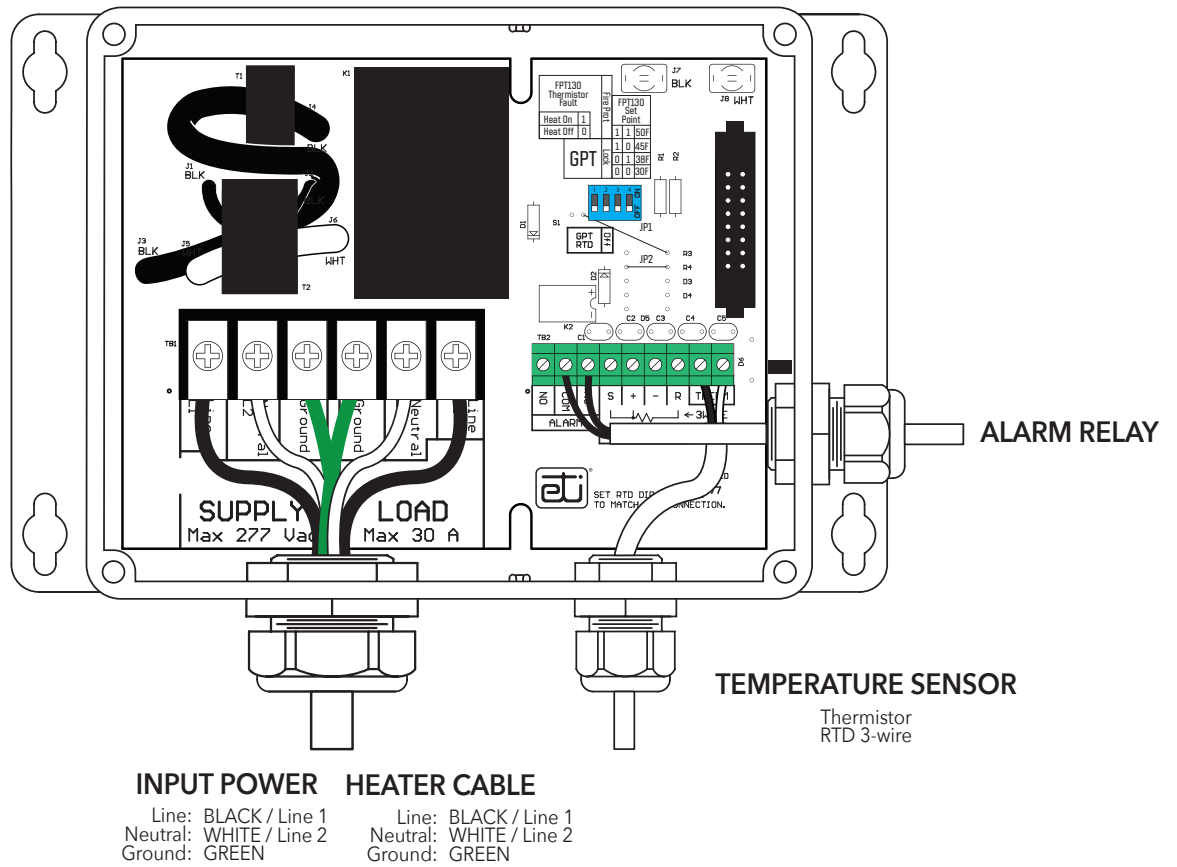








**Figure 1**  
The GPT 130 wiring layout



## INSTALLATION

The GPT 130 Automatic Heat-Trace Control should be installed by a qualified, licensed electrician. Installation must conform to all applicable local and national electrical codes and laws. The unit's NEMA 4X IP66 enclosure allows for indoor or outdoor applications.

The GPT 130 controller has an ambient operating temperature range of -40 °F to 131 °F (-40 °C to 55 °C). To avoid potential internal condensation mount the unit out of direct sunlight.

Install the GPT on a fixed, flat, vertical surface using the unit's mounting flanges. The mounting flanges accommodate 1/4" or 6.3 mm fasteners.

The GPT 130's nonmetallic enclosure has one 1.046" hole for conduit entry; this can hold both power and load wiring.

