



THERMON CPD1094-EXO-TOUCH Commerical Heat Trace Controller Instruction Manual

[Home](#) » [THERMON](#) » THERMON CPD1094-EXO-TOUCH Commerical Heat Trace Controller Instruction Manual 

Contents

- [1 THERMON CPD1094-EXO-TOUCH Commerical Heat Trace Controller](#)
- [2 Product Information](#)
- [3 Introduction](#)
- [4 Installation Precautions](#)
- [5 Product Description](#)
- [6 Product Specifications](#)
- [7 Configuring the EXO TOUCH](#)
- [8 Controller Default Settings](#)
- [9 FAQ](#)
- [10 Documents / Resources](#)
 - [10.1 References](#)
- [11 Related Posts](#)



THERMON CPD1094-EXO-TOUCH Commerical Heat Trace Controller



Product Information

Product Description

The EXO TOUCH™ is a commercial heat trace controller from Thermon's EXO series designed for freeze pipe protection and temperature maintenance applications. It offers single-point heat trace control capability and is suitable for ordinary locations, providing a cost-effective alternative to industrial controllers with high performance and reliability.

Version History

Version	Comments	Document Number
V1.0	Base version of the Genesis EXO Touch™ Operating Manual	CPD1094-0924

Introduction

This operating manual provides detailed instructions on configuring and operating the EXO Touch™. Please refer to CPD1092-EXO TOUCH™ Installation Guide for detailed installation instructions. For translations other than English, please contact Thermon.

Audience

The information in this manual is intended for engineers and technicians qualified for the installation and programming of heat trace controllers. You should have certified technician skills or have a background:

- To carry out electrical system installations
- Have a basic understanding of electrical and electronic systems

- Experience in installing Heat Trace Systems (preferable)
- Basic understanding of the working of heat trace controller and configuration settings
- Experience using mechanical tools

Installation Precautions

- To minimize the potential for arcing and fire caused by product damage or improper installation use ground-fault protection. The National Electrical Code (NEC) and Canadian Electrical Code (CEC) require ground-fault protection of equipment for each branch circuit supplying electric heat tracing.
- Installation must comply with Thermon requirements and be installed in accordance with the NEC, CEC, or any other applicable national and local codes. Component approvals and performance ratings are based on the use of
- Thermon specified parts only. User supplied power connection fittings must be listed or certified for intended use.
- De-energize all power sources before opening the enclosure.
- Keep ends of heating cable and kit components dry before and during installation.
- Individuals installing these products are responsible for complying with all applicable safety and health guidelines. Proper personal protective equipment, or PPE, should be utilized during installation. Contact Thermon if you have any additional questions.

Product Description

EXO series is Thermon's dedicated offering for freeze pipe protection and temperature maintenance applications for the commercial market. EXO TOUCH™ is the first controller in the EXO series with a single- point heat trace control capability. It has been specifically designed for usage in ordinary locations as a cost-effective alternative to industrial controllers while offering great performance and reliability.

The EXO TOUCH™ comes with a 4.3" resistive touch display and a simple, intuitive interface that allows the user to easily navigate the control settings. EXO TOUCH™ has been certified for usage in Ordinary Locations.

Product Specifications

Control & Monitoring Capacity	1 heat trace circuit
Control Methods (Process & Ambient)	ON/OFF, ON/OFF Limiter, APCM, APCM Limiter
Rated Voltage (Supply & Load)	100-240 VAC, + 10%, 50 Hz 110-277 VAC, + 10%, 60 Hz
Rated Current	250 mA
Input Protection	<ul style="list-style-type: none"> • Surge protection, MOVs, from both phases to ground as well as phase to phase • External breaker
Load Voltage	100-240 VAC, + 10%, 50 Hz 110-277 VAC, + 10%, 60 Hz
Output Heater Current	30 A @ 25°C
Heater Current Measurement	up to 35 A max.
Ground Fault Measurement	0 mA to 200 mA
Control Band	Programmable in increments of 1 degree
Control Temperature Range	-40°C to 125°C; increments of 1 degree (40°F to 275°F)
Operating Temperature	-20°C to 45°C (-4°F to 113°F)
Relative Humidity	0-90%

Product Models

Part #	Model Description
817010	EXO TOUCH™ Single Point Commercial Controller

Certifications/Approvals



WARNING – Disconnect all power sources before installation or servicing.

Configuring the EXO TOUCH

Power ON

- Power ON the unit using the rated voltage.
 - 100-240 VAC \pm 10%, 50 Hz
 - 110-277 VAC \pm 10%, 60 Hz
- The LCD display will show the device booting up and the color of the Thermon logo will be a rotating pattern of red and white.



- Once the boot up sequence has completed successfully, the circuit dial up will show up on the screen and the Thermon logo will turn Green. (within ~ 20 seconds).



