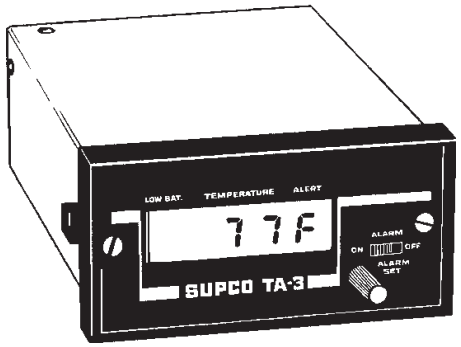
# TA3 TEMPERATURE ALARM OPERATING INSTRUCTIONS

**REV. 3.2**

MADE IN THE USA




## APPLICATION

A refrigerator or freezer maintains its temperature by periodically cycling a compressor and fan(s) on and off as controlled by the thermostat in the cooled compartment. As a result of this on-off type of control the compartment temperature will normally vary 3 - 5 degrees around the point set by the compartment thermostat. In addition to this variation a frost free freezer compartment will have 1 to 4 defrost cycles during a 24 hour period. This will cause the compartment temperature to rise above the normal variation.

The TA3 Temperature alarm is a single point or threshold type of temperature alarm. This type of temperature alarm monitors the temperature at the sensor tip and when this temperature passes above (or below) the set point, the unit will execute a preset operation. In the case of the TA3, this will be to sound an audible alarm, close a set of low power relay contacts, and blink the front panel letter (F). A user selectable one hour delay will prevent false alarms in freezers caused by defrost cycle and frequent door openings.

## INSTALLATION

The TA3 is designed to mount to a flat panel with a 1 3/4″ X 3 5/8″ cut out. This is a standard DIN cutout. DO NOT install the TA3 in a recessed opening which will be subject to high moisture air such as refrigerated air. Excessive moisture will cause corrosion of the electronic components resulting in unit failure. Place the TA3 in the opening and hold in place. Rotate the retractable locking arm screws clockwise until the mounting arms draw the unit firmly against the panel. If external mounting is desired, an optional wall bracket is available. Order No. TA3WM from your Supco dealer.

## SENSOR EXTENSION

The TA3 sensor is designed to measure air temperature and may be mounted in any convenient location in the area to be monitored. The sensor may be extended with type "J" thermocouple wire up to 2000 feet maximum. Sealed Unit Parts uses only extended accuracy thermocouple wire and recommends any extension made to the sensor be the same grade of wire. Use of a lower grade wire will affect the accuracy of the TA3 and will invalidate the specifications of this unit. To order extended accuracy thermocouple extension wire (TCW), contact your Sealed Unit Parts Co., Inc. customer service representative (or see Supco catalog.)

Be careful to observe polarity of the sensor when attaching an extension, as reverse polarity will prevent the TA3 from operating properly. It is also important to avoid the use of "solderless" connectors when extending the TA3 sensor. For long term, reliable operation it is essential to provide a good soldered connection for the sensor extension. Plastic tape or heat-shrink tubing is suggested to insulate the connections from each other, as well as providing protection for the soldered connections.

## RELAY CONTACTS

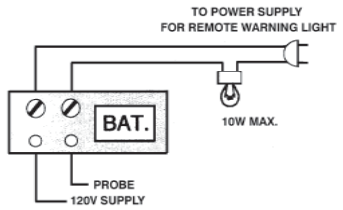
The TA3 may be connected to an automatic dialer or burglar alarm system using the relay contacts provided on the back panel of the unit next to the 9V battery holder. The contacts provided are Normally Open LOW POWER contacts and have no electrical power supplied. These contacts are intended to trigger an automatic dialer, burglar alarm or similar device and are not capable of controlling power devices such as an alarm bell, buzzers or anything which draws more than 0.1 Amp of current. Refer to the drawing on the back of this page for suggested connections for alarm bells, lights, ect.

