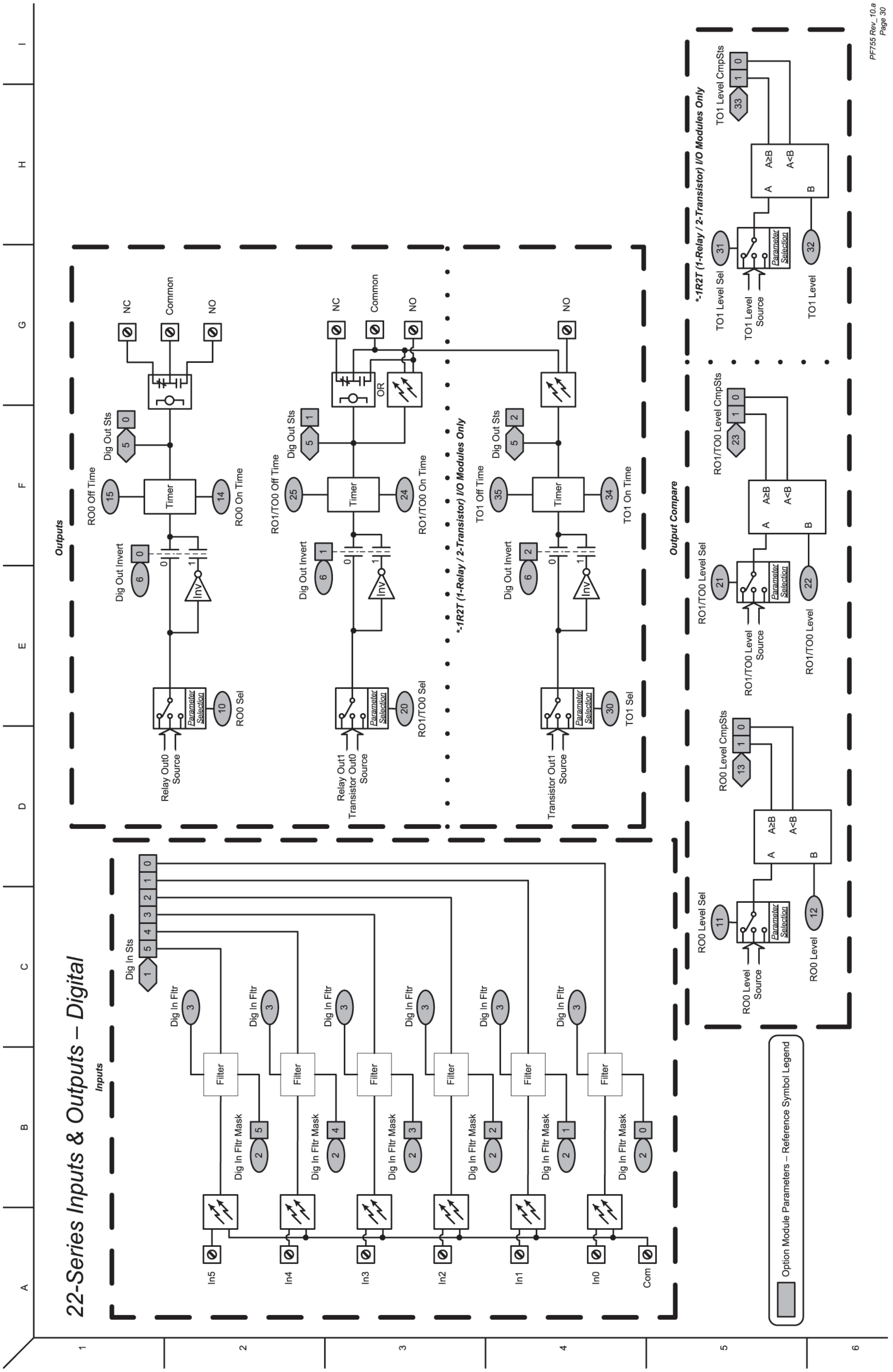


Figure 70 - 22-Series Inputs & Outputs - Analog

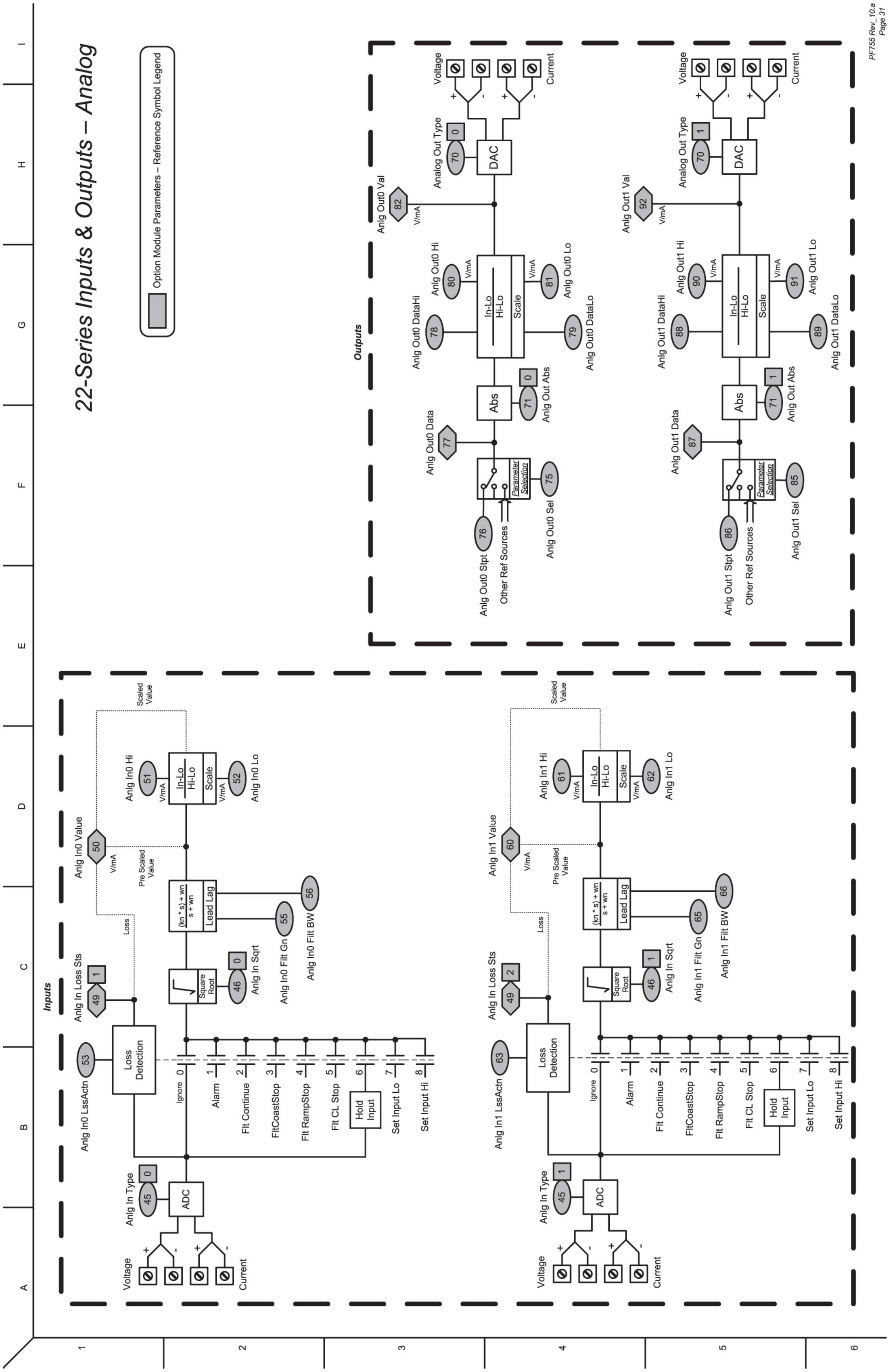


Figure 71 - 11-Series Inputs & Outputs - Digital

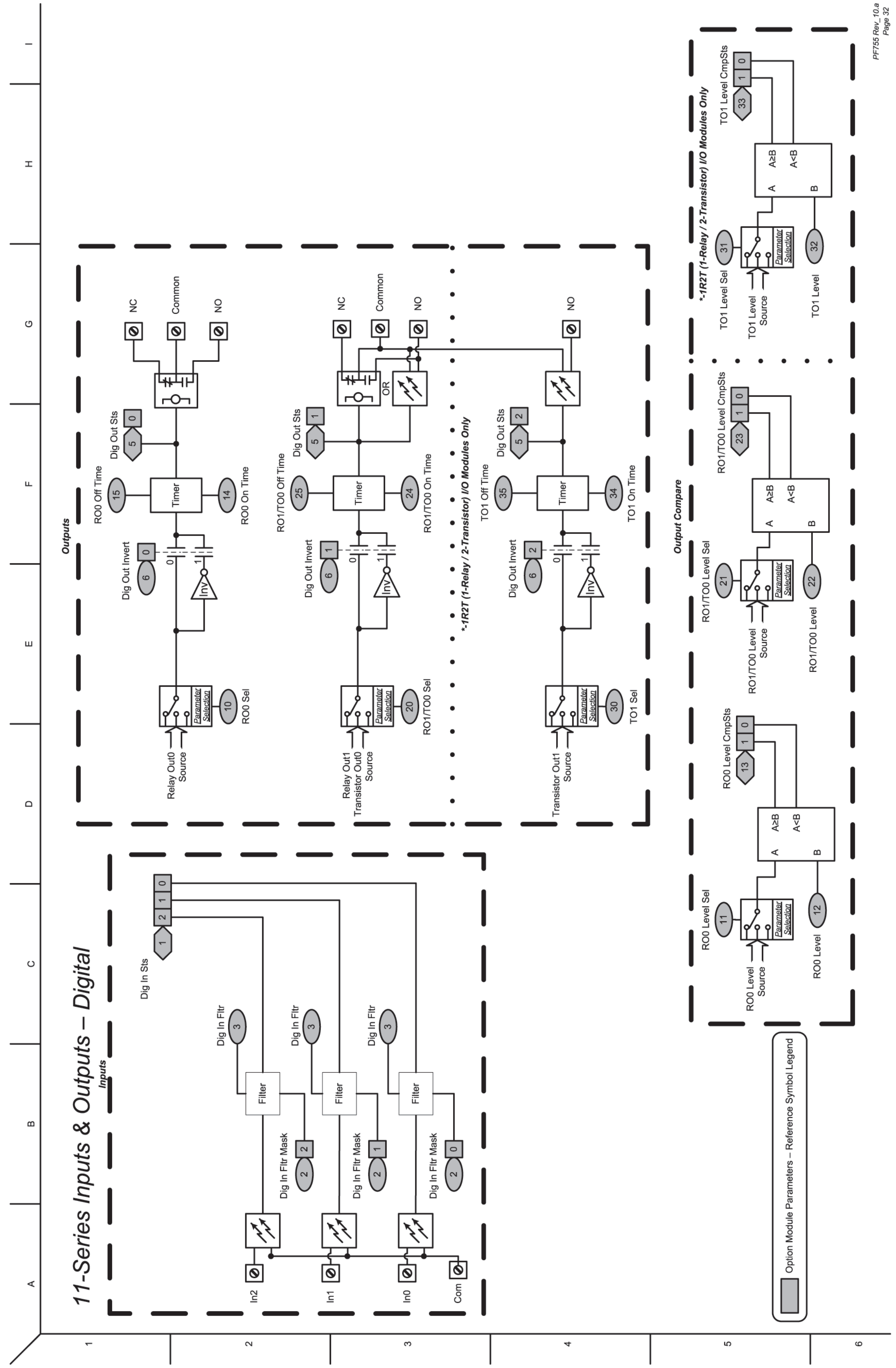


Figure 72 - 11-Series Inputs & Outputs - Analog

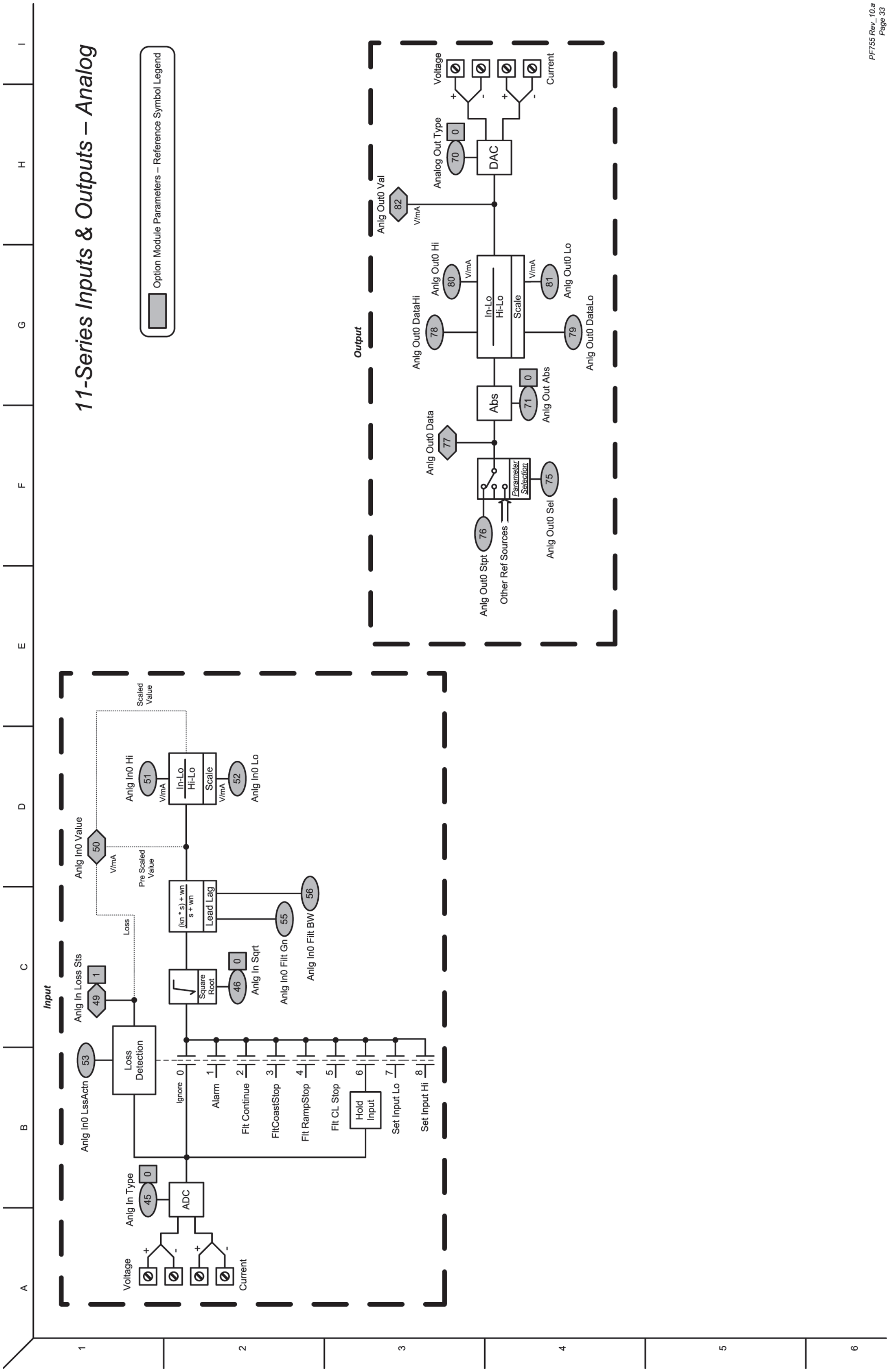


Figure 73 - 11-Series Inputs & Outputs - ATEX

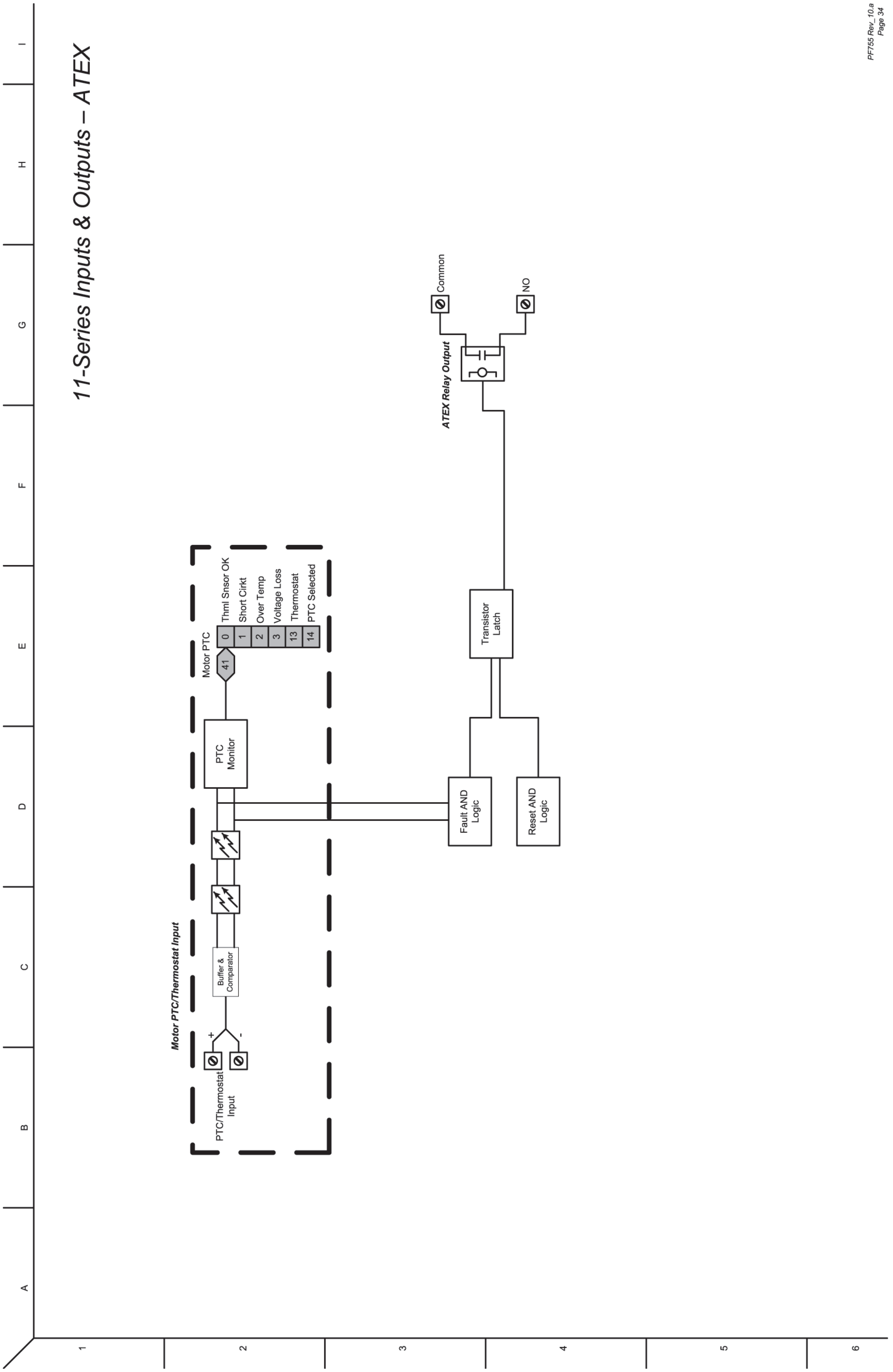
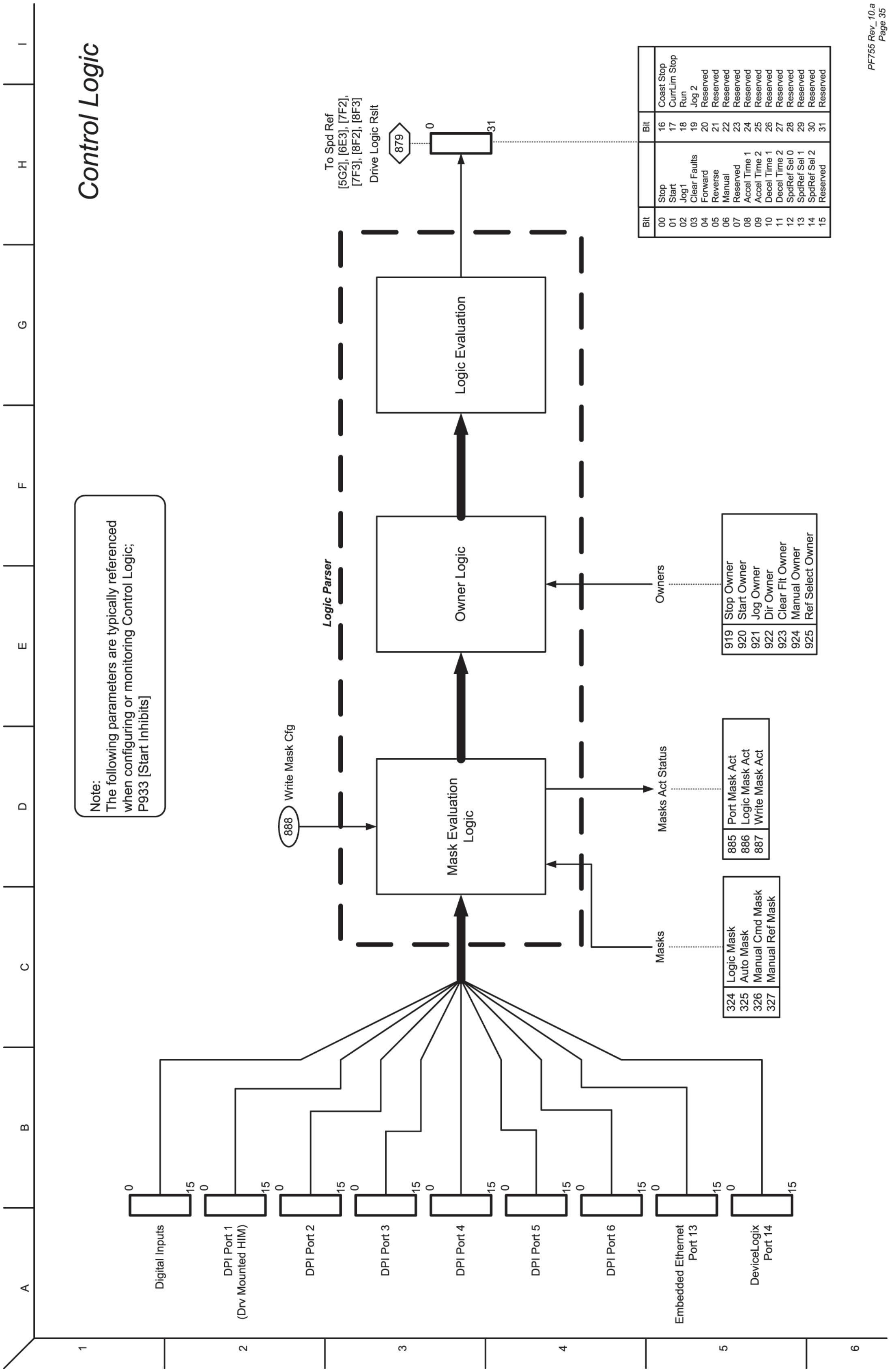


Figure 74 - Control Logic



Note:
The following parameters are typically referenced when configuring or monitoring Control Logic;
P933 [Start Inhibits]

324	Logic Mask
325	Auto Mask
326	Manual Cmd Mask
327	Manual Ref Mask

885	Port Mask Act
886	Logic Mask Act
887	Write Mask Act

919	Stop Owner
920	Start Owner
921	Jog Owner
922	Dir Owner
923	Clear Flt Owner
924	Manual Owner
925	Ref Select Owner

Bit		Bit	
00	Stop	16	Coast Stop
01	Start	17	CurrLim Stop
02	Jog1	18	Run
03	Clear Faults	19	Jog 2
04	Forward	20	Reserved
05	Reverse	21	Reserved
06	Manual	22	Reserved
07	Reserved	23	Reserved
08	Accel Time 1	24	Reserved
09	Accel Time 2	25	Reserved
10	Decel Time 1	26	Reserved
11	Decel Time 2	27	Reserved
12	SpdRef Sel 0	28	Reserved
13	SpdRef Sel 1	29	Reserved
14	SpdRef Sel 2	30	Reserved
15	Reserved	31	Reserved

