

# Temperature and Power Guard

Temperature and Power Monitor and Alarm

Model VM540

Manual and Installation Instructions

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## **General Description**

The Temperature & Power Guard is a complete multiple temperature and power source monitor and alarm system with integrated autodialer.

The Temperature & Power Guard monitors up to four (4) temperature sensors (-40° to 212°F), four (4) 120VAC power sources, one (1) dry contact input, and wall outlet power.

The Temperature & Power Guard has programmable high and low temperature limits and an alarm time delay for each sensor. An identification message can be recorded for each sensor, indicating where the sensor is located to allow a quick response to a problem.

The Temperature & Power Guard has programmable normal states and alarm time delays for each power input.

The Temperature & Power Guard has numerous options that allow it to be configured for any application.

The Temperature & Power Guard can monitor an auxiliary dry contact (switch closure) input. An alarm time delay can be programmed for this input as well.

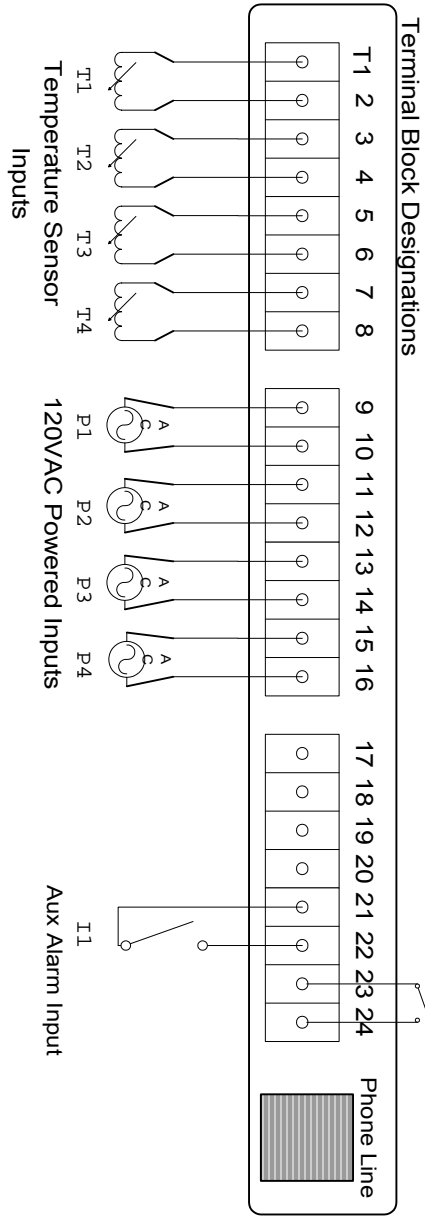
The Temperature & Power Guard will turn on the alarm relay and buzzer and begin making emergency notification calls when either:

The temperature of any sensor is out of limits for greater than its alarm time delay.

A power input changes from its normal state for greater than its alarm time delay.

A contact closure occurs on the auxiliary dry contact input for greater than its alarm time delay.

# Wiring Diagram



## Installing the Temperature & Power Guard

- Select a location with access to power and an analog telephone line.
- Mount the Temperature & Power Guard to the wall using the supplied hardware.
- Connect the phone line to an active analog telephone jack.  
**It is recommended that a surge suppresser be used for the phone line.**
- Plug in the wall mount transformer into a 120VAC wall outlet and connect the jack into the Temperature & Power Guard.  
**It is recommended that a surge suppresser also be used for the power line.**
- **Connect Sensors and Inputs**  
For ease of wiring, remove the terminal blocks by pulling straight down. Follow the wiring diagram on the previous page.  
**Temperature Sensors**  
Locate the sensor so that it will yield an average temperature. If specific areas are being monitored, locate the sensors as close as possible to those items. The temperature throughout an area can vary widely. Try to avoid locating the sensors in air streams. The temperature sensor wires can be extended as required. See Table 1 for temperature error vs. wire gauge.
- **Temperature Sensors must be installed before turning on the unit.**
- Turn on the Temperature & Power Guard by moving the power switch to the left of the terminal blocks to the "1" position.

<b>TABLE 1: Temperature Measurement Error vs. Cable Length</b>			
<p>To calculate error in degrees F, due to extension cable length, multiply the Error per Foot times the total length of cable between the VM540 and the sensor. This error can be calibrated out by the user with the Programming Temperature Corrections procedure in this manual.</p> <p><b>Temperature Error = Temperature Error per Foot X Cable Length</b></p>			
<b>Part #</b>	<b>Wire Gauge</b>	<b>Error per Foot</b>	<b>Example error for a sensor 50 feet from the VM540 would see an increase of:</b>
WIR-I-22-250	22 AWG	0.0166°F/Ft	.0166°F/Ft * 50Ft = .83°

## Accessing the Temperature & Power Guard

- 1 From another phone line call the Temperature & Power Guard. The device will pick up after the programmed number of rings (Default is 1).
- 2 To access all functions, enter the 4-digit "Full Access" PIN. (Factory default is 0000). To access only the "Confirmation Only" functions, enter the 4-digit "Confirmation Only" PIN 1234.  
The "Confirmation Only" functions are:
  - A) Confirming Alarm Conditions Remotely
  - B) Checking Sensor Inputs Remotely
- 3 You will hear the Main Menu options:

Main Menu		
Option	Function	
1	Status	
2	Set Limits	
3	Program	
6	Clear High and Low Temperature Data	NOT SPOKEN MENU ITEM
7	Field Calibrate Temperature Readings	NOT SPOKEN MENU ITEM
#	<i>Repeat Warning message (if any input is in alarm condition)</i>	NOT SPOKEN MENU ITEM
0	Exit (Hang Up the phone)	

## Programming Temperature Sensor Parameters

Each temperature sensor has four (4) programmable parameters as well as a programmable temperature correction.

**Sensor Identification Message.** The Sensor ID message will be played when the Temperature & Power Guard is reporting the status of that Sensor.

**Sensor Low and High Temperature limits.** The low and high temperature limit values are programmed in degrees. When a sensor's temperature exceeds either the high or low limit for longer than the programmed callout time delay, that sensor will be in alarm condition.

**Sensor Alarm Time Delay.** A sensor's temperature must be out of limits for greater than the alarm delay time for the sensor to be in alarm condition.

### 1. Accessing the Sensor Configuration

- a) From the Main Menu, press 2 to Set Limits
  - ▶ The "Full Access" PIN will be requested if the "Confirmation Only" PIN was entered initially. If the correct "Full Access" PIN is not entered, the Temperature & Power Guard will hang up.
- b) You will hear *"Enter 1 for temperature input, 2 for power input, 3 for alarm input"*
- c) Enter 1
  - ▶ To return to the Main Menu press 0
- d) You will hear *"Enter temperature input"*
- e) Enter the temperature sensor you want to program (1-4)
  - ▶ To return to the Main Menu press 0
- f) Proceed to Step 2.a.

### 2. Programming the Sensor ID message

- a) You will hear *"Sensor x message is ....., press 1 to change"*
- b) Press 1 to change the message
  - ▶ Press 2 to skip and proceed to step 3.a or press 0 to stop programming this sensor and return to step 1.b



**TIP**

Record something specific that will allow the people receiving the alarm calls to understand where the problem is.

"Main equipment room" or "computer room 7" are two good examples of useful messages.

- c) You will hear a tone
- d) Begin speaking after the tone. The Temperature & Power Guard will record for about 3 seconds
- e) After 3 seconds you will hear the tone again, marking the end of your message

- f) You will hear the message you recorded
- g) Proceed to step 3.a

### 3. Programming the Lower and Upper Temperature Limits

- a) You will hear "Sensor x *lower limit is*" and the current low temperature limit for that sensor (i.e. 35°)
- b) You will hear "*Press 1 to change*"
- c) Press 1 to change the limit
  - ▶ Press 2 to skip and proceed to step 3.g or press 0 to stop programming this sensor and return to step 1.b
- d) You will hear "*Enter temperature then press pound*"
- e) Enter the value then press #.
  - ▶ Use \* to program a negative number (i.e. \*20 = -20°)
  - ▶ Acceptable range is -999 to 999
- f) You will hear the value you just entered (i.e. 39°)
- g) You will hear "Sensor x *upper limit is* " and the current high temperature limit for the selected sensor (i.e. 60°)
- h) You will hear "*Press 1 to change*"
- i) Press 1 to change the limit
  - ▶ Press 2 to skip and proceed to step 3.g or press 0 to stop programming this sensor and return to step 1.b
- j) You will hear "*Enter temperature then press pound*"
- k) Enter the value then press #.
  - ▶ Use \* to program a negative number (i.e. \*20 = -20°)
  - ▶ Acceptable range is -999 to 999
- l) You will hear the value you just entered (i.e. 50°)
- m) Proceed to step 4.a

### 4. Programming the Alarm Time Delay

- a) You will hear "*Alarm time delay is x minutes press 1 to change*" (default 0 minutes)
- b) Press 1 to make a change
  - ▶ Press 2 to skip and return to step 1.b
- c) You will hear "*Enter time delay then press pound*"
- d) Enter the time delay in minutes (i.e. 15 for 15 minutes or 0 minutes for an immediate callout)
  - ▶ Acceptable range is 0 to 900 minutes
- e) You will hear the value you just entered
- f) Proceed to step 1.b

Repeat the steps 1 to 4 for each sensor being used.

