

*Supco*

SEALED UNIT PARTS CO., INC.

# TAP4

## FOUR PROBE TEMPERATURE ALARM



*Supco*

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P/N 14258  
Rev 08/01

PO Box 21 • 2230 Landmark Place • Allenwood, NJ USA

## OPTIONAL ACCESSORIES

Replacement Sensor	Order Supco Part # 14265
Replacement Watertight Fitting	Order Supco Part # 14261
Remote Audible Alarm with 25 foot extension	Order Supco Part # RA25
25 Foot Extension Wire	Order Supco Part # SW25
50 Foot Extension Wire	Order Supco Part # SW50
75 Foot Extension Wire	Order Supco Part # SW75
100 Foot Extension Wire	Order Supco Part # SW100
C Conversion Kit	Order Supco Part # CKIT
F Conversion Kit	Order Supco Part # FKIT
120V Power Adapter	Order Supco Part # 14263
220V Power Adapter	Order Supco Part # 14304

For custom configurations please contact Supco Customer Service.

## LIMITED WARRANTY

Sealed Unit Parts Co., Inc. hereby warrants that it will repair or replace, at its option, any part of the TAP4 Four Probe Temperature Alarm, which proves defective by reason of improper workmanship or material, free of charge for parts and labor, for a period of one year from the date of original purchase by the buyer. This warranty does not apply if, in the sole opinion of Sealed Unit Parts Co., Inc., the TAP4 Four Probe Temperature Alarm has been intentionally damaged due to misuse, neglect, improper packing, shipping, modification of servicing by other than Sealed Unit Parts Co., Inc., or personnel authorized by Sealed Unit Parts Co., Inc.. For information on how to obtain service under this warranty contact the dealer where your TAP4 Four Probe Temperature Alarm was purchased, or Sealed Unit Parts Co., Inc. at the address printed below:

Sealed Unit Parts Co., Inc.  
P.O. Box 21  
2230 Landmark Place  
Allenwood, NJ 08720 USA  
Phone: (732) 223-6644  
Fax: (732) 223-1617  
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## LIABILITY DISCLAIMER STATEMENT

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Supco products are not designed, intended, or authorized for use as components in life support systems, or for any other application in which the failure of the Supco product could create a situation where personal injury or death or significant financial loss may occur.

Should any person or persons purchase or use Supco products for any such unintended or unauthorized application, that person or persons shall indemnify and hold Supco, and its officers, employees, affiliates, and distributors harmless against all claims, costs, damages, expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury, death or financial loss associated with such unintended or unauthorized use, even if such claim alleges that Supco was negligent regarding the design or manufacture of the product in question.

## OVERVIEW

The TAP4 is a four-channel temperature alarm with a NEMA 3 enclosure that allows the user to set individual over or under temperature thresholds for each temperature sensor. In addition each sensor can be set to alarm immediately or to have a one-hour delay before alarm activation.

The TAP4 provides audible dry contact, and visual indication of the alarm and the delay status of each temperature sensor. The audible alarm and relay may be disabled by means of a selector switch, to allow for temporary conditions that may cause an alarm when no alarm condition exists.

The TAP4 is supplied with two front panels (Each front panel has one of the two scales in degrees F that the TAP4 user can select). The TAP4 is also available with two front panels in degrees C (TAP4C).

Additional features of the TAP4 include battery backup, broken sensor wire detection, dry relay contacts, and AC or DC operation.