Figure 75 - Inverter Overload IT

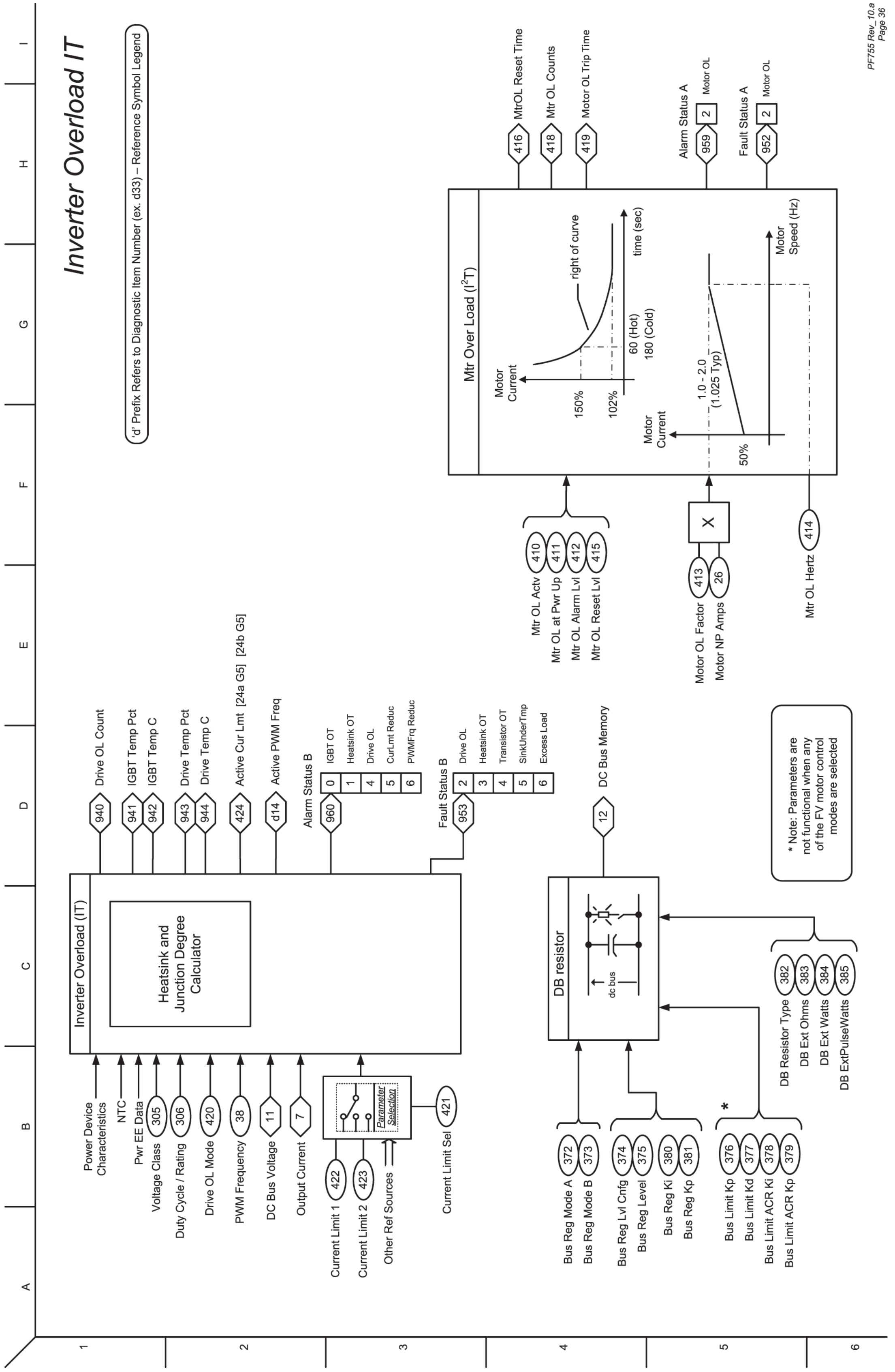


Figure 76 - Friction Compensation

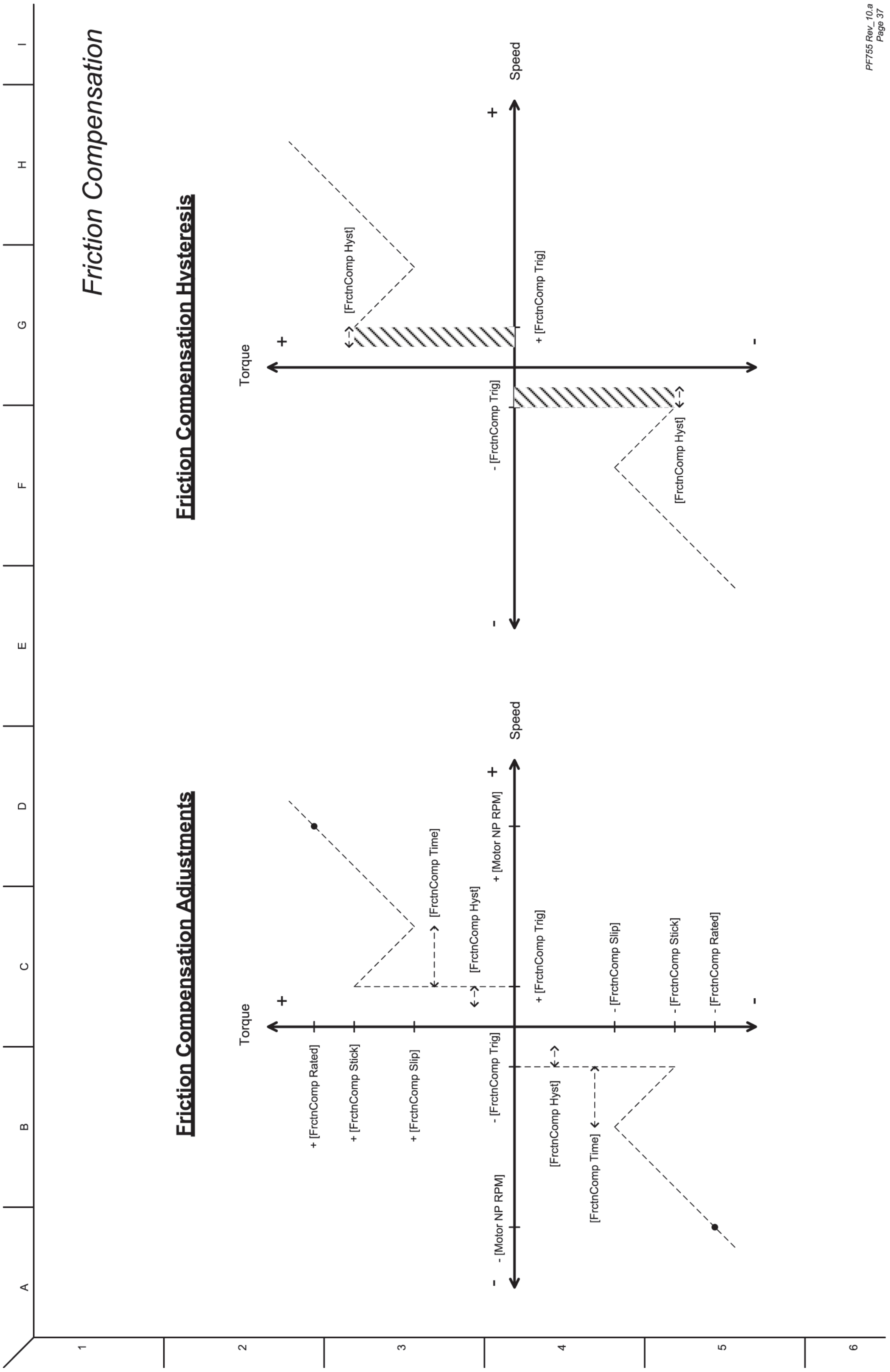


Figure 77 - Variable Boost Voltage Overview - Function Inputs/Outputs

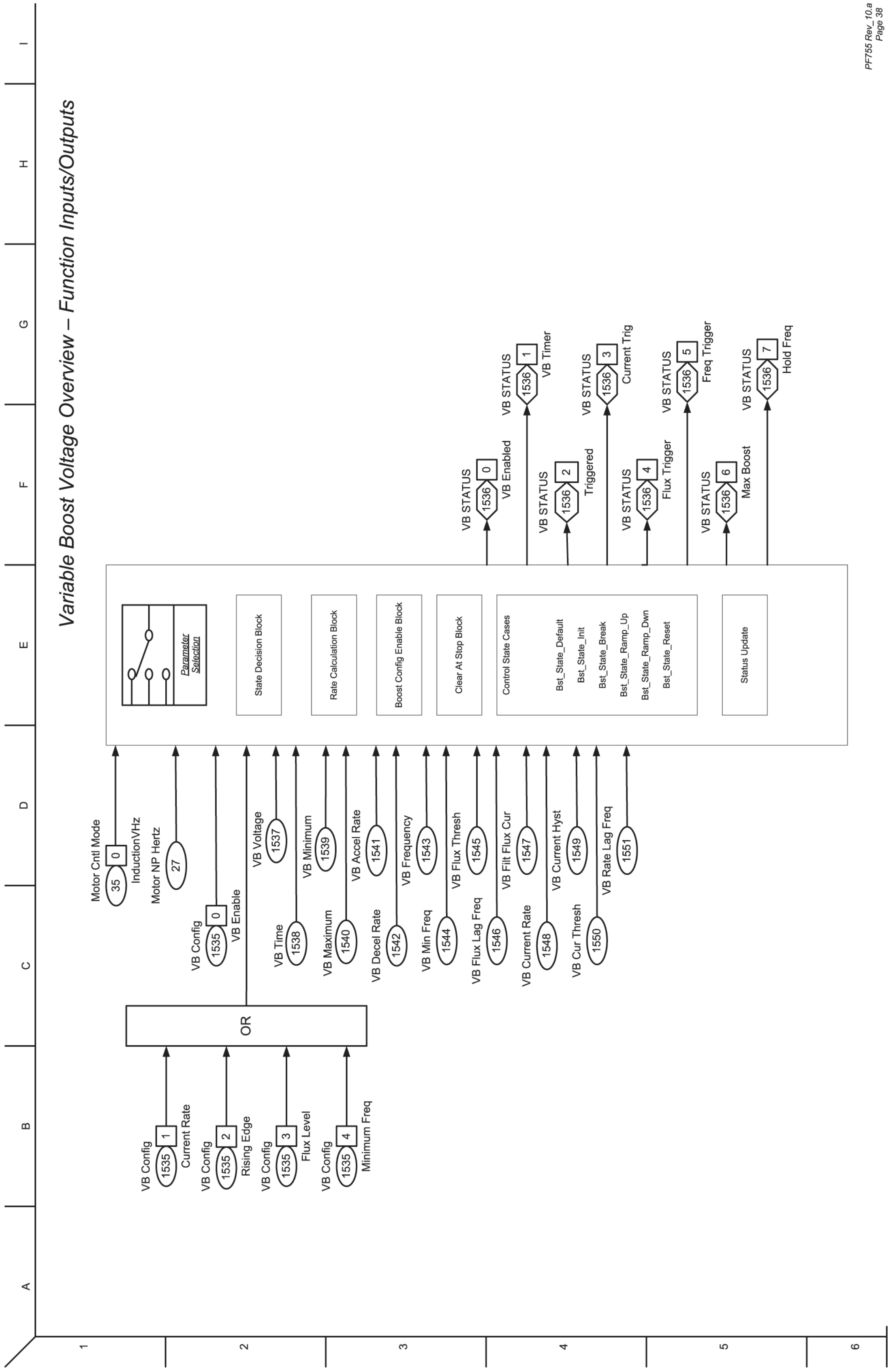
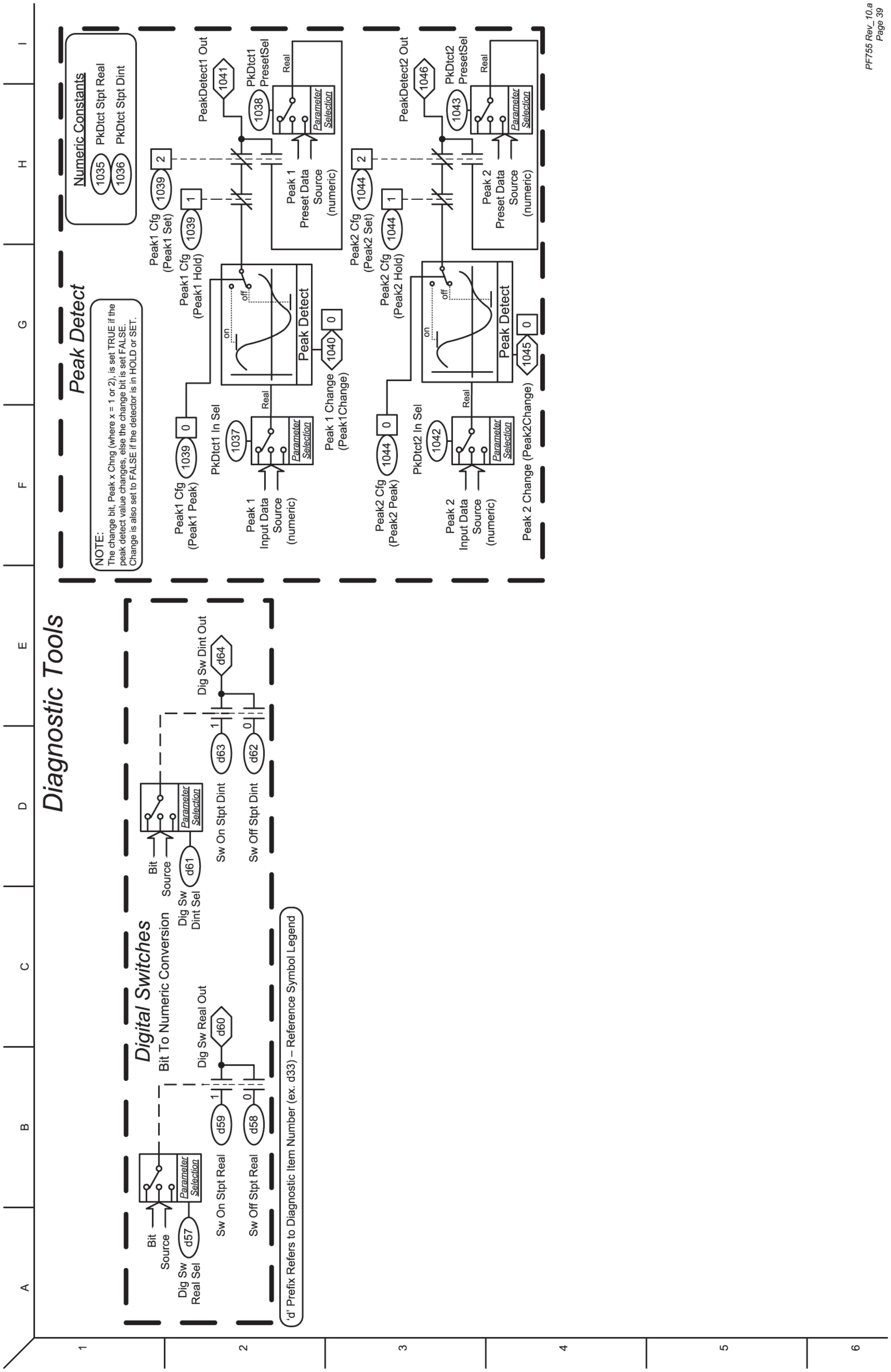
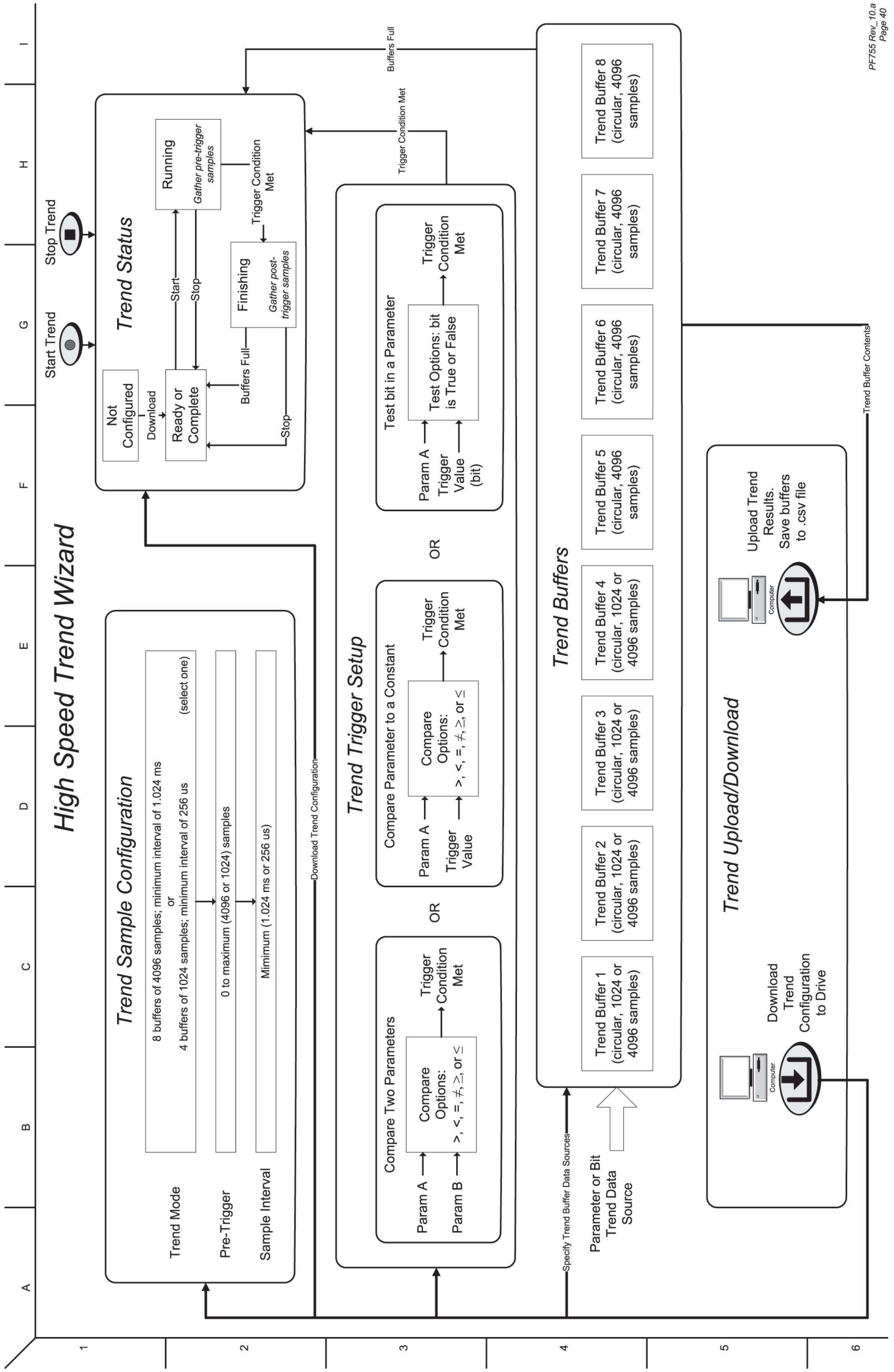


Figure 78 - Diagnostic Tools



High-Speed Trend Wizard

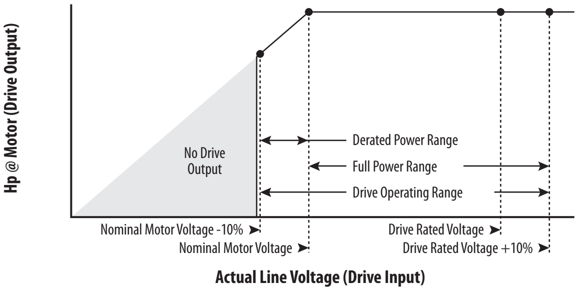


Application Notes

Voltage Tolerance

Drive Rating	Nominal Line Voltage	Nominal Motor Voltage	Drive Full Power Range	Drive Operating Range
380…400	380	380	380…528	342…528
	400	400	400…528	
	480	460	460…528	

Drive Full Power Range =	Nominal Motor Voltage to Drive Rated Voltage 10 %. Rated current is available across the entire Drive Full Power Range
Drive Operating Range =	Lowest Nominal Motor Voltage - 10 % to Drive Rated Voltage 10 %. Drive Output is linearly derated when Actual Line Voltage is less than the Nominal Motor Voltage

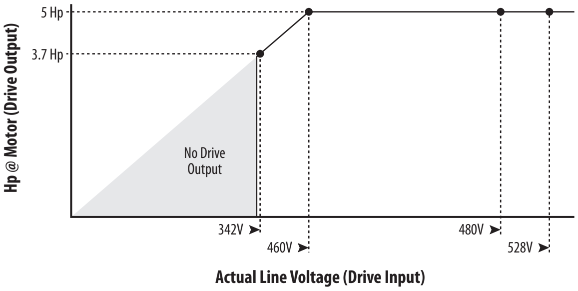


Example:

Calculate the maximum power of a 5 Hp, 460V motor that is connected to a 480V rated drive supplied with 342V Actual Line Voltage input.

- Actual Line Voltage / Nominal Motor Voltage = 74.3 %
- 74.3 % × 5 Hp = 3.7 Hp
- 74.3 % × 60 Hz = 44.6 Hz

At 342V Actual Line Voltage, the maximum power the 5 Hp, 460V motor can produce is 3.7 Hp at 44.6 Hz.



PowerFlex 755 Lifting/Torque Proving

TorqProve™ is a PowerFlex® 755 drive feature that is intended for applications where proper coordination between motor control and a mechanical brake is required. Before releasing a mechanical brake, the drive checks motor output phase continuity and verifies proper motor control (torque proving). The drive also verifies that the mechanical brake has control of the load before the releasing drive control (brake proving). After the drive sets the brake, motor movement is monitored to ensure the brake can hold the load.

ATTENTION: Loss of control in suspended load applications can cause personal injury and/or equipment damage. The drive or a mechanical brake must always control the loads. Parameters 1100…1113 are designed for lifting/torque prove applications. It is the responsibility of the engineer and/or end user to configure drive parameters, test any lifting functionality and meet safety requirements in accordance with all applicable codes and standards.

TorqProve can be operated with an encoder or encoderless. See "Attention" on page 356 before the use of TorqProve with no encoder.

TorqProve functionality with an encoder includes:

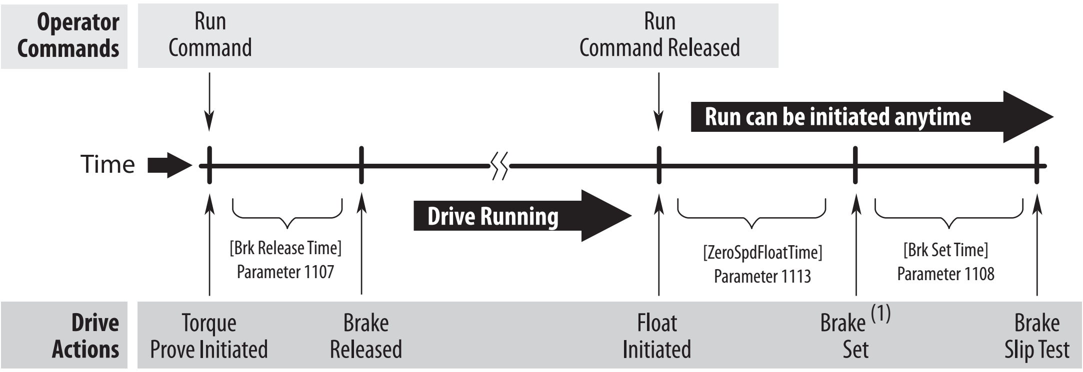
- Torque Proving (includes flux up and last torque measurement)
- Brake Proving
- Brake Slip (feature slowly lowers load if brake slips/fails)
- Float Capability (ability to hold full torque at zero speed)
- Micro-Positioning
- Fast Stop
- Speed Deviation Fault, Output Phase Loss Fault, Encoder Loss Fault.

Encoderless TorqProve functionality includes:

- Torque Proving (includes flux up and last torque measurement)
- Micro-Positioning
- Fast Stop
- Speed Deviation Fault, Output Phase Loss Fault.

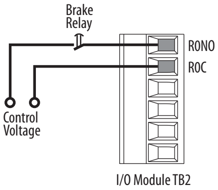
IMPORTANT Brake Slip detection and Float capability (ability to hold load at zero speed) are not available in encoderless TorqProve.

Figure 79 - Torque Proving Flow Diagram



All times between Drive Actions are programmable and can be made very small (i.e. Brake Release Time can be 0.1 seconds)

(1) For torque proving to function properly, wire a mechanical brake to a relay output on a digital I/O option module. On the I/O module, set P10 [RO0 Sel] to Port 0, P1103 [Trq Prove Status] Bit 4 "Brake Set" and set P6 [Dig Out Invert] Bit 0 "Relay Out 0" = 1.



Tuning the Motor for Torque Prove Applications

It is possible to use the Start-Up routine to tune the motor (See page 15). However, it is recommended to disconnect the motor from the hoist/crane equipment during the routine.

ATTENTION: To guard against personal injury and/or equipment damage due to an unexpected brake release, verify the digital output that is used for brake connections and/or programming. The PowerFlex 755 drive **does not control the mechanical brake until TorqProve is enabled**. If the brake is connected to a digital output, it could be released. If necessary, **disconnect the digital output until wiring/programming can be completed and verified**.

Crane Set up with Encoder Feedback

These setup instructions assume the following.

- Drive and motor size have been carefully selected
- External brake resistor has been properly sized
- The drive is at factory defaults.
  If not, unplug the output relay terminal block and issue a reset to factory defaults for the HOST and all PORTS. Plug terminal block back in.
- Programming is done via DriveExecutive™ or DriveExplorer™
- Crane control is done via Run forward / Run Reverse inputs
- Mechanical brake control is wired to Output Relay 0
- The drive is equipped with an incremental (20-750-ENC-1) or dual incremental encoder board (20-750-DENC-1)
- The encoder is mounted on the back of the motor (not behind the gearbox)
- Encoder specification: Quadrature differential (A, A-, B, B-), Line driver output, Minimum 1000PPR 5V, or 12V signals (12V preferred)

ATTENTION: Loss of control in suspended load applications can cause personal injury and/or equipment damage. The drive or a mechanical brake must always control the loads. Parameters 1100…1113 are designed for lifting/torque prove applications. It is the responsibility of the engineer and/or end user to configure drive parameters, test any lifting functionality and meet safety requirements in accordance with all applicable codes and standards.

Set Up the Drive

1. Adjust parameter settings and enter nameplate data.

Parameter	Setting
Brake Details	
P370 [Stop Mode A]	1 “Ramp”
P372 [Bus Reg Mode A]	2 “Dyn Brake” (Dynamic Braking)
P382 [DB Resistor Type]	1 “External”
P383 [DB Ext Ohms]	Total Ohm value of external resistor.
P384 [DB Ext Watts]	Total real watt rating of external resistor.
P385 [DB ExtPulseWatts]	Maximum value for properly sized resistor.
P426 [Regen Power Lmt]	–800 % (Minimum Value)
Motor Nameplate Data	
P25 [Motor NP Volts]	Motor nameplate voltage.
P26 [Motor NP Amps]	Motor nameplate current.
P27 [Motor NP Hertz]	Motor nameplate frequency.
P28 [Motor NP RPM]	Motor nameplate speed.
P29 [Mtr NP Pwr Units]	0 “HP” or 1 “kW”
P30 [Motor NP Power]	Motor nameplate power rating.
P31 [Motor Poles]	Number of motor poles.
Motor Control	
P35 [Motor Ctrl Mode]	3 “Induction FV”
Maximum Frequency	
P37 [Maximum Freq]	Motor nameplate frequency.
Drive Duty Rating	
P306 [Duty Rating]	1 “Heavy Duty”
Overload Hertz	
P414 [Mtr OL Hertz]	0.00 (Ensures that no current derating is applied.)
Autotune Torque	
P71 [Autotune Torque]	100.00 % (Used during rotate tuning and inertia tuning.)
Protection	
P420 [Drive OL Mode]	1 “Reduce PWM”
P422 [Current Limit 1]	200 % of P26 [Motor NP Amps]
P444 [OutPhaseLossActn]	3 “FltCoastStop”

Motor Tune Routines

Static Tune

This routine measures the motor characteristics with the brake set (brake closed).

Rotate Tune

This routine gives better results if connected equipment allows. This routine requires the mechanical brake to open and the motor be allowed to run at minimum of 70 % of nominal speed.

Inertia Tune

This routine measures the time to accelerate the system to the nominal speed.

Static Tune

During a Static Tune, the mechanical brake remains set.

1. Enter Static Tune parameter settings.

Drive Parameter	Setting
P70 [Autotune]	2 “Static Tune”

I/O Module Parameter (Port X)	Setting
P10 [RO0 Sel]	0.00 “Disabled”

2. To open the Control Bar, click the Controls icon.

3. Press the Start button on the Control Bar.

   When the Static Tune routine is complete, P70 [Autotune] changes to 0 “Ready.”

Verify Drive Direction

1. Perform a Direction Test to verify proper direction of crane.

I/O Module Parameter (Port *n*)	Setting
P164 [DI Run Forward]	Port Number, P1 [Dig In Sts], Bit *n* (Run Fwd Input)
P165 [DI Run Reverse]	Port Number, P1 [Dig In Sts], Bit *n* (Run Rev Input)

IMPORTANT The crane can be started via the crane control unit.

Drive Parameter	Setting
P545 [Spd Ref A Sel]	Port 0, P571 [Preset Speed 1]
P571 [Preset Speed 1]	15 Hz (Set to low speed for direction test.)
P535 [Accel Time 1]	2.00 Secs
P537 [Decel Time 1]	2.00 Secs

I/O Module Parameter (Port X)	Setting
P10 [RO0 Sel]	Port 0, P935 [Drive Status 1], Bit 16 “Running”

IMPORTANT The mechanical brake opens when the drive is running.

2. Run crane with the crane control unit and verify that the direction is correct.

   If crane direction is not correct, change motor direction.

Drive Parameter	Setting
P40 [Mtr Options Cfg]	Bit 4 “Mtr Lead Rev” = 1 (Reversed)

Run crane with the crane control unit and verify that the direction is now correct.

Move crane hook to a position that allows sufficient travel in both directions.

Verify Encoder Direction

1. If a Dual Incremental-Encoder option module (20-750-DENC-1) is used, and only one encoder is connected, disable the encoder loss fault of the unused channel.

Drive Parameter	Setting
P132 [Aux Vel Fdbk Sel]	Encoder Port Number, Enc 0 FB (Selects Channel 0)

Encoder Module Parameter (Port X)	Setting
P13 [Enc 1 FB Lss Cfg]	0 "Ignore" (Disables Channel 1)
P2 [Enc 0 PPR]	Real pulses per revolution (For example 1024).

2. Run the crane upwards or downwards and monitor the sign (+ or –) of the output frequency on the HIM display or via software. Compare this sign to the sign of P134 [Aux Vel Feedback]. Both signals must have the same sign (both positive or both negative).

   If signals do not match, change the encoder direction setting.

Encoder Module Parameter (Port X)	Setting
P1 [Enc 0 Cfg]	Bit 5 "Direction" = 1 (Invert)

3. Run the crane upwards or downwards and check if the sign of both speeds matches.

Drive Parameter	Setting
P125 [Pri Vel Fdbk Sel]	Encoder Port Number, P1 [Dig In Sts]

The encoder direction now matches the motor direction.

Rotate Tune

During a Rotate Tune routine, the motor runs for 20 seconds in the commanded direction. In Flux vector control, the Rotate Tune routine can be executed in a no load or lightly loaded condition such as the motor connected to a gearbox, cable drum, or cable and hook.

IMPORTANT Ensure that the Rotate Tune routine can be stopped if an end travel condition is likely to occur.

If the motor is connected to a load, determine whether there is enough travel distance for the Rotate Tune sequence to complete. If necessary, run the crane hook to top or bottom for more travel distance in the opposite direction.

If the Rotate Tune routine fails due to a motor load, rerun the Static Tune routine and skip this routine.

1. Enter Rotate Tune parameter settings.

Drive Parameter	Setting
P70 [Autotune]	3 "Rotate Tune"
P520 [Max Fwd Speed]	Forward speed limit that is used during Autotune. 70 % P27 [Motor NP Hertz] minimum.
P521 [Max Rev Speed]	Reverse speed limit that is used during Autotune. 70 % P27 [Motor NP Hertz] minimum.

Encoder Module Parameter (Port X)	Setting
P10 [RO0 Sel]	Port 0, P935 [Drive Status 1], Bit 1 "Active"

2. Press the Start button on the Control Bar.

   When the Rotate Tune routine is complete, P70 [Autotune] changes to 0 "Ready."

   Check tuning results in P73 [IR Voltage Drop], P74 Ixo Voltage Drop], and P75 [Flux Current Ref].

Inertia Tune

The Inertia Tune routine measures the time to accelerate the system (with load) by using P71 [Autotune Torque] to the nominal speed. The test speed can be limited by reducing P520 [Max Fwd Speed] and P521 [Max Rev Speed]. The fastest test is achieved with P71 [Autotune Torque] set to a high value and P520 [Max Fwd Speed] and P521 [Max Rev Speed] set to a low value.

Because loads vary in crane applications, the result of an Inertia Tune is more or less irrelevant as it is for one condition only.

Step 8 outlines manually setting tuning values.

IMPORTANT Ensure that the Inertia Tune routine can be stopped if an end travel condition is likely to occur.

1. Enter Inertia Tune parameter settings.

Drive Parameter	Setting
P70 [Autotune]	4 "Inertia Tune"

2. Press the Start button on the Control Bar.

   When the Rotate Tune routine is complete, P70 [Autotune] changes to 0 "Ready."

   Check tuning results in P76 [Total Inertia].

   When using an encoder, the drive and motor can hold zero speed with full load even with an opened mechanical brake.

3. Set minimum speed.

Drive Parameter	**Setting**
P522 [Min Fwd Speed]	0.00
P523 [Min Rev Speed]	0.00

4. Set maximum speed limits.

Drive Parameter	**Setting**
P520 [Max Fwd Speed]	Forward speed limit that is used during normal operation. Not more than the motor nominal frequency.
P521 [Max Rev Speed]	Reverse speed limit that is used during normal operation. Not more than the motor nominal frequency.

5. Set digital input functions.

Speed Select Inputs

Drive Parameter	**Setting**
P173…175 [DI Speed Sel *n*]	I/O Port Number, P1 [Dig In Sts], Bit *n*

Clear Fault Input

Drive Parameter	**Setting**
P156 [DI Clear Fault]	I/O Port Number, P1 [Dig In Sts], Bit *n*

6. Set speed reference.

Program preset speeds according to Speed Select inputs that are used.

Input Status (1 = Input Actuated)			**Auto Reference Source**
DI Speed Sel 2	**DI Speed Sel 1**	**DI Speed Sel 0**	
0	0	0	Reference A
0	0	1	Reference A
0	1	0	Reference B
0	1	1	Preset Speed 3
1	0	0	Preset Speed 4
1	0	1	Preset Speed 5
1	1	0	Preset Speed 6
1	1	1	Preset Speed 7

I/O Module Parameter (Port X)	**Setting**
P10 [RO0 Sel]	Port 0, P935 [Drive Status 1], Bit 16 “Running”

7. Run crane with crane control unit.

Verify speed references by checking P930 [Speed Ref Source].

8. Set speed loop tuning.

Drive Parameter	**Setting**
P636 [Speed Reg BW]	20 R/S Defines the reactivity of the speed regulator. This parameter is used to calculate Kp and Ki gains.
P76 [Total Inertia]	1.5 Secs This value can be increased or decreased depending on Speed regulator response.

P645 [Speed Reg Kp] = P636 [Speed Reg BW] x P76 [Total Inertia] = BW x J (Inertia)

Torque Prove

Carefully perform the following steps in the order presented.

1. Enter Torque Prove parameter settings.

I/O Module Parameter (Port X)	Setting
P10 [RO0 Sel]	0.00 (Disabled)
P6 [Dig Out Invert]	Bit 0 “Relay Out 0” = 1 (Output Inverted)
P10 [RO0 Sel]	Port 0, P1103 [Trq Prove Status], Bit 4 “Brake Set” = 1

Drive Parameter	Setting
P1100 [Trq Prove Cfg]	Bit 0 “TP Enable” = 1

Once Torque Prove is activated, the drive is in alarm state.

2. Select the source of position feedback.

Drive Parameter	Setting
P135 [Psn Fdbk Sel]	Encoder Port Number, P4 [Enc 0 FB]

3. Set the time to decrease motor torque during Brake Slip test.

Drive Parameter	Setting
P1104 [Trq Lmt SlewRate]	10.000 Secs (Default)

4. Set speed deviation.

Drive Parameter	Setting
P1105 [Speed Dev Band]	Start with default Hz or RPM.

Increase this setting if the drive faults on F20 [TorqPrv Spd Band].

5. Set speed deviation level.

Drive Parameter	Setting
P1106 [SpdBand Intgrtr]	0.060 Secs (Default)

Increase this setting if the drive faults on F20 [TorqPrv Spd Band].

6. Set brake release time.

Drive Parameter	Setting
P1107 [Brk Release Time]	0.100 Secs (Default)

Increase or decrease this setting depending on the time that is required to open the brake.

7. Set brake set time.

Drive Parameter	Setting
P1108 [Brk Set Time]	0.100 Secs (Default)

Increase or decrease this setting depending on the time that is required to close the brake.

8. Set allowable brake slip.

Drive Parameter	Setting
P1109 [Brk Alarm Travel]	1.00 (Default)

Sets the number of motor revolutions the motor is allowed to lower the load when a brake slip has been detected.

9. Set brake slip definition.

Drive Parameter	Setting
P1110 [Brk Slip Count]	250.00 (Default)

Sets the number of encoder counts to define a brake slippage condition.
Counts = Encoder PPR x 4

10. Set brake float tolerance.

Drive Parameter	Setting
P1111 [Float Tolerance]	Use default Hz or RPM.

Sets the level at which the float timer starts counting.

11. Set brake float time.

Drive Parameter	Setting
P1113 [ZeroSpdFloatTime]	5.000 Secs (Default)

Sets the time to maintain zero speed with brake open when the run command has been released.

Setup Complete

The drive is now set up and Torque Prove for the mechanical brake control is activated. The load can now be applied.

DriveObserver™ can be used to optimize the speed loop tuning. Use a 30 second time scaling on the X-axis

12. Use DriveObserver to configure the following traces.

Drive Parameter	Setting
P3 [Mtr Vel Fdbk]	Scaled to minimum and maximum speed limits.
P594 [Ramped Spd Ref]	Scaled to minimum and maximum speed limits.
P7 [Output Current]	Scaled to current limit value.
P11 [DC Bus Volts]	Default scaling.
P5 [Torque Cur Fdbk] (Optional)	Default scaling.

Run the crane up and down under full load. If necessary, adjust acceleration and deceleration rates.

Troubleshooting

The following faults commonly occur during drive commissioning.

F4 “Undervoltage”

- If the mains supply is still present, reduce the undervoltage level at P461 [UnderVltg Level].

F5 “Overvoltage”

- Monitor the DC Bus voltage while operating the crane. When lowering the load, limit the DC bus voltage to 750V DC.
- Verify that the external resistor is correctly connected / wired
- Verify that the parameter settings as stated in Point 1.
- Monitor bit 20 DB active of P935 [Drive Status 1]. This bit comes on when dynamic braking is active.

F20 “TrqProve Spd Band” (Speed deviation fault)

- This fault is only active when TorqProve is enabled.
- Speed loop tuning not correct. Increase P636 [Speed Reg BW] or P76 [Total Inertia]. If values are too high, the regulator becomes unstable.
- Verify P3 [Mtr Vel Fdbk] follows P594 [Ramped Spd Ref] as best as possible.
- Drive is going into current limit. Drive is undersized or acceleration / deceleration are set too fast.
- Brake is not opening. Check for faulty brake rectifier.

For more fault information, see Chapter 6.

Crane Setup - Encoderless

These setup instructions assume the following.

- Drive and motor size have been carefully selected
- External brake resistor has been properly sized
- The drive is at factory defaults.
  If not, unplug the output relay terminal block and issue a reset to factory defaults for the HOST and all PORTS. Plug terminal block back in.
- Programming is done via DriveExecutive or DriveExplorer
- Crane control is done via Run forward / Run Reverse inputs
- Mechanical brake control is wired to Output Relay 0

ATTENTION: Loss of control in suspended load applications can cause personal injury and/or equipment damage. The drive or a mechanical brake must always control the loads. Parameters 1100…1113 are designed for lifting/torque prove applications. It is the responsibility of the engineer and/or end user to configure drive parameters, test any lifting functionality and meet safety requirements in accordance with all applicable codes and standards.

Set Up the Drive

1. Adjust parameter settings and enter nameplate data.

Parameter	Setting
Brake Details	
P370 [Stop Mode A]	1 “Ramp”
P372 [Bus Reg Mode A]	2 “Dyn Brake” (Dynamic Braking)
P382 [DB Resistor Type]	1 “External”
P383 [DB Ext Ohms]	Total Ohm value of external resistor.
P384 [DB Ext Watts]	Total real watt rating of external resistor.
P385 [DB ExtPulseWatts]	Maximum value for properly sized resistor.
P426 [Regen Power Lmt]	–800 % (Minimum Value)
Motor Nameplate Data	
P25 [Motor NP Volts]	Motor nameplate voltage.
P26 [Motor NP Amps]	Motor nameplate current.
P27 [Motor NP Hertz]	Motor nameplate frequency.
P28 [Motor NP RPM]	Motor nameplate speed.
P29 [Mtr NP Pwr Units]	0 “HP” or 1 “kW”
P30 [Motor NP Power]	Motor nameplate power rating.
P31 [Motor Poles]	Number of motor poles.
Motor Control	
P35 [Motor Ctrl Mode]	3 “Induction FV”
Motor Slip	
P621 [Slip RPM at FLA]	Synchronous Speed – P28 [Motor NP RPM] Example: 6 pole – 980 RPM motor Synchronous Speed = (NP frequency x 60 Secs)/pole pairs (50 Hz x 60 Secs) / 3 = 1000 RPM Slip = Synchronous Speed – Motor NP RPM = 1000 –980 = 20 RPM (enter 20 in P621)
Drive Duty Rating	
P306 [Duty Rating]	1 “Heavy Duty”
Overload Hertz	
P414 [Mtr OL Hertz]	0.00 (Ensures that no current derating is applied.)
Autotune Torque	
P71 [Autotune Torque]	100.00 % (Used during rotate tuning and inertia tuning.)
Protection	
P420 [Drive OL Mode]	1 “Reduce PWM”
P422 [Current Limit 1]	200 % of P26 [Motor NP Amps]
P444 [OutPhaseLossActn]	3 “FltCoastStop”

Motor Tune Routines

Static Tune

This routine measures motor characteristics with the brake set (brake closed).

Rotate Tune

This routine gives better results if connected equipment allows. This routine requires the mechanical brake to open and the motor be allowed to run at minimum of 70 % of nominal speed.

Inertia Tune

This routine measures the time to accelerate the system to the nominal speed.

Static Tune

During a Static Tune, the mechanical brake remains set.

1. Enter Static Tune parameter settings.

Drive Parameter	Setting
P70 [Autotune]	2 “Static Tune”

I/O Module Parameter (Port X)	Setting
P10 [RO0 Sel]	0.00 “Disabled”

2. To open the Control Bar, click the Controls icon ▤.

3. Press the Start button on the Control Bar.

   When the Static Tune routine is complete, P70 [Autotune] changes to 0 “Ready.”

Verify Drive Direction

1. Perform a Direction Test to verify proper direction of crane.

I/O Module Parameter (Port *n*)	Setting
P164 [DI Run Forward]	Port Number, P1 [Dig In Sts], Bit *n* (Run Fwd Input)
P165 [DI Run Reverse]	Port Number, P1 [Dig In Sts], Bit *n* (Run Rev Input)

IMPORTANT The crane can be started via the crane control unit.

Drive Parameter	Setting
P545 [Spd Ref A Sel]	Port 0, P571 [Preset Speed 1]
P571 [Preset Speed 1]	15 Hz (Set to low speed for direction test.)
P535 [Accel Time 1]	2.00 Secs
P537 [Decel Time 1]	2.00 Secs

I/O Module Parameter (Port X)	Setting
P10 [RO0 Sel]	Port 0, P935 [Drive Status 1], Bit 16 “Running”

IMPORTANT The mechanical brake opens when the drive is running.

2. Run crane with the crane control unit and verify that the direction is correct.

   If crane direction is not correct, change motor direction.

Drive Parameter	Setting
P40 [Mtr Options Cfg]	Bit 4 “Mtr Lead Rev” = 1 (Reversed)

Run crane with the crane control unit and verify that the direction is now correct.

Move crane hook to a position that allows sufficient travel in both directions.

Rotate Tune

During a Rotate Tune routine, the motor runs for 20 seconds in the commanded direction. The Rotate Tune routine must be executed in a no load or lightly loaded condition such as the motor connected to a gearbox, cable drum, or cable and hook.

IMPORTANT Ensure that the Rotate Tune routine can be stopped if an end travel condition is likely to occur.

If the motor is connected to a load, determine whether there is enough travel distance for the Rotate Tune sequence to complete. If necessary, run the crane hook to top or bottom for more travel distance in the opposite direction.

If the Rotate Tune routine fails due to motor load, rerun the Static Tune routine and skip this routine.

1. Enter Rotate Tune parameter settings.

Drive Parameter	Setting
P70 [Autotune]	3 “Rotate Tune”
P520 [Max Fwd Speed]	Forward speed limit that is used during Autotune. 70 % P27 [Motor NP Hertz] minimum.
P521 [Max Rev Speed]	Reverse speed limit that is used during Autotune. 70 % P27 [Motor NP Hertz] minimum.

Encoder Module Parameter (Port X)	Setting
P10 [RO0 Sel]	Port 0, P935 [Drive Status 1], Bit 1 “Active”

2. Press the Start button on the Control Bar.

   When the Rotate Tune routine is complete, P70 [Autotune] changes to 0 “Ready.”

   Check tuning results in P73 [IR Voltage Drop], P74 Ixo Voltage Drop], and P75 [Flux Current Ref].

Inertia Tune

The Inertia Tune routine measures the time to accelerate the system (with load) by using P71 [Autotune Torque] to the nominal speed. The test speed can be limited by reducing P520 [Max Fwd Speed] and P521 [Max Rev Speed]. The fastest test is achieved with P71 [Autotune Torque] set to a high value and P520 [Max Fwd Speed] and P521 [Max Rev Speed] set to a low value.

Because loads vary in crane applications, the result of an Inertia Tune is more or less irrelevant as it is for one condition only.

Step 8 outlines manually setting tuning values.

IMPORTANT	Ensure that the Inertia Tune routine can be stopped if an end travel condition is likely to occur.

1. Enter Inertia Tune parameter settings.

Drive Parameter	Setting
P70 [Autotune]	4 "Inertia Tune"

2. Press the Start button on the Control Bar.

   When the Rotate Tune routine is complete, P70 [Autotune] changes to 0 "Ready."

   Check tuning results in P76 [Total Inertia].

3. Set minimum speed.

Drive Parameter	Setting
P522 [Min Fwd Speed]	2 x Slip Frequency of Motor. (From motor nameplate.)
P523 [Min Rev Speed]	2 x Slip Frequency of Motor. (From motor nameplate.)

4. Set maximum speed limits.

Drive Parameter	Setting
P520 [Max Fwd Speed]	Forward speed limit that is used during normal operation. Not more than the motor nominal frequency.
P521 [Max Rev Speed]	Reverse speed limit that is used during normal operation. Not more than the motor nominal frequency.

5. Set digital input functions.

   Speed Select Inputs

Drive Parameter	Setting
P173…175 [DI Speed Sel *n*]	I/O Port Number, P1 [Dig In Sts], Bit *n*

   Clear Fault Input

Drive Parameter	Setting
P156 [DI Clear Fault]	I/O Port Number, P1 [Dig In Sts], Bit *n*

6. Set speed reference.

   Program preset speeds according to Speed Select inputs that are used.

Input Status (1 = Input Actuated)			**Auto Reference Source**
DI Speed Sel 2	**DI Speed Sel 1**	**DI Speed Sel 0**	
0	0	0	Reference A
0	0	1	Reference A
0	1	0	Reference B
0	1	1	Preset Speed 3
1	0	0	Preset Speed 4
1	0	1	Preset Speed 5
1	1	0	Preset Speed 6
1	1	1	Preset Speed 7

I/O Module Parameter (Port X)	**Setting**
P10 [RO0 Sel]	Port 0, P935 [Drive Status 1], Bit 16 "Running"

7. Run crane with crane control unit.

   Verify speed references by checking P930 [Speed Ref Source].

8. Set speed loop tuning.

Drive Parameter	**Setting**
P636 [Speed Reg BW]	20 R/S Defines the reactivity of the speed regulator. This parameter is used to calculate Kp and Ki gains.
P76 [Total Inertia]	1.5 Secs This value can be increased or decreased depending on Speed regulator response.

P645 [Speed Reg Kp] = P636 [Speed Reg BW] x P76 [Total Inertia] = BW x J (Inertia)

Torque Prove

Carefully perform the following steps in the order presented.

1. Enter Torque Prove parameter settings.

I/O Module Parameter (Port X)	Setting
P10 [RO0 Sel]	0.00 (Disabled)
P6 [Dig Out Invert]	Bit 0 "Relay Out 0" = 1 (Output Inverted)
P10 [RO0 Sel]	Port 0, P1103 [Trq Prove Status], Bit 4 "Brake Set" = 1

Drive Parameter	Setting
P1100 [Trq Prove Cfg]	Bit 0 "TP Enable" = 1 Bit 1 "Encoderless" = 1 Bit 5 "BrkSlipEncls" = 1

IMPORTANT After Torque Prove is activated, the drive is in an alarm state as described on page 356. Carefully read the Attention statement and acknowledge it by setting the required parameter.

2. Set speed deviation.

Drive Parameter	Setting
P1105 [Speed Dev Band]	10 Hz

This setting can be lowered once the system has been tuned. The lower this value, the faster the protection.

3. Set speed deviation level.

Drive Parameter	Setting
P1106 [SpdBand Intgrtr]	0.200 Secs (Default)

This setting can be lowered once the system has been tuned. The lower this value, the faster the protection.

4. Set brake float tolerance.

Drive Parameter	Setting
P1111 [Float Tolerance]	2…3 times Slip Frequency of Motor.

Sets the level where the mechanical brake sets in encoderless mode.

Setup Complete

The drive is now set up and Torque Prove for the mechanical brake control is activated. The load can now be applied.

DriveObserver can be used to optimize the speed loop tuning. Use a 30 second time scaling on the X-axis

5. Use DriveObserver to configure the following traces.

Drive Parameter	Setting
P3 [Mtr Vel Fdbk]	Scaled to minimum and maximum speed limits.
P594 [Ramped Spd Ref]	Scaled to minimum and maximum speed limits.
P7 [Output Current]	Scaled to current limit value.
P11 [DC Bus Volts]	Default scaling.
P5 [Torque Cur Fdbk] (Optional)	Default scaling.

Run the crane up and down under full load. Adjust acceleration and deceleration rates if necessary.

Troubleshooting

The following faults commonly occur during drive commissioning.

F4 “Undervoltage”

- If the mains supply is still present, reduce the undervoltage level at P461 [UnderVltg Level].

F5 “Overvoltage”

- Monitor the DC Bus voltage while operating the crane. When lowering the load, limit the DC bus voltage to 750V DC.
- Verify that the external resistor is correctly connected / wired
- Verify that the parameter settings as stated in Point 1.
- Monitor bit 20 DB active of P935 [Drive Status 1]. This bit comes on when dynamic braking is active.

F20 “TrqProve Spd Band” (Speed deviation fault)

- This fault is only active when TorqProve is enabled.
- Speed loop tuning not correct. Increase P636 [Speed Reg BW] or P76 [Total Inertia]. If values are too high, the regulator becomes unstable.
- Verifty that P3 [Mtr Vel Fdbk] follows P594 [Ramped Spd Ref] as best as possible.
- Drive is going into current limit. Drive is undersized or acceleration / deceleration are set too fast.
- Brake is not opening. Check for faulty brake rectifier.

For more fault information, see Chapter 6.

Pump Off Function

Overview

The Pump Off function is used to change the speed of or stop the pump jack automatically, based on torque feedback from the motor. This function is useful for maximizing well production and reducing mechanical wear.

Configure P1187 [Pump Off Config] in one of two ways to detect a Pump Off.

- Down Stroke Torque method: Setting 0 “Automatic” or 1 “Position”
  The pump jack down stroke torque is based on a detected waveform.
- Cycle Torque method: Setting 2 “Cycle”
  The pump jack down stroke torque is based on a full pump stroke cycle.

Setup

To use the Pump Off feature, the drive must operate in flux vector (FV) control mode. This mode requires that you enter motor nameplate data and complete a motor autotune routine. Gearbox ratio and sheave size data are also required.

Pump off control can be set to use a torque baseline, which is created when the drive is first run or from a fixed set point. The fixed set point is useful if the drive cannot detect a signature waveform due to well conditions. The drive does not create a set point that is based on what could be a pump off condition.

The down stroke torque can change position on some wells due to slippage in the system. In these cases, the peaks and valleys of the torque waveform move enough that the position reconnect does not work properly. This slippage can be seen on the position test point in that the position continues to reset early. To work on these pumps, the torque waveform over one cycle is averaged.

Gather Motor and Pump Data

Complete the table with the motor nameplate and pump data listed.

Motor Data

Motor Nameplate Volts		V
Motor Nameplate FLA		A
Motor Nameplate Hertz		Hz
Motor Nameplate RPM		RPM
Motor Nameplate Power		Hp
Motor Poles		Pole

Pump Data

Gearbox Sheave Diameter		in.
Gearbox Ratio		:
Gearbox Rating		kin#
Motor Sheave Diameter		in.

Enter Motor Data

Enter the motor data from above and adjust parameter settings.

Parameter	Setting
Parameter Access Level	
P301 [Access Level]	2 “Expert”
Motor Nameplate Data	
P25 [Motor NP Volts]	Motor nameplate voltage.
P26 [Motor NP Amps]	Motor nameplate current.
P27 [Motor NP Hertz]	Motor nameplate frequency.
P28 [Motor NP RPM]	Motor nameplate speed.
P29 [Mtr NP Pwr Units]	0 “HP” or 1 “kW”
P30 [Motor NP Power]	Motor nameplate power rating.
P31 [Motor Poles]	Number of motor poles.
Motor Control	
P35 [Motor Ctrl Mode]	3 “Induction FV”

Run Motor Tune Routine

The drive can be tuned to the motor. Autotune routines can be accessed directly or through the Start Up menu.

When tuning, it is preferred that the motor is uncoupled from the pump jack and a Rotate Tune routine be performed. If this action is not possible, perform a Static Tune routine.

⚠ **ATTENTION:** Rotation of the motor in an undesired direction can occur during this procedure. To guard against possible injury and/or equipment damage, it is recommended ti disconnect the motor from the load before proceeding.

Access Autotune Directly

1. Verify that the motor is turning in the forward direction by jogging the motor. Face the motor shaft and verify clockwise rotation. If necessary, correct the direction of rotation by using one of the following methods.
    a. Swap any two motor leads. This method is recommended to help avoid confusion later.
    b. Change the motor direction by configuring drive firmware.

Drive Parameter	Setting
P40 [Mtr Options Cfg]	Bit 4 “Mtr Lead Rev” = 1 (Reversed)

2. Once direction is established, enter the Rotate Tune parameter setting.

Drive Parameter	Setting
P70 [Autotune]	3 “Rotate Tune”

3. Press Start and allow the drive to complete the Autotune routine.

When complete, the motor can now be coupled to the pump jack.

Access Autotune Through Start Up Menu

1. On the Human Interface Module (HIM), press the 📂 (Folders) key to navigate to the Start Up tab.
2. Select General Startup and answer the questions when prompted.

When complete, the motor can be coupled to the pump jack.

Enter Pump Data

Enter pump data and adjust parameter settings.

Parameter	Setting
Pump Jack	
P1178 [Motor Sheave]	Diameter in inches.
P1179 [OilWell Pump Cfg]	1 "Pump Jack"
P1181 [Gearbox Limit]	Percent of P1182 [Gearbox Rating]
P1182 [Gearbox Rating]	Nameplate gearbox rating.
P1183 [Gearbox Ratio]	Nameplate gear ratio.
P1184 [Gearbox Sheave]	Diameter in inches.
Pump Off	
P1187 [Pump Off Config]	0 "Automatic" (Default)
P1189 [Pump Off Action]	Select preferred action.
P1190 [Pump Off Control]	0 "Disable" (Default)

Enter Desired Bus Regulation Data

The following parameter settings assume that a dynamic brake resistor is used.

Parameter	Setting
Brake Features	
P372 [Bus Reg Mode A]	2 "Dyn Brake" (1)
P382 [DB Resistor Type]	1 "External"
P383 [DB Ext Ohms]	Based on performance preference.
P384 [DB Ext Watts]	Based on performance preference.
P385 [DB ExtPulseWatts]	Based on performance preference.
Motor Overload	
P409 [Dec Inhibit Actn]	0 "Ignore"
Load Limits	
P426 [Regen Power Lmt]	Set to match the value that is calculated for P671 [Neg Torque Limit], see below this table.

(1) If no dynamic braking resistor is used, set P372 [Bus Reg Mode A] to 1 "Adjust Freq" (Default).
Speed is sacrificed for bus regulation and P524 [Overspeed Limit] must be adjusted.

The following positive and negative torque limits are calculated on powerup and entered by the drive.

- P670 [Pos Torque Limit] is calculated using the motor parameters.
- P671 [Neg Torque Limit] is calculated using the dynamic-brake resistor ohmic value and rated torque of the motor. If a dynamic brake resistor is not used, the default negative torque limit is used.

Change P426 [Regen Power Lmt] to match the value in P671 [Neg Torque Limit] to maximize dynamic brake performance.

Store Pump Cycle Torque

1. Verify the well is full.
2. Enter a command speed.
3. Start the Pump Jack from the HIM.
4. Set P1192 [Pump Cycle Store] to option 1 “Enable.”

   If the Pump Off feature detects a pump jack torque-signature waveform, the waveform is stored and the parameter resets to 0 “Disabled.”

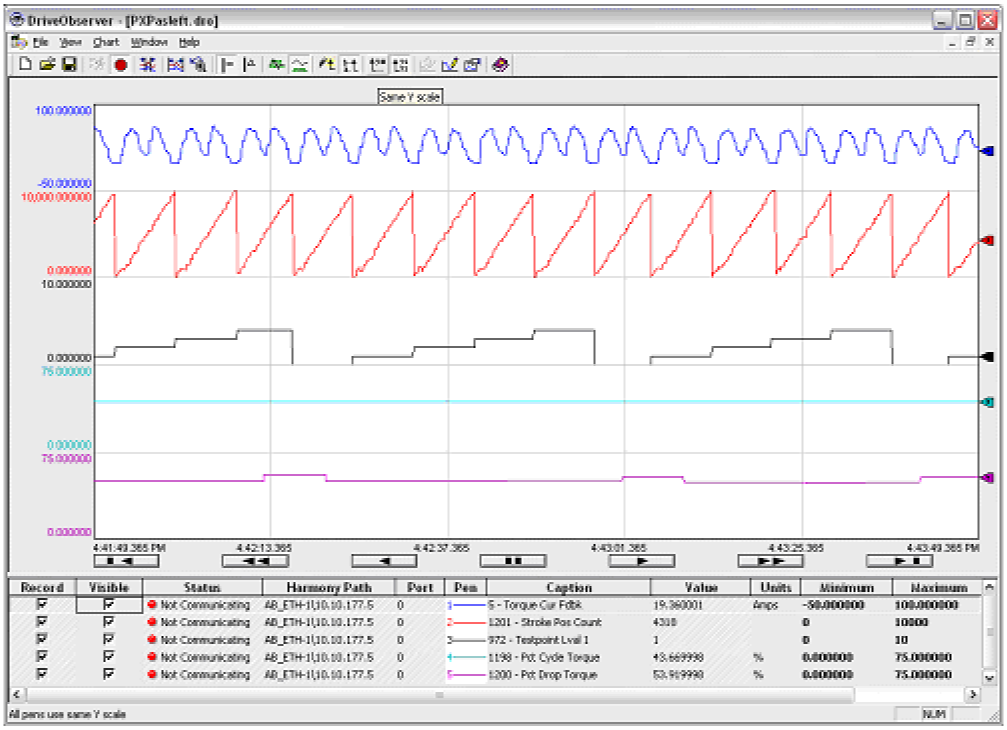
   If this parameter does not reset to 0 “Disabled,” set P1187 [Pump Off Config] to option 2 “Cycle.” In Cycle mode, the entire cycle torque is used as the down-stroke torque used in the original pump off detection. There is no need to set the top of stroke in this mode.

Initialize Pump Stroke Position

1. Set P1193 [Set Top ofStroke] to option 1 “Enable.”

   Use a Human Interface Module (HIM) to avoid any communication delays.
2. Press enter when you visually see the Horsehead at the top position. This action sets the stroke position to the stored pump cycle torque.
3. Stop the drive.
4. Configure DriveObserver with the following parameters.
   - P5 [Torque Cur Fdbk]
   - P972 [Testpoint Lval]
   - P1198 [Pct Cycle Torque]
   - P1200 [Pct Drop Torque]
   - P1201 [Stroke Pos Count]

Figure 80 - DriveObserver Settings



Record	Visible	Status	Harmony Path	Port	Pen	Caption	Value	Units	Minimum	Maximum
☑	☑	● Not Communicating	AB_ETH-1\10.10.177.5	0	1	5 - Torque Cur Fdbk	19.380001	Amps	-50.000000	100.000000
☑	☑	● Not Communicating	AB_ETH-1\10.10.177.5	0	2	1201 - Stroke Pos Count	4318		0	10000
☑	☑	● Not Communicating	AB_ETH-1\10.10.177.5	0	3	972 - Testpoint Lval 1	1		0	10
☑	☑	● Not Communicating	AB_ETH-1\10.10.177.5	0	4	1198 - Pct Cycle Torque	43.669998	%	0.000000	75.000000
☑	☑	● Not Communicating	AB_ETH-1\10.10.177.5	0	5	1200 - Pct Drop Torque	53.919998	%	0.000000	75.000000

All pens use same Y scale

NUM

The value of P970 [Testpoint Sel 1] is referenced from P972 [Testpoint Lval 1].

5. Set P970 [Testpoint Sel 1] to a cycle count of 2043.

Initialize the Pump Off Feature

1. Set P1190 [Pump Off Control] to option 1 “Baseline Set.”
2. With the well full, start the drive.

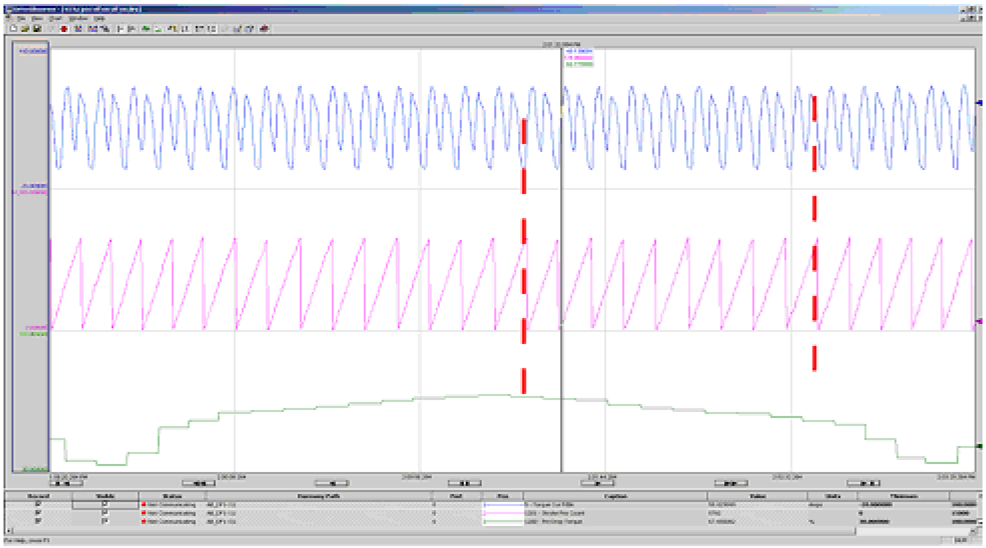
   You can see waveforms similar to the waveforms in Figure 80. Monitor the Pump Jack and verify the Pump Off Action.

Fine-Tuning

P1195 [Pump Off Level], P1196 [Pump Off Speed], and P1197 [Pump Off Time] all contribute to the productivity of the well and must be adjusted. For more information read the parameter descriptions in Chapter 3.

Occasionally the position starts to drift relative to the torque signature. If drift occurs, set P1188 [Pump Off Setup] Bit 1 “Pos Offset” to 1. See Figure 81 for an example of what this drift would look like.

Figure 81 - Correcting Drift



Notice how the position has drifted relative to the torque. This drift causes the incorrect part of the waveform to be averaged as the down stroke torque and results in a false pump off condition. The drift can be corrected by setting the position offset bits properly.

Sleep Mode

If P1189 [Pump Off Action] is set to 1 “Always Stop,” 2 “Stop After 1,” or 3 “Stop After 2,” the Sleep Wake function must be configured. Set the following parameters.

Parameter	Setting
Start Features	
P350 [Sleep Wake Mode]	1 “Direct” (Enabled)
P351 [SleepWake RefSel]	1207 (Entered through the Numeric Edit tab.)
P355 [Wake Time]	Desired restart time (64800 seconds maximum).

Pump Off Control Outlines

Automatic /Position Baseline Set

The following steps are a general outline of how the initial Pump Off control is configured in the PowerFlex 753. The default configuration uses the down stroke torque with P1187 [Pump Off Config] set to 0 "Automatic" or 1 "Position" and P1190 [Pump Off Control] set to 1 "Baseline Set."

Set Base Speed Command

A commanded speed setting is chosen based on well characteristics, which produces the desired pump performance, most of the time. Pump off control is then configured to maintain acceptable pump performance when conditions temporarily change.

1. Pump off control requires the drive to be "At Speed." Check P935 [Drive Status 1] Bit 8 to verify this operating condition.
2. When P935 [Drive Status 1] Bit 8 "At Speed" = 1, the internal pump jack at speed bit is set and the current speed command is saved.
3. The next ten down stroke torques are sampled and summed.
4. The average of the down stroke torques is saved as the baseline for the current speed.
5. P1191 [Pump Off Status] Bit 6 "Pump Stable" = 1.

   When Bit 6 = 0, the drive is averaging a new baseline torque.
6. The pump jack is running under normal conditions.
7. While running under normal conditions, every fifth stroke is compared against the baseline to check for a pump off condition. The stroke count can be monitored in test point TP 2043.

   #### Change in Cycle Torque

   If the cycle torque sample is less than or greater than the fixed setpoint by the percentage set in P1195 [Pump Off Level], the following occurs:
   - P1191 [Pump Off Status] Bit 5 "PumpOff Alarm"= 1
   - The drive waits for a second sample

   If the second sample is also less than or greater than the fixed setpoint by the percentage set in P1195 [Pump Off Level], a Pump Off condition is detected.

   #### Run At Reduced Speed

   When a Pump Off condition exists, and P1189 [Pump Off Action] is set to 0 "Change Speed," the percentage set in P1196 [Pump Off Speed] lowers the commanded speed.

   Reduced Speed = Commanded Speed - (Commanded Speed x P1196)

8. When the reduced speed is reached, P935 [Drive Status 1] Bit 8 "At Speed" = 1, the next ten down stroke torques are sampled and summed.
9. The average of the down stroke torques is saved as the baseline for the new speed. P1191 [Pump Off Status] Bit 6 "Pump Stable" is reset.
10. The pump jack runs at the reduced speed for the length of time set in P1197 [Pump Off Time] then the pump jack resumes pumping at the base speed command. (Step 6 in this sequence.)

    If P1189 [Pump Off Action] is set to 3 "Stop After 2," go to Step 11.

    Whenever the operator changes the base speed command, the process starts over at Step 1 in this sequence. This action does not apply to speed changes that are triggered by P1189 [Pump Off Action] when a pump off condition is detected.
11. While running at the first reduced Pump Off Speed, every fifth stroke is compared to the new baseline for a pump off condition.

    If the down-stroke torque samples remain stable during the time set in P1197 [Pump Off Time], the following occurs:
    - Commanded speed returns to the original base speed
    - Down stroke torque samples are compared against the original baseline. (Step 6 in this sequence.)

    If two down stroke torque samples are less than or greater than the new baseline by the percentage set in P1195 [Pump Off Level], the following occurs:
    - The Pump Off condition persists
    - The percentage set in P1196 [Pump Off Speed] lowers the commanded speed a second time.
12. When the second reduced speed is reached, P935 [Drive Status 1] Bit 8 "At Speed" = 1, the next ten down stroke torques are sampled and summed.
13. The average of the down stroke torques is saved as the baseline for the second new speed. P1191 [Pump Off Status] Bit 6 "Pump Stable" is reset.
14. The pump jack runs at the second reduced speed for the length of time set in P1197 [Pump Off Time] and resumes pumping at the base speed command. (Step 6 in this sequence.)

15. While running at the second reduced Pump Off Speed, every fifth stroke is compared to the second new baseline for a persistent pump off condition.

    If the down-stroke torque samples remain stable during the time set in P1197 [Pump Off Time], the following occurs:

    - The commanded speed returns to the original base speed
    - The down stroke torque samples are compared against the original baseline. (Step 6 in this sequence.)

    If two down stroke samples are less than or greater than the second new baseline by the percentage set in P1195 [Pump Off Level], the following occurs:

    - The Pump Off condition persists
    - The drive stops for the length of time set in P353 [Sleep Time]
16. When P353 [Sleep Time] expires, the pump jack restarts and runs under normal conditions. (Step 6 in this sequence.)

When P1189 [Pump Off Action] is set to 2 “Stop After 1,” the drive stops for the length of time set in P353 [Sleep Time] after one reduction of speed. (Step 11 in this sequence.)