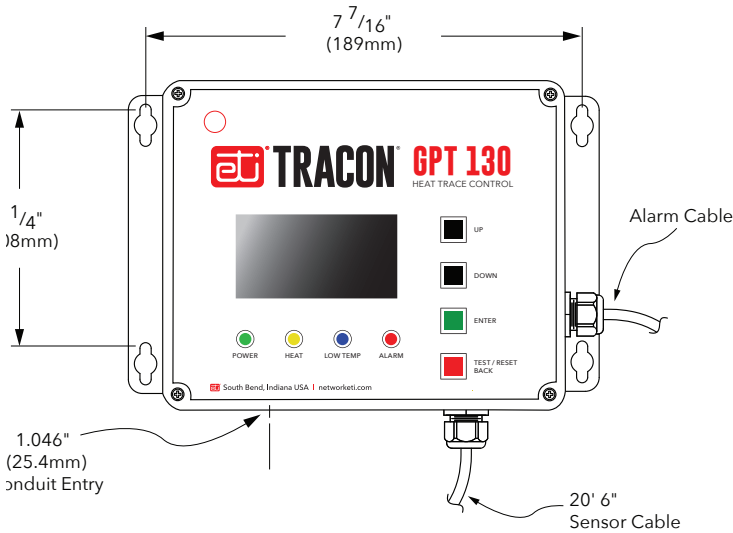
Use only Listed Type 4X IP66 liquid-tight conduit hubs or cable glands. Connect the hub to the conduit system before connecting the hub to the enclosure.

The unit comes with two installed liquid-tight cable glands. One of these fittings is for the temperature sensor cable, and the other is for the alarm relay cable.

The cable glands can accommodate cable diameters 0.08" to 0.24" (2 mm to 6 mm). The temperature sensor may be located up to 2,000' (610m) from the GPT.

There is a removable electrical insulation divider that must be in place when there is power applied to the unit. All leads should be terminated; no unsecured leads should be left inside the wiring compartment.

FIGURE 2. Mounting Dimensions



NOTE: Cover screws maximum torque: 4 In-Lbs.

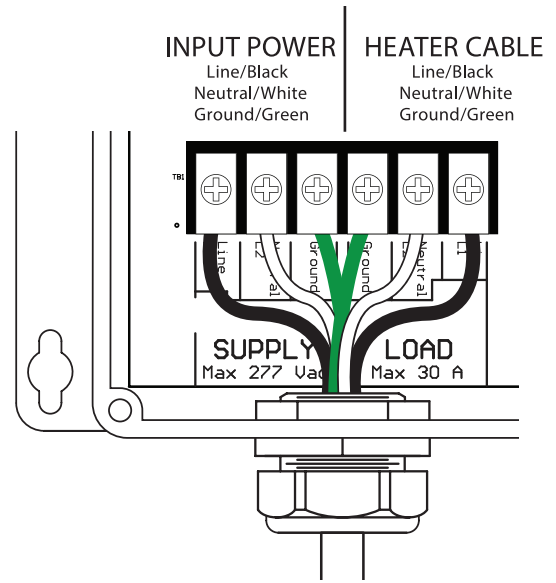


FIGURE 3. Contractor Connections

## POWER SOURCE AND CONTACTOR CONNECTIONS

### Supply Voltage

The GPT 130 operates from 100 - 277 V ac at 50/60 Hz. This control and its heater load should not share a circuit branch and circuit breaker with other types of equipment. A shared circuit may result in electromagnetic interference that can affect system operation. For line supply and load connections, use 10 AWG wires rated for at least 194 °F (90 °C). The connections are shown in Figure 3 and Figure 4.

### Contactors Ratings

The heater contactor provides two (2) Form A (DPST) contacts rated for heater loads up to 30 A ac and 277 V ac. These two contacts are used to control both legs of the input power (Line and Neutral).

### Manual Load Test

To manually energize the load, select the Settings screen and then hold Test/Reset pushbutton for five seconds. The output will switch on and stay on for five minutes or until Test/Reset key is pressed again. A manual load test is recommended upon installation to verify heater function and load current.

