Application Note 003
Version 001
07 Oct 2014

# Sensaphone 400 – Telemetry System Integration

The Sensaphone Model 400 is an alarm dialer device that is capable of calling out to one or more telephone numbers to annunciate an alarm condition, as signaled by discrete contact inputs. The Model 400 features four (4) input channels, plus integral power monitoring. Channel #1 is special in that it is pre-configured by default as an analog temperature input, and capable of alerting personnel to both high-temp and low-temp alarms.

NRI's most advanced SCADA systems are capable of transmitting text messages to SmartPhones and Email addresses via an Internet tunnel. However, the Model 400 Alarm Dialer is a simple device, targeted toward serving low-budget Telemetry Systems, or Telemetry systems in locations where Internet service is not available.


**Sensaphone Model 400**

This Application Note will describe the specific setup commands and wiring for interfacing with an NRI Telemetry System. In this situation, the following signals will be monitored:

- **Power Status**
- **High Temperature 110 degF**
- **Low Temperature 20 degF**
- **General (Catch-All) Alarm – Normally Closed**
- **RTU Fault – Normally Closed**
- **Entry Detect – Normally Closed**

Because the connected telephone line is often co-utilized for NRI's Telephone Dial-In Terminal Services, it is imperative that the Alarm Recognition Times for the General Alarm and RTU Fault dry-contact inputs be delayed by 15 minutes to allow time for software upgrades installed over phone modem. The Entry Detect Alarm Recognition Time should be short due to the emergency nature of this special alarm and its independence from the operation of the RTU.

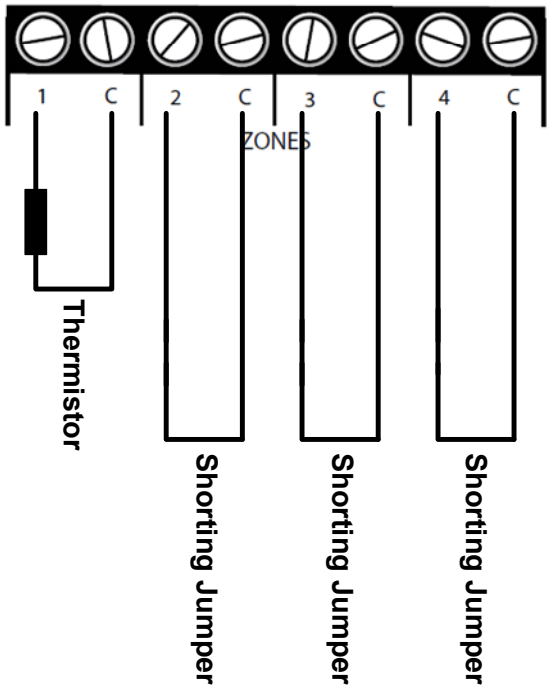
**The Sensaphone Model 400 Requires 6x Batteries: C-Cells.**

The Sensaphone Model 400 requires six (6) C-Cell batteries. The batteries should be replaced on a regular schedule. When changing the batteries, it is important that the Model 400 remain plugged in to the power source so that the unit will not lose its settings during the period when no batteries are installed in the compartment.

## I/O Channel Wiring Configuration

- Channel 1, by default, contains a thermistor connected to Terminals 1 and 1-C. This should not be changed.
- Channel 2 is to be used as a normally-closed input: "General Alarm". During device preparation, a shorting jumper should be installed across Terminals 2 and 2-C.
- Channel 3 is to be used as a normally-closed input: "RTU Fault". During device preparation, a shorting jumper should be installed across Terminals 3 and 3-C.
- Channel 4 is to be used as a normally-closed input: "Entry Detect". During device preparation, a shorting jumper should be installed across Terminals 4 and 4-C.


**The I/O Terminals of the Model 400**




## I/O Channel Software Configuration

After the above wiring preparation is completed, the Model 400 should be turned ON by plugging the unit into its power transformer and pressing the RUN button.

To program the channels, the following key sequence should be entered:

**SET**
**CONFIG**

The Unit will respond verbally with:
"OK…
Zone 1-Temperature…
Zone 2-Normally Closed…
Zone 3-Normally Closed…
Zone 4-Normally Closed."

## I/O Channel Alarm Recognition Times

To program the recognition times for Channels 2 and 3 (15 minutes) and Channel 4 (5 sec), the following key sequences should be entered:

SET
RECOGNITION TIME
2
15 <ENTER>
0 <ENTER>

SET
RECOGNITION TIME
3
15 <ENTER>
0 <ENTER>

SET
RECOGNITION TIME
4
0 <ENTER>
5 <ENTER>

## Telephone Pickup Delay Time

To program the Model 400 to not answer the phone until after 8 rings (required for NRI's Terminal Server Remote Access), the following key sequence should be entered:

SET
RINGS/TAD
8

## Clock Setup

To program the Model 400 for the current time, the following key sequence should be entered (Note that this is an example where the time is 9:00AM):

SET
CLOCK
900
AM

## Enabling/Disabling The AC Power Alarm

SENSOR ON/OFF
POWER

The Model 400 will say "Power Alarm Disabled" or "Power Alarm Enabled". Repeat the above key sequence to change settings.

## Setting the Low and High Temperature Alarm Limits For Channel 1

The following commands set the low temperature alarm at 20 degF and the high temperature alarm at 110 degF:

SET
TEMP LIMITS
20 <ENTER>
110 <ENTER>

## Setting the Maximum Number of Phone Call Attempts Per Alarm

The following commands set the maximum number of phone call attempts to 25 (default=100):

SET
MAX CALLS
25 <ENTER>

## Setting the Dialout Telephone Numbers

The Model 400 can be programmed to call 1 to 4 telephone numbers. To program the unit to call one phone number, 555-5555, the following commands should be entered to set Phone Number #1:

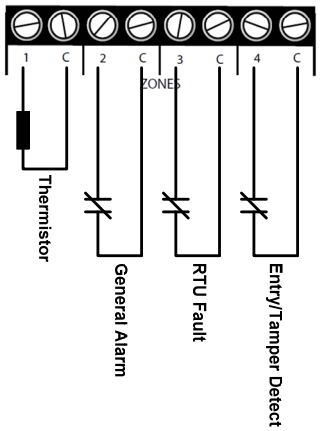
SET
PHONE NUMBER
1
5555555 <ENTER>

To delete Phone Number #1, the following commands should be entered:

SET
PHONE NUMBER
1
<ENTER>

## Final Installation

The Model 400 is now ready to be field-installed. The unit should be mounted within the control panel, and the signal wiring should be landed on the Model 400's terminal block:




The telephone wiring should be as follows: