Rinnai

Key Points for a Successful Installation

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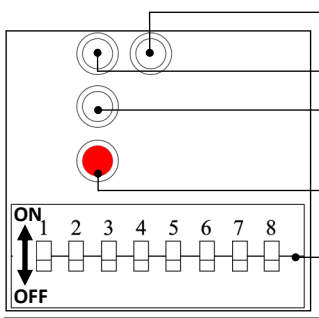
H167-0779 X 01(00)

Read This First

- Pay close attention to the items in this sheet to complete a successful installation.
- Read the "I-Series Condensing Boiler Installation and Operation Manual" (referred to as "Manual" on this sheet) before you proceed. Use the "Post-Installation Checklist" (Section 11 in Manual) after completing installation.
- You must flush the CH plumbing system prior to installation (Section 14 in Manual).
- This boiler is configured for Natural Gas. To convert to Propane, use the Liquid Propane Field Conversion Kit supplied with the boiler.
- Pay close attention when unpacking the boiler carton box as it contains numerous parts, including the wall mounting bracket, pressure relief valve, Liquid Propane Field Conversion Kit, and more. Confirm all included parts are located inside boiler carton box.

PC Board

DIP Switches *(Section 12 in Manual)*



Forced Hi/Low Fire Modes *(Section 12 in Manual)*

Deaeration Mode *(Section 10 in Manual)*

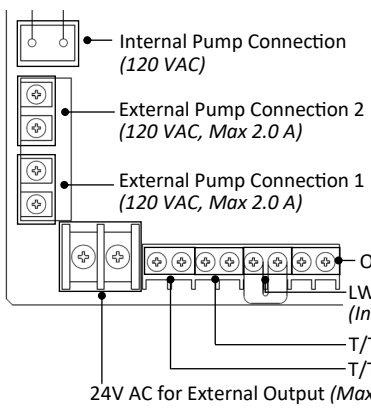
Data Transfer Mode
(Transfers PC Board data when replacing PC Board. Refer to instructions included in replacement parts.)

Parameter Settings *(Section 12 in Manual)*

DIP Switches *(Section 12 in Manual and table below)*

#	DIP Switch Function
1	**Outdoor Temperature Sensor:** Enables or disables outdoor temperature sensor. **OFF (Default):** Outdoor Temperature Sensor in Use **ON:** Outdoor Temperature Sensor Not in Use
2	**Thermostat Usage:** Changes mode between Thermostat Usage and **CH** Button. **OFF (Default):** Thermostat Used **ON: CH** button used. Boiler fires based on return water temperature
3	**DHW Recirculation:** Enables DHW Recirculation function for Pump 2 connection. **OFF (Default):** Pump 2 Connection Enabled for Second CH Zone Pump **ON:** DHW recirculation ON (Pump 2 connection for DHW Recirculation Pump)
4	**Simultaneous CH and DHW:** Enables simultaneous operation between CH and DHW. **OFF (Default):** DHW Priority; **ON:** Simultaneous CH and DHW Permitted
5	**Gas Valve Solenoid:** Manually shuts down the integrated solenoid gas valve. **OFF (Default):** Normal Operation; **ON:** Fixed Closed (prevents boiler operation)
6, 7	**Altitude Setting:** Sets the appropriate elevation of the boiler installation. (**OFF/ON:** Depends on Altitude)
8	**Vent Type Selection:** Selects the venting material used. The boiler is set from the factory to be installed in a PVC venting system. If CPVC, PP, or other approved venting is used, this setting may be adjusted. See Section 5 in Manual for more information. **OFF (Default):** PVC; **ON:** Higher Temperature Exhaust Vent Material (PP, CPVC, or Stainless Steel)

Electrical Connections *(Section 9 in Manual)*



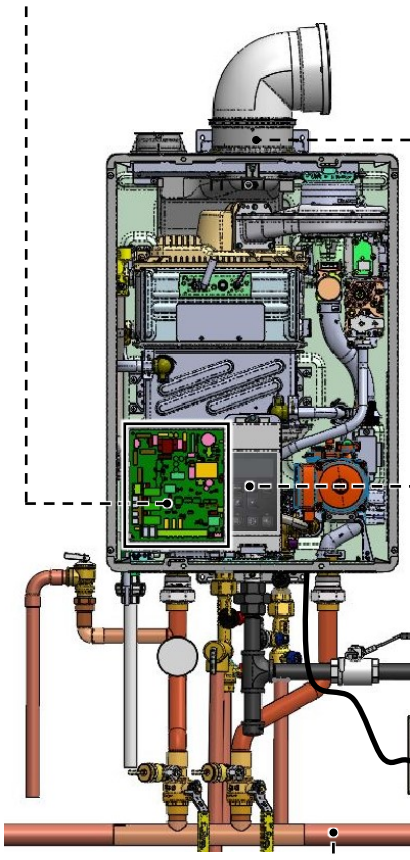
Do not use an electric or torque screwdriver for wiring on the PC Board.

This boiler requires 120 VAC, 60 Hz power from a properly grounded circuit. Use caution when connecting power to the boiler.

COMBI

Solo on Reverse Side

I-Series Condensing Boiler

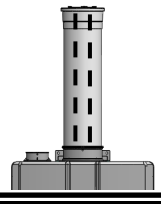


Venting Options

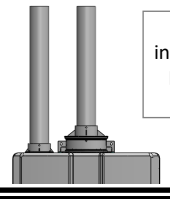
(See Section 5 in Manual)

Direct Vent

Concentric Pipe



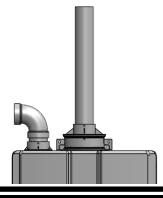
Twin Pipe



Be sure to complete installation of the exhaust pipe before turning on power to the boiler.

Non-Direct Vent

Room Air

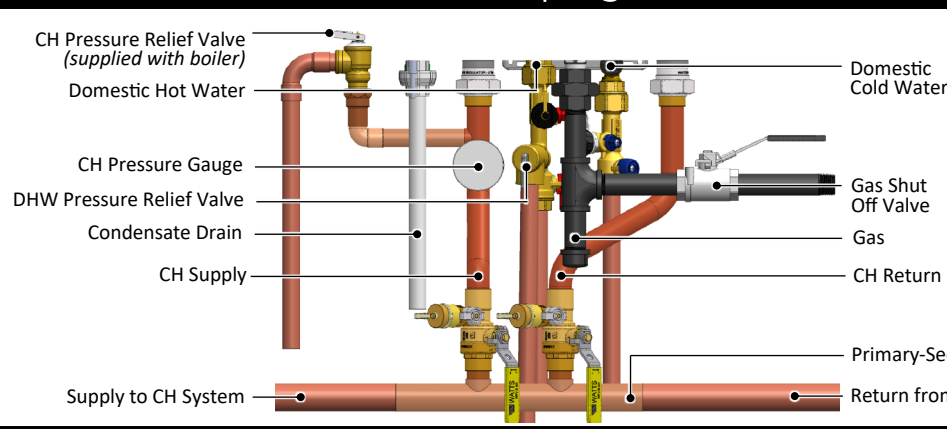


Parameter Settings

A Few Settings Are Shown Below. See Section 12 in Manual for Complete List

Param #	Setting Description	Selection A	Selection b	Selection C	Selection d
01	**Outdoor Reset Curve:** Available when Dip Switch 1 is in the OFF (default) position. Select the proper curve from below. See Section 12 in Manual for more information.	Curve 1 Standard baseboard, high efficiency air handler, cast iron or panel radiators.	Curve 2 Staple up radiant.	Curve 3 High temperature air handler or undersized baseboard.	Curve 4 Custom curve based on customer input.
10	**Maximum DHW Set Point Temperature:** Selects the maximum DHW set point temperature. When 140° F, Rinnai recommends to have a mixing valve to prevent scalding.	120°F (49°C)	140°F (60°C)		
A0	**Gas Type:** Selects the gas type when conducting gas conversion.	Natural Gas	Liquid Propane		
A2	**Vent Material Used:** Selects the venting material used. The boiler is set from the factory to be installed in a PVC venting system. If CPVC, PP, or other approved venting is used, this setting may be adjusted. See Section 5 in Manual for more information.	PVC	Material other than PVC: CPVC/ PP/Other		

Piping *(Section 3 in Manual)*



- All items are field-supplied unless other-wise noted.
- When installing piping, please make sure that no tools hit or damage the condensate trap.