### Field Calibrating Temperature Readings

The Temperature & Power Guard allows the user to correct small temperature measurement errors due to sensor cable extension length for each sensor. A calibrated standard must be used to obtain the actual temperature.

- a) From the Main Menu, press 7
  - ▶ The "Full Access" PIN will be requested if the "Confirmation Only" PIN was entered initially. If the correct "Full Access" PIN is not entered, the Temperature & Power Guard will hang up.
- b) You will hear "Adjust Temperature. Enter Temperature Input"
- c) Enter the number of the sensor you want to correct (1-4)
  - ▶ To return to the Set Limits Menu press 0
- d) You will hear *"Enter Sensor Number x Actual Temperature, then press pound"*
- e) Enter the actual temperature measured using the standard, then press #.
  - ▶ Use \* for negative numbers (i.e. \*20 = -20°)
  - ▶ The maximum the temperature measurement can be corrected is +/- 10° from the currently displayed temperature.  
(i.e. If the temperature currently being displayed is 20°, the max corrected value is 30° and the min corrected value is 10°. An "invalid" message is played for larger corrections.)
- f) You will hear the corrected temperature and the corrected temperature will be displayed on the display.

## Programming Powered Input Parameters

Each powered input has three (3) programmable parameters.

**Input Identification Message.** The Input ID message will be played when the Temperature & Power Guard is reporting the status of that input.

**Input Normal State.** The normal state, normally on or normally off, of the input. When an input is not in its normal state for longer than the programmed alarm time delay, that input will be in alarm condition.

**Input Alarm Time Delay.** A sensor's temperature must be out of limits for greater than the alarm delay time for the sensor to be in alarm condition.

### Programming Powered Input Parameters

#### 1. Accessing the Powered Input Configuration

- a) From the Main Menu, press 2 to Set Limits
  - ▶ The "Full Access" PIN will be requested if the "Confirmation Only" PIN was entered initially. If the correct "Full Access" PIN is not entered, the Temperature & Power Guard will hang up.
- b) You will hear *"Enter 1 for temperature input, 2 for power input, 3 for alarm input"*
- c) Enter 2
  - ▶ To return to the Main Menu press 0
- d) You will hear *"Enter power input"*
- e) Enter the powered input number you want to program (1-4, or 5 to program the integrated power input)
  - ▶ To return to the Main Menu press 0
- f) Proceed to Step 2.a.
  - ▶ If programming the integrated power input, proceed to step 4.a

#### 2. Programming the Input ID message

- a) You will hear *"Power Input x message is ....., press 1 to change"*
- b) Press 1 to change the message
  - ▶ Press 2 to skip and proceed to step 3.a or press 0 to stop programming this input and return to step 1.b
- c) You will hear a tone
- d) Begin speaking after the tone. The Temperature & Power Guard will record for about 4 seconds
- e) After 4 seconds you will hear the tone again, marking the end of your message
- f) You will hear the message you recorded
- g) Proceed to step 3.a

#### 3. Programming the Input Normal State

- a) You will hear *"Power Input x is normally off, press 1 to change"*
- b) Press 1 to change to the opposite state.

- ▶ Press 2 to skip and proceed to step 4.a or press 0 to stop programming this input and return to step 1.b
- c) You will hear *"Normally on"*

#### **4. Programming the Alarm Time Delay**

- a) You will hear *"Alarm time delay is x minutes press 1 to change"*
  - b) Press **1** to make a change
    - ▶ Press 2 to skip and return to step 1.b
  - c) You will hear *"Enter number then press pound"*
  - d) Enter the time delay in minutes (i.e. 15 for 15 minutes or 0 minutes for an immediate callout)
    - ▶ Acceptable range is 0 to 900 minutes
  - e) You will hear the value you just entered
  - f) Proceed to step 1.b
- Repeat the steps 1 to 4 for each input.

## **Programming Aux Alarm Input Parameters**

The Auxiliary Alarm Input is a dry contact alarm input which will go into alarm condition and generate alert callouts if a switch or contact is closed across the input for longer than the programmed alarm time delay.