- In case the logo does not turn Green, refer to section 7.4 to identify the possible root cause.
Note: If the Thermon logo continues to blink without turning steady Green, then there might be a fault in the unit. Please report it to your Thermon contact or via the Customer Issue Reporting form online.

Dial Display after Power ON Sequence

Note: If the Thermon logo is not Green, please refer section 7.4 to identify the root cause.

Heat Trace disconnected & one Temperature sensor connected

Please note that if a single thermistor is being used, it must be connected to TEMP1 during the installation for the unit to operate properly.

Power State – Disabled

- The temperature reading for the connected sensor will be visible.

- The symbol indicates  the power state.

•



The circuit current will show zero as there is no heat trace connected.

- The ground current will show zero. Note: Any non-zero value for the ground current unless there is an active ground condition.

Power State – Enabled

- The temperature reading for the connected sensor will be visible.

- The  symbol will indicate the power state.



- The circuit current will show zero as there is no heat trace connected.
- The ground current will show zero. Note: Any non-zero value for the ground current unless there is an active ground condition.

Heat Trace connected & one Temperature sensor connected

Power State – Disabled

This behavior is same as explained in section 7.2.3.1

Power State – Enabled

- The temperature reading for the connected sensor will be visible.

- The symbol  indicates the power state.



- The circuit current will show a non-zero value as the circuit is energized.
- The ground current will show zero. Note: Any non-zero value for the ground current unless there is an active ground condition.

Heat Trace not connected & both Temperature sensors connected

Power State – Disabled

- The temperature readings corresponding to connected temperature sensors will be visible.
- The symbol ⚡ indicates the power state.
-



The small dials below indicate the circuit current (in A) and the ground current values (in mA). Both should be zero.

Note: Any non-zero value for the ground current unless there is an active ground condition.

Power State – Enabled

- The temperature readings from connected sensors will be visible.
- The ⚡ symbol will indicate the power state.



- The small dials below indicate the circuit current (in A) and the ground current values (in mA).
- The circuit current will be zero as there is no heat trace connected.

Note: Any non-zero value for the ground current unless there is an active ground condition.

Heat Trace connected & both Temperature sensors connected

Power State – Disabled

- The temperature readings corresponding to connected temperature sensors will be visible.



- The small dials below indicate the circuit current (in A) and the ground current values (in mA). Both should be zero.

Note: Any non-zero value for the ground current unless there is an active ground condition.

Power State – Enabled

- The temperature readings corresponding to connected temperature sensors will be visible.



- The circuit current will show a non-zero value as the circuit is energized.
- The ground current will show zero. Note: Any non-zero value for the ground current unless there is an active ground condition.

Controller Settings

Accessing a Parameter on the Menu

- Tap the circuit dial to get the Menu view.
- You can scroll through the menu by pressing '<' or '>' symbols to get to the desired parameter you want to configure.
- If not in an active session, for making changes to the setting you will be prompted to enter the access code.



Note: Refer to the 'Change Access Code' part under 'Global Settings' section for instructions on changing the default Access Code.

- You can tap the '<' symbol to get to the previous view.
- You can tap the dial to get out of the Menu view.

Circuit Tag



- Select the 'Circuit Tag' option to label your circuit.
 - b. You can choose up to 64 characters. However, only 33 characters will be displayed on the screen.

Power State

Select the Power State option from the menu.



1. **Disabled**– The circuit is disabled. It will not turn ON in any condition.
2. **Enabled** – The circuit is enabled and will remain ON as long as one of the sensor temperatures is below the Maximum Temperature setpoint and neither is above the High Temperature Trip setpoint.

Note: You should consider whether the sensor is sensing ambient or pipe temperature for configuring setpoints and control methods.

Forced On – Circuit is turned ON, regardless of whether the sensor temperature has reached the Maximum Temperature setpoint.

- The High Temperature Alarm will sound once the sensor temperature reading reaches the High Temperature Alarm setpoint and the circuit will deactivate.
- The Power State will change to Enabled.
- Stop the buzzer by selecting Ack, from the the Active Alarms menu.

Note: If the unit is rebooted, the Power State reverts to Enabled.



Forced Off- Circuit is OFF, regardless of whether the sensor temperature is below the Maintain Temperature setpoint.

- The Low Temperature Alarm will sound once the sensor temperature reading reaches the Low Temperature Alarm setpoint and the circuit will activate.
- The Power State will change to Enabled.
- Stop the buzzer by selecting Ack, from the Active Alarms menu.
- Return to normal operation.

Note: If the unit is rebooted, the Power State reverts to Enabled.

Temperature Settings



Increase or decrease the values by dragging the slider  to the right or left. Alternately, you can use the  symbols to change values.