## INSTALLATION

1. Mount the TAP4 enclosure to a solid surface. The location should provide adequate visibility and access to the unit. The NEMA enclosure may be mounted using the keyholes on the rear panel or the #10 blind screw locations.
2. Locate and remove two screws located just below the temperature scale on the left and right edge of the front panel. The switches for 1 Hour Delay/No Delay, Over/Under Temperature Alarm, Alarm Scale selection, and the temperature sensor terminal strip are located underneath this panel.
3. Using one or more of the enclosure knockouts route the temperature sensor wires to each location to be monitored. A water resistant fitting is supplied with the TAP4 and, if used, should be installed at this point. To allow the sensor and power wires to enter the NEMA enclosure one or more of the inner circles of the knockouts have to be removed. The preferred method for removing a knockout is to cut the plastic with a razor knife.
4. Four temperature sensors are supplied with the TAP4 and should be connected to the unit during installation. Each temperature sensor can be extended using Supco Extension Wire (See Optional Accessories for part number). The maximum recommended length each sensor can be extended is 300 feet. Extend each sensor as needed and route them to the TAP4 enclosure.
5. Each alarm channel is available on a terminal strip located along the bottom edge of the PC Board. Each sensor connection will be labeled #1, #2, #3 and #4. Each number identifies the alarm channel it belongs to. Connect each sensor wire to the desired alarm channel; note that the wires are not polarized. If one or more alarm channels are not used, an alarm channel may be disabled by replacing the temperature sensor with the provided wire jumpers. This will disable the selected alarm channel and it's associated controls.  
In the event of a broken or open temperature sensor wire the TAP4 will signal an alarm immediately with no delay. It is the user's responsibility to assure that each sensor or jumper is connected to the desired alarm channel and that each wire is properly attached to the terminal strip.

## SPECIFICATIONS

Alarm Channels	4 alarm channels with individual settings for each channel
Alarm Adjustment Range	2 Alarm Ranges for Degrees F and 2 Alarm Ranges for Degrees C Jumper Selectable with scale inserts for each range (Degrees F and Degrees C are separate models) -40°F to 60°F 0°F to 100°F -18°C to 38°C -40°C to 16°C
Alarm	Audible and visual with relay contacts for remote functions
Alarm Threshold	User Selectable for individual Over Temperature or Under Temperature
Alarm Delay	User Selectable, instant alarm or 1-hour delay with visual indication for each channel
Sensor	Encapsulated thermistor sensor with 15 ft. cord, field interchangeable
Recommended Maximum Sensor Length	300 Feet maximum using Supco Extension Wire
Remote Connections	Terminal Strip Screw Connection 120VAC, 5 Amps MAXIMUM (dry contacts)
Power	9V to 24V AC or DC (Wall adapter supplied)
Battery Backup	9V Alkaline Battery
Operating Time in Battery Backup	24 Hours no Alarm, 10 Hours Alarm condition
Case	NEMA 3
Mounting	Surface, keyhole or recessed screws
Dimensions	6" x 7 1/2" x 3" (152mm x 190mm x 76mm)
Weight	1.9 Lb (0.86 kg)

## STANDARD ACCESSORIES

TAP4	TAP4-220	TAP4C	TAP4C-220
(2)°F Front Panels	(2)°F Front Panels	(2)°C Front Panels	(2)°C Front Panels
14263 AC Power Adapter (120V)	14304 AC Power Adapter (220V)	14263 AC Power Adapter (120V)	14304 AC Power Adapter (220V)
(4) 14003-001 Temperature Sensors			
(1) 14261 Water Resistant Fitting			

## OPEN TEMPERATURE SENSOR WIRE

In the event that one or more of the temperature sensors or its wire(s) are damaged in such a way as to cause the wire to become an open circuit, the TAP4 will immediately sound the audible alarm and energize the relay.

The temperature sensor that is now open will be indicated by the corresponding lit ALARM LED.

The alarm may be silenced by setting the AUDIO ON / SILENCE switch to SILENCE.

## DISABLED ALARM CHANNELS

One or more alarm channels may be disabled if less than 4 channels are required for a given installation.

To disable a particular alarm channel remove the temperature sensor wire from the terminal strip located at the bottom of the TAP4.

Replace the temperature sensor with the supplied wire jumper.

The selected alarm channel is now disabled and the associated switches and alarm indicator will no longer have any effect on the operation of the TAP4.

Note that an alarm channel may be restored to operation by removing the wire jumper and replacing the temperature sensor.

