Supco™

THA2

THA2 Temperature Humidity Alarm

Supco
DISPLAY
SILENCE

Temp°F %RH Dew°F
74.6   33.9 44.3

UP   TEMP HI   RH HI   DEW
DOWN TEMP LO   RH LO   DELAY

THA2

MADE IN THE USA

TEMPERATURE/ HUMIDITY/ DEWPOINT ALARM

WITH LOGGING CABABILITY

Sealed Unit Parts Co., inc.

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F109-07-2005

Base unit	
Operating Temperature Range	+32°F to 130°F (0°C to +54°C)
Storage Temperature	0°F to 130°F (-18°C to +54°C)
Operating Humidity	0 %RH to 95 %RH, non condensing *****
Power Source	12V to 24 VAC/VDC, 0.78W alarm active
Battery backup	9V alkaline battery for 35 hours operation during power outage
Clock battery	CR2032, 10 years typical
Relay	N.O and N.C. dry contact 5A 250V, resistive load
Dimensions	5.5" x 4.5" x 1.6"
Weight (without battery backup)	8.6 oz.
Alarm Specifications	
Temperature Alarm	High and Low Temperature and Humidity alarms.
Condensation alarm	
Alarm Delay	User selectable, up to 2 hours
Alarm Indication	Audio, Visual and a relay for remote alarm and phone dialer
Logging Specifications	
Sample Rate	1 second to 30 minutes.
Data history storage	2 hours to 170 days, depending on the sample rate
Memory capacity	8150 samples for Temperature, Humidity, and Dew Point

* The sensor probe is not designed for continuous exposure to high humidity or caustic and or corrosive chemicals such as, but not limited to concrete or chlorine.

- **Time Format** - The user can select 12 hour or 24 hour clock format for the display. Use **UP** or **DOWN** to select the format, and then press **TEMP HI** when done.
- **Exit** - Press **TEMP HI** to exit the setup menu.

Battery Operation

The **THA2** will work from a wide variety of power sources. It can operate from 12V to 24V AC or DC source. Battery backup will provide 35 hours of continued operation with a 9V alkaline battery. **This battery should be changed after every power failure**. During a power outage, the message *Battery Backup*! will flash every several seconds.

During a power failure, the unit will continue normal operation except during an alarm. When the alarm becomes active, the relay will close for only thirty seconds to conserve battery power.

Specifications

Standalone front panel operation, with user lockout for security. PC software is provided with the unit for viewing data history.

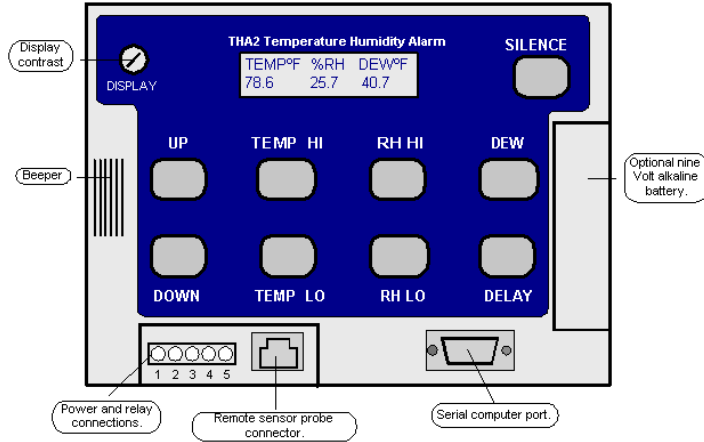| Sensor Probe	
Operating Temperature Range	-40F° to 140°F (-40°C to 60°C)
Operating Humidity Range	0 to 95 %RH, non condensing
Temperature Accuracy	+/- 2°F (+/- 1°C)
Temperature Resolution	0.1 °F or 0.1 °C
Humidity Accuracy	+/-2 %RH
Humidity Resolution	0.1 %RH
Calibration	User calibration for Temperature and Humidity
Dimensions	3.8 inches length with a diameter of 1.1 inches
Weight	0.9 oz.
Cable Length	Comes with 15ft cable. Can be extended to 300 ft. maximum.