Low Temperature Alarm

The setpoint value range is -60°C to 500°C (-76°F to 932°F).



Note: When any sensor reading goes below this setpoint, this alarm will be triggered, and the Thermon logo will flash BLUE.

Maintain Temperature

The setpoint value range is -60°C to 499°C (-76°F to 931°F).

Note: When the Power State is Enabled, if any one of the sensor readings goes below this setpoint, the circuit will be turned ON.

Maximum Temperature

The setpoint value range is -59°C to 500°C (-75°F to 932°F).

Note: When the Power State is Enabled, the circuit will be turned OFF if any one of the sensor readings goes

above this setpoint.

High Temperature Mode

Select one of the following modes.



1. High Temperature Trip – Selecting this mode will make the circuit trip if any of the thermistor temperatures exceeds the High Temperature Trip setpoint (configured separately).
The Thermon logo will turn RED when the circuit trips.
 2. High-High Temp Alarm – Selecting this mode will trigger the alarm if any of the thermistor(s) temperature exceeds the High-High Temperature setpoint (configured separately).
The Thermon logo will turn RED when the alarm occurs. To stop the buzzer, select Ack to acknowledge the alarm from the Active Alarms menu.
- Note:** Once you select a particular temperature mode, the other mode option does not show up as a setpoint setting in the main menu.

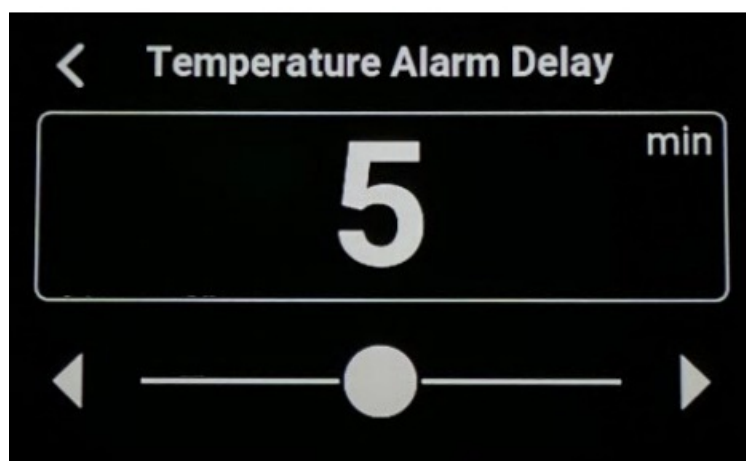
High Temperature Alarm

The setpoint value range is -60°C to 500°C (-76°F to 932°F).

Note: When any sensor reading goes below this setpoint, this alarm will be triggered, and the Thermon logo will flash Yellow.

Temperature Alarm Delay

Can be Disabled or configured from 1 to 30 minutes.



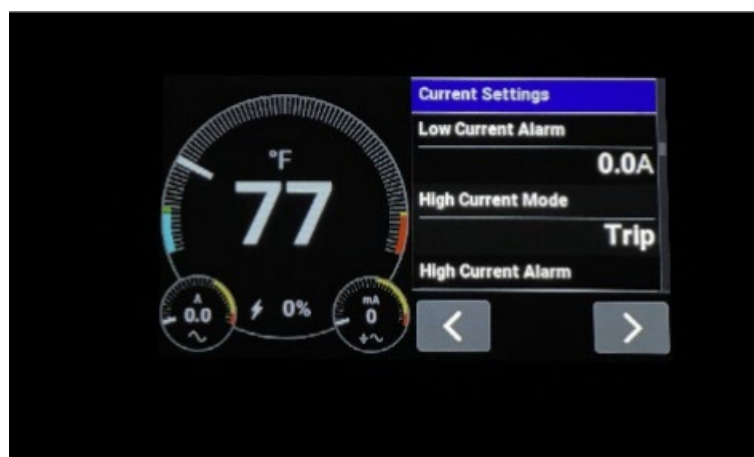
Note: This does not apply to Low Temperature Alarms.

Temperature Units

Select an option to display temperature values in Celsius or Fahrenheit.



Current Settings



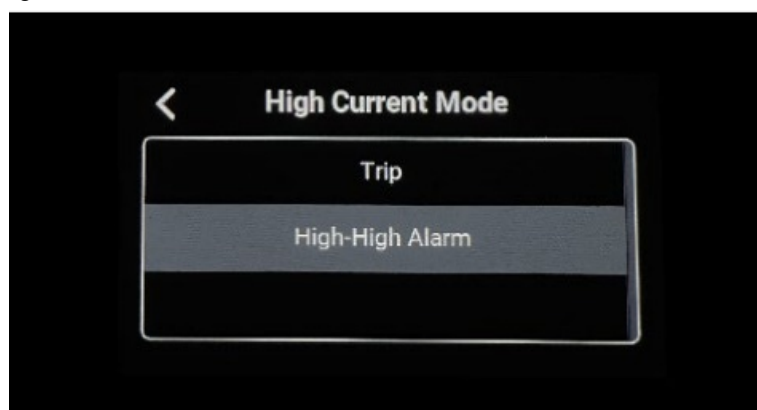
Low Current Alarm

The setpoint value range is 0-100 A.