Hydraulic Separation *(Section 8 in Manual)*

Rinnai requires hydraulic separation between the boiler and central heating system (except as noted below[1]). Hydraulic separation and primary/secondary piping allow two or more circulators in a hydronic system to operate independently, without interfering with flow in connecting piping circuits. Closely spaced tees and low loss headers are common examples of hydraulic separators and are used to separate the boiler loop from the central heating loop.

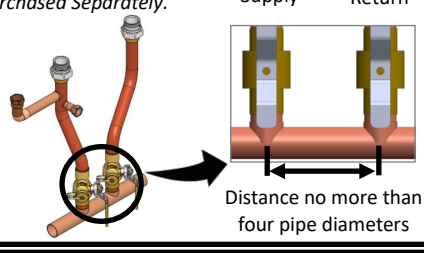
[1] When an alternate air handler is used with a Rinnai I-Series boiler with no additional heat emitters or an indirect tank:

- It is not required to utilize primary/ secondary piping.
- A minimum of 3 GPM (11 L/min) flow is needed for proper operation of the system.

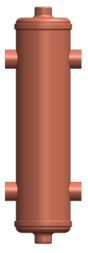
Refer to the Rinnai Hydronic Air Handler Installation and Operation Manual for installation and performance details.

Primary-Secondary Heating Kit

Optional Accessory Offered by Rinnai. Must be Purchased Separately.

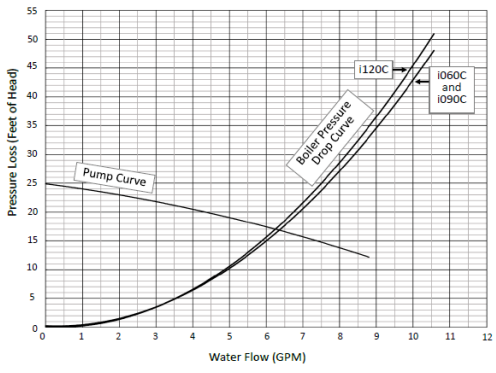


Low Loss Header



Pressure Drop and Water Flow Curve with Hydraulic Separation

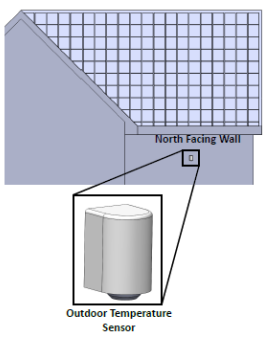
To ensure proper **CH** and **DHW** internal flow rates, the pump should be set to speed 3.



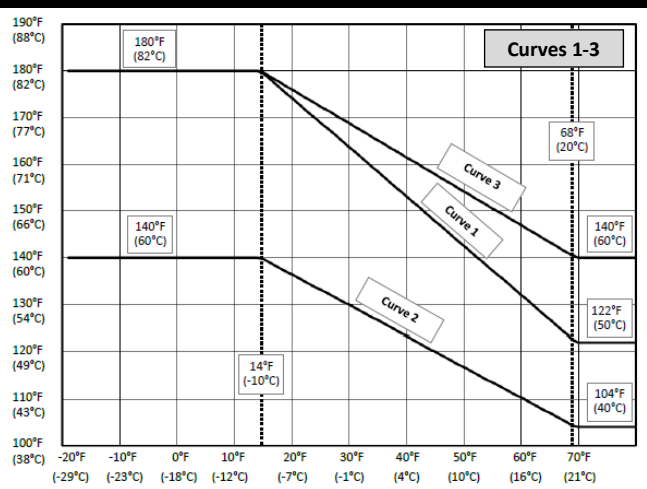
Outdoor Reset Control and Curves *(Section 12 in Manual)*