Introduction.

The **THA2** is a multi-function product that monitors Temperature, Humidity and Dew Point, provides alarms for out of range conditions, and continuously logs data. It consists of a base unit with an easy to read display, and a remote sensor probe that can support cable lengths of up to 300 feet. The unit comes with a 15 feet sensor cable.

The alarm function monitors the temperature, humidity, and dew point once every second. If any of the readings reach an alarm threshold, the unit generates an alarm by turning on a beeper and a dry contact relay. The relay can be connected to a telephone dialer, light, or a bell. The delayed alarm feature can reduce false alarms, by ignoring short duration alarm conditions. The unit will also generate and alarm on probe failure.

The logger function records the temperature humidity and dew point into internal non-volatile memory at a user specified interval. The recording is performed continuously after the unit is turned on. No computer setup is necessary to start logging, and all logging settings can be viewed or changed through the front panel functions. When the internal memory becomes full, the recording rolls over, overwriting the oldest recorded data. For a 2 minute recording rate, this provides the user with an 11 day history of the temperature, humidity, and dew point data. This data can then be reviewed with PC software provided with the unit.

All the operating settings of the THA2 can be changed from the front panel, without the need for a computer. The two line display provides an easy to read means of viewing, or changing settings according to the user's requirements. The unit will simultaneously support review of logged data on a computer, while continuously recording new data.

Front Panel Operation

Sampling Rate	Data History Length
1 Second	2 Hours, 15 Minutes
2 Seconds	4 Hours, 30 Minutes
5 Seconds	11.5 Hours, 30 Minutes
10 Seconds	23 Hours
20 Seconds	46 Hours
30 Seconds	2.4 Days
1 Minute	5.7 Days
2 Minutes (default)	11 Days
5 Minutes	28 Days
10 Minutes	56 Days
15 Minutes	85 Days
30 Minutes	170 Days

The Display

During normal operation the display shows the temperature, humidity and dew point on the bottom line. When either measurement is within the alarm threshold, the value flashes. To adjust the display contrast, turn the contrast knob clockwise (right) for the increased contrast, and counter-clockwise (left) to reduce the contrast. The display periodically shows additional status information such as date and time, battery backup operation, battery low condition (during battery backup operation), and sensor failure.

Viewing and Modifying Current Alarm Thresholds

To view the current alarm or delay settings, press and hold the corresponding button. For instance to view the temperature high alarm, press and hold the **TEMP HI** button.

To modify an alarm threshold or alarm delay, press and hold the corresponding button. While continuing to press the button, press the **UP** button to increase the value, or **DOWN** button to decrease the value. Note, the **UP** and **DOWN** buttons are only active if the alarm modification function is unlocked in the setup menu.

- **Units** - Allows the user to set the display format to °F or °C for all temperature and dew point measurements. Press **UP** or **DOWN** to choose the units. Press **TEMP HI** when done

- **Alarm Buttons** - The alarm buttons can be used for both viewing and changing alarm limits. To prevent accidental changes the alarm buttons can be "locked", so that alarms can only be viewed, but not changed. This prevents accidental changing of alarm values during normal use. Use **UP** or **DOWN** to select *Unlocked* or *Locked*. Press **TEMP HI** when done.

- **Calibrate Probe** - The user can adjust the temperature and humidity readings to match external references. To start calibration, select the Calibrate Probe option by pressing **TEMP HI**. The display will show *Calib. Temp? No*. Use **UP** to change to *YES,* and then press **TEMP HI.** The display shows the temperature and current offset. Now, the user can press **UP** and **DOWN** to adjust the temperature in 0.1 degree steps. The temperature can be calibrated +/- 4 °F or °C degrees. Press **TEMP HI** when done. Humidity is calibrated in the same way. To Turn off the calibration for temperature of humidity, set the offset to zero.