Note: When the circuit current reading goes below the setpoint, the alarm will be triggered, and the Thermon logo will flash Blue.

High Current Mode

Select one of the following modes.



1. High Current Trip – Selecting this mode will make the circuit trip if the circuit current exceeds the High Current Trip setpoint (configured separately). The Thermon logo will turn RED when the circuit trips.
2. High-High Current Alarm -Selecting this mode will trigger the alarm if the circuit current exceeds the High-High Current setpoint (configured separately). The Thermon logo will turn RED when the alarm occurs.

Note: Once you select a particular mode, the other mode option does not show up as a setpoint setting in the main menu.

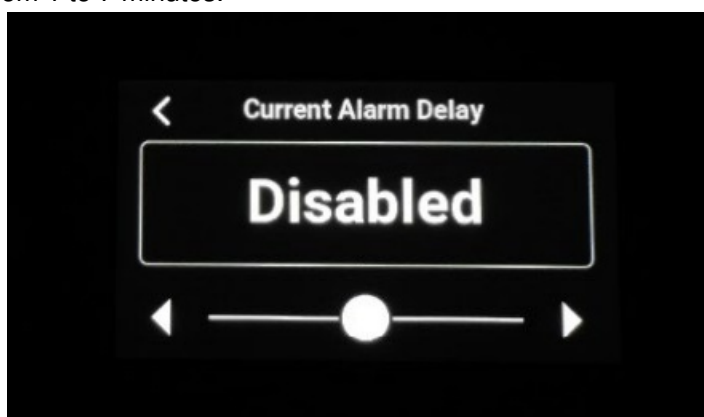
High Current Alarm

The setpoint value range is 0-100 A.

Note: When the circuit current reading goes above the setpoint, the alarm will be triggered, and the Thermon logo will flash Yellow.

Current Alarm Delay

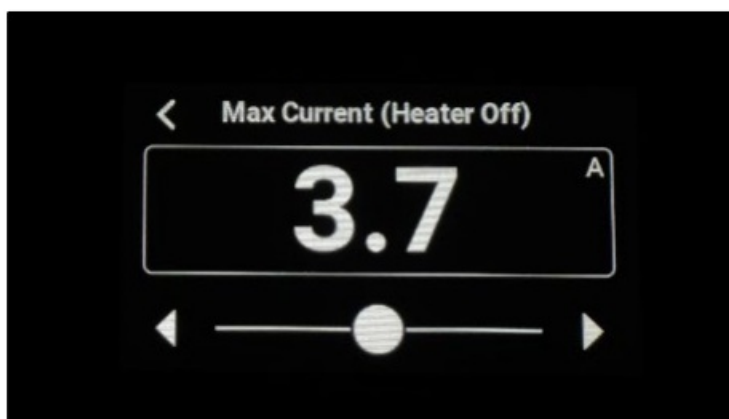
Disabled or configurable from 1 to 7 minutes.



Note: This does not apply to Low Current Alarms.

Max. Current (Heater Off)

This setting is applicable only when the circuit is OFF. For any non-zero circuit current reading, set the value at which you want the alarm to be activated. The range is 0.5 A to 50 A.



The Thermon logo will turn Purple when the circuit current exceeds this setpoint (even though the circuit is OFF). The Power State symbol should indicate 0%.

Ground Current Settings



High Ground Current Alarm

The setpoint value range is 20 – 200 mA.

Note: When the ground current reading goes above or equals this setpoint, the alarm will be triggered, and the Thermon logo will flash YELLOW.

High Ground Current Mode

Select one of the following modes.

i. High Ground Current Trip – The setpoint range is from 20-200 mA. Selecting this mode will make the circuit trip if the ground current exceeds the High Ground Current Trip setpoint (configured separately). The Thermon logo will turn RED when the circuit trips.