## POWER REQUIREMENTS

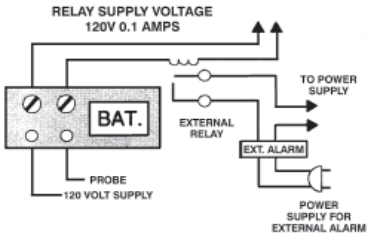
The TA3 operates from standard 120VAC, 60Hz power lines (a 230V 50/60Hz model is also available.) A three prong plug is supplied and the TA3 case is grounded to the third prong of the plug. The TA3 also has the option of battery backup. By attaching a 9 Volt battery to the holder on the back panel, the TA3 will continue to operate in the event of a power failure. A Low Battery indicator on the Front Panel LCD Display will warn the user that the battery power is exhausted and the TA3 will shortly cease operation. For best results, an alkaline battery is recommended.

# TA3 WIRING INSTRUCTIONS

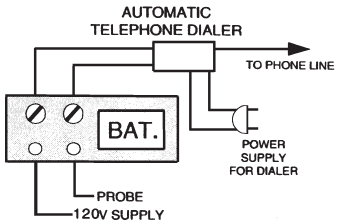
### FOR WARNING LIGHTS




### FOR EXTERNAL ALARM




### FOR AUTOMATIC PHONE DIALING SYSTEM




## OPERATION

Plug the TA3 into a 120VAC outlet and verify that the Front Panel LCD display is operating. If the battery backup option is desired, install the 9 Volt battery at this time.

Place the Alarm ON-OFF switch to the OFF position. Select the set point display by pressing in the metal shaft on the front panel labeled Alarm Set. Adjust the display to read the desired set point temperature. Typical values will be between 35°F to 45°F for a refrigerator and 0°F to 15°F for a freezer. The setting of this adjustment will depend on the type of protection the TA3 is being used for and it is up to the judgement of the user to select an appropriate alarm temperature. To read the compartment temperature, press the metal shaft on the front panel again, and the Front Panel Display will change to show the compartment temperature. Place the Alarm ON-OFF switch to the ON position and the TA3 will be in operation.

The TA3 is set at the factory to Alarm on a RISE above the temperature set on the Front Panel display after a 1 Hour Delay. To change to No Delay, or to Alarm on a temperature below the set point, it is first necessary to remove the top cover of the TA3. This is done by unplugging the TA3 and removing the 9 Volt battery if used. Then remove the two screws on the top of the cover and the two screws on the right side of the cover. **PERMANENT DAMAGE** can result from dropping a screw or other metal object into an operating TA3.

Hold the TA3 so that the display is facing you, locate the Delay/No Delay jumper on the PC Board. This is labeled SW4 and is near the front left of the PC Board. Note the white lettering on the PCB indicating DELAY and NO DELAY. In the DELAY position, the TA3 will blink the letter "F" on the Front Panel display when the sensor temperature passes the threshold set by the Alarm Set control. When approximately one hour has passed and the temperature has remained past the threshold set by the Alarm Set control, the TA3 will sound the audible alarm and close the N.O. relay contacts. Should the temperature return to its original value before this period has elapsed, the one hour delay will reset.

Setting this jumper to NO DELAY by removing the shorting jumper from the front pins of the 3-pin connector and placing them on the two rear pins of SW4, will cause the TA3 to sound an immediate alarm, blink the letter "F" and close the N.O. relay contacts. Should the temperature return to its original value, the TA3 will automatically reset.

To change the TA3 to alarm when the sensor temperature is BELOW the set point, locate the jumpers labeled SW3. The lettering on the PC Board will indicate which position is for Over temperature and which position is for Under temperature.

To change from one to the other, remove the two jumpers, rotate 1/4 turn, and replace the jumpers on the selection pins. After setting the TA3 for the desired mode of operation replace the cover and plug the TA3 into a 120VAC outlet. Replace the 9 Volt battery if battery backup operation is desired.

## SPECIFICATIONS

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| Line Voltage | 120 VAC with 3 prong cord |
| Sensor | Encapsulated Type J Thermocouple |
| Accuracy | +/-2°F @ 75°F Ambient |
| Alarm Adjustment Range | -50°F to +170°F |
| Remote Connections | Screw Type 120VAC 0.1 Amp MAXIMUM |
| Battery | 9 Volt Alkaline Battery (Not supplied) |
| Operating Ambient Temperature Range | +32°F to +130°F |
| Storage Temperature Range | 0°F to +160°F |
| Mounting | Flat Panel Cutout 3 5/8″ X 1 3/4″ (Optional Wall Bracket TA3WM) |
| Dimensions | 1 11/16″ H X 3 9/16″ W X 5 3/16″ D |

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