When P1189 [Pump Off Action] is set to 1 “Always Stop,” the drive stops for the length of time set in P353 [Sleep Time] at the first detection of a Pump Off condition. When P353 [Sleep Time] expires, the pump jack restarts and runs under normal conditions. (Step 6 in this sequence.)

When P1192 [Pump Cycle Store] does not change back to 0 “disable,” the drive has not been able to detect a pump-jack torque signature waveform to use as a baseline. A fixed set point is required to run the well. See the next section.

Cycle Torque Data Fixed Setpoint

The following is a general outline of how the initial Pump Off control is configured in the PowerFlex 753. This configuration uses cycle torque data with P1187 [Pump Off Config] set to 2 “Cycle” and P1190 [Pump Off Control] set to 2 “Fixed Setpt.”

1. Pump off control requires the drive to be “At Speed.” Check P935 [Drive Status 1] Bit 8 to verify this operating condition.
2. When P935 [Drive Status 1] Bit 8 “At Speed” = 1, the internal pump jack at speed bit is set and the current speed command is saved. The At Speed bit is no longer scrutinized until the speed command is changed or the drive is stopped.

   The next three strokes are used to allow the pump to settle out.
3. P1191 [Pump Off Status] Bit 6 “Pump Stable” = 1.
4. The pump jack is running under normal conditions.

5. While running under normal conditions, every fifth stroke is compared against the baseline to check for a pump off condition.

   Change in Down Stroke Torque

   If the down-stroke torque sample is less than or greater than the baseline by the percentage set in P1195 [Pump Off Level], the following occurs:
   - P1191 [Pump Off Status] Bit 5 “PumpOff Alarm”= 1
   - The drive waits for a second sample

   If the second sample is also less than or greater than the baseline by the percentage set in P1195 [Pump Off Level], a Pump Off condition is detected.

   Execute Pump Off Action

   When a Pump Off condition exists, the drive follows the setting of P1189 [Pump Off Action]. The process starts over at Step 1 in this sequence and five strokes occur to allow the pump to settle out.

Whenever the operator changes the base speed command, the process starts over at Step 1 in this sequence.

When P1187 [Pump Off Config] is set to 2 “Cycle,” the full stroke torque is used for pump off detection. A separate position counter is enabled, which uses the gear ratio and speed feedback to create a position. The gear ratio must be set correctly for this action to work.

- The position increments every 2 ms based on output frequency. The torque is added to a buffer and a counter increments.
- When the position counter reaches 10,000, the counter is reset to 0. The torque buffer is divided by the counter to create the average torque for the cycle.
- This torque is the full cycle torque and is then used as the down stroke torque was used in baseline set detection.

Table 24 - PowerFlex 753 Pump Off Test Points

Test Point	Description
TP 2031	Motor Torque in Pump Off
TP 2032	Top Of Stroke in Pump Off
TP 2033	POSITION1 in Pump Off
TP 2034	POSITION2 in Pump Off
TP 2035	POSITION3 in Pump Off
TP 2036	POSITION4 in Pump Off
TP 2037	POSITION5 in Pump Off
TP 2038	Active Position in Pump Off
TP 2039	Position State in Pump Off
TP 2040	Heavily filter torque for position detection in Pump Off
TP 2041	PumpJack control state in Pump Off

Test Point	Description
TP 2042	Avg Torque used for control state in Pump Off
TP 2043	Cycle count in Pump Off
TP 2044	Alarm count in Pump Off
TP 2045	Peak Torque in Pump Off
TP 2046	Offset Position in Pump Off
TP 2047	Simulator Torque Ref
TP 2048	Minimum Torque Position
TP 2049	Active Pump Off level
TP 2050	Down Stroke Torque Integrator
TP 2051	Full Stroke Position for cycle mode
TP 2052	Adjustment to Position indicator

Table 25 - Parameter List

No.	Display Name
1187	Pump Off Config
1188	Pump Off Setup
1189	Pump Off Action
1190	Pump Off Control
1191	Pump Off Status
1192	Pump Cycle Store
1193	Set Top ofStroke
1194	Torque Setpoint
1195	Pump Off Level
1196	Pump Off Speed
1197	Pump Off Time
1198	Pct Cycle Torque
1199	Pct Lift Torque
1200	Pct Drop Torque
1201	Stroke Pos Count
1202	Stroke Per Min
1203	Pump Off Count
1204	PumpOff SleepCnt
1205	Day Stroke Count

Predictive Maintenance with Logix

The PowerFlex 753 and 755 drives contain algorithms for Predictive Maintenance that are used to improve the “up-time” of machines, processes, and facilities. These algorithms monitor the lifespan of certain components. They can be used to alert personnel when the components are nearing the end of their lifespan so the components can be replaced before they fail.

There are algorithms for drive fans, relay contacts on digital outputs, motor bearings, motor lubrication, machine bearings, and machine lubrication. See the Predictive Maintenance group in the Protection folder starting on page 102 for more information.

Predictive Maintenance for Wall Mount Drives (Frames 1…7)

Predictive maintenance for wall mount drives is straightforward. Each predictive maintenance item has five key parameters: Total Life, Elapsed Life, Remaining Life, Event Level, and Event Action.

- [**Total Life**] is the total expected life of the component
- [**Elapsed Life**] is the amount of life that has been expended
- [**Remaining Life**] is the Total Life minus Elapsed Life
- [**Event Level**] is the amount of Elapsed Time (in percent of Total Life) when you want the drive to warn the user of an impending failure
- [**Event Action**] is the action set to take place when the drive reaches the Event Level. It can be set to the following options: Ignore, Alarm, Fault Minor, Fault Coast Stop, Fault Ramp Stop, or Fault Current Limit Stop.

The alarm and fault actions stop the drive or prevent it from starting. If using a controller and a network interface such as EtherNet/IP, the logic and notification can be handled at the controller level. Configure the [Event Action] parameter to “Ignore” and use the controller to monitor the [Remaining Life] parameter. When the [Remaining Life] parameter reaches the [Event Level] parameter value, the controller sends a message that alerts the user on the HMI (example, PanelView™ or FactoryTalk® View).

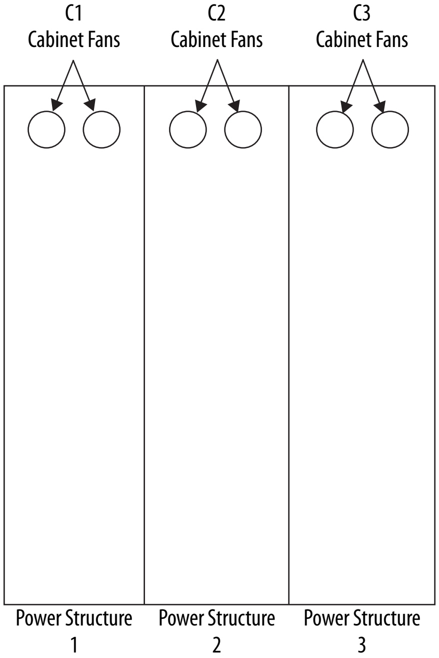
On wall mount drives, write explicit messages that read the [Remaining Life] parameter. Write the logic that compares the [Remaining Life] parameter to the [Event Level] parameter. The logic triggers a message when the [Event Level] parameter is reached.

Predictive Maintenance for Floor Mount Drives (Frames 8…10)

There can be multiple power structures in parallel on floor mount drives; and therefore, multiple sets of fans, which make the predictive maintenance more complicated than on wall mount drives.

To minimize the number of parameters, the parallel inverters, converters, and precharge units do not have separate [Total Life] and [Remaining Life] parameters. You must calculate the individual [Remaining Life] values in the controller.

A frame 10 drive has three power structures, and three sets of cabinet fans, heatsink fans, and internal stirring fans.



These parameters are available for the cabinet fans.

Table 26 - Cabinet Fan Parameters

Node	Parameter No.	Parameter Name	Description
0	482	CBFan TotalLife	Displays the expected lifespan for a cabinet fan.
0	483	CBFan ElpsdLife	Displays the greatest expended life of a cabinet fan.
0	484	CBFan RemainLife	Displays the difference between P482 [CBFan TotalLife] and P483 [CBFan ElpsdLife].
11	138	C1 CBFanElpsdLife	Displays the expended life of the fans on cabinet 1.
11	238	C2 CBFanElpsdLife	Displays the expended life of the fans on cabinet 2.
11	338	C3 CBFanElpsdLife	Displays the expended life of the fans on cabinet 3.

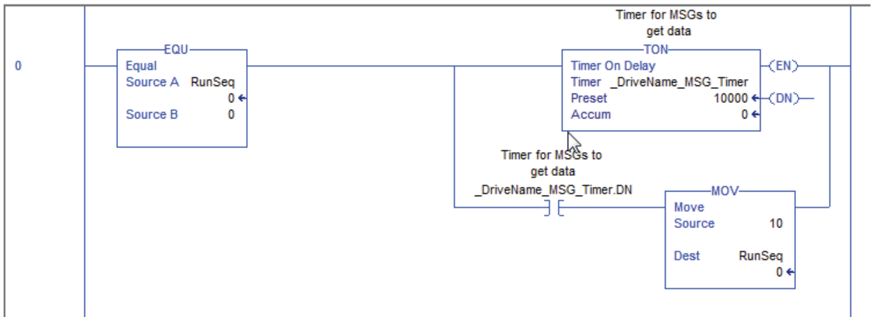
You must calculate the [Remaining Life] parameter values for the cabinet fans in each power structure. This calculation is required anytime the [Elapsed Life] parameter of one power structure differs from another. This difference can occur when one power structure has been replaced or serviced separately from the others.

Example Code

This example code calculates the [Remaining Life] value of the cabinet fan for the first power structure. For frames 9 and 10, use similar logic for the other cabinet fans. Use similar logic to calculate the [Remaining Life] of the heatsink fans and the internal stirring fans.

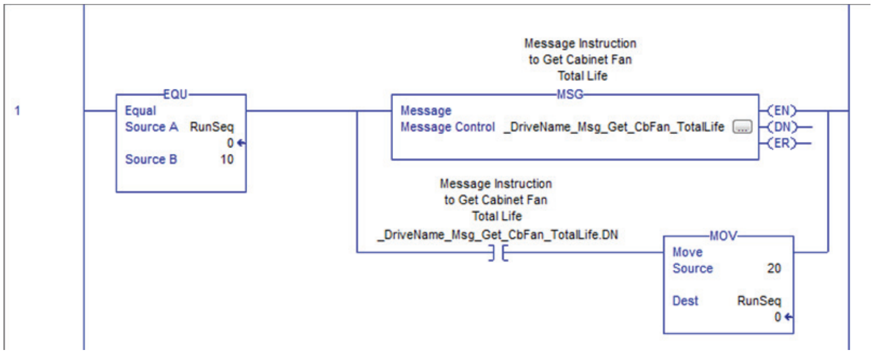
1. Use a timer instruction to set a sensible time interval for reading the data. See Figure 82.

Figure 82 - Timer Instruction



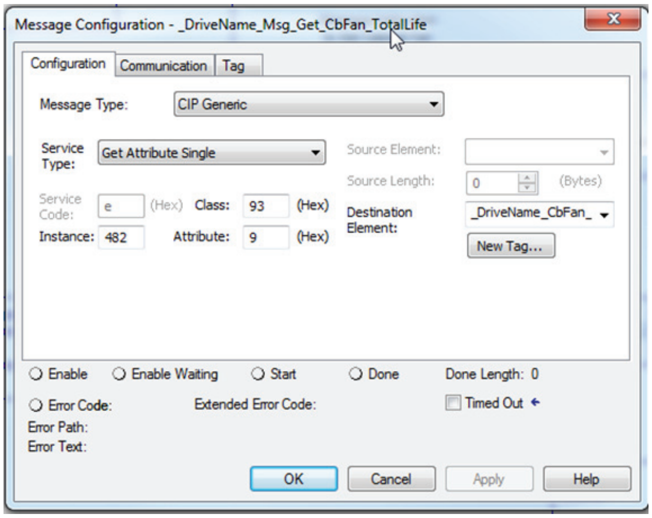
2. Use a message instruction to retrieve the Total Life value. See Figure 83.

Figure 83 - MSG Instruction



3. Configure the message instructions.
   a. Click the Configuration tab. See Figure 84.

Figure 84 - Message Configuration Screen - Configuration Tab



Message Configuration - _DriveName_Msg_Get_CbFan_TotalLife

Message Type: CIP Generic

Service Type: Get Attribute Single

Service Code: e (Hex)

Class: 93 (Hex)

Instance: 482

Attribute: 9 (Hex)

Source Element:

Source Length: 0 (Bytes)

Destination Element: _DriveName_CbFan_

○ Enable ○ Enable Waiting ○ Start ○ Done Done Length: 0

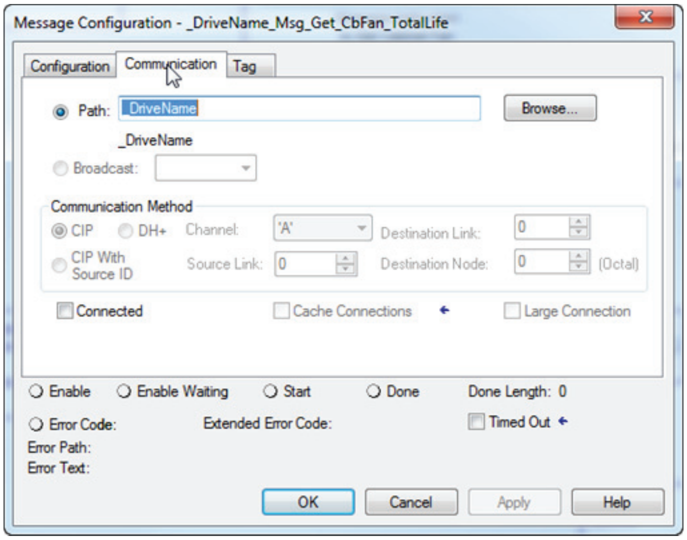
○ Error Code: Extended Error Code: ☐ Timed Out

Error Path:

Error Text:

   b. In the Message Type field, click the down arrow to select CIP Generic.
   c. In the Service Type field, click the down arrow to select Get Attribute Single.
   d. In the Class field, enter 93 (hex); use the EtherNet/IP DPI Parameter Object.
   e. Set the Instance to 482. This field defines the parameter that you want to obtain.
   f. Set the Attribute to 9. This field defines that you want to retrieve the parameter value.
   g. Click the Communication tab. See Figure 85.

Figure 85 - Message Configuration Screen - Communications Tab



Message Configuration - _DriveName_Msg_Get_CbFan_TotalLife

● Path: DriveName

_DriveName

○ Broadcast:

Communication Method

● CIP ○ DH+ Channel: 'A' Destination Link: 0

○ CIP With Source ID Source Link: 0 Destination Node: 0 (Octal)

☐ Connected ☐ Cache Connections ☐ Large Connection

○ Enable ○ Enable Waiting ○ Start ○ Done Done Length: 0

○ Error Code: Extended Error Code: ☐ Timed Out

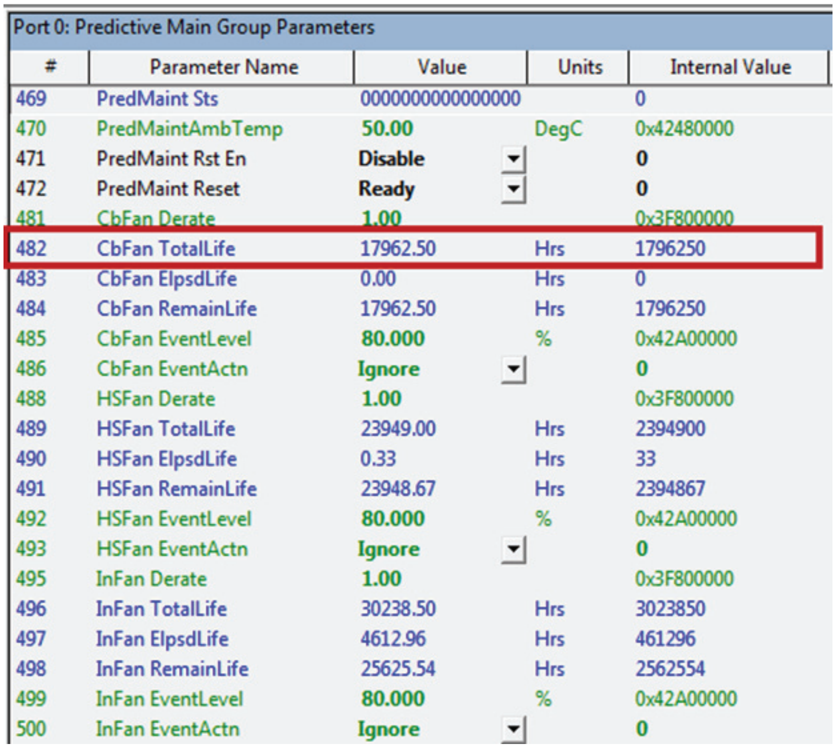
Error Path:

Error Text:

h. In the Path field, enter the drive name to configure the communication path of the message instruction to that drive.
In this case, the drive name in the Logix I/O tree is "_DriveName."

i. The value for Total Life returns in the double integer (DINT) data format.
The raw data = Hours x 100. Divide by 100 to get the Total Life in hours. The CPT block (see Figure 86) performs this division.

Figure 86 - Predictive Main Group Parameters (Port 0)

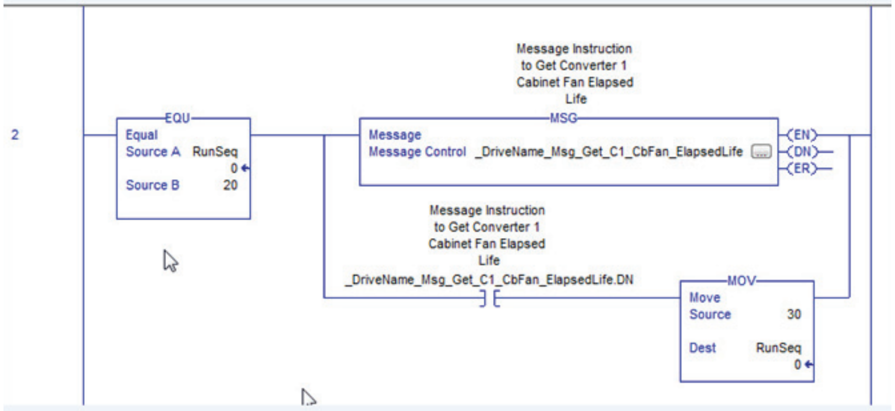


Port 0: Predictive Main Group Parameters

#	Parameter Name	Value	Units	Internal Value
469	PredMaint Sts	0000000000000000		0
470	PredMaintAmbTemp	50.00	DegC	0x42480000
471	PredMaint Rst En	Disable		0
472	PredMaint Reset	Ready		0
481	CbFan Derate	1.00		0x3F800000
482	CbFan TotalLife	17962.50	Hrs	1796250
483	CbFan ElpsdLife	0.00	Hrs	0
484	CbFan RemainLife	17962.50	Hrs	1796250
485	CbFan EventLevel	80.000	%	0x42A00000
486	CbFan EventActn	Ignore		0
488	HSFan Derate	1.00		0x3F800000
489	HSFan TotalLife	23949.00	Hrs	2394900
490	HSFan ElpsdLife	0.33	Hrs	33
491	HSFan RemainLife	23948.67	Hrs	2394867
492	HSFan EventLevel	80.000	%	0x42A00000
493	HSFan EventActn	Ignore		0
495	InFan Derate	1.00		0x3F800000
496	InFan TotalLife	30238.50	Hrs	3023850
497	InFan ElpsdLife	4612.96	Hrs	461296
498	InFan RemainLife	25625.54	Hrs	2562554
499	InFan EventLevel	80.000	%	0x42A00000
500	InFan EventActn	Ignore		0

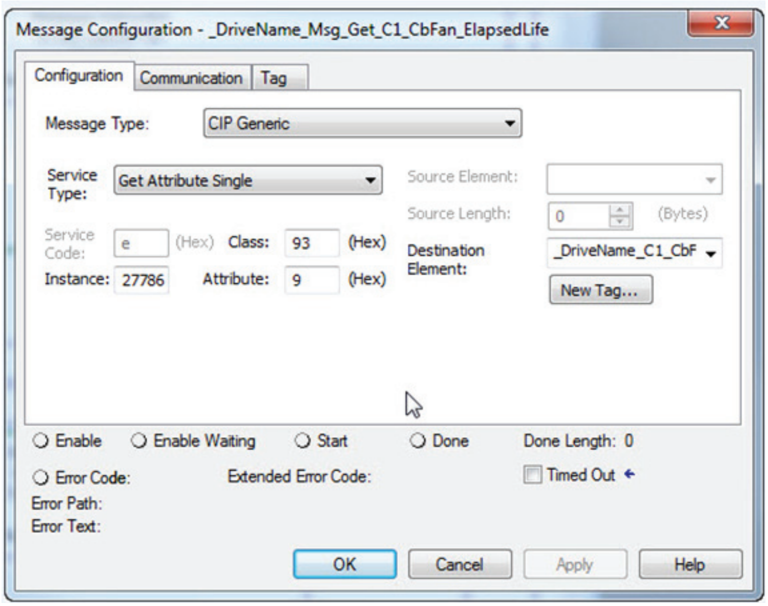
4. Use a message instruction to retrieve the [Elapsed Life] value for the cabinet fan from converter 1. [Elapsed Life] data returns with a floating point (Real) data format. See Figure 87.

Figure 87 - Message Instruction for Elapsed Life Parameter



5. Configure the message instructions.
   a. Click the Configuration tab. See Figure 88.

Figure 88 - Message Configuration Screen - Configuration Tab



Message Configuration - _DriveName_Msg_Get_C1_CbFan_ElapsedLife

Message Type: CIP Generic

Service Type: Get Attribute Single

Service Code: e (Hex) Class: 93 (Hex)

Instance: 27786 Attribute: 9 (Hex)

Source Element:

Source Length: 0 (Bytes)

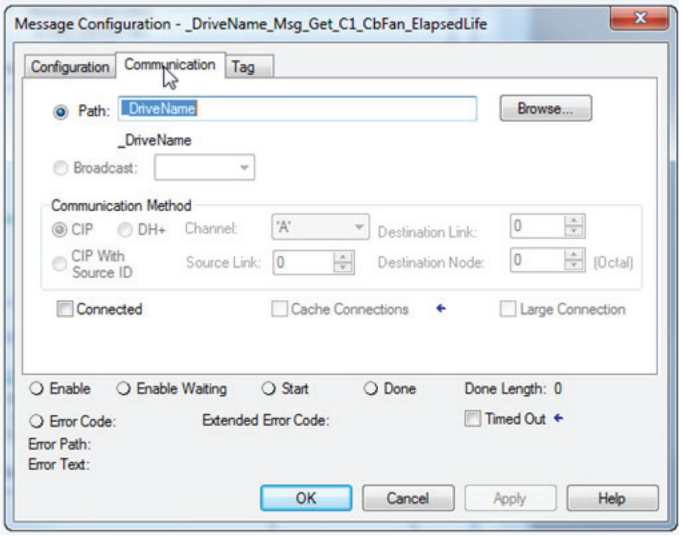
Destination Element: _DriveName_C1_CbF

Done Length: 0

   b. In the Message Type field, click the down arrow to select CIP Generic.
   c. In the Service Type field, click the down arrow to select Get Attribute Single.
   d. In the Class field, enter 93 (hex); use the EtherNet/IP DPI Parameter Object.
   e. Set the Instance to 27786. This field defines the parameter that you want to obtain.
      The Instance is calculated by adding an offset of 27648 (dec) (as determined by the PowerFlex 750 Ethernet Communications Manual) to the converter 1 [C1 CBFanElpsdLife] parameter number (P138).
      27648 (offset) 138 (parameter number) = 27786
   f. Set the Attribute to 9. This field defines that you want to retrieve the parameter value.

g. Click the Communication tab. See Figure 89.

Figure 89 - Message Configuration Screen - Communication Tab



Message Configuration - _DriveName_Msg_Get_C1_CbFan_ElapsedLife

Configuration | Communication | Tag

● Path: DriveName

_DriveName

○ Broadcast:

Communication Method

● CIP ○ DH+ Channel: 'A' Destination Link: 0

○ CIP With Source ID Source Link: 0 Destination Node: 0 (Octal)

☐ Connected ☐ Cache Connections ☐ Large Connection

○ Enable ○ Enable Waiting ○ Start ○ Done Done Length: 0

○ Error Code: Extended Error Code: ☐ Timed Out

Error Path:

Error Text:

h. In the Path field, enter the drive name to configure the communication path of the message instruction to that drive.
In this case, the drive name in the Logix I/O tree is "_DriveName."

i. The [Elapsed Life] data returns with a floating point (Real) data format. The raw data is already in hours. See Figure 90.

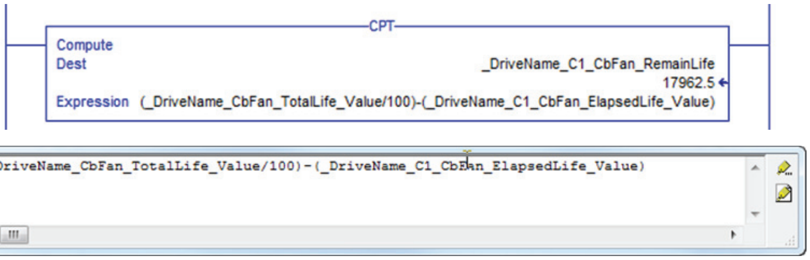
Figure 90 - Predictive Main Group Parameters (Port 11)

Port 11: Predictive Main Custom Group Parameters

#	Parameter Name	Value	Units
137	C1 PredMainReset	Ready	
138	C1 CbFanElpsdLif	0.000	Hrs

6. To calculate the [Remaining Life] parameter, use a Compute (CPT) instruction with a subtraction expression. See Figure 91.

Figure 91 - Compute (CPT) Instructions



```
CPT
Compute
Dest                                   _DriveName_C1_CbFan_RemainLife
                                                              17962.5
Expression (_DriveName_CbFan_TotalLife_Value/100)-(_DriveName_C1_CbFan_ElapsedLife_Value)
```

```
(_DriveName_CbFan_TotalLife_Value/100)-(_DriveName_C1_CbFan_ElapsedLife_Value)
```

Notes:

Appendix D

Using DeviceLogix

Introduction

DeviceLogix™ (DLX) is an embedded component that is located in Port 14 of PowerFlex® 750-Series drives. It is used to control outputs and manage status information locally within the drive. It can function stand-alone or complimentary to supervisory control.

IMPORTANT The Human Interface Module (HIM) CopyCat function does not work with the following firmware versions.

- PowerFlex 753 firmware version 1.005
- PowerFlex 755 firmware versions 1.009 or 1.010.

DeviceLogix programming for PowerFlex 750-Series drives is accomplished through a DeviceLogix Editor component (LX icon), which is incorporated in the following versions of drive software:

Drive Software Tool	PowerFlex 755 v1.xx	PowerFlex 753 v1.xx, v5.xx PowerFlex 755 v2.xx…v5.xx	PowerFlex 753 v6.xx…v7.xx PowerFlex 755 v6.xx…v7.xx
DriveExplorer™	v6.0**1** (and higher)	v6.0**2** (and higher)	v6.0**4** (and higher)
DriveTools™ SP / DriveExecutive™	v5.0**1** (and higher)	v5.0**2** (and higher)	v5.0**5** (and higher)
DeviceLogix 5000 Drive Add-On Profiles	v2.0**1** (and higher)	v2.0**2** (and higher)	v4.0**2** (and higher)
Connected Components Workbench	v1.0**2** (and higher)	v1.0**2** (and higher)	v1.0**2** (and higher)

Only the drive software tools that are listed here can be used to program the DeviceLogix component in PowerFlex 750-Series drives. Other DeviceLogix Editors, such as RSNetWorx™ for DeviceNet, cannot be used.

IMPORTANT DeviceLogix projects that are created with PowerFlex 755 firmware versions 1.009 or 1.010 do not work with firmware version 2.002 or greater. These projects must be opened and adjusted in an editor (for example DriveExplorer or DriveExecutive) before being downloaded to the drive.

Note the following feature differences between the drive firmware releases:

	PowerFlex 755 v1.xx	**PowerFlex 753 v1.xx** **PowerFlex 755 v2.xx**
DeviceLogix Library	Version 3	Version 4
Maximum number of function blocks	90	225
Program update time per number of blocks used	5 ms (fixed): 1…45 blocks 10 ms (fixed): 46…90 blocks	5 ms (fixed): 1…45 blocks 10 ms (fixed): 46…90 blocks 15 ms (fixed): 91…135 blocks 20 ms (fixed): 136…180 blocks 25 ms (fixed): 181…225 blocks

Version 3 of the DeviceLogix library introduced the following new features:

- Analog instructions (compute, math, compare, and so forth)
- Multiple I/O enable line object support
- Cut and Paste capability
- Screen format retention
- Online Help / Bit tool tip

Version 4 of the DeviceLogix library added the following new features:

- Macro Block instruction – the user programs a custom-function block element that contains other function blocks to perform specific tasks
- PID instruction

Version 5 of the DeviceLogix library added the following new features:

- User-defined tags for function block and ladder logic
- MOV and RESET ladder instructions
- Multiple Boolean outputs and inputs for selected instructions
- Function Block diagram I/O selection improvements
- Improved process-order assignment algorithm

Note: PowerFlex 755 v1.xxx drives can be flash updated to v2.xxx to take advantage of the new features in the Version 4 release of the DeviceLogix library and the increased number of function blocks.

The PowerFlex 750-Series DeviceLogix can provide basic logic capability for applications that can allow a 5…25 ms scan time depending on program size, plus the time it takes to update the I/O. It can be used in both networked and stand-alone environments. It can also operate autonomous of the drive. For example, it can continue executing if the drive is faulted, or disconnected from AC input power (requires PowerFlex 750-Series 24V DC auxiliary power supply option, catalog number 20-750-APS).

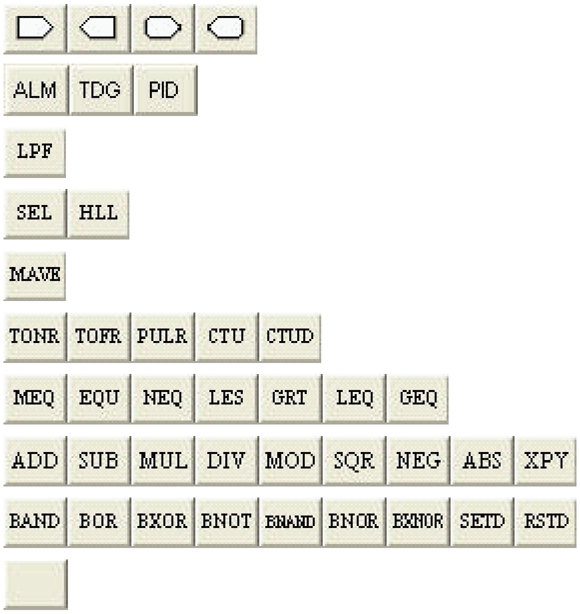
There is no data retention in DeviceLogix during a power cycle. Timer and counter-accumulators, calculation results, latched bits, and so forth, are cleared.

Parameters

See page 239 Embedded DeviceLogix parameter descriptions.

Function Block Elements

The following function block elements are available:



Bit and Analog I/O(1)	
Process	ALM TDG PID
Filter	LPF
Select/Limit	SEL HLL
Statistical	MAVE
Timer/Counter	TONR TOFR PULR CTU CTUD
Compare	MEQ EQU NEQ LES GRT LEQ GEQ
Compute/Math	ADD SUB MUL DIV MOD SQR NEG ABS XPY
Move/Logical	BAND BOR BXOR BNOT BNAND BNOR BXNOR SETD RSTD
Macro Block	

(1) Bit and Analog I/O do not count against the Function Block total. All other elements count, with each instance equal to one Function Block.