### **1. Accessing the Aux Alarm Input Configuration**

- a) From the Main Menu, press 2 to Set Limits
  - ▶ The "Full Access" PIN will be requested if the "Confirmation Only" PIN was entered initially. If the correct "Full Access" PIN is not entered, the Temperature & Power Guard will hang up.
- b) You will hear *"Enter 1 for temperature input, 2 for power input, 3 for alarm input"*
- c) Enter 3
  - ▶ To return to the Main Menu press 0
- d) Proceed to Step 2.a.

### **2. Programming the Alarm Time Delay**

- a) You will hear *"Alarm Input time delay is x minutes press 1 to change"* (default 0 minutes)
- b) Press **1** to make a change
  - ▶ Press 2 to skip and return to step 1.b
- c) You will hear *"Enter number then press pound"*
- d) Enter the time delay in minutes (i.e. 15 for 15 minutes or 0 minutes for an immediate callout)
  - ▶ Acceptable range is 0 to 900 minutes
- e) You will hear the value you just entered
- f) Proceed to step 1.b

## Programming the Autodialer Functions

### Accessing the Program Menu

From the Main Menu, press 3

- ▶ The "Full Access" PIN will be requested if the "Confirmation Only" PIN was entered initially. If the correct "Full Access" PIN is not entered, the Temperature & Power Guard will hang up.

Program Menu		
Option	Function	
1	Program Contact Telephone Numbers	
2	Program Local ID Number	
3	Record Unit ID Message	
4	Program Number of Rings	
5	Change "Full Access" PIN	
6	Program Reminder Calls	NOT SPOKEN
7	Program Repeat Warning Messages	NOT SPOKEN
*	Change Callout Time Delay	NOT SPOKEN
#	Change "Acknowledge Only" PIN	NOT SPOKEN
0	Exit (return to Main Menu)	

### Programming Contact Telephone/Pager Numbers

The Temperature & Power Guard stores up to four (4) contact telephone or pager numbers.

- 1 From the Program Menu, Select **1** to set telephone numbers.
- 2 You will hear "*Select contact one to four*"
- 3 Select **1** for the first contact number, **2** for the second contact number, **3** for the third contact number, or **4** for the fourth contact number.
  - ▶ Press 0 to return to the Program Menu.
- 4 You will hear "*Contact x is xxxxxxx*" or "*Contact x is Empty, press one to change*"
- 5 Press **1** to make a change or enter a telephone number.
- 6 You will hear "*Enter number then press pound*"
- 7 Enter the number, followed by a **#**
  - ▶ For pager numbers, enter \* as the first digit of the number
  - ▶ Enter the full telephone number (**1 + area code if necessary**)
  - ▶ If an extra delay between digits or after dialing is required, entering \* will provide a two second delay. Do not enter \* for the first digit unless programming a pager number.
  - ▶ Entering only the **#** key will erase the currently programmed contact telephone number.

- 8 You will hear the telephone number you just entered.
- 9 You will be prompted to select another contact to program.
  - ▶ Press 0 to return to the Program Menu.

### **Programming a Local Identification Number For Pagers**

The local ID number is printed on a pager's display, when calls are made to a pager. The ID number can be up to 20 digits long.

- 1 From the Program Menu, press **2** for the local ID
- 2 You will hear the programmed number or the Temperature & Power Guard will say "Empty"
- 3 You will hear *"Press one to change"*
- 4 Press **1** to make a change or **2** to return to the Program Menu
- 5 You will hear *"Enter number, then press pound"*
- 6 Enter the number, followed by a **#**
- 7 You will hear the number you just entered.
- 8 You will be automatically returned to the Program Menu

### **Recording a Unit Identification Message**

During callouts, this message is played to identify the unit. Record a message to help ID where the Temperature & Power Guard is located.

- 1 From the Program Menu, press **3** to record a message
- 2 If this is the first time setup, go to step 4
- 3 You will hear the recorded message
- 4 You will hear *"Press one to change."*
- 5 Press **1** to make a change or **2** to return to the Program Menu
- 6 You will hear a tone



#### **TIP**

Record a message that will identify where the monitor is located to allow people receiving the call to understand what is calling them. "Springfield Pediatrics vaccine temp monitor" or "ABC Cold Storage warehouse 3" are two good examples of useful messages.

- 7 Begin speaking after the tone. The Temperature & Power Guard will record for about 4 seconds
- 8 After 4 seconds you will hear the tone again, marking the end of your message
- 9 You will hear the message you recorded
- 10 You will be automatically returned to the Program Menu

### **Programming the Number of Rings**

The Temperature & Power Guard answers the telephone line after the programmed number of rings. Valid rings are 1 – 25. The setting can be used to enable the Temperature & Power Guard to share a line with another device. See the Frequently Asked Questions section for details.