## A SIMPLE METHOD TO DETERMINE THE PRESENT TEMPERATURE OF THE AREA TO BE MONITORED

Place the temperature sensor in the area to be monitored and allow it to stabilize.

Place the Delay Switch for that temperature sensor in the 1-hour delay position for the sensor that you are using. (This will prevent the audible alarm from sounding during this procedure.)

Place the Over / Under switch for that temperature sensor in the Under Position.

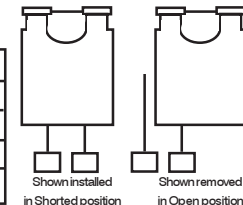
Start by turning the temperature dial down slowly from the highest temperature position until the LED for that channel starts to blink.

Move the dial slowly up and down while the LED goes on and off, at this point you can read the area temperature from the dial scale.

- Select the desired alarm range for the TAP4. Two alarm ranges are supplied for Degrees F or Degrees C depending on the TAP4 model purchased. Use the table below to select the desired alarm range for the TAP4. Attach or remove jumper J3, located on the PC board, as indicated by the table below. Note that the selected alarm range applies to all four-temperature sensors. It is not possible to use separate alarm ranges for different temperature sensors.

Table 1

Temperature Range	Scale	Jumper J3
-40°F to 60°F	Scale # 1 Degrees F	Installed
0°F to 100°F	Scale # 2 Degrees F	Removed
-18°C to 38°C	Scale # 1 Degrees C	Removed
-40°C to 16°C	Scale # 2 Degrees C	Installed



The TAP4 operates between 9 to 24 volts AC or DC at 0.15A using the supplied wall adapter or by an alternate power source.

Connect the power leads to the terminals labeled 9-24 VAC. If battery backup is desired attach a 9 Volt Alkaline battery to the 9V clip and place the battery in the battery holder.

**Caution!! Application of power supply voltages above 24 volts AC or DC will cause permanent damage to the TAP4 and void the warranty!**

## AUXILIARY CONTACTS (FOR REMOTE ALARM OR TELEPHONE DIALER)

The TAP4 has a Normally Open (N.O.) and Normally Closed (N.C.) dry relay contacts. These contacts are located on the terminal strip at the bottom of the TAP4. The contacts are labeled NO for Normally Open, C for Common and NC for Normally Closed. If used, connect the external load to the relay contacts. The relay contacts are rated for a maximum of 120VAC 5A resistive load. Exceeding the contact ratings can cause permanent damage to the relay contacts and void the TAP4 warranty.

A piezo beeper (supplied) provides the audible alarm for the TAP4. The beeper is connected to the terminal with two color-coded wires. Do not reverse the wires or substitute a different sounding device.

**Substitution of the sounding device can cause permanent damage to the TAP4 and will void the warranty!**

## SETUP

Prior to setting up or changing the TAP4 alarm channels, the front panel must be removed.

Locate and remove two screws located just below the temperature scale on the left and right edge of the panel. The switches for Delay/No Delay, Over/Under Temperature Alarm, Alarm Scale selection and the temperature sensor terminal strip are located underneath this panel. Each temperature sensor has its own alarm channel and is set independently of each other. The alarm channels are identified on the selected scale as Alarm 1, Alarm 2, Alarm 3 and Alarm 4.

- For each alarm channel set the OVER / UNDER switch to alarm on temperature rise (OVER) or alarm on temperature fall (UNDER).

2. For each alarm channel set the DELAY switch for 0 (no delay) or 1 HR (1 hour delay). If the DELAY switch is set to 1-hour delay the selected temperature channel must remain continuously above (or below depending on the setting of the OVER / UNDER switch for that channel) the temperature setting on the temperature setting dial for 1 hour before the alarm will be activated.
3. Verify that the temperature sensor wires are connected to the terminal strip in the desired order for Alarm #1, Alarm #2, Alarm #3 and Alarm #4. One or more alarm channels may be disabled if less than 4 channels are required for a given installation. To disable a particular alarm channel remove the temperature sensor from the terminal strip located at the bottom of the TAP4. Replace the temperature sensor with a supplied wire jumper. The selected alarm channel is now disabled and the associated switches and alarm indicator will have no effect on the operation of the TAP4.
4. Replace the front panel with the scale that matches the scale selection set by Jumper J3 (see Table 1). The front panel is secured with two screws located just below the temperature scale on the left and right edge of the front panel.
5. Set each alarm channel to the temperature at which to activate the alarm. It is the responsibility of the operator to determine what temperature setting provides the required alarm protection while avoiding false alarms.
6. Set the Audio On / Silence switch to Audio On. Note that the Yellow LED next to the switch is not lit.