The DeviceLogix Editor provides a graphical interface, within which you can configure Function Blocks and provide local control in the drive. DeviceLogix Editor navigation and programming basics is not covered in this manual. See the DeviceLogix System User Manual, publication RA-UM003 for more information.

Macro Blocks

You can create up to three Macro Blocks, and each can be used 10 times. The selections are empty until you create a Macro Block. You can also create the icon text that is associated with each Macro Block.

Bit and Analog I/O Points

The DeviceLogix controller in Port 14 uses (48) bit inputs, (48) bit outputs, (24) analog inputs, and (17) analog outputs to interact with the other ports in the drive (both drive and peripheral parameters).

Bit Inputs

Available bit inputs to the DeviceLogix program include:

Bit Inputs	Description
(16) Hardware Boolean Inputs • DIP1 to DIP 16	These inputs correlate with DeviceLogix Port 14 parameters P33 [DLX DIP 01] to P48 [DLX DIP 16]
(32) Network Boolean Inputs • Ready, Active, Alarm, Faulted, and so forth.	These inputs correlate with the DeviceLogix Logic Status word for the drive. See page 237 for details on the Logic Status word bits.

Bit inputs are used to connect to real-world input devices (push buttons, photoeyes, and so forth) that are wired to an I/O option module in the drive, monitor drive status, or to read a bit in a bit-enumerated parameter.

Bit Outputs

Available bit outputs from the DeviceLogix program include:

Bit Outputs	Description
(16) Hardware Boolean Outputs • DOP1 to DOP 16	These outputs correlate with the bits in DeviceLogix Port 14 parameter P51 [DLX DigOut Sts2]
(32) Network Boolean Outputs • Stop, Start, Jog1, Clear Faults, and so forth.	These outputs correlate with the DeviceLogix Logic Command word for the drive. See page 237 for details on the Logic Command word bits. These bits can also be monitored in DeviceLogix Port 14 parameter P50 [DLX DigOut Sts].

Bit Outputs are used to connect to real-world output devices (pilot lights, relays, and so forth) that are wired to an I/O option module in the drive, to control the drive directly via Logic Command bits, or to write a bit in a bit-enumerated parameter.

Analog Inputs

Available analog inputs to the DeviceLogix program include:

Analog Inputs	Description
(12) Hardware Analog Inputs • DLX Real InSP1 to DLX Real InSP8 (Real) • DLX DINT InSP1 to DLX DINT InSP4 (DINT)	Scratchpad registers for DLX program input use.
(17) Network Analog Inputs • Common Feedback (Real) • DLX In 01 to DLX In 14 (Real) • DLX In 15 to DLX In 16 (DINT)	The Common Feedback correlates with the Feedback word for the drive. The DLX In's correlate with DeviceLogix Port 14 parameters P17 [DLX In 01] to P32 [DLX In 16]
(7) Miscellaneous Analog Inputs • Real-Time Clock data	Year, Month, Day, DayofWeek, Hour, Minute, and Second from the Real-Time Clock in the drive

Analog Inputs are typically used to connect to real-world input devices (sensor, potentiometer, and so forth) that are wired to an I/O option module in the drive, monitor drive Feedback, read the Real-Time Clock, or to read a drive / peripheral parameter.

Note: Hardware Analog Inputs are available in the PowerFlex 753 and v2.xxx (and higher) PowerFlex 755 drives.

Analog Outputs

Available analog outputs from the DeviceLogix program include:

Analog Outputs	Description
(12) Hardware Analog Outputs • DLX Real OutSP1 to DLX Real OutSP8 (Real) • DLX DINT OutSP1 to DLX DINT OutSP4 (DINT)	Scratchpad registers for DLX program output use.
(17) Network Analog Outputs • Reference Command (Real) • DLX Out 01 to DLX Out 14 (Real) • DLX Out 15 to DLX Out 16 (DINT)	The Reference Command correlates with the Reference word for the drive. The DLX Out's correlate with DeviceLogix Port 14 parameters P1 [DLX Out 01] to P16 [DLX Out 16]

Analog Outputs are typically used to connect to real-world output devices (meter panel, valve, and so forth) that are wired to an I/O option module in the drive, control the Reference to the drive, or to write a drive / peripheral parameter.

Note: Hardware Analog Outputs are available in the PowerFlex 753 and v2.xxx (and higher) PowerFlex 755 drives.

Tips

Data Types

The DeviceLogix Analog In/Out parameters support different data types. For example, P17 [DLX In 01] is a Real whereas P32 [DLX In 16] is a DINT. Be sure to assign a DLX In / Out to a parameter that has the same data type.

Function Block elements also support different data types. Click the Properties Button … in the upper right-hand corner of each element to display the Function Block properties. The Function Data Type field displays the supported data types. If Real DLX Ins are used with a Function Block element configured for DINT (typical default), the fraction is truncated.

PowerFlex 755 v1.xxx Firmware Datalinks and internal DeviceLogix scratchpad registers (P54…P81)

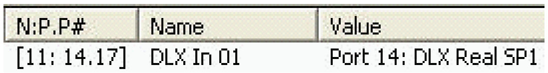
Each DLX In and DLX Out is a Datalink and cannot be directly mapped to each other or another Datalink, such as a Datalink in the Port 13 Embedded EtherNet/IP. Use the DeviceLogix internal scratchpad registers to pass data between the Datalinks.

Example 1 – Reading data from the network

A value from the network is input to DLX Real SP 1.

N:P.P#	Name	Value
[11: 13.1]	DL From Net 01	Port 14: DLX Real SP1

DLX In 01 reads DLX Real SP1 and can now be used as an Analog Input in the DeviceLogix program.

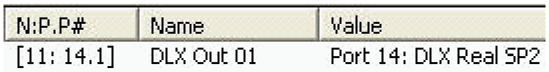


N:P.P#	Name	Value
[11: 14.17]	DLX In 01	Port 14: DLX Real SP1

DLX Real SP1 is the intermediary register that allows the two Datalinks to work together.

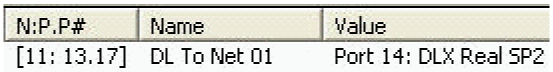
Example 2 – Writing data to the network

The DeviceLogix program controls an Analog Output value in DLX Out 01, which is written to DLX Real SP2.



N:P.P#	Name	Value
[11: 14.1]	DLX Out 01	Port 14: DLX Real SP2

The DLX Real SP2 value is output to the network.



N:P.P#	Name	Value
[11: 13.17]	DL To Net 01	Port 14: DLX Real SP2

DLX Real SP2 is the intermediary register that allows the two Datalinks to work together.

PowerFlex 753 (all) and PowerFlex 755 v2.xxx (and higher) Datalinks and internal DeviceLogix scratchpad registers (P82…P105)

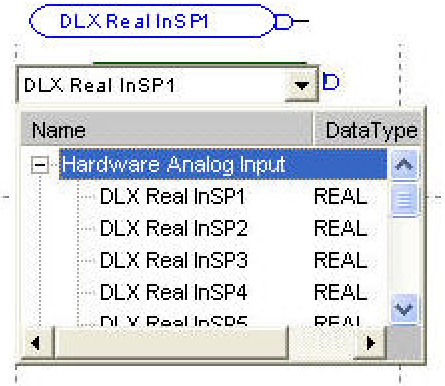
Each DLX In and DLX Out is a Datalink and cannot be directly mapped to each other or another Datalink, such as a Datalink in the Port 13 Embedded EtherNet/IP. Although the same method used with PowerFlex 755 v1.xxx firmware can be employed, there is a more efficient method that does not require a DeviceLogix Datalink to be used.

Example 1 – Reading data from the network

A value from the network is input to DLX Real InSP1.

Drive	Datalink	Value
753	Port 0 P895 [Data In A1]	Port 14: DLX Real InSP1
755	Port 13 P1 [DL From Net 01]	

DLX Real InSP1 can now be used as a Hardware Analog Input and used directly with a Function Block (a DeviceLogix Datalink is not required).



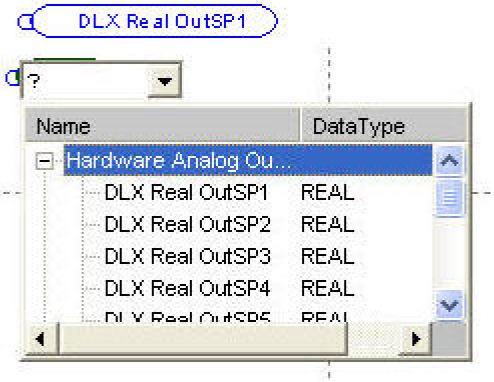
Name	DataType
Hardware Analog Input	
DLX Real InSP1	REAL
DLX Real InSP2	REAL
DLX Real InSP3	REAL
DLX Real InSP4	REAL

Example 2 – Writing data to the network

The DeviceLogix program controls an Analog Output value, which is written to DLX Real OutSP1.

Drive	Datalink	Value
753	Port 0 P905 [Data Out A1]	Port 14: DLX Real OutSP1
755	Port 13 P17 [DL To Net 01]	

DLX Real OutSP1 can now be used as a Hardware Analog Output and used directly with a Function Block (a DeviceLogix Datalink is not required).



Program Examples

Example 1: Selector Switch Operation

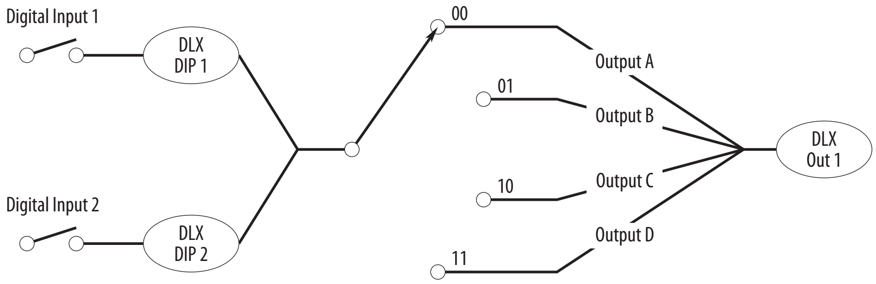
This example demonstrates how a selector switch operation similar to the feature in the PowerFlex 700S can be achieved through the embedded DeviceLogix in the PowerFlex 750-Series drive. A selector switch is simulated in the drive by using a combination of inputs to produce multiple outputs. Digital inputs in the drive are used to output configurable multiple preset speeds (75 Hz, 85 Hz, 95 Hz, and 105 Hz) to P571 [Preset Speed 1]. It is assumed that the 750-Series drive has an I/O module that is installed in Port 4.

The following truth table represents the inputs and outputs for a 4 position selector switch.

Inputs		Outputs	
Input 1	Input 2	Binary Output	Selector Switch Output
0	0	0	Output A
0	1	1	Output B
1	0	2	Output C
1	1	3	Output D

The Logic Map offers a high-level explanation of how these outputs are achieved.

Figure 92 - Two Input Four Position Selector Switch Logic Map



Discrete Inputs in the Drive are used for Inputs 1 and Input 2. Output A, B, C, and D is linked to DeviceLogix Scratchpad Registers. The scratchpad feature allows further flexibility to modify the values of these outputs.

The resulting output can be linked to a parameter and be used to support drive applications, such as configuring multiple preset speeds and point-to-point positioning. In this example, it controls Preset Speed 1.

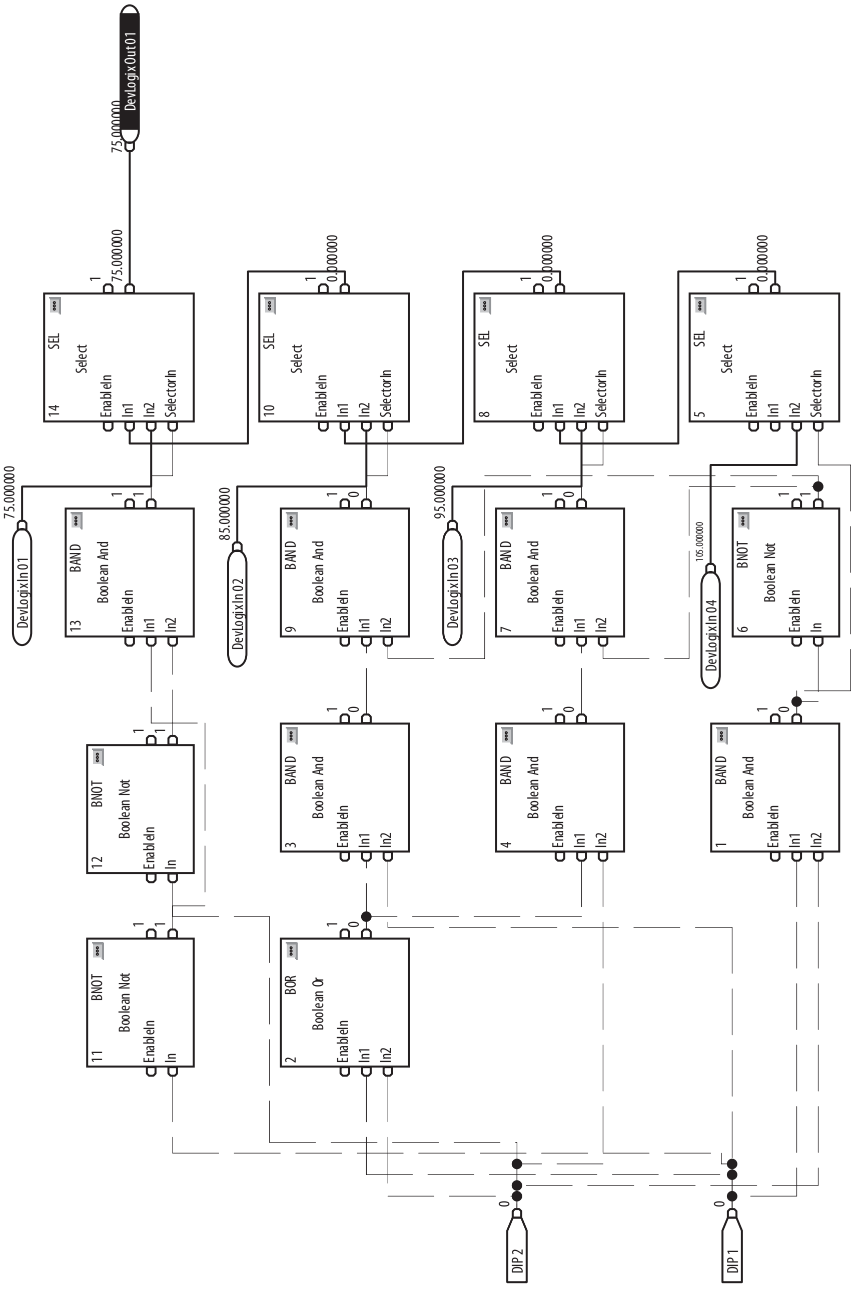
Parameter Configuration

The following parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
14.1	DLX Out 01	Port 0: Preset Speed 1	
14.33	DLX DIP 1	Port 4: Dig In Status.Input 1	Digital input 1 from Selector Switch
14.34	DLX DIP 2	Port 4: Dig In Status.Input 2	Digital input 2 from Selector Switch
14.17	DLX In 01	Port 14: DLX Real SP1	Output A
14.18	DLX In 02	Port 14: DLX Real SP2	Output B
14.19	DLX In 03	Port 14: DLX Real SP3	Output C
14.20	DLX In 04	Port 14: DLX Real SP4	Output D
14.54	DLX Real SP1	75.00	Output A Preset Speed
14.55	DLX Real SP2	85.00	Output B Preset Speed
14.56	DLX Real SP3	95.00	Output C Preset Speed
14.57	DLX Real SP4	105.00	Output D Preset Speed
0.571	Preset Speed 1	varies	Output from Selector Switch

Functional Block Programming

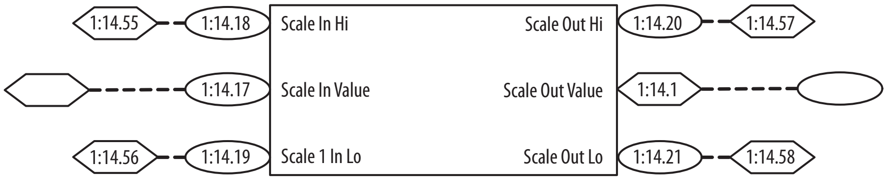
The Selector Switch Operation example consists of 14 blocks that are shown in the following figure.



Example 2: Scale Block Operation

This example demonstrates how a scale block operation similar to the feature in the PowerFlex 700VC can be achieved through the embedded DeviceLogix in the PowerFlex 750-Series drive. A Scale Block scales a parameter value and the input of the block is linked to a parameter that is desired to be scaled. The scale block also has both input and output high limits and low limit parameters.

Figure 93 - Scale Block High-Level View



Scale In Hi determines the high value for the input to the scale block.

Scale Out Hi determines the corresponding high value for the output of the scale block.

Scale In Low determines the low value for the input to the scale block.

Scale Out Lo determines the corresponding low value for the output of the scale block.

Scale Out Value of the block is then available for user to link to any parameter that accepts links.

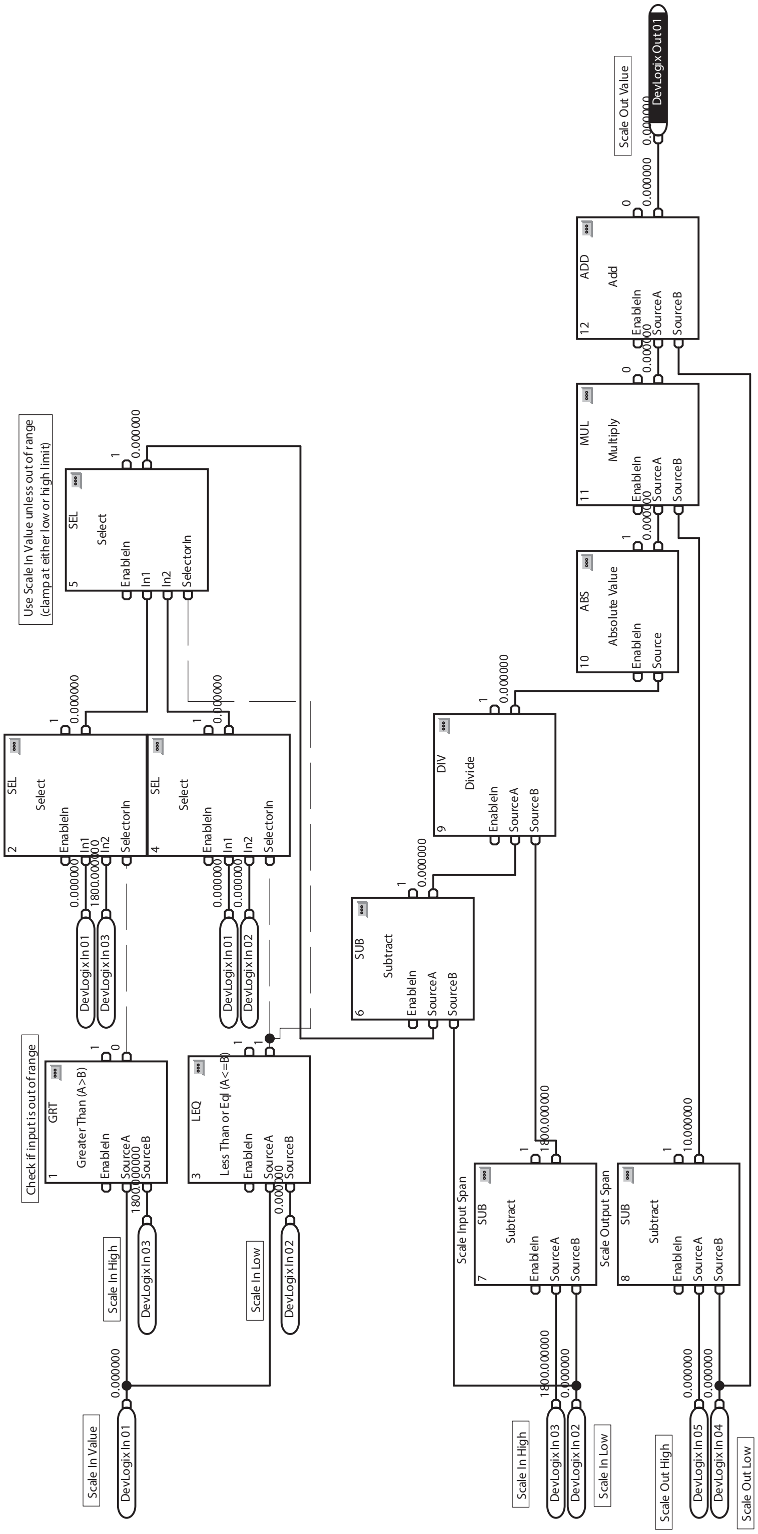
Parameter Configuration

The following DeviceLogix parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
14.1	DLX Out 01	* Set to the Scale Output write source *	A floating point output that can be controlled by the DeviceLogix program
14.17	DLX In 01	* Set to the Scale Input value read source *	A floating point input that can be read by the DeviceLogix program.
14.18	DLX In 02	Port 14: DLX Real SP2	Scale In Low
14.19	DLX In 03	Port 14: DLX Real SP3	Scale In High
14.20	DLX In 04	Port 14: DLX Real SP4	Scale Out Low
14.21	DLX In 05	Port 14: DLX Real SP5	Scale Out High
14.55	DLX Real SP2	0.0	Scale In Low value
14.56	DLX Real SP3	1800.00	Scale In High value
14.57	DLX Real SP4	0.000	Scale Out Low value
14.58	DLX Real SP5	10.00	Scale Out High value

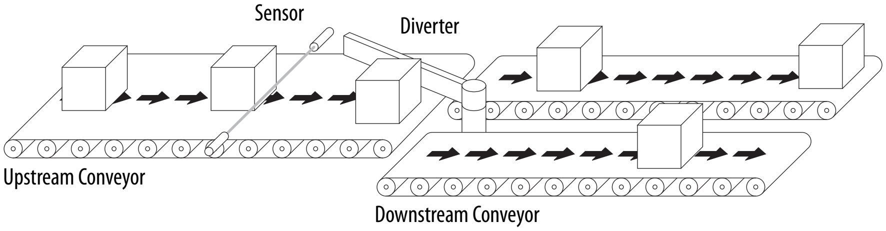
Functional Block Programming

The Scale Block Operation example consists of 12 blocks that are shown in the following figure.



Example 3: Diverter Operation

This example demonstrates basic control logic to operate a diverter in a conveyor system. The diverter directs parts from an upstream conveyor to one of two downstream conveyors. It alternately sends 'x' parts down each downstream conveyor.



The application consists of the following discrete I/O:

Type	Name	Description
Inputs	Part Present Sensor	Identifies that a part is present
Outputs	Diverter Actuator	Controls the diverter actuator to direct the flow of parts

Example logic requirements:

- If Part Present Sensor is ON, then increment the parts counter
- If the parts-counter preset is reached, reset the counter and alternately set or reset the Diverter Actuator

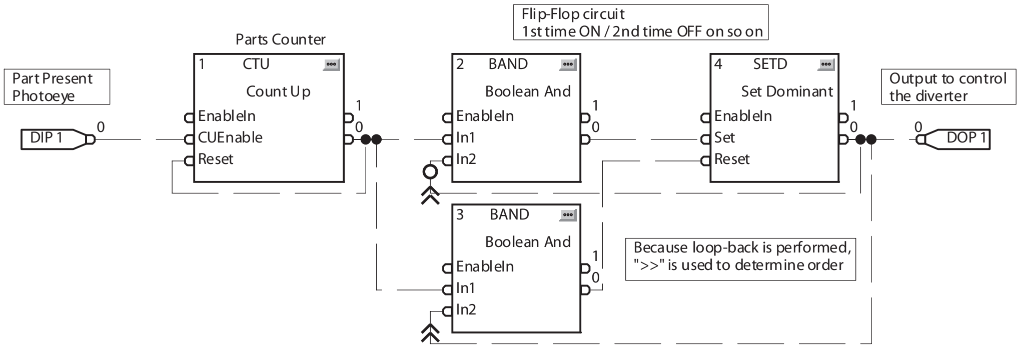
Parameter Configuration

The following parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
4.20	TO0 Select	Port 14: DLX DigOut Sts2.DLX DOPSts0	Output on I/O module in Port 4
14.33	DLX DIP 1	Port 4: Dig In Status.Input 1	Part Present Sensor input (I/O module in Port 4)
14.51	DLX DigOut Sts2		Diverter Actuator output

Functional Block Programming

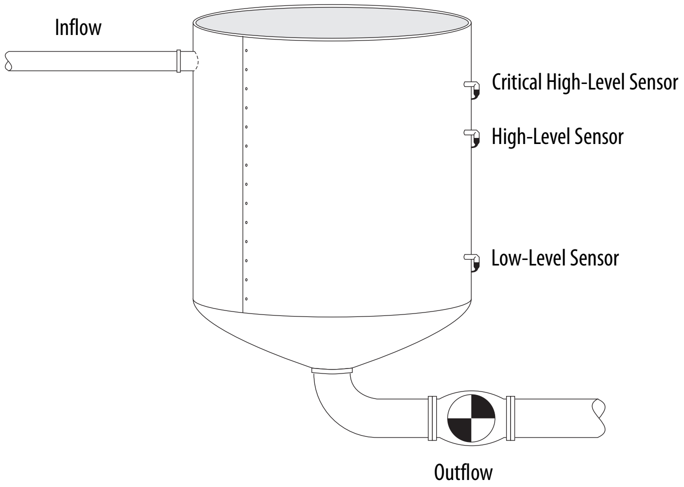
This example consists of four blocks that are shown in the following figure.



Example 4: Wet Well Operation

This example demonstrates how basic control logic can be used for simple applications. It is assumed that the PowerFlex 755 has an I/O module installed in Port 4.

Figure 94 - Wet Well



The application consists of the following discrete I/O:

Type	Name	Description
Inputs	Fault Reset pushbutton	Used to reset any faults or alarms
	Critical High-Level sensor	Indicates a critically high level. It is normally a backup to the High-Level sensor and is also used to detect if the High-Level sensor is faulty. When ON, the drive operates at an even higher output frequency in case it is due to a high inflow.
	High-Level sensor	Indicates the well is at a high level and it is time to start pumping (normal operation). The drive operates at a 'normal' rate unless the Critical High Level was reached.
	Low-Level sensor	When OFF, it is used to indicate that the well is empty (as long as the High and Critical High-Level sensors are also OFF). The drive stops operating (end of pumping cycle).
Outputs	Sensor Fault pilot light	Indicates that there is a problem with either the High-Level or Low-Level sensors
	Too Much Time Alarm pilot light	If the drive operates for more than the normal amount of time it takes to empty the well, there can be increased inflow or perhaps the Low-Level sensor is stuck ON. An alarm indication is made and the drive continues to operate.
	Critical High-Fault flashing light / alarm horn	Indicates a critically high level that requires immediate attention.

Example logic requirements:

- If Critical High-Level or High-Level sensor is ON, then start the drive.
  - If Critical High-Level sensor is ON, then switch to higher rate (90 Hz) for the rest of the pumping cycle. Else run at the normal rate (60 Hz)
  - Run until all three level sensors are OFF
  - Pump should run at least 'x' minutes at a minimum. If the Low-Level sensor fails, this prevents the High-Level sensor from cycling the pump On/Off too quickly.
- Annunciate a Sensor Fault condition
  - The Low-Level sensor should never be OFF when either the High Level or Critical High-Level sensors are ON
  - The High-Level sensor should never be OFF when the Critical High-Level sensor is ON
  - The Critical High-Level sensor should never be ON when either the High-Level or Low-Level sensors are OFF
- Annunciate a Critical High-Level condition
  - The Critical High-Level output should never be ON
- Annunciate if pumping cycle time is longer than normal ('y' minutes)
  - Monitor the amount of time a pump cycle takes by timing how long the drive is operating.
  - If greater than 'y' minutes, energize the Too Much Time Alarm output
- Reset alarms / faults with a Reset pushbutton input

Parameter Configuration

The following parameters are configured for this example.

The following DeviceLogix parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
0.520	Max Fwd Speed	90.00	
0.545	Speed Ref A Sel	Port 0: Preset Speed 1	
0.571	Preset Speed 1	60.00	Normal pumping rate (60 Hz)
0.573	Preset Speed 3	90.00	High speed pumping rate (90 Hz)
4.10	RO0 Select	Port 14: DLX DigOut Sts2.DLX DOPSts0	Sensor Fault output
4.20	TO0 Select	Port 14: DLX DigOut Sts2.DLX DOPSts1	Critical High-Level Fault output
4.30	TO1 Select	Port 14: DLX DigOut Sts2.DLX DOPSts2	Too Much Time Alarm output
14.33	DLX DIP 1	Port 4: Dig In Status.Input 1	Critical High-Level Sensor input
14.34	DLX DIP 2	Port 4: Dig In Status.Input 2	High-Level Sensor input
14.35	DLX DIP 3	Port 4: Dig In Status.Input 3	Low-Level Sensor input
14.36	DLX DIP 4	Port 4: Dig In Status.Input 4	Alarm / Fault Reset pushbutton input

Functional Block Programming

This example consists of 16 blocks that are shown in the following figure.