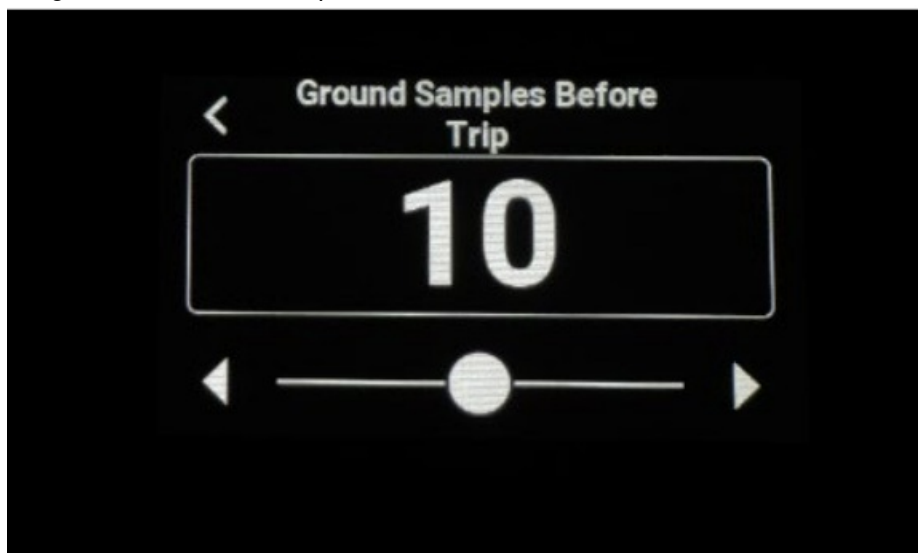
ii. High-High Ground Current Alarm

– The setpoint range is from 20-200 mA. Selecting this mode will trigger the alarm if the ground current exceeds the High-High Ground Current setpoint (configured separately). The Thermon logo will turn RED when the alarm occurs. Select 'ACK' in the 'Active Alarms' menu to acknowledge the alarm.

Note: Once you select a particular mode, the other mode option does not show up as a setpoint setting in the main menu.

Ground Samples Before Trip

The 7 selectable range is from 0 to 10 samples.



Note: This configures the number of extra samples that need to be above the setpoint for the alarm to get

triggered. This helps remove false triggers due to intermittent transient noise.

Ground Current Test

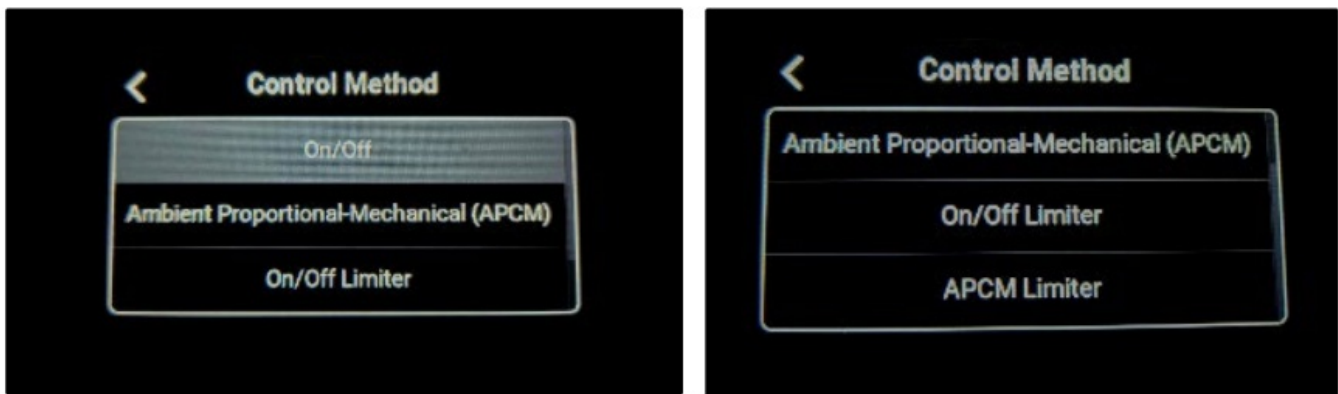
The unit performs the test by producing a small ground current of ~36 mA.



1. The user will see the value change to ~36 mA in the dial (bottom right) during this test.
2. If any of the ground current settings are within the 36mA range during the test an alarm will be triggered.
3. Once completed, the dial (bottom right) should display 0 mA.

Control and Power Settings

Control Method



1. ON/OFF

- The circuit turns ON when the temperature reading is below the Maintain Temperature setpoint. It turns OFF when the temperature reading has reached the Maximum Temperature setpoint.

2. Ambient Proportional Control –Mechanical (APCM) –

- This method uses ambient temperature reading to adjust the internal duty cycle (ON vs OFF Period) depending on the difference between the ambient temperature and the 'Maintain Temperature' setpoint.
- The cycle time is defined by the user by setting 'Relay Duty Cycle' field in the menu.

3. ON/OFF Limiter

- Both TEMP1 & TEMP2 sensors must be connected for this control method and the 'Control Temp Sensors' must be set to 2.

- Uses the TEMP1 sensor for control.
- Uses TEMP2 sensor ONLY for the limit function by turning the circuit off when the detected temperature exceeds the High-High Alarm or the High Temperature Trip setpoints depending on the temperature mode.