- 1 From the Program Menu, press **4** to set the number of rings
- 2 You will hear the programmed number of rings
- 3 You will hear *"Press one to change."*
- 4 Press **1** to make a change or **2** to return to the Program Menu

- 5 You will hear *"Enter number then press pound"*
- 6 Enter the number of rings, then press #
- 7 You will hear the number of rings you entered
- 8 You will be automatically returned to the Program Menu

#### **Programming the "Full Access" PIN Number**

The Temperature & Power Guard has a programmable "Full Access" 4-digit PIN number (0000-9999) to allow users to access the Set Limits option and Program sub-menu, and to confirm alarm conditions.

##### **PIN number must be 4 digits and must not include a # sign.**

- 1 From the Program Menu, press **5** to change the "Full Access" PIN
- 2 You will hear the programmed PIN number
- 3 You will hear *"Press one to change."*
- 4 Press **1** to make a change or **2** to return to the Program Menu
- 5 You will hear *"Enter your PIN number"*
- 6 Enter a four digit number
- 7 You will hear the PIN number you just entered
- 8 You will be automatically returned to the Program Menu

#### **Programming the "Acknowledge Only" PIN Number**

The Temperature & Power Guard has a programmable "Acknowledge Only" 4-digit PIN number (0000-9999) to allow users to only to confirm alarm conditions.

##### **PIN number must be 4 digits and must not include a # sign.**

- 1 From the Program Menu, press **#** to change the "Acknowledge Only" PIN
  - 2 You will hear the programmed PIN number
  - 3 You will hear *"Press one to change."*
  - 4 Press **1** to make a change or **2** to return to the Program Menu
  - 5 You will hear *"Enter your PIN number"*
  - 6 Enter a four digit number
  - 7 You will hear the PIN number you just entered
- You will be automatically returned to the Program Menu

#### **Programming Reminder Calls**

If a temperature is out of limits or a refrigerator/freezer door remains open after the alarm has been acknowledged, the Temperature & Power Guard can make "reminder calls". This feature alerts personnel that a problem still exists, and has not been fixed. The reminder call delay can be programmed from 0 to 900 minutes.

- 1 From the Program Menu, press **6**
- 2 You will hear "Alarm Reminder is Off"
- 3 You will hear *"Press one to change."*
- 4 Press **1** to change this setting, or **2** to return to the Program Menu.
- 5 You will hear "Alarm Reminder is On"
- 6 You will hear "Callout time delay is XX minutes press 1 to change"  
(Default value is 60 minutes)

- 7 Press 1 to make a change or press 2 to not make a change
- 8 You will hear "Enter number then press pound"
- 9 Enter the time delay in minutes (i.e. 120 for 2 hours)
- 10 You will hear the value you just entered
- 11 You will be automatically returned to the Program Menu

#### **Programming Warning Message Repetitions**

During callouts the Temperature & Power Guard will repeat the local ID message and warning conditions a programmable number of times (Default 1 repetition)

- 1 From the Program Menu, press 7
- 2 You will hear "Warning Reminder is 1"
- 3 You will hear "*Press one to change.*"
- 4 Press 1 to change this setting, or 2 to return to the Program Menu.
- 5 You will hear "Enter number then press pound"
- 6 Enter the number of times (0,1, or 2) that you would like the warning message repeated.
- 7 You will hear the value you just entered
- 8 You will be automatically returned to the Program Menu

#### **Changing the Callout Delay Time**

When a temperature input is in alarm condition the Temperature & Power Guard will wait this programmable amount of time before making telephone alert calls. (Default 2 minutes) The delay can be programmed from 0 to 900 minutes.

**NOTE: This callout delay will be skipped if Powered Input 1-4 or the Integrated Power Input is in alarm condition.**

- 1 From the Program Menu, press \*
- 2 You will hear "Callout Time Delay is 2 minutes"
- 3 You will hear "*Press one to change.*"
- 4 Press 1 to change this setting, or 2 to return to the Program Menu.
- 5 You will hear "Enter time delay then press pound"
- 6 Enter the time delay in minutes (i.e. 60 for 1 hour)
- 7 You will hear the value you just entered
- 8 You will be automatically returned to the Program Menu

## Using the Temperature & Power Guard

Application notes can be downloaded from the documentation section of our website at [www.TemperatureGuard.com](http://www.TemperatureGuard.com).

### Checking Inputs Locally

To check Temperature and Power Inputs, see the **Reading the Display** section.

To check Aux Alarm Input, observe the light on the face of the Temperature & Power Guard labeled "Input 1." When the Auxiliary Alarm Input is closed, the light will be illuminated.