Figure 95 - Control Circuit

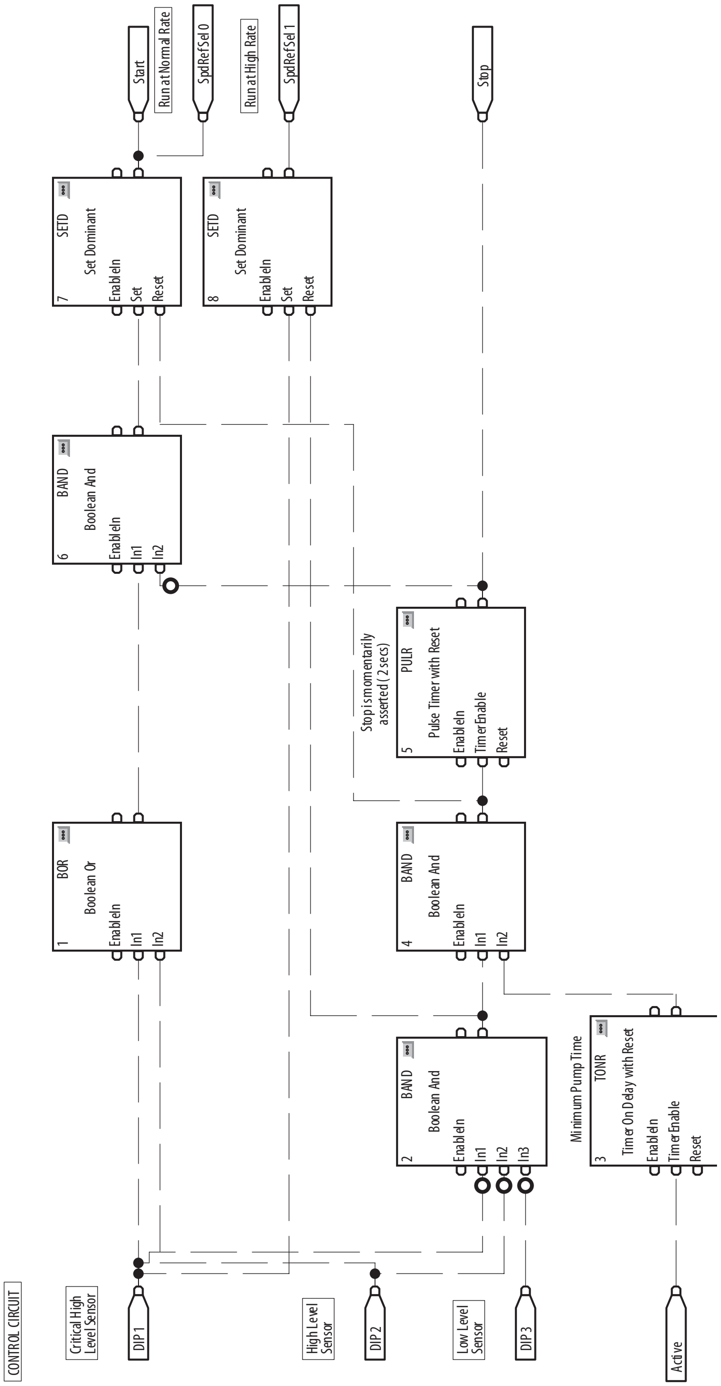
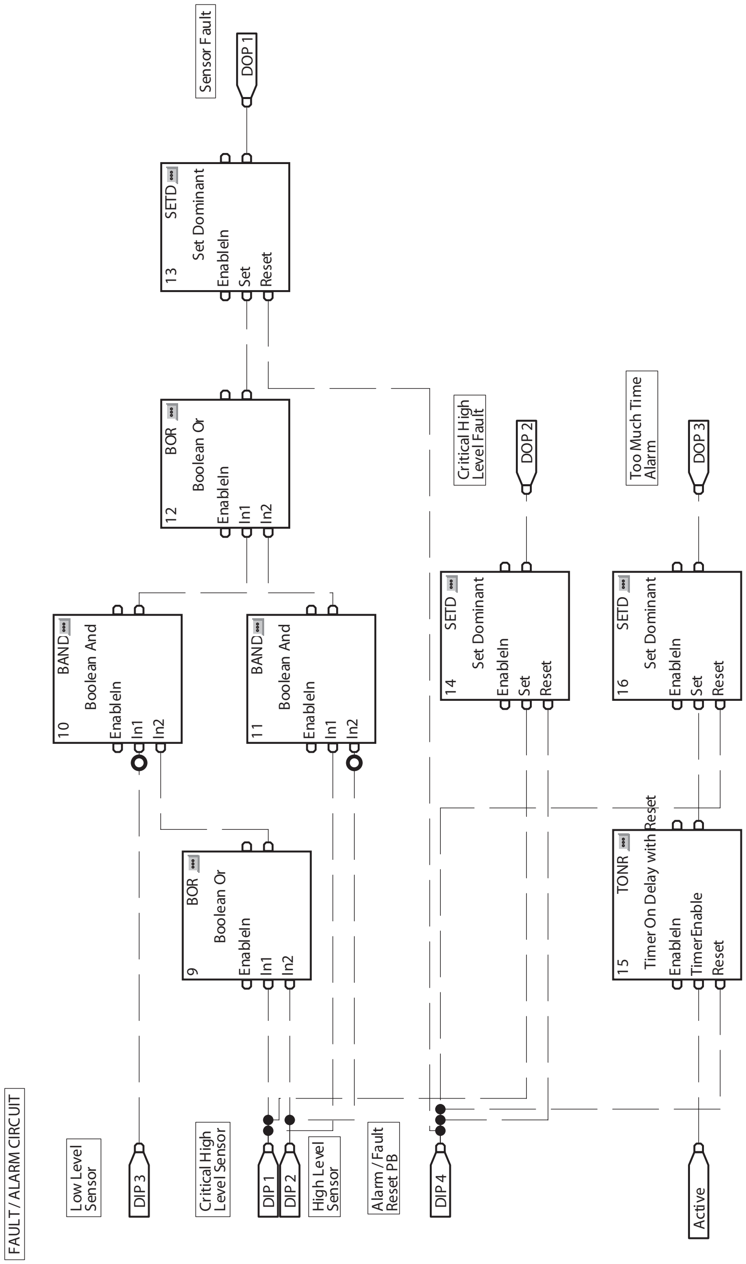


Figure 96 - Fault/Alarm Circuit



Example 5: Utilizing the Real-Time Clock

This example demonstrates how to utilize the PowerFlex 750-Series drive Real-Time Clock in a DeviceLogix program.

Example logic requirements:

- Run the drive Monday through Friday between 7:45 a.m. and 5:15 p.m

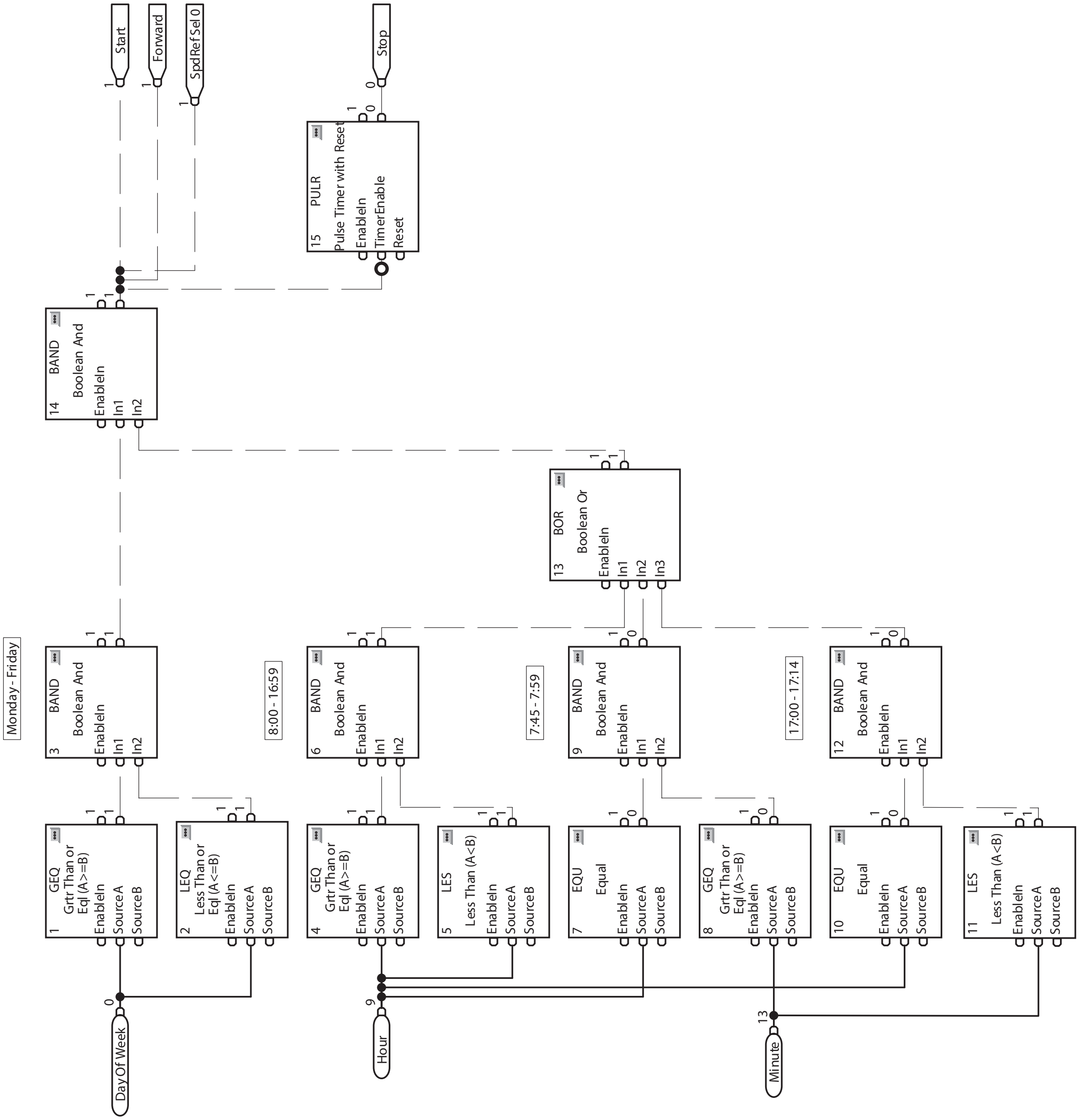
Parameter Configuration

The following parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
0.545	Speed Ref A Sel	Port 0: Preset Speed 1	
0.571	Preset Speed 1	60.00	Operating speed of drive

Functional Block Programming

This example consists of 15 blocks that are shown in the following figure.



Permanent Magnet Motors

Compatible Allen-Bradley Servo Motors

Table 27 contains a list of specifications for Allen-Bradley servo motors compatible with PowerFlex 750-Series drives. This information is provided to help configure PowerFlex 750-Series drives with the appropriate servo motor data. For information regarding compatibility and configuration of any Allen-Bradley servo motors (including RDB Series Direct Drive Motors) and third-party PM motors that are not listed here, contact Allen-Bradley Drives Technical Support.

When using a PowerFlex 755 drive to control a permanent magnet motor, the motor feedback device must have a resolution so that the number of pulses per revolution (PPR) is an exponent of two.

For example: 512, 1024, 2048, 4096, 8192…524288, 1048576…

Table 27 - Motor Name Plate and Rating Specifications

Model Number	Motor NP Volts (line to line V rms)	Motor NP Amps (A rms)	Motor NP Hertz (Hz)	Motor NP RPM (oper. rpm)	Motor NP Power (kW)	Motor Poles	Current peak (A rms)	System Cont. Stall Torque (N•m)	Motor Max RPM (rpm)
MPM-A1151M	240	4.2	333.3	5000	0.90	8	21.6	2.18	6000
MPM-A1152F	240	5.9	266.7	4000	1.40	8	31.7	4.74	5000
MPM-A1302F	240	7.4	266.7	4000	1.65	8	35.6	5.99	4500
MPM-A1304F	240	8.1	233.3	3500	2.20	8	34.2	9.30	4000
MPM-A1651F	240	14.5	200.0	3000	2.50	8	52.2	10.70	5000
MPM-A1652F	240	18.1	233.3	3500	4.03	8	73.0	13.50	4000
MPM-A1653F	240	23.2	200.0	3000	5.10	8	84.3	18.60	4000
MPM-A2152F	240	33.7	133.3	2000	5.20	8	89.0	27.00	4000
MPM-A2153F	240	32.8	133.3	2000	5.80	8	85.2	34.00	4600
MPM-A2154C	240	24.8	116.7	1750	6.50	8	89.8	55.00	2000
MPM-A2154E	240	29.6	133.3	2000	7.00	8	90.7	44.00	2650
MPM-B1151F	480	1.5	266.7	4000	0.75	8	7.0	2.18	5000
MPM-B1151T	480	3.1	333.3	5000	0.90	8	14.5	2.18	7000
MPM-B1152C	480	2.3	166.7	2500	1.20	8	8.8	2.18	3000
MPM-B1152F	480	2.9	266.7	4000	1.40	8	15.5	4.74	5200
MPM-B1152T	480	5.2	266.7	4000	1.40	8	26.8	4.74	7000
MPM-B1153E	480	2.7	200.0	3000	1.40	8	15.3	6.55	3500
MPM-B1153F	480	3.2	266.7	4000	1.45	8	22.6	6.55	5500
MPM-B1153T	480	5.5	266.7	4000	1.45	8	39.2	6.55	7000
MPM-B1302F	480	3.4	266.7	4000	1.65	8	15.6	5.99	4500
MPM-B1302M	480	5.0	266.7	4000	1.65	8	22.6	5.99	6000
MPM-B1302T	480	6.6	266.7	4000	1.65	8	30.7	5.99	7000
MPM-B1304C	480	3.4	183.3	2750	2.00	8	15.8	10.20	2750
MPM-B1304E	480	4.1	166.7	2500	2.20	8	24.2	10.20	4000
MPM-B1304M	480	7.3	233.3	3500	2.20	8	42.9	10.20	6000
MPM-B1651C	480	4.7	200.0	3000	2.50	8	20.6	10.70	3500
MPM-B1651F	480	8.2	200.0	3000	2.50	8	36.0	10.70	5000
MPM-B1651M	480	10.9	200.0	3000	2.50	8	40.2	10.70	5000
MPM-B1652C	480	7.0	166.7	2500	3.80	8	23.8	16.00	2500
MPM-B1652E	480	8.0	233.3	3500	4.30	8	42.8	19.40	3500
MPM-B1652F	480	11.0	233.3	3500	4.30	8	59.5	19.40	4500
MPM-B1653C	480	10.5	133.3	2000	4.60	8	41.9	26.80	2500
MPM-B1653E	480	10.2	200.0	3000	5.10	8	51.6	26.80	3500
MPM-B1653F	480	13.2	200.0	3000	5.10	8	66.7	26.80	4000
MPM-B2152C	480	12.3	133.3	2000	5.60	8	39.2	36.70	2500
MPM-B2152F	480	18.7	166.7	2500	5.90	8	69.3	33.00	4500
MPM-B2152M	480	21.0	166.7	2500	5.90	8	54.0	30.00	5000
MPM-B2153B	480	12.7	116.7	1750	6.80	8	42.4	48.00	2000
MPM-B2153E	480	19.3	133.3	2000	7.20	8	69.7	48.00	3000
MPM-B2153F	480	22.1	133.3	2000	7.20	8	69.6	45.00	3800
MPM-B2154B	480	13.9	116.7	1750	6.90	8	69.3	62.80	2000
MPM-B2154E	480	18.3	133.3	2000	7.50	8	69.5	56.00	3000
MPM-B2154F	480	19.8	133.3	2000	7.50	8	59.3	56.00	3300
MPL-A310P	230	3.4	294.0	4410	0.73	8	9.9,	1.58	5000
MPL-A310F	230	2.1	185.3	2780	0.46	8	6.6	1.58	3000
MPL-A320P	230	6.4	271.3	4070	1.30	8	20.9	3.05	5000
MPL-A320H	230	4.6	208.7	3130	1.00	8	13.6	3.05	3500

Model Number	Motor NP Volts (line to line V rms)	Motor NP Amps (A rms)	Motor NP Hertz (Hz)	Motor NP RPM (oper. rpm)	Motor NP Power (kW)	Motor Poles	Current peak (A rms)	System Cont. Stall Torque (N•m)	Motor Max RPM (rpm)
MPL-A330P	230	8.5	280.7	4210	1.80	8	26.9	4.08	5000
MPL-A420P	230	9.0	268.7	4030	2.00	8	32.5	4.74	5000
MPL-A430P	230	11.9	234.0	3510	2.20	8	47.4	5.99	5000
MPL-A430H	230	8.6	184.7	2770	1.80	8	31.8	6.21	3500
MPL-A4520P	230	12.4	234.0	3510	2.20	8	35.4	5.99	5000
MPL-A4520K	230	10.6	223.3	3350	2.10	8	30.4	5.99	4000
MPL-A4530F	230	9.5	144.7	2170	1.90	8	29.7	8.36	2800
MPL-A4530K	230	14.4	196.0	2940	2.50	8	43.8	8.13	4000
MPL-A4540C	230	6.6	93.3	1400	1.50	8	20.5	10.20	1500
MPL-A4540F	230	13.0	162.0	2430	2.60	8	38.2	10.20	3000
MPL-A520K	230	16.3	208.0	3120	3.50	8	46.0	10.70	4000
MPL-A540K	230	29.3	180.7	2710	5.50	8	84.9	19.40	4000
MPL-A560F	230	29.3	125.3	1880	5.50	8	84.9	27.90	3000
MPL-B310P	460	1.7	310.0	4650	0.77	8	3.0	1.58	5000
MPL-B320P	460	3.2	313.3	4700	1.50	8	5.0	3.05	5000
MPL-B330P	460	4.3	274.0	4110	1.80	8	7.0	4.18	5000
MPL-B420P	460	4.5	255.3	3830	1.90	8	9.2	4.74	5000
MPL-B430P	460	6.5	214.0	3210	2.20	8	12.0	6.55	5000
MPL-B4520P	460	6.0	236.7	3550	2.10	8	17.0	5.65	5000
MPL-B4530F	460	5.0	162.0	2430	2.10	8	13.4	8.25	3000
MPL-B4530K	460	7.8	200.7	3010	2.60	8	19.1	8.25	4000
MPL-B4540F	460	6.4	162.0	2430	2.60	8	16.3	10.20	3000
MPL-B4560F	460	8.3	144.7	2170	3.20	8	25.5	14.10	3000
MPL-B520K	460	8.1	208.0	3120	3.50	8	23.3	10.70	4000
MPL-B540K	460	14.5	177.3	2660	5.40	8	42.4	19.40	4000
MPL-B560F	460	14.5	130.7	1960	5.50	8	42.4	26.80	3000
MPL-B580F	460	18.4	132.7	1990	7.10	8	66.5	34.00	3000
MPL-B580J	460	22.6	148.0	2220	7.90	8	66.5	34.00	3800
MPL-B640F	460	22.7	106.0	1590	6.11	8	46.0	36.70	3000
MPL-B660F	460	27.2	81.3	1220	6.15	8	67.9	48.00	3000
MPL-B680D	460	24.0	94.0	1410	9.30	8	66.5	62.80	2000
MPL-B680F	460	33.9	79.3	1190	7.50	8	67.9	60.00	3000
MPL-B860D	460	33.6	96.0	1440	12.50	8	67.5	83.10	2000
MPL-B880C	460	33.6	72.7	1090	12.60	8	69.0	110.00	1500
MPL-B880D	460	40.3	86.7	1300	15.00	8	113.2	110.00	2000
MPL-B960B	460	29.7	62.0	930	12.70	8	63.6	130.00	1200
MPL-B960C	460	38.9	76.0	1140	14.80	8	88.4	124.30	1500
MPL-B960D	460	50.2	76.7	1150	15.00	8	102.5	124.30	2000
MPL-B980B	460	31.8	59.3	890	15.02	8	70.7	162.70	1000
MPL-B980C	460	48.2	67.3	1010	16.80	8	99.0	158.20	1500
MPL-B980D	460	63.6	74.7	1120	18.60	8	141.4	158.20	2000
MPG-A004-031	230	1.8	222.7	3340	0.21	8	4.0	0.60	6000
MPG-A010-031	230	2.1	189.3	2840	0.36	8	6.0	1.21	4875
MPG-A010-091	230	0.9	295.3	4430	0.19	8	2.3	0.41	5900
MPG-A025-031	230	9.9	181.0	1810	0.88	12	19.8	4.65	5200
MPG-A025-091	230	3.0	168.0	1680	0.52	12	8.5	2.95	5625
MPG-A050-031	230	24.7	120.0	1200	1.50	12	53.0	11.90	2510
MPG-A050-091	230	5.0	275.0	2750	0.75	12	15.6	2.60	3775
MPG-A110-031	230	20.2	122.0	1220	2.20	12	53.0	17.20	2875

Model Number	Motor NP Volts (line to line V rms)	Motor NP Amps (A rms)	Motor NP Hertz (Hz)	Motor NP RPM (oper. rpm)	Motor NP Power (kW)	Motor Poles	Current peak (A rms)	System Cont. Stall Torque (N•m)	Motor Max RPM (rpm)
MPG-A110-091	230	17.0	184.0	1840	1.60	12	33.2	8.30	3500
MPG-B010-031	460	1.6	162.7	2440	0.34	8	4.4	1.33	6450
MPG-B010-091	460	0.7	357.3	5360	0.23	8	1.5	0.41	6450
MPG-B025-031	460	4.0	219.0	2190	0.92	12	11.3	4.02	4838
MPG-B025-091	460	1.9	175.0	1750	0.54	12	5.2	2.95	5900
MPG-B050-031	460	16.3	92.0	920	1.20	12	32.5	12.40	2510
MPG-B050-091	460	3.4	290.0	2900	0.79	12	9.9	2.60	4560
MPG-B110-031	460	12.9	112.0	1120	2.00	12	31.1	17.00	2420
MPG-B110-091	460	10.6	184.0	1840	1.60	12	20.5	8.30	3500
1326AB-B410G	460	2.5	118.0	3540	1.00	4	7.4	2.70	5000
1326AB-B410J	460	3.5	165.0	4950	1.40	4	10.4	2.70	7250
1326AB-B420E	460	2.8	70.0	2100	1.10	4	8.5	5.00	3000
1326AB-B420H	460	5.5	137.3	4120	2.20	4	15.6	5.10	6000
1326AB-B430E	460	3.9	67.7	2030	1.40	4	11.7	6.60	3000
1326AB-B430G	460	5.6	114.3	3430	2.30	4	16.8	6.40	5000
1326AB-B515E	460	6.1	70.3	2110	2.30	4	18.3	10.40	3000
1326AB-B515G	460	9.5	88.7	2660	2.90	4	28.5	10.40	5000
1326AB-B520E	460	6.7	71.0	2130	2.90	4	20.1	13.00	3000
1326AB-B520F	460	8.8	70.3	2110	2.90	4	26.4	13.10	3500
1326AB-B530E	460	9.5	74.3	2230	4.20	4	28.5	18.00	3000
1326AB-B720E	460	17.5	70.0	2100	6.80	4	52.5	30.90	3500
1326AB-B720F	460	27.5	117.0	3510	11.70	4	66.5	31.80	5000
1326AB-B730E	460	22.8	78.3	2350	9.60	4	66.5	39.00	3350
1326AB-B740C	460	20.9	52.3	1570	8.70	4	62.7	53.00	2200
1326AB-B740E	460	32.0	79.7	2390	12.70	4	66.5	50.80	3400
1326AS-B310H	460	0.8	204.5	4090	0.30	6	2.4	0.70	6200
1326AS-B330H	460	2.1	204.5	4090	0.90	6	6.0	2.10	6500
1326AS-B420G	460	2.6	179.0	3580	1.20	6	7.8	3.20	5250
1326AS-B440G	460	5.4	149.0	2980	2.00	6	16.2	6.40	5250
1326AS-B460F	460	6.2	148.5	2970	2.80	6	18.6	9.00	4300
1326AS-B630F	460	7.8	142.7	2140	2.40	8	18.5	10.70	4500
1326AS-B660E	460	11.8	100.7	1510	3.40	8	29.8	21.50	3000
1326AS-B690E	460	19.0	87.3	1310	5.00	8	41.3	36.40	3000
1326AS-B840E	460	21.2	79.3	1190	4.70	8	39.5	37.60	3000
1326AS-B860C	460	17.6	77.3	1160	6.00	8	44.4	49.30	2000
1326AH-B330F	460	2.1	0.0	3000	0.75	-	9.0	-	3000
1326AH-B440F	460	3.3	0.0	2500	1.22	-	13.8	-	2500
1326AH-B540F	460	11.1	0.0	2500	2.60	-	47.2	-	2500
3050R-7	390	66.0	50.0	500	30.00	12	132.0	-	500
11050R-7	390	218.0	50.0	500	110.00	12	436.0	-	500

Integrated Motion on EtherNet/IP Application

IMPORTANT	Not all drive functions are accessible when used in an Integrated Motion on EtherNet/IP application.

Introduction

The Integrated Motion on EtherNet/IP application is a feature with v2.*xxx* and higher firmware PowerFlex® 755 drives. It provides a common user experience as Kinetix® 6500 drives when used with Logix controllers (v19 and higher) on an EtherNet/IP network.

- Same motion profile in RSLogix 5000® provides a common configuration experience. The PowerFlex® 755 drive uses the Motion Properties/Axis Properties and the same motion attributes as the Kinetix® 6500 servo drive.
- Same RSLogix 5000® motion instructions provide a common programming experience. An extra motion instruction, MDS – Motion Drive Start, has also been added to allow a ramped start with "Flying Start" capability (ability to start into a rotating motor).

Two options are available for integrating PowerFlex 755 drives with Logix controllers:

1. "Standard Drive" using Drive Add-on Profiles (AOPs) – RSLogix 5000 software v16 and higher.
2. "Integrated Motion Drive" using Integrated Motion on EtherNet/IP technology – RSLogix 5000 software v19 and higher.

When to consider using Integrated Motion on EtherNet/IP with PowerFlex 755 drives:

- Applications having both servos and drives - convenient to be able to configure/program servos and drives the same way.
- Drive applications that could benefit from motion instructions - servo performance is not needed, but it is advantageous to use the RSLogix 5000 motion instruction set to save development time.

IMPORTANT	Firmware v12 and higher requires RSLogix 5000 v28 and higher to work with Integrated Motion on EtherNet/IP.

Special considerations when using PowerFlex 755 drives in Integrated Motion on EtherNet/IP mode:

- A PowerFlex 755 drive does not have the performance of a Kinetix servo and is not intended to be a replacement.

PowerFlex 755 Update	Time
Course Update Period (network)	3 ms min. (6 ms min. when used with a permanent magnet motor without feedback)
Torque loop	256 us
Velocity loop	1024 us
Position loop	1024 us

- When a PowerFlex 755 is used in Integrated Motion on EtherNet/IP mode, the Logix controller and RSLogix 5000 are the exclusive owners of the drive (same as Kinetix). A HIM or other drive software tools, such as DriveExplorer™ and DriveTools™ SP, cannot be used to control the drive or change configuration settings. These tools can only be used for monitoring.
- The following peripherals can be installed, see Feedback Configuration Options on page 503 for valid ports and supported combinations:
  - HIM (20-HIM-A6 / -C6S) - monitor only
  - Universal Feedback Encoder Option (20-750-UFB-1)
  - Incremental Encoder Option (20-750-ENC-1)
  - Dual Incremental Encoder Option (20-750-DENC-1)
  - Safe Torque Off Module (20-750-S)
  - Safe Speed Monitor Module (20-750-S1)
  - 24V Aux Control Power Supply (20-750-APS)

  Other peripherals such as 20-750 I/O modules are supported with firmware revision 12.001 and later.
- Not all drive functions are available when used in an Integrated Motion on EtherNet/IP application. See the Parameter / Instance Attribute Mapping tables in this appendix to view which drive parameters correlate to motion attributes. If a parameter is not listed, it is not accessible and its function is not available. Examples of functions that are not available include:
  - DeviceLogix™
  - Pump Jack and Pump Off
  - Position Jump and Traverse

⚠ **ATTENTION:** A Kinetix drive automatically reads the permanent magnet motor/encoder configuration data. Conversely, permanent magnet motor/encoder configuration data must be manually entered/tuned when using a PowerFlex 755 drive. If incorrect data is entered, unintended motion could occur when a Motion Servo On (MSO) instruction is executed.

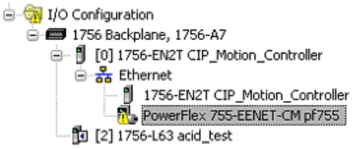
Feedback Configuration Options

The following feedback module combinations are supported.

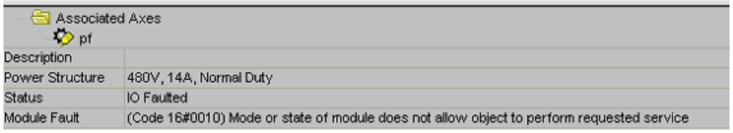
Option	Supported Module	Catalog Number	Valid Ports
Two Feedback Options	Single Incremental Encoder	20-750-ENC-1	4…8
	Dual Incremental Encoder	20-750-DENC-1	4…8
	Universal Feedback	20-750-UFB-1	4…6
Two Feedback Options and One Safe Torque Off Option	Single Incremental Encoder	20-750-ENC-1	4 and 5
	Dual Incremental Encoder	20-750-DENC-1	4 and 5
	Universal Feedback	20-750-UFB-1	4 and 5
	Safe Torque Off	20-750-S	6
Two Feedback Options and One Safe Speed Monitor Option (1)	Single Incremental Encoder	20-750-ENC-1	4 and 5
	Dual Incremental Encoder	20-750-DENC-1	4 and 5
	Universal Feedback	20-750-UFB-1	4 and 5
	Safe Speed Monitor	20-750-S1	6

(1) The Safe Speed Monitor option module must be used with the 20-750-DENC-1 Dual Incremental Encoder module or the 20-750-UFB-1 Universal Feedback module.

An invalid hardware configuration results in a Module Fault: (Code 16#0010) Mode or state of module does not allow object to perform requested service.



- I/O Configuration
  - 1756 Backplane, 1756-A7
    - [0] 1756-EN2T CIP_Motion_Controller
      - Ethernet
        - 1756-EN2T CIP_Motion_Controller
        - PowerFlex 755-EENET-CM pf755
    - [2] 1756-L63 acid_test



- Associated Axes
  - pf

Description	
Power Structure	480V, 14A, Normal Duty
Status	IO Faulted
Module Fault	(Code 16#0010) Mode or state of module does not allow object to perform requested service

Considerations for Using Position Feedback Devices on the PowerFlex 755 in the Integrated Motion on EtherNet/IP Context

The PowerFlex 755 drive connects to position feedback devices (encoders) by using one or more feedback option modules that are installed in the control pod.

There are currently three supported types of feedback modules:

- Single Incremental Encoder (20-750-ENC-1)
- Dual Incremental Encoder (20-750-DENC-1)
- Universal Feedback (20-750-UFB-1)

IMPORTANT	Single and dual incremental feedback options, 20-750-ENC-1 and 20-750-DENC-1, cannot use registration inputs. Use the Universal Feedback option 20-750-UFB-1 if registration homing inputs are required.

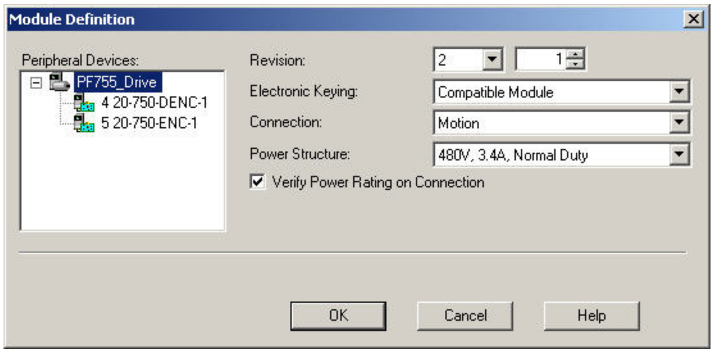
The 20-750-DENC-1 and 20-750-UFB-1 modules contain two “hardware feedback channels”, which means up to two encoders can be connected to each module. The 20-750-ENC-1 only contains one hardware feedback channel.

An Integrated Motion on EtherNet/IP Axis can have up to two feedback devices that are associated with it. When two devices are in use, they are defined as the “Motor Feedback Device” and the “Load Feedback Device.” These two devices are also referred to as “Integrated Motion on EtherNet/IP Feedback 1” and “Integrated Motion on EtherNet/IP Feedback 2,” respectively.

Each Integrated Motion on EtherNet/IP feedback device has an associated Integrated Motion on EtherNet/IP feedback type. The feedback type describes the type of encoder that can be used as that feedback device.

When configuring a drive using RSLogix 5000 and Integrated Motion on EtherNet/IP, the Associated Axes page of the drive Module Properties dialog is used to associate each feedback device with a feedback hardware channel on the drive.

Before using the Associated Axes page, each feedback module present in the drive must be defined on the Module Definition dialog box. The Module Definition dialog box is accessed from the General tab of the Module Properties dialog box for the drive.



Module Definition

Peripheral Devices:
- PF755_Drive
  - 4 20-750-DENC-1
  - 5 20-750-ENC-1

Revision: 2 1

Electronic Keying: Compatible Module

Connection: Motion

Power Structure: 480V, 3.4A, Normal Duty

☑ Verify Power Rating on Connection

After each feedback module has been defined, a drive hardware feedback channel must be selected for each feedback device. A list defines each available channel by the control-pod port number of the feedback module and the channel within that port. A sequential alphabetic character is used to identify each available feedback channel for a module. For example, if a feedback module contains two channels, they are identified as “Channel A” and “Channel B.”