- **Date Format** - There are three formats available: *MM/DD/YY*, *DD/MM/YY*, or *DD.MM.YY*. Use **UP** or **DOWN** to select the format, and then press **TEMP HI** when done.

Setup Menu

The setup menu allows the user to modify settings that do not need to be changed very often. To enter the setup menu, press and hold the **UP** and **DOWN** buttons at the same time, for about three seconds.

Once the menu comes up, use the **UP** or **DOWN** buttons to move between menu entries, and use the **TEMP HI** button to select an item to view, or change. After the entry has been selected, the **TEMP HI**
button is used to"enter" the data. To exit setup, the user can scroll to the *Exit* entry and press **TEMP HI**, or press the **DELAY** button for a quick exit. There are nine entries in the setup menu:

Setup Menu
 • *Set Time*
 • *Set Date*
 • *Sampling Rates*
 • *Units*
 • *Alarm Buttons*
 • *Calibrate Probe*
 • *Time Format*
 • *Date Format*
 • *Exit*

• Set Time - Sets the current time of day. Press **UP** or **DOWN** to change the hours, and press **TEMP HI** to move to the minutes field. Pressing **TEMP HI** on the minutes field sets the time and returns to the setup menu. **TEMP LO** button can be used to move backwards from the minutes field to the hours field.

• *Set Date* - Sets the current date. Press **UP** or **DOWN** to change the values, and press **TEMP HI** to move to the next field, and **TEMP LO** to move to the previous field. Pressing **TEMP HI** on the year field sets the date and returns to the setup menu.

• S*ampling Rates* - Sets the sampling rate for the data logger function of the THA2. On entry, the display shows the current sampling rate, and how much data history this sampling rate provides. Press **UP** or **DOWN** to change the sampling rate and **TEMP HI** when done. The twelve sampling rates are:

Silencing an Active Alarm

If an alarm is active, the **SILENCE** button will silence the beeper and deactivate the relay. If the **SILENCE** button is pressed while there is no alarm, it has no effect on the beeper operation. The Silence alarm function is only active during the current alarm occurrence. Once the alarm condition is over and the unit returns to the normal (non alarm) operation, the silence alarm function is automatically deactivated.

Power and Relay Connections.

The **THA2** has a 5 contact, screw type terminal block for power and relay connections. The relay is located behind the gray door located in the lower left of the front panel. The first two contacts are for power, and the remaining three contacts for the relay. The relay supplied is capable of switching 5A at 250 VAC max. Terminal 1 is on the left and terminal 5 is on the right.
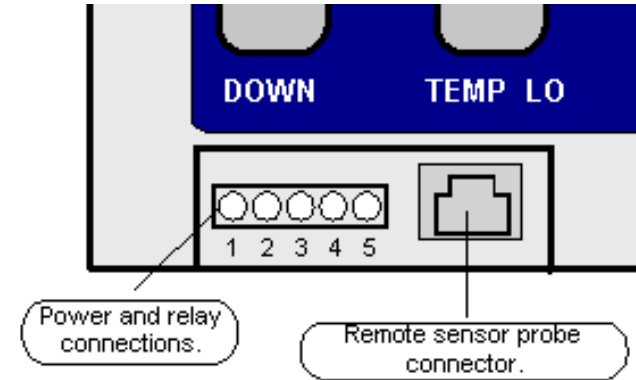
Contact	Function
1 and 2	12 to 24 volts AC or DC power input. These contacts do not have a polarity.
3	Relay Contact, Normally Closed (N.C.)
4	Relay Contact, Common.
5	Relay Contact, Normally Open (N.O.)

Alarms

An alarm is active when two conditions are met:

1. A measurement has reached one of the high or low alarms limits. The measurement that has reached its limit will then flash on the display.

2. When the first condition has been reached, and the delay time has ended, the beeper will turn on, and the relay will close.