The TAP4 is now functioning according to the switch settings and selected temperature thresholds. It is the operator's responsibility to test the operation of the TAP4 and assure that the alarm settings provide the desired level of protection.

## OPERATION

The TAP4 uses a combination of audible and visual indicators to alert the operator to alarm and power status conditions. Each item will be described in detail.

### POWER AND BATTERY BACKUP

The TAP4 provides a visual indicator to show the status of power / battery backup. The TAP4 uses the green LED labeled ON to show that power is applied and to indicate if the TAP4 is running on external power or internal battery backup. The ON LED has three states:

**Steady Green** – This indicates that power to the TAP4 is being supplied from an external source and is within the operating specifications of the TAP4.

**Flashing On and OFF** – This indicates that the external power to the TAP4 has failed and that the TAP4 is running on internal battery backup. In the event of a power failure while the TAP4 is in an alarm condition the audible

alarm will continue to sound, the relay will stay energized for 15 seconds after the external power has failed and then be shut off to conserve battery power. The relay will then energize every 30 minutes for a period of 15 seconds as long as an alarm condition exists and the TAP4 remains on battery backup power. The relay will be turned on if the external power is restored and an alarm condition still exists. Typically the TAP4 will operate for 24 hours with no alarm condition and for 10 hours under alarm conditions when a fresh 9V alkaline battery is installed. It is strongly recommended to replace the battery after any power outage to assure maximum operating time in the event of another power outage.

**Flashing On and Off with Audible Alarm and Relay Energized** – When no alarm condition is indicated by the Red LEDs and the TAP4 is running on battery backup; this is a warning that the battery is nearly discharged and the TAP4 will shortly cease operation. If continued protection is required you must either restore external power to the TAP4 or replace the 9V battery.

### ALARM INDICATION

When the temperature of one or more of the channels has passed the threshold set by the operator the TAP4 will indicate which one is in the Alarm or Delay condition using the Red LED indicators.

Note that the alarm can be silenced at any time by setting the AUDIO ON switch to SILENCE.

When the switch is set to silence the audible alarm and relay will be disabled. The yellow LED next to the SILENCE switch will be lit to advise the operator that the audible alarm and relay have been disabled. The Red LED alarm indicators will continue to show which channel(s) are in an alarm or delay condition. Each indicator corresponds to a specific channel. The Alarm 1 indicator corresponds to channel #1 located on the terminal strip of at the bottom of the TAP4. Likewise Alarm 2 corresponds to channel #2, Alarm 3 to channel #3 and Alarm 4 to channel #4.

When the delay switch is set to 0 and a given temperature sensor has passed above (or below depending on the setting of the OVER / UNDER switch for that channel) the threshold set by the operator an audible alarm will sound and the red LED that corresponds to that particular channel will light continuously.

When the delay switch is set to 1 HR and a given channel has passed above (or below depending on the setting of the OVER / UNDER switch for that channel) the threshold set by the operator the red LED for that particular channel will start flashing on and off.

No audible alarm or relay closure will occur until the temperature has remained above (or below) the threshold for one hour continuously.

After one hour the audible alarm will sound and the relay will energize until the temperature goes below (or above) the threshold set by the operator or the Silence switch is set to disable the audible alarm and relay.

Should the temperature return to normal before the one hour delay has been reached the delay timer will be automatically reset and the temperature will again have to remain beyond the threshold set by the operator for one hour.