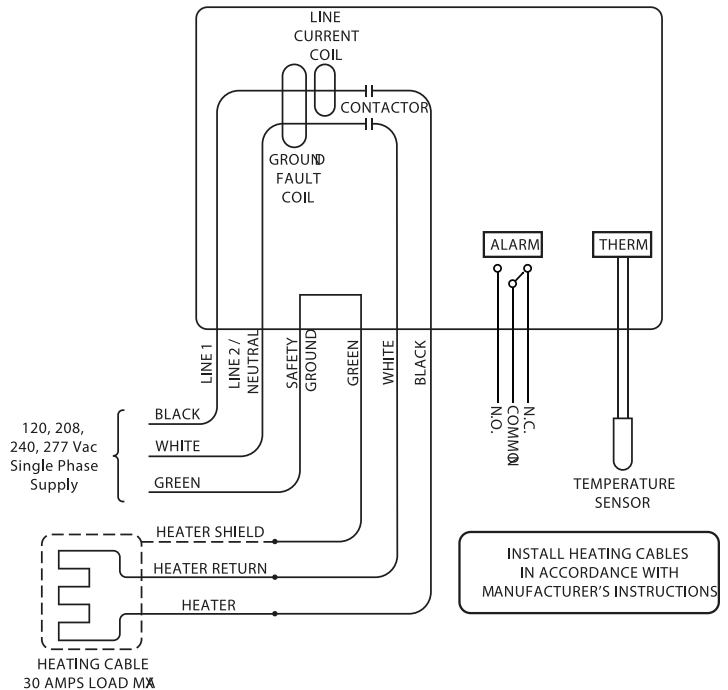


FIGURE 4. Connection Schematic

## TEMPERATURE SENSOR

The GPT 130 can use either a thermistor (provided), or a 3-wire RTD sensor.

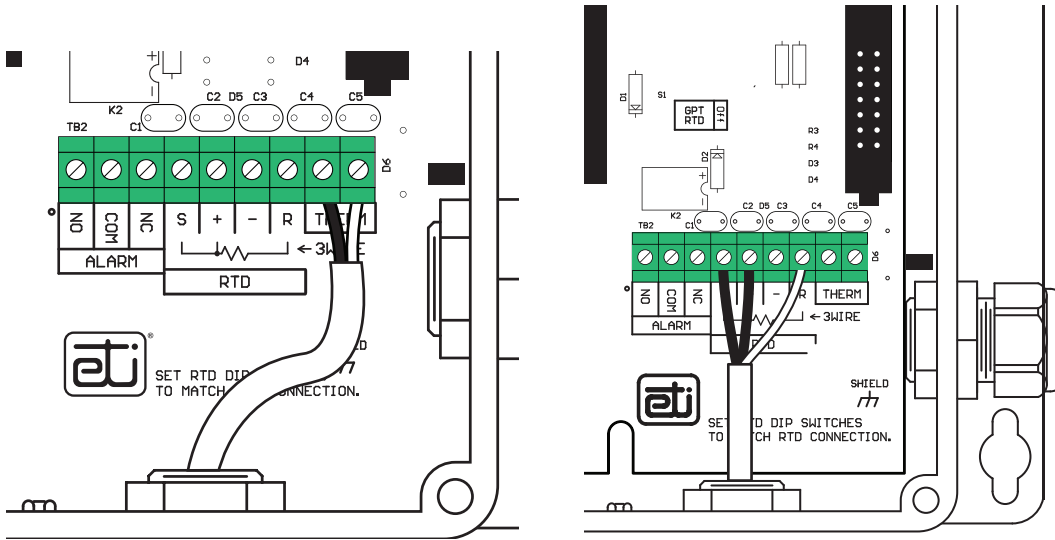
### Thermistor (25076)

The GPT 130 comes with a thermistor temperature sensor with a 20 ft. jacketed cable that has an operating range of  $-40\text{ }^{\circ}\text{F}$  to  $230\text{ }^{\circ}\text{F}$  ( $-40\text{ }^{\circ}\text{C}$  to  $110\text{ }^{\circ}\text{C}$ ). See Figure 5 for proper wiring when using a thermistor sensor.

### RTD

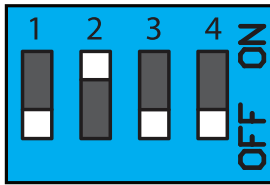
The unit can use an RTD sensor for applications requiring a wider temperature range. The GPT 130 can operate with 3-wire RTD sensors. See Figure 5 for proper wiring when using a 3-wire RTD sensor.

**Note:** The sensor must be selected in the Sensor Type parameter setting screen.



The Thermistor input wiring

FIGURE 5. RTD Sensor Wiring



**Setting for Panel Lockout ON (default is OFF)**

FIGURE 6. Panel lockout DIP switch configuration

## PANEL LOCKOUT

To prevent unauthorized changes of control settings, the second DIP switch can be set to the on position to Lock the settings. With Lock enabled, the control panel will allow viewing but not changing any of the settings; only the °C or °F option can be changed. See Figure 6.

**Note:** The GPT reads the Lock DIP switch position when the Settings screen is entered. If the switch is changed, you need to re-enter the Settings screen.

## Wiring to normally closed alarm contact

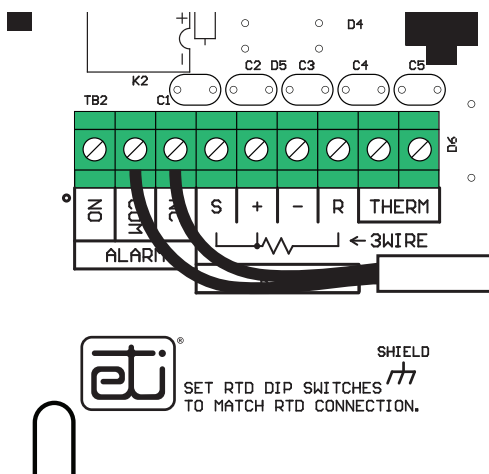


FIGURE 7. External alarm connection

## EXTERNAL ALARM

### Alarm Connections

An alarm or power-off condition can be communicated by either opening or closing a relay contact. It is important to make the proper alarm relay connections to achieve the desired result. The middle terminal labeled COM (Common) is used in both wiring configurations. Connect one alarm relay lead to the COM terminal.

If the system needs a contact to close to signal an alarm or power-off condition, connect the other alarm relay lead to the NC (Normally Closed) terminal. See Figure 7.

If the system needs a contact to open to signal an alarm or power-off condition, then connect the other alarm relay lead to the NO (Normally Open) terminal.

If the unit has power, and there are no alarm conditions then the NO and COM terminals will be connected. If the unit loses power or an alarm condition occurs then the NC and COM terminals will be connected.

**Note:** The “Normally” condition of the relay is the alarm condition for the unit.

## OPERATION

The GPT 130 can maintain temperatures from a setpoint ranging from  $-99.9^{\circ}\text{F}$  to  $999.9^{\circ}\text{F}$  ( $-73.3^{\circ}\text{C}$  to  $537.7^{\circ}\text{C}$ ). The usable temperature range is sensor dependent. The heater will energize when the temperature drops below the designated setpoint. The heater will de-energize when the temperature meets the designated High Temperature.

The GPT 130 features ETI’s patented self-testing GFEP, which switches the system off when it detects excessive ground current leakage. The GFEP eliminates the extra expenses associated with having to provide an external GFEP.

### Alarms

Critical Alarms are Latching alarms and include Ground Fault, High Current, Stuck Relay, Internal Circuit, and







## GPT 130 SETTINGS SCREEN VIEWING/EDITING SETTINGS SETTINGS SCREENS

To enter the settings sequence press the ENTER pushbutton while in the Settings screen. This will take you to the settings sequence, where you can view or edit system parameter settings. These screens follow the sequence shown in Figure 10; pressing the UP or DOWN pushbuttons 10 times returns you to your starting position. Each screen has a line at the top which describes the parameter or group of parameters. Press the ENTER pushbutton to edit the parameter or group of parameters. If the Panel Lockout feature is turned on you will see a screen that says "Edit Function Locked Out". The BACK pushbutton will take you back to the default screen.

All settings are stored in the unit's non-volatile memory, this means that the GPT 130 will retain the settings entered even if the unit loses or is disconnected from the power source. Holding the UP and DOWN pushbuttons together for five seconds in the settings screen will restore all settings to their factory default value, if desired.

### **Basic Editing of Settings**

When on the desired screen press the ENTER pushbutton to edit the values. Use the UP and DOWN pushbuttonsto change the parameter values, press the buttons quickly to change the number values decimally, or hold the buttons to scroll through the number values more quickly. The ENTER pushbutton saves the value setting. The BACK pushbutton cancels the edit operation if not saved and returns to the original value at the start of the edit.

### **Multi-field Screen Editing**

In screens that display multiple fields, there are two columns. The left column displays the name of the parameter, and the right column displays the current value. Initially, one of the fields in the left column will be

selected (have a selection box around it). Use the UP and DOWN pushbuttons to change the row which is selected. Press the ENTER pushbutton to edit the parameter in that row, the selection box will move to the right column, indicating that an edit operation is in process. After you are done editing, press the ENTER pushbutton to save the new value, or the BACK pushbutton to make no change. The selection box will move back to the left column.

### **Alarm Options Screen Editing**

The "Alarm Options" screen has three binary (on/off) configuration settings:

**Latching:** this controls whether non-critical alarms latch. When ON, alarms need to be cleared manually by using the red key. When OFF, the alarm will go away when the alarm condition resolved. The default for the Latching setting is OFF.

**Fail Mode:** this is a safe state setting which can be set to energize or de-energize the heaters if the sensor fails. The default setting for the Fail Mode is ON.

**Fire Prot:** this controls whether the Fire Protection mode is active. When ON, a ground fault or over-current alarm will not inhibit operation of the heater. When OFF, a ground fault or over-current alarm will de-energize the heater. The default setting for the Fire Protection mode is OFF. When in the edit mode the description and meaning of the currently selected parameter is displayed at the bottom. As you edit the value, the description will change accordingly.