4. APCM Limiter

- Both TEMP1 & TEMP2 sensors must be connected for this control method.
- Uses the TEMP1 sensor for control.
- Uses TEMP2 sensor ONLY for the limit function by turning the circuit off when the detected ambient temperature exceeds the High-High Alarm or the High Temperature Trip setpoints depending on the temperature mode.

Note: When APCM limiter control method is selected, the dial on the main view does not change like it does with the APCM control method wherein the current is indicated in the main dial.

Control Temp Sensors

Use this setting to select the number of temperature sensors used by the unit.

Note: If you choose to have one sensor, it must be connected to TEMP1.

Max Duty Cycle

Use this setting to select the duty cycle ON time if the APCM mode is enabled. The range is 0 to 100%.

Power on Temp Sensor Fault

In the event of temperature sensor failure, this setting will override the 'Max Duty Cycle' setting. The range is 0 to 100%.

Relay Duty Cycle

This setting indicates the cycle time (period) in APCM mode. The range is 2 to 20 minutes.

Global Settings



1. Startup Delay – This setting indicates the delay interval before the control circuit is turned ON. The range is Disabled or 1-30 minutes.

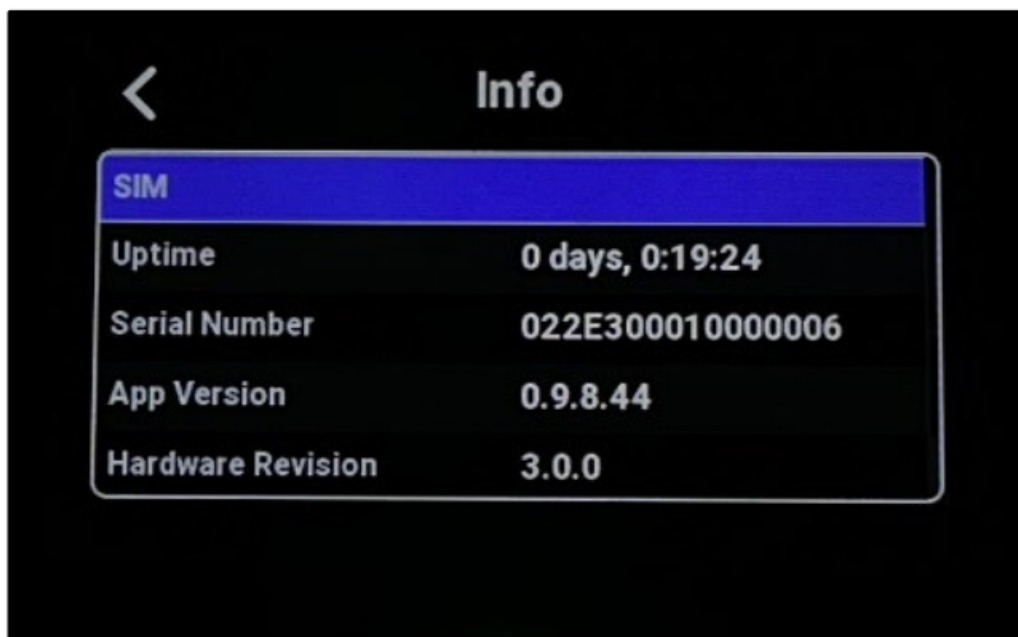
Note: If the low temp alarm is triggered at boot up, then the startup delay will be bypassed.

2. Self-test Interval – Sets the time interval after which a self-test is performed by the unit. The range is Disabled

or 1-168 hours.

Note: If self-test is done without a load the unit will give circuit fault alarm.

3. Info – Displays the information about the unit. The list is shown in the table.



Information	Unit
System	
Line Voltage	V
PCB Temperature	°C or °F
Time in Operation	HR
Model Code	
Approvals	
MAC Address	
Circuit 1	
Power Rate	A/HR
Power Total	Wh

TEMP Sensor 2 Reading	°C or °F
Platform	
SCM	
Uptime	Days, Time
Serial Number	
App Version	
Hardware Revision	
Bootstrap Version	
Bootloader Version	
SIM	
Uptime	Days, Time
Serial Number	
App Version	
Hardware Revision	

7.3.8.4. Self-Test – Allows the user to conduct a self-test on the unit without delay.



Note: If self-test is done without a load the unit will give circuit fault alarm.

1. Display Brightness – You can increase or decrease the brightness levels of the display screen. The range is 10% to 100%.
2. Screensaver Delay – Range is Disabled or selectable intervals between 1-180 minutes.
3. Change Access Code – Allows the user to change the passcode. •Select any numeric password up to 14 digits.

Note: Recommendation is to use a 4-digit passcode.