### Checking Inputs Remotely

- a) Call the Temperature & Power Guard
- b) From the Main Menu, press 1 to check Status
- c) You will hear *"Enter 1 for temperature input, 2 for power input, 3 for alarm input"*
- d) Enter the input type you wish to check (or press 0 to return to the Main Menu)
  - 1 for temperature inputs  
You will hear *"Enter temperature input"*  
Enter the temperature input you wish to check (1-4)
  - 2 for power inputs (including the integrated power input)  
You will hear *"Enter power input"*  
Enter the power input you wish to check (1-4)  
▶ Enter 5 for the integrated power input.
  - 3 for the aux alarm input

For **Temperature Inputs**, you will hear the sensor's temperature and the highest and lowest reading, and how long the sensor has been out of limits in minutes (if any).

For **Power Inputs**, you will hear whether power is on or off, and how long the power input has not been in its normal state in minutes (if any).

For the **Aux Alarm Input**, you will hear whether the input is on or off. If the integrated power is out, that will be reported instead of the alarm input. The Aux Alarm Input is not checked when the integrated power is out.

### Clearing High and Low Temperature Readings Locally

High and low temperature readings can be cleared by holding the black pushbutton on the front of the enclosure down for at least 5 seconds while that sensor's data is being displayed.

### Clearing High and Low Temperature Readings Remotely

- a) From the Main Menu, press 7
  - ▶ The "Full Access" PIN will be requested if the "Confirmation Only" PIN was entered initially. If the correct "Full Access" PIN is not entered,

- the Temperature & Power Guard will hang up.
- b) You will hear "Change High and Low Temperature. Enter Temperature Input"
  - c) Enter the number of the sensor you want to clear (1-4)
    - ▶ To return to the Set Limits Menu press 0

### Confirming Alarm Conditions Remotely

During callouts, the Temperature & Power Guard will prompt you to enter a PIN number, enter either the Full Access PIN or the Confirmation Only PIN. If you have received a page or a voice mail message regarding an alarm condition that you wish to confirm. Simply call the Temperature & Power Guard and enter either the Full Access PIN or the Confirmation Only PIN, The alarm relay will de-energize, and the Temperature & Power Guard will stop making callouts for the current alarm condition. **This action does not override the Reminder Call feature.**

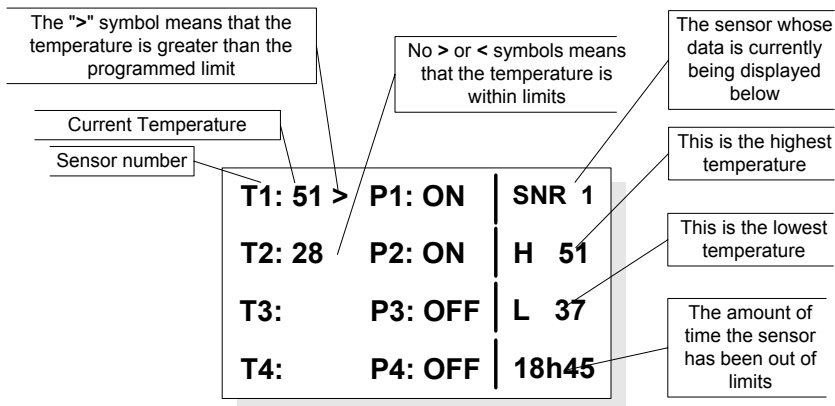
### Confirming Alarm Conditions Locally

To confirm an alarm condition locally push the black button on the left side of the Temperature & Power Guard. The alarm relay will de-energize, and the Temperature & Power Guard will stop making callouts for the current alarm condition. **This action does not override the Reminder Call feature.**

## Reading the Display

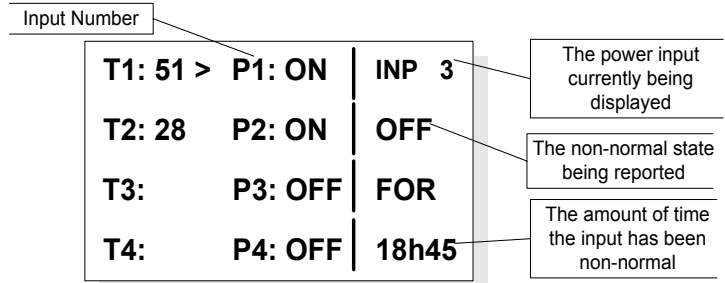
### Temperature Sensor Status

The Temperature & Power Guard continuously displays all temperatures simultaneously and cycles through the maximum and minimum values for each sensor in the right side of the screen.