**Note:** To restore all settings to factory default press both the UP and DOWN pushbuttons together for five seconds while in the settings screen. The unit will prompt the user for acknowledgement before changing the settings.

Temperature Control screen

<b>Control Temps</b>	
High Temp	40.0 °F
Setpoint	38.0 °F

From this screen manage the heater's switching temperatures.

High Temp: The temperature at which the heater is de-energized.

Setpoint: The temperature at which the heater is energized.

Low Temperature Alarm screen

<b>Low Temp Alarm</b>	
Threshold	35.0 °F
Delay	300 S
Enabled	No

From this screen manage the heater's Low Temperature Alarm conditions.

Threshold: Any temperature below this will trigger an alarm.

Delay: How long after a Low Temp is detected before system alarms.

Enabled: Turns the Low Temp Alarm function on/off.

High Temperature Alarm screen

<b>High Temp Alarm</b>	
Threshold	140.0 °F
Delay	300 S
Enabled	No

From this screen manage the heater's High Temperature Alarm conditions.

Threshold: Any temperature above this will trigger an alarm.

Delay: How long after a High Temp is detected before system alarms.

Enabled: Turns the High Temp Alarm function on/off.

Low Current Alarm screen

<b>Low Curr Alarm</b>	
Threshold	0.1 A
Delay	5 S
Enabled	Yes

From this screen manage the heater's Low Current Alarm conditions.

Threshold: At or below what current should an alarm be triggered.

Delay: How long after current falls below the Threshold before system alarms.

Enabled: Turns the Low Current Alarm function on/off

High Current Alarm screen

<b>High Curr Alarm</b>	
Threshold	30.0 A
Delay	300 S
Enabled	No

From this screen manage the heater's High Current Alarm conditions.

Threshold: At or above what current should an alarm be triggered.

Delay: How long after current rises above the Threshold before system alarms.

Enabled: Turns the High Current Alarm function on/off.

Ground Fault Limit Current screen

<b>GF Threshold</b>	
<b>30.0 mA</b>	
Max Ground Fault Curr	
Press Enter to Change	

From this screen set the amount in milliamps of ground fault current leak is detected before system alarms.

Automatic Self Test screen

<b>Auto Self Test</b>	
Interval	24 Hr
Enabled	Yes

From this screen manage how often the system checks the GFEP circuit and tests load.

Interval: How often while the load is not energized the system performs a Self Test.

Enabled: Turns the Auto Self Test function on/off.

Sensor Type screen

<b>Sensor Type</b>	
<b>Thermistor</b>	
Press Enter to Change	

From this screen set the type of temperature sensor type being used, Thermistor 3-wire RTD

Alarm Options screen

<b>Alarm Options</b>	
Latching	Off
Fail Mode	On
Fire Prot	Off

From this screen manage how the system reacts to an alarm condition.

Latching: Determines if an alarm would need to be manually cleared, or if the alarm would clear once the alarm condition was corrected.

Fail Mode: Determines whether a sensor failure should energize or de-energize the heaters.

Fire Prot: Maintains heater operation for use in critical fire protection systems when a ground fault or high current is detected.

Temperature Units screen

<b>Temperature Unit</b>	
<b>°F</b>	
Press Enter to Change	

From this screen choose the temperature units will be displayed in Fahrenheit (°F) or Celsius (°C).

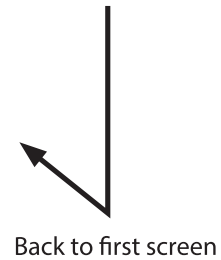


FIGURE 10. Setting screen sequence



## ORDERING INFORMATION

Part Number	Description
25170	TRACON MODEL GPT 130 Single-Point General Purpose Heat-Trace Control
25076	Temperature Sensor
25299	GPT 130 Installation Sheet
25166	TRACON MODEL GPT-130 Installation & Operation Manual (this document) <sup>2</sup>

## LIMITED WARRANTY

ETI's two year limited warranty covering defects in workmanship and materials applies. Contact Customer Service for complete warranty information.

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Before returning a unit to ETI, obtain a Return Merchandise Authorization from our Customer Service Department, available between 8:00 a.m. and 5:00 p.m. Eastern Time. If possible, use the original container and packing materials when packing the unit for shipment. It is important to mark the Return Merchandise Authorization clearly on the outside of the shipping container so that it may be correctly processed upon receipt at Environmental Technology. For more information about replacement parts or for a replacement Data Sheet or Manual, please visit [www.networketi.com](http://www.networketi.com).