The correct wiring for an encoder in this system depends on three things:

- The type of feedback module
- The type of encoder
- Which hardware feedback channel is used to connect the encoder (A or B)

If there is only one way to wire an encoder to a feedback module, then either hardware Channel A or Channel B can be selected for the feedback module.

If there are two ways to wire an encoder to a feedback module, “Channel A” is used for one set of terminals, and “Channel B” is used for the other set of terminals.

Table 28 identifies the allowed Integrated Motion on EtherNet/IP Feedback types and the correct encoder connection terminals when the feedback module is a
20-750-ENC-1.

Table 28 - Single Incremental-encoder Feedback Type and Connections

Integrated Motion on EtherNet/IP Feedback Type	20-750-ENC-1: Channel A Terminals
Not Specified (0)	N/A
Digital AqB (1)	A (NOT), A, B (NOT), B, Z (NOT), Z

Table 29 shows the allowed Integrated Motion on EtherNet/IP Feedback types and the correct encoder connection terminals when the feedback module is a 20-750-DENC-1.

Table 29 - Dual Incremental-encoder Feedback Type and Connections

Integrated Motion on EtherNet/IP Feedback Type	20-750-DENC-1: Channel A Terminals	20-750-DENC-1: Channel B Terminals
Not Specified (0)	N/A	N/A
Digital AqB (1)	Encoder 0: A (NOT), A, B (NOT), B, Z (NOT), Z	Encoder 1: A (NOT), A, B (NOT), B, Z (NOT), Z

Table 30 lists the allowed Integrated Motion on EtherNet/IP Feedback types and the correct encoder connection terminals when the feedback module is a Universal Feedback module, 20-750-UFB-1. It also identifies how the two “Device Select” parameters on the 20-750-UFB-1 module are configured in each case.

When a 20-750-UFB-1 module is used in an Integrated Motion on EtherNet/IP system, the “FB0” parameters are always used for configuration and status of Channel A and the “FB1” parameters are always used for configuration and status of Channel B.

Table 30 identifies that, for some Integrated Motion on EtherNet/IP Feedback Types, there are two possible connection schemes using RSLogix 5000. If Channel A is selected, one scheme is used. If Channel B is selected, the other scheme is used. Conversely, for the other Integrated Motion on EtherNet/IP Feedback Types, there is only one possible connection scheme.

The “Digital AqB” Feedback Type is a special case. If only one of the channels on a particular 20-750-UFB-1 module is configured to “Digital AqB”, then the A, B, and Z terminals are used, regardless of whether this type is assigned to Channel A or Channel B. If both channels are configured to “Digital AqB”, then Channel A uses the A, B, Z terminals, and Channel B uses the terminals that are labeled “Sine” and “Cosine”. In this case, they are expected to carry normal AqB encoder signals. These two cases are included in the table.

Configuration of both 20-750-UFB-1 module channels to use the same terminals is considered a configuration error and does not allow proper operation of the system.

Table 30 Universal Feedback Type and Connections

Integrated Motion on EtherNet/IP Feedback Type	Channel A (FB0) Device Sel	Channel B (FB1) Device Sel (if different)	Channel A Terminals	Channel B Terminals
Not Specified	None (0)		N/A	
Digital AqB Note: This row only applies if both channels of the UFB **Are Not** simultaneously configured to Feedback Type = “Digital AqB”	Inc A B Z (12)		-A, A, -B, B, -Z, Z	
Digital AqB Note: This row only applies if both channels of the UFB **Are** configured to Feedback Type = “Digital AqB”	Inc A B Z (12)	Inc SC (13)	-A, A, -B, B, -Z, Z	Sine (-), Sine (+), Cosine (-), Cosine (+) **Note: No Z (marker) input available.**
Sine/Cosine	SinCos Only (11)		Sine (-), Sine (+), Cosine (-), Cosine (+)	
Hiperface	Hiperface SC (2)		Sine (-), Sine (+), Cosine (-), Cosine (+), -Xd, +Xd	
EnDat 2.1	EnDat SC (1)		Sine (-), Sine (+), Cosine (-), Cosine (+), -Xc, +Xc, -Xd, +Xd	
EnDat 2.2	EnDat FD ChX (5)	EnDat FD ChY (6)	-Xc, +Xc, -Xd, +Xd	-Yc, +Yc, -Yd, +Yd
SSI (Rotary)	SSI SC (4)		Sine (-), Sine (+), Cosine (-), Cosine (+), -Xc, +Xc, -Xd, +Xd	
SSI (Linear)	LinSSI ChX (18)	LinSSI ChY (19)	-Xc, +Xc, -Xd, +Xd	-Yc, +Yc, -Yd, +Yd
SSI (Full Rotary Digital)	SSI FD ChX	SSI FD ChY	-Xc, +Xc, -Xd, +Xd	-Yc, +Yc, -Yd, +Yd
Stahl SSI	LinStahl ChX (16)	LinStahl ChY (17)	-Xc, +Xc, -Xd, +Xd	-Yc, +Yc, -Yd, +Yd

Although the 20-750-UFB-1 module ostensibly supports two feedback channels, there are many combinations of device types that do not work and result in an error state on the module if they are configured.

See the Feedback Options table located in the PowerFlex 750-Series AC Drives Technical Data, publication 750-TD001, for compatible and non-compatible combinations.

Non-compatible selections lead to a Configuration Conflict (Type 2 Alarm): Bit 20 “FB0FB1 Cflct” of parameter 1 [Module Status] is set.

Torque Prove and Brake Slip Detect

⚠ **ATTENTION:** Loss of control in suspended load applications can cause personal injury and/or equipment damage. The drive or a mechanical brake must always control the load. TorqProve™ is designed for lifting/torque prove applications. It is the responsibility of the engineer and/or end user to configure drive parameters, test any lifting functionality and meet safety requirements in accordance with all applicable codes and standards.

⚠ **ATTENTION:** When enabling the Torque Prove/Brake Slip detection, the axis application type must be Constant Speed, Tracking, or Custom with Velocity Integral enabled. Failure to do so results in unstable operation upon brake release, because torque pre-load is not applied.

⚠ **ATTENTION:** When being used as a positioning axis, the AxisName:MechanicalBrakeReleaseStatus bit must be monitored, along with a timer configured to compensate for brake release time, before a motion command can be performed after the initial MSO instruction. Failure to monitor the mechanical brake release status along with a timer to prevent motion can cause the axis to try to drive through a brake that has not been released. This may cause a Speed Deviation error and fault the axis on a Torque Prove fault. Another option would be to use a digital input as brake open if such a contact exists.

IMPORTANT The Stop Type Action cannot be set to Disable and Coast when using torque prove/brake slip detection.

IMPORTANT Do not use the MSO, MAJ, and MAM commands when running a TorqProve application without encoder feedback. Start the axis with the MDS instruction and stop the axis the with MSF instruction.

IMPORTANT Not all drive functions are accessible when used in an Integrated Motion on EtherNet/IP application.

Encoder Feedback Operation

Velocity Mode using the Motion Drive Start (MDS) Instruction to Operate the Axis

1. The MDS instruction is initiated. The following actions occur:
    - The axis is enabled.
    - The output phase loss is checked.
    - A torque command is preloaded from a previous move or from a customer-defined, preloaded value.
    - The torque current feedback is verified and the brake is commanded to release.
    - After the brake release time has expired, the axis velocity reference is released.

    The axis is now under control velocity command.
2. The Motion Servo Off (MSF) instruction is initiated and the brake prove routine begins.
    a. If the brake prove routine is successful, the power structure is disabled and the axis enters the Stopped state.
    b. If the brake has slipped, the axis issues a brake slip alarm and remains active. The axis can be restarted and the load can be lowered to a safe location. When the brake no longer slips after an MSF instruction, the Brake Malfunction fault occurs and requires a power cycle to clear the fault.
    c. If enabled, the Auto Sag routine issues a brake slip alarm and runs the Auto Sag routine.

    The Auto Sag routine repeatedly attempts to set the brake and check for slippage. When the load no longer slips, the power structure is disabled and a Brake Malfunction fault occurs. A power cycle is required to clear the fault. The Auto Sag routine cannot be interrupted.

Velocity or Position Modes using a Motion Servo On (MSO) and Move Instructions to Control the Axis

1. The MSO instruction is initiated. The following actions occur:
    - The axis is enabled.
    - An output phase loss is checked.
    - The torque command is preloaded from a previous move or from a customer-defined, preloaded value.
    - The torque current feedback is verified and a brake release command is issued.
    - Motion is enabled when the brake timer expires.
2. When the brake release timer has expired, motion can be allowed (for example, MAJ, MAM, and MAG).
3. Control the axis as desired for position or velocity.

4. An MSF instruction is initiated and the Brake Proving routine is started when desired.
   a. If the brake prove routine is successful, the power structure is disabled and the axis enters the Stopped state.
   b. If the brake has slipped, the axis issues a Brake Slip alarm and remains active. The axis can be restarted and the load lowered to a safe location. When the brake no longer slips after an MSF instruction, the Brake Malfunction fault occurs and requires a power cycle to clear the fault.
   c. If enabled, the Auto Sag routine issues a Brake Slip alarm and runs the Auto Sag routine.

      The Auto Sag routine repeatedly attempts to set the brake and check for slippage. When the load no longer slips, the power structure is disabled and a Brake Malfunction fault occurs. A power cycle is required to clear the fault. The Auto Sag routine cannot be interrupted.

Settings

Parameters to Configure Torque Prove, Brake Check, and Auto Sag

The following parameters are accessed via the Axis Properties -> Parameter List Category.

Table 31 - Axis Properties Parameters

Parameter Name	Description
AutoSagConfiguration	Enables the drive to control the load to a no slip condition by repeatedly attempting to set the brake and test for slip until the load no longer slips. If set to zero, the drive detects a brake slip and holds the load at zero speed.
AutoSagSlipIncrement	The distance in position/feedback units that the brake is allowed to slip before enabling the Auto Sag routine to control a brake slip event. An encoder is required to operate.
AutoSagStart	Enables the routine that monitors the encoder for brake slip when the power structure is disabled. If the brake slips more than the value of AutoSagSlipIncrement, the power structure is enabled and the Auto Sag routine begins. The AutoSagConfiguration parameter must also be enabled. AutoSagStart is not used when encoderless operation is enabled.
BrakeProveRampTime	The time that is required to ramp the torque reference from 100 % to zero during the brake slip test.
BrakeSlipTolerance	Sets the number of motor shaft revolutions allowed during the brake slippage test. Drive torque is reduced to check for brake slippage. When slippage occurs, the drive allows the number of motor shaft revolutions before regaining control. BrakeSlipTolerance is not used when encoderless operation is enabled.
BrakeTestTorque	Percentage of motor rated torque that is used to test the brake before releasing on the brake test. Any setting above 0 enables the brake test routine before releasing the brake for normal motion of the axis. BrakeTestTorque is only active with encoder feedback.
MechanicalBrakeEngageDelay	The time that is required for the brake to mechanically engage the system before the brake slip test begins in encoder feedback mode. In Encoderless, it is the time that the axis will remain active after the brake is commanded to set before the axis power structure is disabled

Table 31 - Axis Properties Parameters

Parameter Name	Description
MechanicalBrakeReleaseDelay	Time that is required for the mechanical brake to disengage after the command is issued.
ProvingConfiguration	Enables the Torque Prove/Mechanical Brake control/Brake Slip check routine within the Axis Power Structure.
ZeroSpeed	Percentage of axis motor rated velocity before setting the brake for the brake slip routine in encoder feedback mode. In encoderless operation, it is the point at which the brake is commanded to disengage when accelerating from zero speed and the point at which the brake sets when decelerating toward zero speed.
ZeroSpeedTime	Time the axis must be at or below zero speed before the brake is set in encoder feedback operation.

IMPORTANT When a system is configured for operation and the program is downloaded to the processor, the Speed Deviation Band is set to 0 and can cause a speed deviation fault with TorqProve when a move is attempted. To correct this error, an Enhanced Attribute message must be sent to the drive to configure it. Send a 'Real' value from 10…25% to Attribute 2724 decimal or AA4 Hex.

Encoderless Operation (Velocity or Frequency Sensorless Vector)

1. An MDS instruction is initiated (an MSO instruction is not allowed in encoderless operation).
   - The axis is enabled.
   - An output phase loss is checked.
   - The velocity is increased until the value of ZeroSpeedTolerance is reached and the brake is released.
   - The torque current feedback is verified and a brake release command is issued.
   - After the brake release timer has expired, the axis velocity reference is released.
2. The axis is now under the control of a velocity command.

To stop the system, an MSF instruction must be initiated (a MAS instruction is not allowed in encoderless operation). The velocity ramps down until the value of ZeroSpeedTolerance is reached and the brake is set. Brake slip detection cannot be accomplished.

PowerFlex 755 Integrated Motion Using Firmware Revision 12.001 or Later

Add an I/O Module to a PowerFlex 755 Drive

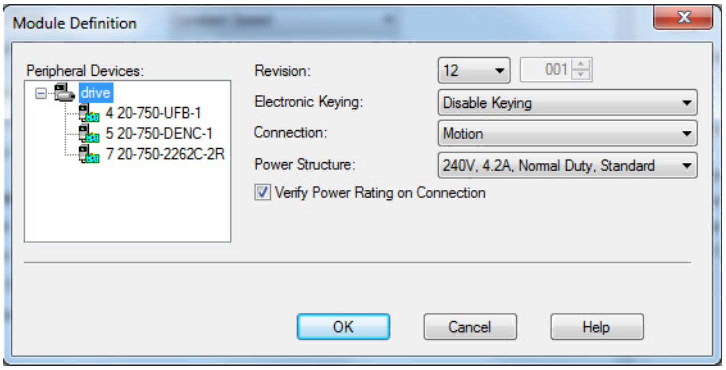
You can add an I/O module to the drive Integrated Motion on EtherNet/IP connection when using PowerFlex 755 firmware revision 12.001 and later and Studio 5000 Logix Designer® version 28.00.02 or later. **The I/O module must be installed in Port 7 in the control pod of a frame 2 or larger PowerFlex 755 drive.**

Configure I/O Device Properties

Follow these basic steps to add and configure an I/O module for a PowerFlex 755 drive.

1. In the Module Definition dialog box for the drive, right-click and add an I/O module (new peripheral device) to Port 7.

   The I/O module has already been added to the drive in this example.



Peripheral Devices:
- drive
  - 4 20-750-UFB-1
  - 5 20-750-DENC-1
  - 7 20-750-2262C-2R

Revision: 12 001

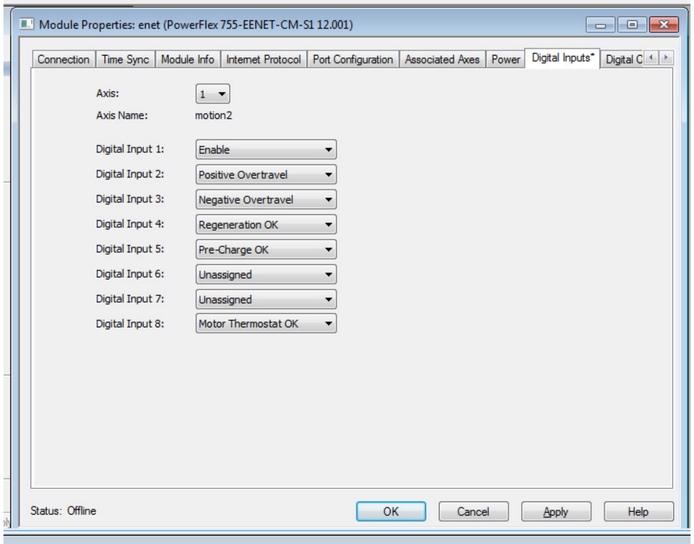
Electronic Keying: Disable Keying

Connection: Motion

Power Structure: 240V, 4.2A, Normal Duty, Standard

☑ Verify Power Rating on Connection

2. In the Module Properties dialog box for the drive, on the Digital Inputs tab, select the appropriate digital input functions.



Axis: 1

Axis Name: motion2

Digital Input 1: Enable

Digital Input 2: Positive Overtravel

Digital Input 3: Negative Overtravel

Digital Input 4: Regeneration OK

Digital Input 5: Pre-Charge OK

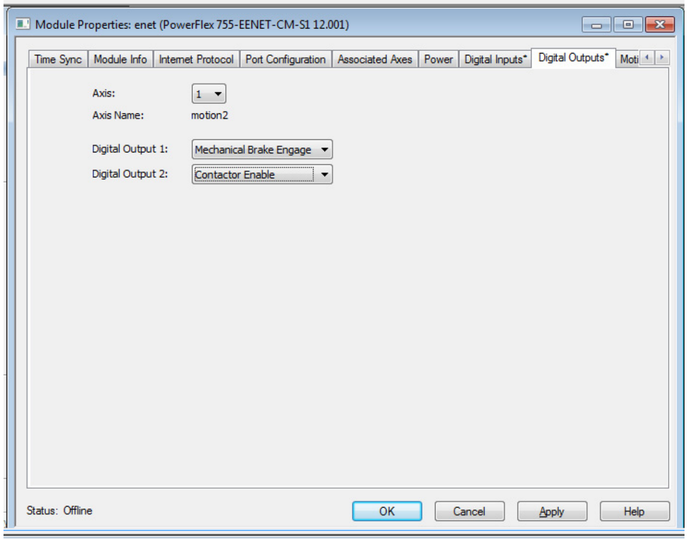
Digital Input 6: Unassigned

Digital Input 7: Unassigned

Digital Input 8: Motor Thermostat OK

Status: Offline

3. In the Module Properties dialog box for the drive, on the Digital Outputs tab, select the appropriate digital output functions.



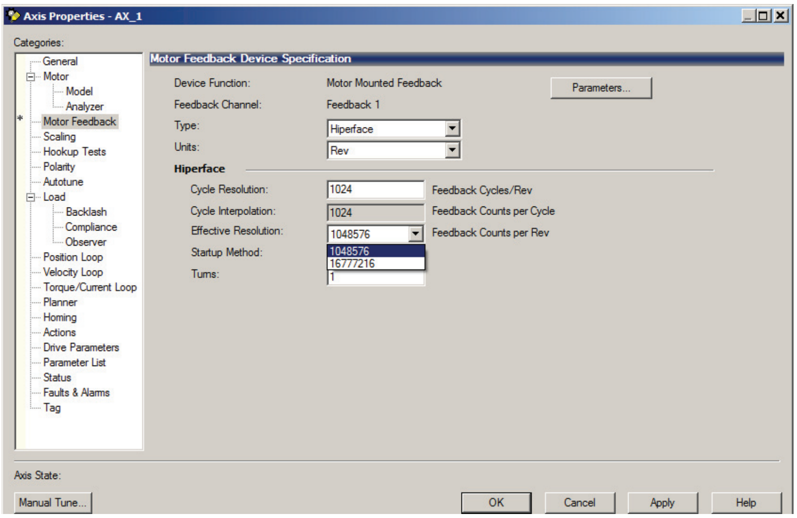
Axis: 1
Axis Name: motion2
Digital Output 1: Mechanical Brake Engage
Digital Output 2: Contactor Enable
Status: Offline

Configure 20-bit or 24-bit Motor Feedback Device Resolution

You can configure 20-bit or 24-bit effective resolution for the following feedback devices:

- Hiperface
- Heidenhain SC
- SSI SC

Set the desired effective resolution on the Motor Feedback tab of the Axis Properties dialog box for the axis associated with the drive. This feature is available in PowerFlex 755 firmware revision 12.001 and later and Studio 5000 Logix Designer® version 28.00.02 or later.



Device Function: Motor Mounted Feedback
Feedback Channel: Feedback 1
Type: Hiperface
Units: Rev
Cycle Resolution: 1024 Feedback Cycles/Rev
Cycle Interpolation: 1024 Feedback Counts per Cycle
Effective Resolution: 1048576 Feedback Counts per Rev
Startup Method:
Turns: 1

Parameter / Instance Attribute Mapping

Table 32 provides the relationship between PowerFlex 755 drive parameters and the Integrated Motion on EtherNet/IP attributes. If a parameter is not listed, it is not accessible and its function is not available.

Table 32 - Parameter/Instance to Attribute Mapping

Drive		Integrated Motion
Parameter No.	**Parameter Name**	**Integrated Motion on EtherNet/IP Instance**
P1	Output Frequency	Output Frequency
P1	Output Frequency	Output Frequency, I/O Card
P5	Torque Cur Fdbk	Iq Current Feedback
P5	Torque Cur Fdbk	Torque Current Feedback, I/O Card
P6	Flux Cur Fdbk	Id Current Feedback
P7	Output Current	Output Current
P8	Output Voltage	Output Voltage
P9	Output Power	Output Power
P10	Output Powr Fctr	Output Power Factor, Sets Port 7
P11	DC Bus Volts	DC Bus Voltage
P12	DC Bus Memory	DC Bus Voltage - Nominal
P20	Rated Volts	Inverter Rated Output Voltage
P20	Rated Volts	Inverter Rated Output Voltage, Sets Port 7
P21	Rated Amps	Inverter Rated Output Current
P22	Rated kW	Inverter Rated Output Power
P25	Motor NP Volts	Motor Rated Voltage
P26	Motor NP Amps	Motor Rated Continuous Current
P27	Motor NP Hertz	Induction Motor Rated Frequency
P28	Motor NP RPM	Rotary Motor Rated Speed
P30	Motor NP Power	Motor Rated Output Power
P30	Motor NP Power	Motor Rated Output Power, Sets Port 7
P31	Motor Poles	Rotary Motor Poles
P36	Maximum Voltage	Maximum Voltage
P37	Maximum Freq	Maximum Frequency
P44	Flux Up Time	Flux Up Time
P50	Stability Filter	Stability Filter, I/O Card
P60	Start Acc Boost	Start Boost
P60	Start Acc Boost	Start Boost, I/O Card
P61	Run Boost	Run Boost
P62	Break Voltage	Break Voltage
P63	Break Frequency	Break Frequency
P65	VHz Curve	Frequency Control Method
P73	IR Voltage Drop	Induction Motor Stator Resistance
P74	Ixo Voltage Drop	Induction Motor Stator Leakage Reactance
P75	Flux Current Ref	Induction Motor Flux Current
P76	Total Inertia	Kj
P81	PM PriEnc Offset	Commutation Offset
P82	PM AltEnc Offset	PM Motor Alternate Encoder Offset, I/O Card
P86	PM CEMF Voltage	PM Motor Rotary Voltage Constant

Table 32 - Parameter/Instance to Attribute Mapping (Continued)

Drive		Integrated Motion
Parameter No.	**Parameter Name**	**Integrated Motion on EtherNet/IP Instance**
P87	PM IR Voltage	PM Motor Resistance
P88	PM IXq Voltage	PM Motor Inductance
P89	PM IXd Voltage	PM Motor Inductance
P92	PM Vqs Reg Ki	PM Motor Vqs Regulator Integral Gain, I/O Card
P95	VCL Cur Reg BW	Kqp
P126	Pri Vel FdbkFltr	Feedback n Velocity Filter Taps
P155	DI Enable	Digital Input Configuration
P220	Digital In Sts	Digital Inputs
P305	Voltage Class	Bus Voltage Select
P306	Duty Rating	Duty Select
P309	SpdTrqPsn Mode A	Control Mode
P309	SpdTrqPsn Mode A	SLAT Configuration
P314	SLAT Err Stpt	SLAT Set Point
P315	SLAT Dwell Time	SLAT Time Delay
P370	Stop Mode A	Stopping Mode
P372	Bus Reg Mode A	Bus Regulator Action
P375	Bus Reg Level	Bus Regulator Reference
P382	DB Resistor Type	Shunt Regulator Resistor Type
P383	DB Ext Ohms	External Shunt Resistance
P384	DB Ext Watts	External Shunt Power
P385	DB ExtPulseWatts	External Shunt Pulse Power
P388	Flux Braking En	Flux Braking Enable
P394	DC Brake Level	DC Injection Brake Current
P395	DC Brake Time	DC Injection Brake Time
P412	Mtr OL Alarm Lvl	Motor Thermal Overload User Limit
P413	Mtr OL Factor	Motor Overload Limit
P418	Mtr OL Counts	Motor Capacity
P420	Drive OL Mode	Inverter Overload Action
P422	Current Limit 1	Motor Rated Peak Current
P426	Regen Power Lmt	Regenerative Power Limit
P436	Shear Pin1 Level	Overtorque Limit
P437	Shear Pin 1 Time	Overtorque Limit Time
P442	Load Loss Level	Undertorque Limit
P443	Load Loss Time	Undertorque Limit Time
P445	Out PhaseLossLvl	Output Phase Loss Level
P450	Pwr Loss Mode A	Power Loss Action
P451	Pwr Loss A Level	Power Loss Threshold
P452	Pwr Loss A Time	Power Loss Time
P461	UnderVltg Level	Bus Undervoltage User Limit
P520	Max Fwd Speed	Velocity Limit - Positive
P521	Max Rev Speed	Velocity Limit - Negative
P524	Overspeed Limit	Motor Overspeed User Limit
P526	Skip Speed 1	Skip Speed 1

Table 32 - Parameter/Instance to Attribute Mapping (Continued)

Drive		Integrated Motion
Parameter No.	**Parameter Name**	**Integrated Motion on EtherNet/IP Instance**
P527	Skip Speed 2	Skip Speed 2
P528	Skip Speed 3	Skip Speed 3
P529	Skip Speed Band	Skip Speed Band
P535	Accel Time 1	Ramp Acceleration
P537	Decel Time 1	Ramp Deceleration
P540	S Curve Accel	Ramp Jerk Control
P541	S Curve Decel	Ramp Jerk Control
P546	Spd Ref A Stpt	Velocity Feedforward Command
P549	Spd Ref A Mult	Kvff
P597	Final Speed Ref	Velocity Reference
P601	Trim Ref A Stpt	Velocity Trim
P620	Droop RPM at FLA	Kdr
P621	Slip RPM at FLA	Induction Motor Rated Slip Speed
P635	Spd Options Ctrl	Velocity Integrator Control
P639	SReg FB Fltr BW	Feedback n Velocity Filter Bandwidth
P641	Speed Error	Velocity Error
P643	SpdReg AntiBckup	Knff
P644	Spd Err Fltr BW	Velocity Low Pass Filter Bandwidth
P645	Speed Reg Kp	Kvp
P647	Speed Reg Ki	Kvi
P652	SReg Trq Preset	Velocity Integrator Preload
P654	Spd Reg Int Out	Velocity Integrator Output
P659	SReg OutFltr BW	Torque Lead Lag Filter Bandwidth
P660	SReg Output	Velocity Loop Output
P670	Pos Torque Limit	Torque Limit - Positive
P671	Neg Torque Limit	Torque Limit - Negative
P685	Selected Trq Ref	Torque Reference
P686	Torque Step	Torque Trim
P687	Notch Fltr Freq	Torque Notch Filter Frequency
P689	Filtered Trq Ref	Torque Reference - Filtered
P690	Limited Trq Ref	Torque Reference - Limited
P696	Inertia Acc Gain	Kaff
P697	Inertia Dec Gain	Kaff
P704	InAdp LdObs Mode	Load Observer Configuration
P705	Inertia Adapt BW	Feedback n Accel Filter Bandwidth
P706	InertiaAdaptGain	Kof
P707	Load Estimate	Load Observer Torque Estimate
P708	InertiaTrqAdd	Load Observer Acceleration Estimate
P708	InertiaTrqAdd	Total Inertia Estimate
P711	Load Observer BW	Kop
P721	Position Control	Position Integrator Control
P723	Psn Command	Position Reference
P756	Interp Psn Input	Controller Position Command - Float
P757	Interp Vel Input	Controller Velocity Command

Table 32 - Parameter/Instance to Attribute Mapping (Continued)

Drive		Integrated Motion
Parameter No.	**Parameter Name**	**Integrated Motion on EtherNet/IP Instance**
P758	Interp Trq Input	Controller Torque Command
P759	Interp Psn Out	Fine Command Position
P760	Interp Vel Out	Fine Command Velocity
P761	Interp Trq Out	Torque Command
P821	Psn Offset 1	Position Trim
P830	PsnNtchFltrFreq	Position Notch Filter Frequency
P833	Psn Out FltrGain	Position Lead Lag Filter Gain
P834	Psn Out Fltr BW	Position Lead Lag Filter Bandwidth
P835	Psn Error	Position Error
P837	Psn Load Actual	Position Integral Feedback
P838	Psn Reg Ki	Kpi
P839	Psn Reg Kp	Kpp
P842	PsnReg IntgrlOut	Position Integrator Output
P843	PsnReg Spd Out	Position Loop Output
P847	Psn Fdbk	Position Feedback
P940	Drive OL Count	Inverter Capacity (See See Motor Overload on page 517)
P942	IGBT Temp C	Inverter Temperature
P944	Drive Temp C	Inverter Heatsink Temperature
P945	At Limit Status	At Limit Status
P1100, Bit 0	Trq Prv Cfg/TP Enable	Proving Configuration
P1100, Bit 6	Trq Prv Cfg/BrkSlipStart	Auto Sag Start
P1100, Bit 9	Trq Prv Cfg/BrkSlp SpdLmt	Auto Sag Config
P1104	Trq Lmt SlewRate	Brake Prove Ramp Time
P1107	Brk Release Time	Mechanical Brake Release Delay
P1108	Brk Set Time	Mechanical Brake Engage Delay
P1109	Brk Alarm Travel	Auto Sag Slip Increment
P1110	Brk Slip Count	Brake Slip Tolerance
P1111	Float Tolerance	Zero Speed
P1113	ZeroSpdFloatTime	Zero Speed Time
P1114	Brake Test Torq	Brake Test Torque

Motor Overload

There is a difference between how Kinetix handles an overload condition compared to the PowerFlex755 drive. Kinetix is motor capacity whereas PowerFlex 755 is motor overload.

The Motion attribute, Inverter Capacity, is a real-time estimate of the continuous rated motor thermal capacity that is used during operation, which is based on the motor thermal model. A value of 100 % indicates that the motor is being used at 100 % of rated capacity as determined by the continuous current rating of the motor.

The PowerFlex 755 parameter 940 [Drive OL Count] indicates power unit overload (I^2T) in percentage. The value of this parameter remains at 0 until 100 % of Rated Current is reached. At 100 % of Rated Current, Overload measurement begins and the power unit overload fault occurs.

Positive and Negative Overtravel Input

When the PowerFlex 755 drive is in integrated motion mode, Logix allows configuration of the Positive or Negative Overtravel inputs on an I/O module in Port 7 of the drive. After the inputs are configured in the drive firmware, if the Positive or Negative Overtravel Input is activated, the drive firmware generates a Positive or Negative Overtravel fault. When the fault occurs the drive axis coasts to a stop. This fault action is not configurable.

Pre-charge OK Input

This feature extends the precharge input monitoring capability to the PowerFlex 755 drive in integrated motion. The event processing is as follows:

1. If the configured Pre-charge OK Input becomes inactive and the drive is in the Stopped state, the drive enters the precharge state.
2. If the configured Pre-charge OK input becomes inactive and the drive is in the Running state, the drive generates the Converter Pre-charge Input Deactivated exception and performs a Fault Coast Stop.

Brake Output

This feature provides for the configuration of the Brake Output functionality via a relay output to the PowerFlex 755 in integrated motion only.

Regeneration OK Input

This feature adds the Regeneration OK Input functionality to the PowerFlex 755 drive in integrated motion only.

When the drive detects the Regeneration OK Input transition to an 'inactive' state, the drive generates the Regeneration Power-supply Failure exception and coasts to a stop, if in motion. The exception cannot be configured and is assigned Stop Drive only.