Caution: Please ensure that you remember the access code. Currently there is no mechanism to reset the unit if the access code is forgotten.

Log Out

Allows the user to end the current session. If already logged out, it will present a 'Log In' option to the user.

Reboot

Reboots the system.



Alarm Indication & Acknowledgement

If the Thermon logo is Green, that indicates the unit is in normal state. However, if the Thermon logo shows any other color, it indicates the presence of an alarm condition.

Note: If the Thermon logo continues to blink without turning steady Green, then there might be a fault in the unit. Please report it to your Thermon contact or via the Customer Issue Reporting form online.

Alarm Indication

Any alarm condition will be indicated by the display of the following behavior.

Immediately after Power ON Sequence

1. The Thermon logo will blink 3 times every 2 seconds. The logo color will depend on the type of alarm condition as explained later in this section.
2. You will hear the audio alarm after 1 minute.

In regular Operation Mode

1. The Thermon logo will blink 3 times every 2 seconds along with the audio alarm. The logo color will depend on the type of alarm condition as explained later in this section.

Alarm Acknowledgement

1. You can acknowledge the alarm by touching the center dial, selecting 'Active Alarms' from the menu and then pressing 'ACK'. This will change the status to "ACKed" and the audio alarm will stop.
2. Once you have 'ACKed' the alarm, the Thermon logo will start pulsating at a lower frequency.
3. Once the alarm condition is resolved, the Thermon logo will turn Green.

Low Temperature Alarm

The Temperature value reaches the Low Temperature Alarm setpoint. Thermon logo flashes Blue.



High Temperature Alarm

The Temperature value reaches the High Temperature Alarm setpoint. Thermon logo flashes Yellow.



High Temperature Trip

The Temperature value reaches the High Temperature Trip setpoint. Thermon logo flashes Red.



High-High Temperature Alarm

The Temperature value reaches the High-High Temperature Alarm setpoint. Thermon logo flashes Red.



Low Current Alarm

The Heater current value reaches the Low Current Alarm setpoint. Thermon logo flashes Blue.

High Current Alarm

The Heater current value reaches the High Current Alarm setpoint. Thermon logo flashes Yellow.

High Current Trip

The Heater current value reaches the High Current Trip setpoint. Thermon logo flashes Red.

High-High Current Alarm

The Heater current value reaches the High-High Current Alarm setpoint. Thermon logo flashes Red.

Switch Failure

Relay malfunction and/or when the Heater current value reaches the Max Current (Heater Off) setpoint, while the circuit is in an OFF state. Thermon logo flashes Purple.



High Ground Current Alarm

The Ground fault current value reaches the High Ground Current Alarm setpoint. Thermon logo flashes Yellow.

High Ground Current Trip

The Ground fault current value reaches the High Ground Current Trip setpoint. Thermon logo flashes Red.

High-High Ground Current Alarm

The Ground fault current value reaches the High-High Ground Current Alarm setpoint. Thermon logo flashes Red.

Temp Sensor Fault

When the Controller loses contact with a sensor or there is a short in the sensor. Alternately, if the unit is configured to use a single sensor and it has been wired to TEMP2 in the unit, it will lead to this fault. Thermon logo flashes Purple.

Temp Sensor Fault (All)

When the Controller loses contact with both thermistors and/or they are shorted. Thermon logo flashes Purple.

Circuit Fault

When the Self-Test runs and there is no Load connected. Thermon logo flashes Purple.

Programming Error

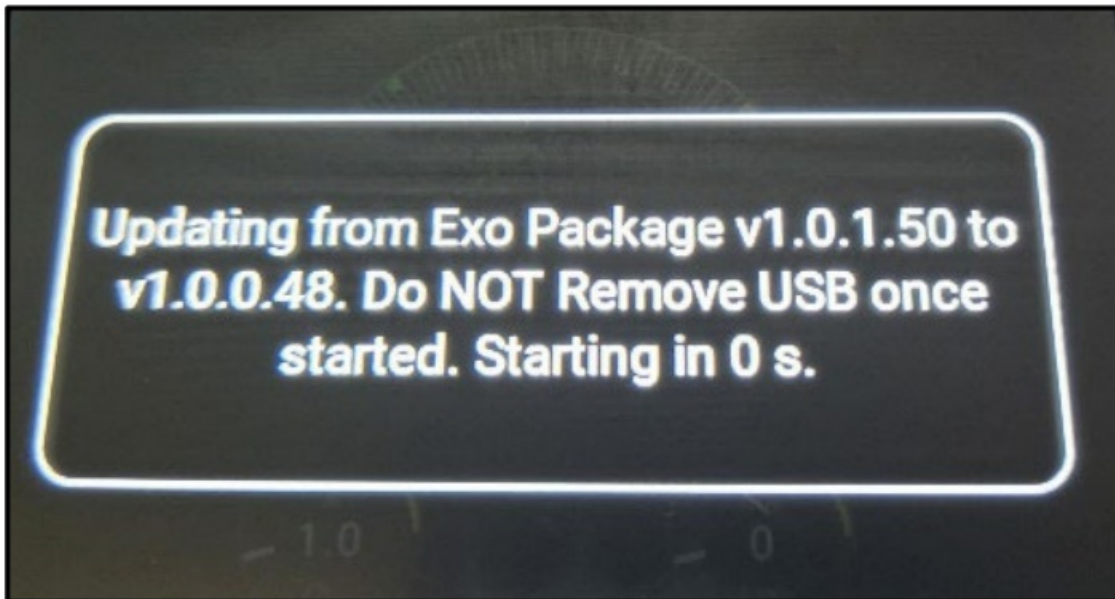
Thermon logo flashes Purple. It occurs under the following conditions.