Alarm Delay

The **DELAY** button provides the user with the ability to make sure that an alarm condition has been present for a minimum period of time. The time period can range from no delay, to two hours. The use of delay can reduce or eliminate the occurrence of false alarms. The user needs to carefully consider their application in order to achieve the best results. There are nine delay settings:

Delay Settings

- No delay
- 10 seconds
- 1 Minute
- 20 Minutes
- 30 minutes
- 1 Hour
- 90 Minutes
- 2 Hours

Dew Point (Condensation) Alarm

The Dew Point Alarm alerts the user when condensation is imminent. Condensation occurs when the ambient temperature drops to the dew point temperature. The dew point alarm becomes active when the ambient temperature has dropped to within a user specified threshold of the Dew Point temperature. To understand this, reference the graph below.

The Dew Point Alarm was set to 6°F. As the dew point temperature approaches the ambient temperature, the danger of condensation increases. When the dew point is within 6°F from the ambient temperature (dew point is 64°F while the ambient temperature is 70°F), the dew point alarm is activated, alerting the user that condensation is very likely. Condensation finally occurs when the dew point temperature and the ambient temperature are the same — 70°F. This also means that the relative humidity is now 100%RH.

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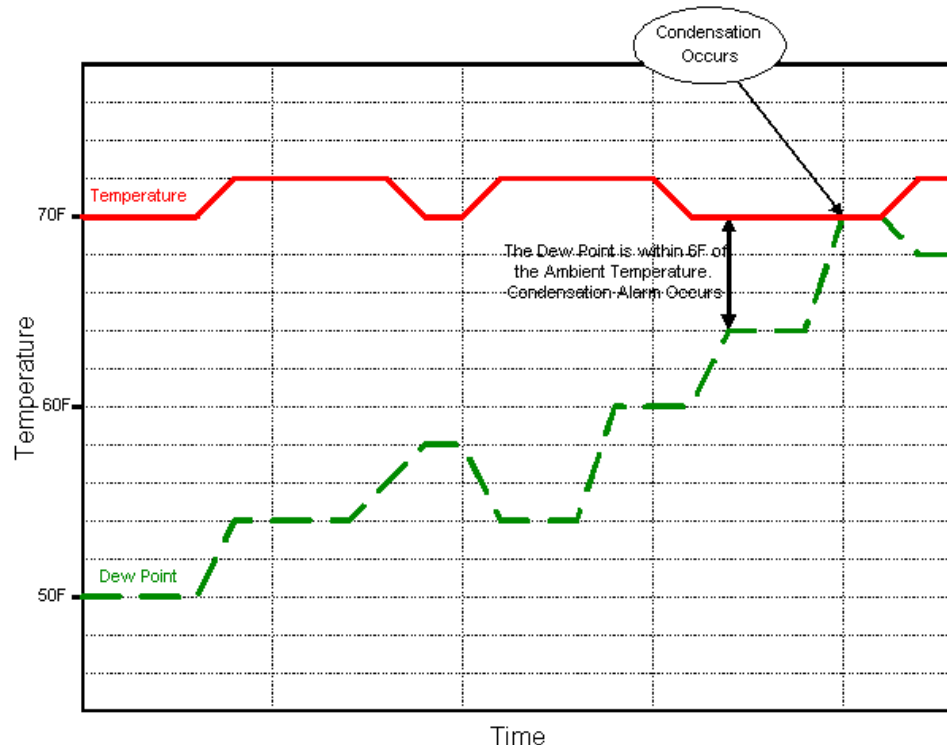
Disabling Alarms

You can disable any high or low alarm by setting the threshold to its maximum or minimum value:

- To disable the low temperature alarm, set the **TEMP LO** threshold to -40°F (-40°C).
- To disable the low humidity alarm set the **HUM LO** threshold to 0 %RH.
- To disable the high temperature alarm, set the T**EMP HI** threshold to 140°F (60°C).
- To disable the high humidity alarm, set the **HUM HI** threshold to 100 %RH.
- To disable the dew point (condensation) alarm, set the **DEW** threshold to 0°F or 0°C.

An alarm will always occur when condensation occurs (100%RH, or the Dew Point is equal to the ambient temperature).

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