### Power Input Status

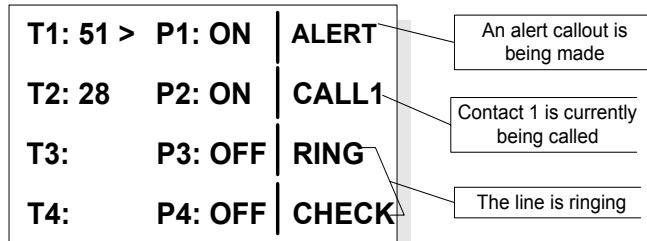
The Temperature & Power Guard continuously displays all power inputs next to their label. If the input is not in its normal state, the input, its current state, and the amount of time of the input has not been in its normal state will be displayed.



### Alarm Callouts

When the Temperature & Power Guard is making callouts, the status is displayed in the right side of the screen.

While the Temperature & Power Guard is making telephone calls, the display is not updated with new temperature readings.



## Frequently Asked Questions

### **When does the Temperature & Power Guard callout?**

The Temperature & Power Guard will callout when any sensor/input is in an alarm condition and has not been confirmed.

When an alarm condition first occurs, the Temperature & Power Guard turns on the alarm relay and buzzer, and then waits two minutes (programmable) to allow local personnel time to react to the alarm.

**NOTE: The callout delay will be skipped if Powered Input 1-4 or the Integrated Power Input is in alarm condition.**

### **When is a sensor/input in alarm condition?**

When a temperature sensor has been out of limits for greater than its programmed alarm time delay.

When a temperature sensor opens or shorts after having been connected.

When a power input is not in its "normal state" for longer than its programmed alarm time delay.

When the plug-in power has been out for greater than its programmed alarm time delay.

When the Aux Alarm Input is active for greater than its programmed alarm time delay.

### **What happens when the Temperature & Power Guard calls?**

- 1 The Temperature & Power Guard will dial the contact number exactly as it was programmed.
  - ▶ If the contact number was programmed as a pager number (\* is the first digit. The Temperature & Power Guard will dial all digits following the \*.
- 2 The Temperature & Power Guard will wait for a person or voice mail system to answer the call.
- 3 The Temperature & Power Guard will beep while it waits for a person to stop speaking or the voice mail system's outgoing message to stop.
- 4 For voice contact numbers, the Temperature & Power Guard will play the recorded personal identification message.  
For pager contact numbers, the Temperature & Power Guard will print the Local Identification number on the pager screen. The Temperature & Power Guard will then hang up and call the next programmed contact number.
- 5 The Temperature & Power Guard will report any alarm conditions (i.e. "Warning, Sensor 2, *sensor 2 recorded message*", *is 89 degrees and has been out of limits for, x hours and y minutes.*
- 6 The Temperature & Power Guard will ask for the PIN number.

Once the PIN number has been entered, the Temperature & Power Guard will not call again because the current alarm condition has been acknowledged, unless the alarm still exists and the reminder call has been enabled.

If the correct PIN number is not entered within 4 seconds the Temperature & Power Guard will repeat the warning message. This warning message can be repeated up to 2 times by changing the programmed value. See the **Programming Repeat Warning Messages** section.

If the correct PIN number is not entered the Temperature & Power Guard will call the next programmed contact telephone number.

If the Temperature & Power Guard has called all programmed contact numbers without having the correct PIN number entered, it will wait 20 minutes and repeat the sequence until the alarm condition goes away or the Temperature & Power Guard receives confirmation either locally or remotely.

### **How can I connect the Temperature & Power Guard to a Phone Line which has a fax or answering machine connected to it?**

Program the Temperature & Power Guard to answer after one more ring than the other device. This allows the other device to always answer first.

To call and access the Temperature & Power Guard:

- 1 Dial the phone number
- 2 Hang up one ring before the other device answers.
- 3 Wait no longer than 30 seconds, then dial the phone number again.
- 4 The Temperature & Power Guard will answer.

For Example:

*A fax machine on the same line as the Temperature & Power Guard is set to answer after 4 rings. The Temperature & Power Guard is programmed to answer after 5 rings. To access the Temperature & Power Guard, dial the number, let it ring three times, then hang up. Wait 20 seconds and call again. After two rings, the Temperature & Power Guard will answer.*

### **Verifying telephone communication**

To verify telephone communications, perform the following test.