Contactor Enable Output

A Contactor Enable Output can be configured in the PowerFlex 755 drive in integrated motion only. The operation of this output is tied to fault processing in the drive. The drive de-energizes the Contactor Enable Output when an exception causes the axis to go to the 'shut down' state.

Note: This configuration is only valid when an auxiliary power supply is used for control power with frames 1…7 drives or when a 24 auxiliary power supply is used on frames 8…10 drives.

Analog Input and Output

This feature requires the drive firmware to map analog inputs and outputs on configured I/O modules (installed in Port 7) for use in Studio 5000 Logix Designer® by using the existing attributes. Access to the analog data is available by selecting the attributes in the Axis Properties - Drive Parameters tab of the axis.

The PowerFlex 755 drive has two Analog Outputs that are available for use.

Digital Input and Output

This feature requires the drive firmware to map digital inputs and outputs on configured I/O modules (installed in Port 7) for use in Studio 5000 Logix Designer® by using existing attributes. Access to the digital data is available by selecting the attributes in the Axis Properties - Drive Parameters tab of the axis.

Motor Thermostat Input

Motor thermostat input functionality is provided through the motor thermostat input (PTC) on the 22-Series I/O modules (installed in Port 7) when in Integrated Motion on EtherNet/IP mode.

The functionality is the same as the motor thermostat functionality in parameter mode. When the PTC input resistance transitions from low to high at the design temperature, the drive issues a motor over temperature fault, 18 [Motor PTC Trip].

The functionality supports the current motor thermostat range for status trip and reset in parameter mode. However, this functionality is not suitable for Allen-Bradley® MPL and MPM motors due to the varying hardware capacities and thermostat ranges of the Kinetix and 22-Series I/O modules.

SSI Rotary Full Digital Feedback

IMPORTANT See Knowledgebase, article 745654, before using this functionality.

Integrated motion supports SSI Rotary Full Digital Feedback types. The drive also supports these feedback devices that are connected to the Universal Feedback module (20-750-UFB-1) in parameter mode. This feedback type can now be configured for use with the PowerFlex 755 drive in integrated motion. Configuration of the new feedback type is accessible from the Axis Properties - Feedback tab.

24-bit Device Feedback Configuration

The PowerFlex 755 drive supports 24-bit resolution configuration for the following feedback types in parameter mode:

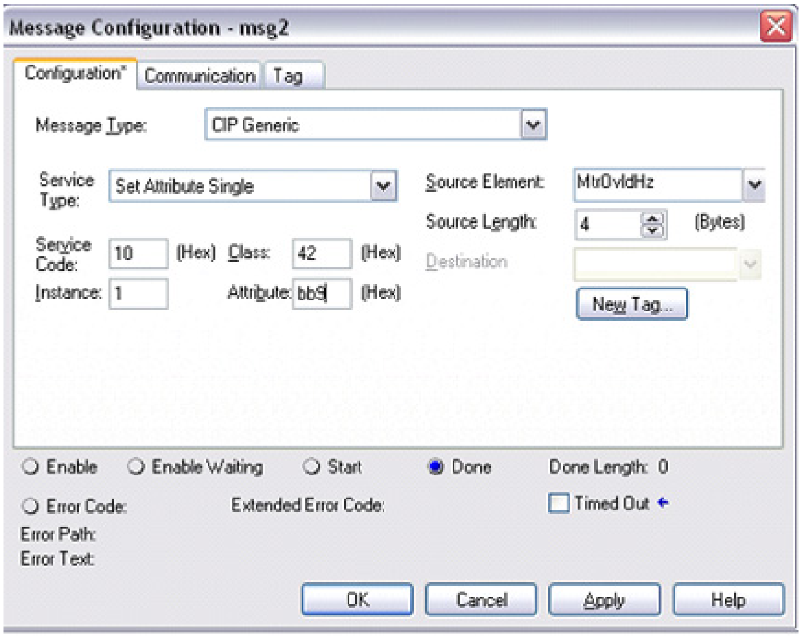
- Sine/Cosine (rotary and linear)
- Hiperface (rotary only)
- EnDat Sine/Cosine (rotary only)
- EnDat Digital (rotary only)
- SSI SC (rotary only)

The feature allows these feedback types to be configured for 24-bit effective resolution in integration motion mode. The 24-bit effective resolution configuration is accessible from the Axis Properties - Feedback tab.

Enhanced Attributes

Enhanced attributes are accessed via an MSG instruction in RSLogix 5000. These values are the same for all enhanced attribute writes. Only the Attribute number and Source Element changes.

IMPORTANT Execute message commands each time the Integrated Motion on the EtherNet/IP network connection is established. Message commands are necessary because the controller defaults all drive parameters when it establishes the Integrated Motion on the EtherNet/IP network connection.



Message Type: CIP Generic

Service Type: Set Attribute Single

Service Code: 10 (Hex) Class: 42 (Hex)

Instance: 1 Attribute: bb9 (Hex)

Source Element: MtrOvldHz

Source Length: 4 (Bytes)

Destination:

○ Enable ○ Enable Waiting ○ Start ● Done Done Length: 0

○ Error Code: Extended Error Code: ☐ Timed Out

Error Path:

Error Text:

- Message Type - Choose CIP Generic.
- Service Type or Service Code - Choose the source or enter the hex value for the service that is performed on the specified object. 10 (hex) for Set Attribute Single, or 0E (hex) for Get Attribute Single.
- Class - Enter the hex value for the type or class of object to which the service is sent. 42 (hex) for Motion Device Axis Object.
- Instance - Enter the instance of the object to which the service is sent. Always a 1 for drive instance.
- Attribute - Enter the hex value of the attribute of the object to which the service is sent.
- Source Element Pull-down Menu - Choose a local source tag that contains more service parameters and/or data that is sent with the set request. For a get request, this field appears dimmed.
- Source Length - Enter or choose the number of bytes of data from the source tag that is included with the set request. For a get request, this field appears dimmed.
- Destination Pull-down Menu - Choose a local destination tag to receive the result of a get request. For a set request, this field is appears dimmed.

Drive Parameter / Enhanced Attribute Mapping

Table 33 - PowerFlex 755 Drive Parameter Numeric Order

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
38	PWM Frequency	604	25C	PWM Frequency	Real
40, Bit 3	Mtr Option Cfg/Encls Trq Prov	2723	AA3	Encoderless Torque Prove	SINT
40, Bit 10	Mtr Options Cfg	2740	AB4	Motor Options Cfg, DB While Stop	SINT
64	SVC Boost Filter	3000	BB8	SVC Boost Filter	Real
80	PM Cfg	2600	A28	PM Test Cfg	INT
83	PM OfstTst Cur	3004	BBC	PM OfstTst Cur	Real
91	PM Vqs Reg Kp	3005	BBD	PM Vqs Reg Kp	Real
92	PM Vqs Reg Ki	3006	BBE	PM Vqs Reg Ki	Real
93	PM Dir Test Cur	3003	BBB	PM Dir Test Cur	Real
95	VCL Cur Reg BW	554	22A	kQP	Real
96	VCL Cur Reg Kp	2685	A7D	VCL Cur Reg Kp	Real
97	VCL Cur Reg Ki	2686	A7E	VCL Cur Reg Ki	Real
98	VEncdls FReg Kp	2687	A7F	VEncdls FReg Kp	Real
99	VEncdls FReg Ki	2688	A80	VEncdls FReg Ki	Real
100	Slip Reg Enable	2689	A81	Slip Reg Enable	Real
101	Slip Reg Ki	2602	A2A	Slip Reg Ki	Real
102	Slip Reg Kp	2603	A2B	Slip Reg Kp	Real
103	Flux Reg Enable	2690	A82	Flux Reg Enable	DINT
104	Flux Reg Ki	2691	A83	Flux Reg Ki	Real
105	Flux Reg Kp	2692	A84	Flux Reg Kp	Real
106	Trq Adapt Speed	2693	A85	Trq Adapt Speed	Real
107	Trq Adapt En	2694	A86	Trq Adapt En	DINT
108	Phase Delay Comp	2695	A87	Phase Delay Comp	Real
109	Trq Comp Mode	2696	A88	Trq Comp Mode	DINT
110	Trq Comp Mtring	2697	A89	Trq Comp Mtring	Real
111	Trq Comp Regen	2698	A8A	Trq Comp Regen	Real
112	Slip Adapt Iqs	2699	A8B	Slip Adapt Iqs	Real
113	SFAdapt SlewLmt	2700	A8C	SFAdapt SlewLmt	Real
114	SFAdapt SlewRate	2701	A8D	SFAdapt SlewRate	Real
115	SFAdapt CnvrgLvl	2702	A8E	SFAdapt CnvrgLvl	Real
116	SFAdapt CnvrgLmt	2703	A8F	SFAdapt CnvrgLmt	Real
321	Prchrg Control	2619	A3B	Prchrg Control	DINT
322	Prchrg Delay	2620	A3C	Prchrg Delay	Real
357	FS Gain	2604	A2C	FS Gain	Real
358	FS Ki	2605	A2D	FS Ki	Real
376	Bus Limit Kp	2606	A2E	Bus Limit Kp	Real
377	Bus Limit Kd	2607	A2F	Bus Limit Kd	Real
380	Bus Reg Ki	2608	A30	Bus Reg Ki	Real
381	Bus Reg Kp	2609	A31	Bus Reg Kp	Real
390	Flux Braking Ki	2610	A32	Flux Braking Ki	Real

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
391	Flux Braking Kp	2611	A33	Flux Braking Kp	Real
396	DC Brake Ki	2612	A34	DC Brake Ki	Real
397	DC Brake Kp	2613	A35	DC Brake Kp	Real
400	Fast Braking Ki	2614	A36	Fast Braking Ki	Real
401	Fast Braking Kp	2615	A37	Fast Braking Kp	Real
414	Mtr OL Hertz	3001	BB9	Motor Overload Hertz	Real
428	Current Limit Kd	2616	A38	Current Limit Kd	Real
429	Current Limit Ki	2617	A39	Current Limit Ki	Real
430	Current Limit Kp	2618	A3A	Current Limit Kp	Real
467	Ground Warn Lvl	3002	BBA	Converter Ground Current User Limit	Real
469	PredMaint Sts	2625	A41	PredMaint Sts	INT
470	PredMaintAmbTemp	2626	A42	PredMaintAmbTemp	Real
471	PredMaint Rst En	2627	A43	PredMaint Rst En	DINT
472	PredMaint Reset	2628	A44	PredMaint Reset	DINT
488	HSFan Derate	2629	A45	HSFan Derate	Real
489	HSFan TotalLife	2630	A46	HSFan TotalLife	DINT
490	HSFan ElpsdLife	2631	A47	HSFan ElpsdLife	DINT
491	HSFan RemainLife	2632	A48	HSFan RemainLife	DINT
492	HSFan EventLevel	2633	A49	HSFan EventLevel	Real
493	HSFan EventActn	2634	A4A	HSFan EventActn	DINT
494	HSFan ResetLog	2635	A4B	HSFan ResetLog	DINT
495	InFan Derate	2636	A4C	InFan Derate	Real
496	InFan TotalLife	2637	A4D	InFan TotalLife	DINT
497	InFan ElpsdLife	2638	A4E	InFan ElpsdLife	DINT
498	InFan RemainLife	2639	A4F	InFan RemainLife	DINT
499	InFan EventLevel	2640	A50	InFan EventLevel	Real
500	InFan EventActn	2641	A51	InFan EventActn	DINT
501	InFan ResetLog	2642	A52	InFan ResetLog	DINT
502	MtrBrngTotalLife	2643	A53	MtrBrngTotalLife	DINT
503	MtrBrngElpsdLife	2644	A54	MtrBrngElpsdLife	DINT
504	MtrBrngRemainLif	2645	A55	MtrBrngRemainLif	DINT
505	MtrBrngEventLvl	2646	A56	MtrBrngEventLvl	Real
506	MtrBrngEventActn	2647	A57	MtrBrngEventActn	DINT
507	MtrBrng ResetLog	2648	A58	MtrBrng ResetLog	DINT
508	MtrLubeElpsdHrs	2649	A59	MtrLubeElpsdHrs	DINT
509	MtrLubeEventLvl	2650	A5A	MtrLubeEventLvl	Real
510	MtrLubeEventActn	2651	A5B	MtrLubeEventActn	DINT
511	MchBrngTotalLife	2652	A5C	MchBrngTotalLife	DINT
512	MchBrngElpsdLife	2653	A5D	MchBrngElpsdLife	DINT
513	MchBrngRemainLif	2654	A5E	MchBrngRemainLif	DINT
514	MchBrngEventLvl	2655	A5F	MchBrngEventLvl	Real
515	MchBrngEventActn	2656	A60	MchBrngEventActn	DINT
516	MchBrngResetLog	2657	A61	MchBrngResetLog	DINT
517	MchLubeElpsdHrs	5658	A62	MchLubeElpsdHrs	DINT

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
518	MchLube EventLvl	2659	A63	MchLube EventLvl	Real
519	MchLubeEventActn	2660	A64	MchLubeEventActn	DINT
642	Servo Lock Gain	2721	AA1	Servo Lock Gain	Real
665	Speed Comp Sel	2621	A3D	Speed Comp Sel	DINT
832	Psn Out Fltr Sel	2622	A3E	Psn Out Fltr Sel	DINT
833	Psn Out FltrGain	2623	A3F	Psn Out FltrGain	Real
834	Psn Out Fltr BW	2624	A40	Psn Out Fltr BW	Real
935	Drive Status 1	2741	AB5	Drive Status 1	DINT
970	Testpoint Sel 1	2661	A65	Testpoint Sel 1	DINT
971	Testpoint Fval 1	2662	A66	Testpoint Fval 1	Real
972	Testpoint Lval 1	2663	A67	Testpoint Lval 1	DINT
974	Testpoint Sel 2	2664	A68	Testpoint Sel 2	DINT
975	Testpoint Fval 2	2665	A69	Testpoint Fval 2	Real
976	Testpoint Lval 2	2666	A6A	Testpoint Lval 2	DINT
978	Testpoint Sel 3	2667	A6B	Testpoint Sel 3	DINT
979	Testpoint Fval 3	2668	A6C	Testpoint Fval 3	Real
980	Testpoint Lval 3	2669	A6D	Testpoint Lval 3	DINT
982	Testpoint Sel 4	2670	A6F	Testpoint Sel 4	DINT
983	Testpoint Fval 4	2671	A6F	Testpoint Fval 4	Real
984	Testpoint Lval 4	2672	A70	Testpoint Lval 4	DINT
1035	PkDtct Stpt Real	2673	A71	PkDtct Stpt Real	Real
1036	PkDtct Stpt DInt	2674	A72	PkDtct Stpt DInt	DINT
1037	PkDtct1 In Sel	2675	A73	PkDtct1 In Sel	DINT
1038	PkDtct1PresetSel	2676	A74	PkDtct1PresetSel	DINT
1039	Peak1 Cfg	2677	A75	Peak1 Cfg	INT
1040	Peak 1 Change	2678	A76	Peak 1 Change	INT
1041	PeakDetect1 Out	2679	A77	PeakDetect1 Out	Real
1042	PkDtct2 In Sel	2680	A78	PkDtct2 In Sel	DINT
1043	PkDtct2PresetSel	2681	A79	PkDtct2PresetSel	DINT
1044	Peak2 Cfg	2682	A7A	Peak2 Cfg	INT
1045	Peak 2 Change	2683	A7B	Peak 2 Change	INT
1046	PeakDetect2 Out	2684	A7C	PeakDetect2 Out	Real
1103	Trq Prove Status	2722	AA2	Trq Prove Status	INT
1105	Speed Dev Band	2724	AA4	Speed Dev Band	Real
1106	SpdBand Intgrtr	2725	AA5	SpdBand Intgrtr	Real
1535	VB Config	2704	A90	VB Config	INT
1536	VB Status	2705	A91	VB Status	INT
1537	VB Voltage	2706	A92	VB Voltage	Real
1538	VB Time	2707	A93	VB Time	Real
1539	VB Minimum	2708	A94	VB Minimum	Real
1540	VB Maximum	2709	A95	VB Maximum	Real
1541	VB Accel Rate	2710	A96	VB Accel Rate	Real
1542	VB Decel Rate	2711	A97	VB Decel Rate	Real
1543	VB Frequency	2712	A98	VB Frequency	Real

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
1544	VB Min Freq	2713	A99	VB Min Freq	Real
1545	VB Flux Thresh	2714	A9A	VB Flux Thresh	Real
1546	VB Flux Lag Freq	2715	A9B	VB Flux Lag Freq	Real
1547	VB Filt Flux Cur	2716	A9C	VB Filt Flux Cur	Real
1548	VB Current Rate	2717	A9D	VB Current Rate	Real
1549	VB Current Hyst	2718	A9E	VB Current Hyst	Real
1550	VB Cur Thresh	2719	A9F	VB Cur Thresh	Real
1551	VB Rate Lag Freq	2720	AA0	VB Rate Lag Freq	Real

Inverter Parameter / Enhanced Attribute Mapping

Table 34 - PowerFlex 755 Inverter Parameter Numeric Order

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
1	Sys Rated Amps	2855	B27	Sys Rated Amps	Real
2	Sys Rated Volts	2856	B28	Sys Rated Volts	Real
3	I1 Rated Amps	2857	B29	Ix1 Rated Amps	Real
4	I2 Rated Amps	2858	B2A	Ix2 Rated Amps	Real
5	I3 Rated Amps	2859	B2B	Ix3 Rated Amps	Real
10	Online Status	2862	B2E	Online Status	INT
12	Fault Status	2863	B2F	Fault Status	INT
13	Alarm Status	2864	B30	Alarm Status	INT
18	Ground Current	2865	B31	Ground Current	Real
20	Recfg Acknowledg	2866	B32	Recfg Acknowledg	DINT
21	Effctv I Rating	2867	B33	Effctv I Rating	Real
30	Testpoint Sel 1	2868	B34	Testpoint Sel 1	DINT
31	Testpoint Val 1	2869	B35	Testpoint Val 1	Real
32	Testpoint Sel 2	2870	B36	Testpoint Sel 2	DINT
33	Testpoint Val 2	2871	B37	Testpoint Val 2	Real

Converter Parameter / Enhanced Attribute Mapping

Table 35 - PowerFlex 755 Converter Parameter Numeric Order

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
1	Sys Rated Amps	2905	B59	Sys Rated Amps	Real
2	Sys Rated Volts	2906	B5A	Sys Rated Volts	Real
3	C1 Rated Amps	2907	B5B	CX1 Rated Amps	Real
4	C2 Rated Amps	2908	B5C	CX2 Rated Amps	Real
5	C3 Rated Amps	2909	B5D	CX3 Rated Amps	Real
10	Online Status	2912	B60	Online Status	INT
12	Fault Status	2913	B61	Fault Status	INT

Table 35 - PowerFlex 755 Converter Parameter Numeric Order (Continued)

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
13	Alarm Status	2914	B62	Alarm Status	INT
25	Gate Board Temp	2916	B64	Gate Board Temp	Real
30	Testpoint Sel 1	2917	B65	Testpoint Sel 1	DINT
31	Testpoint Val 1	2918	B66	Testpoint Val 1	Real
32	Testpoint Sel 2	2919	B67	Testpoint Sel 2	DINT
33	Testpoint Val 2	2920	B68	Testpoint Val 2	Real

Precharge Parameter / Enhanced Attribute Mapping

Table 36 - PowerFlex 755 Common Bus Precharge Parameter Numeric Order

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
1	Sys Rated Amps	2955	B8B	Sys Rated Amps	Real
2	Sys Rated Volts	2956	B8C	Sys Rated Volts	Real
3	P1 Rated Amps	2957	B8D	PX1 Rated Amps	Real
4	P2 Rated Amps	2958	B8E	PX2 Rated Amps	Real
5	P3 Rated Amps	2959	B8F	PX3 Rated Amps	Real
10	Online Status	2962	B92	Online Status	INT
12	Fault Status	2963	B93	Fault Status	INT
13	Alarm Status	2964	B94	Alarm Status	INT
18	Main DC Bus Volt	2965	B95	Main DC Bus Volt	Real
25	Gate Board Temp	2966	B96	Gate Board Temp	Real
30	Testpoint Sel 1	2967	B97	Testpoint Sel 1	DINT
31	Testpoint Val 1	2968	B98	Testpoint Val 1	Real
32	Testpoint Sel 2	2969	B99	Testpoint Sel 2	DINT
33	Testpoint Val 2	2970	B9A	Testpoint Val 2	Real

Encoder Parameter / Enhanced Attribute Mapping

Table 37 - Universal Feedback Encoder Module Output Parameter Numeric Order

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
80	Enc Out Sel	2800	AF0	Enc Out Sel	DINT
81	Enc Out Mode	2801	AF1	Enc Out Mode	DINT
82	Enc Out FD PPR	2802	AF2	Enc Out FD PPR	DINT
83	Enc Out Z Offset	2803	AF3	Enc Out Z Offset	DINT
84	Enc Out Z PPR	2804	AF4	Enc Out Z PPR	DINT
20, Bit 4	FB0 SSI Cfg	2805	AF5	FB0 SSI Cfg, Double Word Query	SINT
50, Bit 4	FB1 SSI Cfg	2806	AF6	FB1 SSI Cfg, Double Word Query	SINT

I/O Parameters

Table 38 - I/O Parameter Numeric Order

Drive		Integrated Motion			
Parameter No.	**Parameter Name**	**Base 10**	**Base 16**	**Enhanced Attribute**	**Data Type**
70	Anlg Out Type	2820	B04	Anlg Out Type	DINT

Faults

Table shows the correlation between PowerFlex 755 faults and the respective faults that are returned to the Logix controller and RSLogix 5000 software. The returned fault numbers and text are common with the Kinetix 6500.

Note: A fault code/message that is displayed on a HIM does not match what is returned to the Logix controller and potentially displayed on an HMI or viewed in RSLogix 5000 software.

Table 39 - PowerFlex 755 Drive Fault Numeric Order

PowerFlex 755 Drive		Integrated Motion on EtherNet/IP		
Event No.	**Fault Text**	**Code**	**Subcode**	**Fault Text**
0	No Entry	0	0	No Faults
2	Auxiliary Input	63	0	External Exception Input
3	Power Loss	37	0	Bus Power Loss
4	UnderVoltage	34	0	Bus Undervoltage User Limit
5	OverVoltage	35	0	Bus Overvoltage Factory Limit
7	Motor Overload	7	0	Motor Thermal Overload Factory Limit
8	Heatsink OvrTemp	11	1	Inverter Overtemperature Factory Limit
9	Trnsistr OvrTemp	11	2	Inverter Overtemperature Factory Limit
12	HW OverCurrent	10	1	Inverter Overcurrent
13	Ground Fault	16	0	Converter Ground Current Factory Limit
14	Ground Warning	17	0	Converter Ground Current User Limit
15	Load Loss	57	0	Undertorque Limit
17	Input Phase Loss	23	0	Converter AC Single Phase Loss
20	TorqPrv Spd Band	18	1	Torque Prove Failure
21	Output PhaseLoss	63	21	Product Specific
24	Decel Inhibit	19	0	Decel Override
25	OverSpeed Limit	4	0	Motor Overspeed User Limit
26	Brake Slipped	18	2	Torque Prove Failure
33	AuRsts Exhausted	63	33	Product Specific
36	SW OverCurrent	10	2	Inverter Overcurrent
38	Phase U to Gnd	24	1	Converter AC Phase Short
39	Phase V to Gnd	24	2	Converter AC Phase Short
40	Phase W to Gnd	24	3	Converter AC Phase Short
41	Phase UV Short	24	4	Converter AC Phase Short
42	Phase VW Short	24	5	Converter AC Phase Short
43	Phase WU Short	24	6	Converter AC Phase Short
44	Phase UNegToGnd	24	7	Converter AC Phase Short
45	Phase VNegToGnd	24	8	Converter AC Phase Short
46	Phase WNegToGnd	24	9	Converter AC Phase Short
48	System Defaulted	63	33	Product Specific
49	Drive Powerup	1	0	Module Reset
55	Ctrl Bd Overtemp	10	0	Control Module Overtemperature Factory Limit
61	Shear Pin 1	56	0	Overtorque Limit

Table 39 - PowerFlex 755 Drive Fault Numeric Order (Continued)

PowerFlex 755 Drive		Integrated Motion on EtherNet/IP		
Event No.	**Fault Text**	**Code**	**Subcode**	**Fault Text**
64	Drive OverLoad	13	0	Converter Pre-charge Overload User Limit
71	Port 1 Adapter	63	71	Product Specific
72	Port 2 Adapter	63	72	Product Specific
73	Port 3 Adapter	63	73	Product Specific
74	Port 4 Adapter	63	74	Product Specific
75	Port 5 Adapter	63	75	Product Specific
76	Port 6 Adapter	63	76	Product Specific
77	IR Volts Range	21	1	Motor Test Failure
78	FluxAmpsRef Rang	21	2	Motor Test Failure
79	Excessive Load	21	3	Motor Test Failure
80	AutoTune Aborted	21	4	Motor Test Failure
81	Port 1 DPI Loss	63	81	Product Specific
82	Port 2 DPI Loss	63	82	Product Specific
83	Port 3 DPI Loss	63	83	Product Specific
84	Port 4 DPI Loss	63	84	Product Specific
85	Port 5 DPI Loss	63	85	Product Specific
86	Port 6 DPI Loss	63	86	Product Specific
87	IXo VoltageRange	21	5	Motor Test Failure
91	Pri VelFdbk Loss	45	255	Feedback Data Loss Factory Limit
93	Hw Enable Check	63	93	Product Specific
94	Alt VelFdbk Loss	45	255	Feedback Data Loss Factory Limit
95	Aux VelFdbk Loss	45	255	Feedback Data Loss Factory Limit
96	PositionFdbkLoss	45	255	Feedback Data Loss Factory Limit
100	Parameter Chksum	3	0	Nonvolatile Memory Checksum Fault
104	Pwr Brd Checksum	15	1	Power Board
106	Incompat MCB-PB	15	3	Power Board
107	Replaced MCB-PB	22	1	Hardware Configuration
111	PwrBd Invalid ID	15	2	Power Board
112	PwrBd App MinVer	15	4	Power Board
113	Tracking DataErr	22	2	Hardware Configuration
117	PwrDn Data Chksm	17	16	Option Storage Checksum
124	App ID Changed	23	1	Firmware Change
125	Using Backup App	23	2	Firmware Change
134	Start On PowerUp	63	134	Product Specific
137	Ext Prchrg Err	23	2	Converter Pre-Charge Failure
138	Precharge Open	23	3	Converter Pre-Charge Failure
141	Autn Enc Angle	21	6	Motor Test Failure
142	Autn Spd Rstrct	21	7	Motor Test Failure
143	Autotune CurReg	21	8	Motor Test Failure
144	Autotune Inertia	21	9	Motor Test Failure
145	Autotune Travel	21	10	Motor Test Failure
169	PWM Freq Reduced	16	0	PWM Frequency Reduced

Table 39 - PowerFlex 755 Drive Fault Numeric Order (Continued)

PowerFlex 755 Drive		Integrated Motion on EtherNet/IP		
Event No.	**Fault Text**	**Code**	**Subcode**	**Fault Text**
170	CurLimit Reduced	17	0	Current Limit Reduced
177	Profiling Active	63	177	Product Specific
178	Homing Active	63	178	Product Specific
179	Home Not Set	63	179	Product Specific
203	Port 13 Adapter	63	203	Product Specific
204	Port 14 Adapter	63	204	Product Specific
205	DPI TransportErr	63	205	Product Specific
206	RTC Battery Fail	63	206	Product Specific
210	HW En Jumper Out	2	1	GuardConfigurationFault
211	Safety Brd Fault	9	0	GuardStopInputFault
212	Safety Jmpr Out	2	2	GuardConfigurationFault
213	Safety Jumper In	2	3	GuardConfigurationFault
224	Port 4 Comm Loss	63	224	Product Specific
225	Port 5 Comm Loss	63	225	Product Specific
226	Port 6 Comm Loss	63	226	Product Specific
227	Port 7 Comm Loss	63	227	Product Specific
228	Port 8 Comm Loss	63	228	Product Specific
229	Port 9 Comm Loss	63	229	Product Specific
244	Port 4 Cfg	16	4	Illegal Option Card
245	Port 5 Cfg	16	5	Illegal Option Card
246	Port 6 Cfg	16	6	Illegal Option Card
247	Port 7 Cfg	16	7	Illegal Option Card
248	Port 8 Cfg	16	8	Illegal Option Card
249	Port 9 Cfg	16	9	Illegal Option Card
264	Port 4 Checksum	17	4	Option Storage Checksum
265	Port 5 Checksum	17	5	Option Storage Checksum
266	Port 6 Checksum	17	6	Option Storage Checksum
267	Port 7 Checksum	17	7	Option Storage Checksum
268	Port 8 Checksum	17	8	Option Storage Checksum
269	Port 9 Checksum	17	9	Option Storage Checksum
280	Comm Loss Enet	1	0	Connection failure.
281	Enet Checksum	17	13	Option Storage Checksum
282	DLX Checksum	17	14	Option Storage Checksum
290	Prev Maint Reset	20	1	Preventative Maintenance
291	HSFan Life	20	2	Preventative Maintenance
292	InFan Life	20	3	Preventative Maintenance
293	MtrBrng Life	20	4	Preventative Maintenance
294	MtrBrng Lube	20	5	Preventative Maintenance
295	MachBrng Life	20	6	Preventative Maintenance
296	MachBrng Lube	20	7	Preventative Maintenance
307	Port7InvalidCard	63	307	Product Specific
308	Port8InvalidCard	63	308	Product Specific
310	Regeneration OK	15	0	Regen Power Supply

Table 39 - PowerFlex 755 Drive Fault Numeric Order (Continued)

PowerFlex 755 Drive		Integrated Motion on EtherNet/IP		
Event No.	**Fault Text**	**Code**	**Subcode**	**Fault Text**
315	Excess Psn Err	4	0	Excessive Position Error
318	OutCurShare PhU	63	318	Product Specific
319	OutCurShare PhV	63	319	Product Specific
320	OutCurShare PhW	63	320	Product Specific
321	HS Temp Imbal	63	321	Product Specific
324	DC Bus Mismatch	63	324	Product Specific
325	Invalid Inv Cfg	63	325	Product Specific
326	Invalid Conv Cfg	63	326	Product Specific
331	Inv1 Comm Loss	63	331	Product Specific
341	Con1 Comm Loss	63	341	Product Specific

Encoderless Operation Errors on Configuration

When a system is configured for encoderless operation and the program is downloaded to the processor, the axis faults with a TorqProve configuration error (TP Encls Config alarm). To clear the configuration error, you must send an Enhanced Attribute message to the drive to configure it for encoderless operation by using a "SINT" tag value of 1 sent to Attribute 2723 Dec or AA3 Hex.

Also an Enhanced Attribute message to the drive to configure the brake speed deviation to zero must be used or a configuration error occurs. Send a 'Real' value of 0 to Attribute 2724 Dec or AA4 Hex to set the brake speed deviation to zero.

Additional Resources

The following documents contain more information on how to implement Integrated Motion on EtherNet/IP with PowerFlex 755 drives.

Integrated Motion on the Ethernet/IP Network User Manual
Publication Number: MOTION-UM003

Integrated Motion on the Ethernet/IP Network Reference Manual
Publication Number: MOTION-RM003

Logix5000 Controllers Design Considerations Reference Manual
Publication Number: 1756-RM094

Rockwell Automation Support

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	https://rockwellautomation.custhelp.com/
Local Technical Support Phone Numbers	Locate the phone number for your country.	http://www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	http://www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	http://www.rockwellautomation.com/global/literature-library/overview.page
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	http://www.rockwellautomation.com/global/support/pcdc.page

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