1. The Low Temperature Alarm setpoint is set higher than the Maintain Temperature setpoint.
2. The Maximum Temperature setpoint is set higher than the High Temperature Alarm set point.
3. The High Temperature Alarm setpoint is set higher than the High Temperature Trip setpoint.
4. The High Temperature Alarm setpoint is set higher than the High-High Temperature Alarm setpoint.
5. The Low Current Alarm setpoint is set higher than the High Current Alarm setpoint.

6. The High Current Alarm setpoint is set higher than the High Current Trip setpoint.
7. The High Current Alarm setpoint is set higher than the High-High Current Alarm setpoint.
8. The High Ground Current Alarm setpoint is set higher than the High Ground Current Trip setpoint.
9. The High Ground Current Alarm setpoint is set higher than the High-High Ground Current Alarm setpoint.

Controller Firmware Update Steps

- Open the USB cover on the side of the unit.
- Plug in the USB drive containing the version to be updated.
- You will see a prompt showing a 10 second countdown before the update begins.



Note: The user can remove the USB drive before the countdown is over to cancel the update.

- Wait for the update to be completed. The progress will be indicated on the display.



- Once the update is successful, the unit will reboot itself.
- Once the Therman logo turns Green after the reboot, you can remove the USB drive and replace the USB cover applying the recommended torque (as given in CPD1092- EXO Touch Installation Guide).

Controller Default Settings

Parameter	Default Value
Circuit Tag	Blank
Power State	Disabled
Low Temperature Alarm Setpoint	37°F
Maintain Temperature Setpoint	68°F
Maximum Temperature Setpoint	73°F
High Temperature Mode	Trip
High Temperature Alarm Setpoint	109°F
High Temperature Trip Setpoint	118°F
Temperature Alarm Delay	Disabled
Temperature Units	°F
Low Current Alarm Setpoint	0.0 A
High Current Mode	Trip

High Current Alarm Setpoint	30.0 A
High Current Trip Setpoint	30.0 A
Current Alarm Delay	3 minutes
Max. Current (Heater Off)	0.5 A
High Gnd Current Mode	Trip
High Ground Current Alarm	30 mA
High Ground Current Trip	50 mA
Ground Samples before Trip	0
Control Method	ON/OFF
Control Temp Sensors	1
Max Duty Cycle	100%
Power on Temp Sensor Fault	80%
Relay Duty Cycle	10 minutes
Start Up Delay	Disabled
Self-test Interval	Disabled
Display Brightness	100%
Screen Saver Delay	5 minutes
Access Code	1234

Note – Please report any issues using the following link.
CUSTOMER ISSUE REPORTING Controls & Monitoring


Thermon • 100 Thermon Dr • PO Box 609 San Marcos, TX 78667-0609 • Phone: [512-396-5801](tel:512-396-5801) • 1-[800-820-4328](tel:800-820-4328)
For the Thermon office nearest you visit us at www.thermon.com
Form CPD1094_0924 © Thermon, Inc. • Information subject to change

FAQ

Q: What should I do if the Thermon logo does not turn Green during the power-on sequence?

A: If the logo continues to blink without turning steady Green, there might be a fault in the unit. Please report it to your Thermon contact or via the Customer Issue Reporting form online.

Documents / Resources

	<p>THERMON CPD1094-EXO-TOUCH Commerical Heat Trace Controller [pdf] Instruction Manual</p> <p>CPD1094-EXO-TOUCH, CPD1094-EXO-TOUCH Commercial Heat Trace Controller, CPD1094-EXO-TOUCH, Commercial Heat Trace Controller, Heat Trace Controller, Trace Controller, Controller</p>
---	---

References

-  [World Leader in Industrial Process Heating | Thermon](#)
- [User Manual](#)

Manuals+. [Privacy Policy](#)

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.