- 1 Using another phone line, call the Temperature & Power Guard and verify that it answers the phone.
- 2 Verify at least one programmed telephone number.
- 3 Hang up.
- 4 Call the Temperature & Power Guard again.
- 5 Enter #999 for the PIN.
- 6 Hang up.
- 7 The Temperature & Power Guard will perform a test call to your programmed telephone number's.
  - ▶ Do not enter your PIN if you would like the Temperature & Power Guard to continue calling any remaining programmed telephone numbers.
- 8 Watch the display and note any messages present.

## Troubleshooting

### **If the Temperature & Power Guard does not answer the phone**

Verify that the phone line is a standard analog telephone line. Digital phone lines are not compatible with the Temperature & Power Guard.

Verify that the phone line is working. Connect a standard phone to the line intended for the Temperature & Power Guard. Verify that there is a dial tone.

Check that the phone line is plugged in securely.

Verify that the Temperature & Power Guard is powered up and some data is being displayed on the display.

### **If the Temperature & Power Guard does not call out**

Perform the telephone communication verification procedure. Connect a phone to the line intended for the Temperature & Power Guard. Verify that there is a dial tone.

Check that the phone line is plugged in securely

Verify that the Temperature & Power Guard is powered up and the status light is blinking

Verify that the Temperature & Power Guard is programmed correctly. Call up the Temperature & Power Guard and verify the programmed phone numbers and limits.

### **Optional 20 / 30 Hour Extended Batteries**

If your unit has been ordered with an extended battery, it is installed at the factory.

### **Standard 4 hour / 20 / 30 Hour Batteries**

The rechargeable batteries used in the Temperature & Power Guard are trickle charged and can take up to a week to reach full capacity. The batteries are charging whenever the monitor is powered on.

## **FCC PART 68 INFORMATION**

This equipment complies with Part 68 of the FCC Rules. The FCC Part 68 Label is located on the bottom of the unit. This label contains the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. If requested, this information must be provided to your telephone company.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

Connection to the telephone network should be made by using standard modular telephone jacks, type RJ11. The plug and/or jacks used must comply with FCC Part 68 rules. If this telephone equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance in order for you to make necessary modifications to maintain uninterrupted service.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to tariffs.

If trouble is experienced with this unit, for repair or warranty information, please contact customer service at the address and phone listed below. If the equipment is causing harm to the network, the telephone company may request that you disconnect the equipment until the problem is resolved.

**DO NOT DISASSEMBLE THIS EQUIPMENT.** It does not contain any user serviceable components.

**Limited Warranty:**

1. Warrantor: Dealer, Distributor, Retailer, and Manufacturer
2. Warranty and Remedy

We believe that this is a high quality product. Although we test all products for proper functionality, we cannot guaranty that there will never be a defective unit, or that a unit will function on every phone line and all communication equipment in existence. For this reason, it must be clear that the **Warrantors are not insuring your premises or guaranteeing that there will not be damage to your person or property if you use this Product.** If this warranty is unacceptable please return the unused Product for a full refund.

One Year Limited Warranty - Microtechnologies warrants its products to be free from defects in material and workmanship under normal use for one year, and is not responsible for consequential damage or installation costs of any nature. In event that the Product does not conform to this Warranty at any time during the period of one year from original purchase date, Warrantor will repair the defect and return it to you at no charge. **Important: The Warranty is limited to replacement of the Product ONLY.** Secondly, because every phone line differs, we strongly encourage you to test this Product in its actual application. This should include a full test, involving the Product actually dialing to its designated location and someone verifying the proper response.

This warranty shall terminate and be of no further effect at the time the Product is 1) damaged by extraneous causes such as fire, water, lightning, etc. or not maintained as reasonable and necessary: 2) modified: 3) improperly installed: 4) repaired by someone other than the Warrantor: 5) used in a manner or purpose for which the Product was not intended.

**WARRANTORS' OBLIGATION UNDER THIS WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT ONLY. THIS WARRANTY DOES NOT COVER PAYMENT OR PROVIDE FOR THE REIMBURSEMENT OF PAYMENT FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

**It must be clear that the Warrantors are not insuring your premises or guaranteeing that there will not be damage to your person or property if you use this Product.** The Warrantors shall not be liable under any circumstances for damage to your person or property or some other person or that person's property by reason of the sale or use of this Product, or its failure to operate in the manner in which it is designed. The Warrantor's liability, if any, shall be limited to the original cost of the Product only. Use of this Product is at your own risk.

3. Procedures for obtaining performance for Warranty:

In the event that the Product does not conform to this Warranty, the Product should be shipped or delivered freight prepaid to a Warrantor with evidence of original purchase. If in any way you are not comfortable with the product or its Limited Warranty, we encourage you to return it unused for a full refund.

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