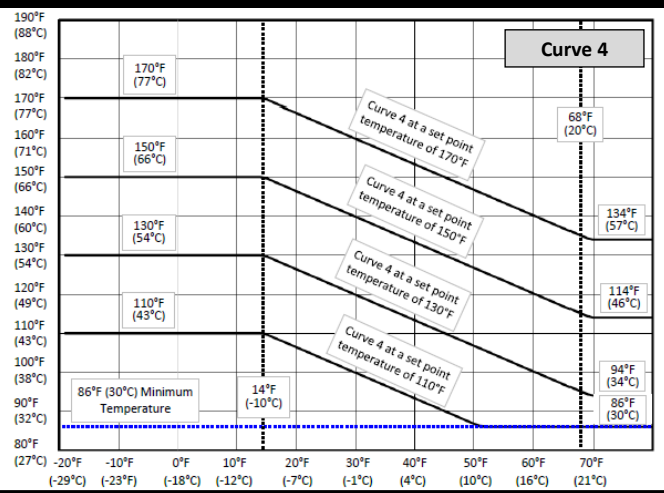
Outdoor Temperature Sensor

- Mount on a North facing wall of the house below an eave to avoid direct sunlight.
- Mount away from any vent, duct, or other device that may create an artificial heat source.
- Wire the sensor back to the outdoor temperature sensor terminal on the boiler.



The boiler has four outdoor reset heating curves, which are different target temperature lines dependent on the outdoor temperature. The selected curve should be based off of the type of heat emitter and the target temperature desired.





Rinnai

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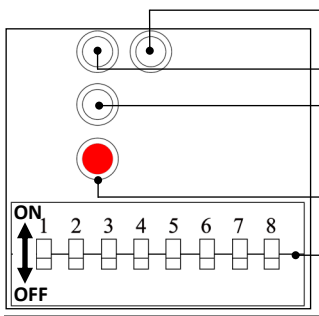
- Pay close attention when unpacking the boiler package as it contains numerous parts, including the wall mounting bracket, pressure relief valve, Liquid Propane Field Conversion Kit, and more. Confirm all included parts are located inside boiler carton box.

PC Board

DIP Switches *(Section 12 in Manual)*



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2	**Thermostat Usage:** Changes mode between Thermostat Usage and **CH** Button. **OFF (Default):** Thermostat Used **ON: CH** button used. Boiler fires based on return water temperature
3	**Indirect Tank:** Enables the Indirect Tank Function for Pump 2. **OFF (Default):** On (Pump 2 Operates as an Indirect Tank Pump) **ON:** Off (Pump 2 Operates at a CH Zone Pump)
4	**Indirect Tank Thermistor/Thermostat Selection:** Selects the method of controlling the indirect tank. **OFF (Default):** Thermistor; **ON:** Thermostat
5	**Gas Valve Solenoid:** Manually shuts down the integrated solenoid gas valve. **OFF (Default):** Normal Operation; **ON:** Fixed Closed (prevents boiler operation)
6, 7	**Altitude Setting:** Sets the appropriate elevation of the boiler installation. (**OFF/ON:** Depends on Altitude)
8	**Vent Type Selection:** Selects the venting material used. The boiler is set from the factory to be installed in a PVC venting system. If CPVC, PP, or other approved venting is used, this setting may be adjusted. See Section 5 in Manual for more information. **OFF (Default):** PVC; **ON:** Higher Temperature Exhaust Vent Material (PP, CPVC, or Stainless Steel)

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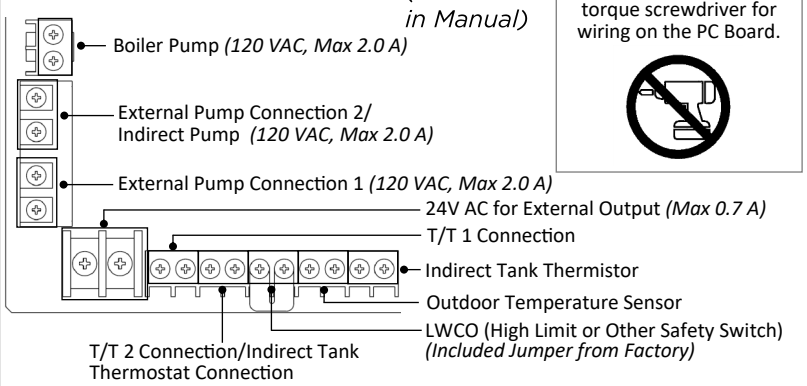


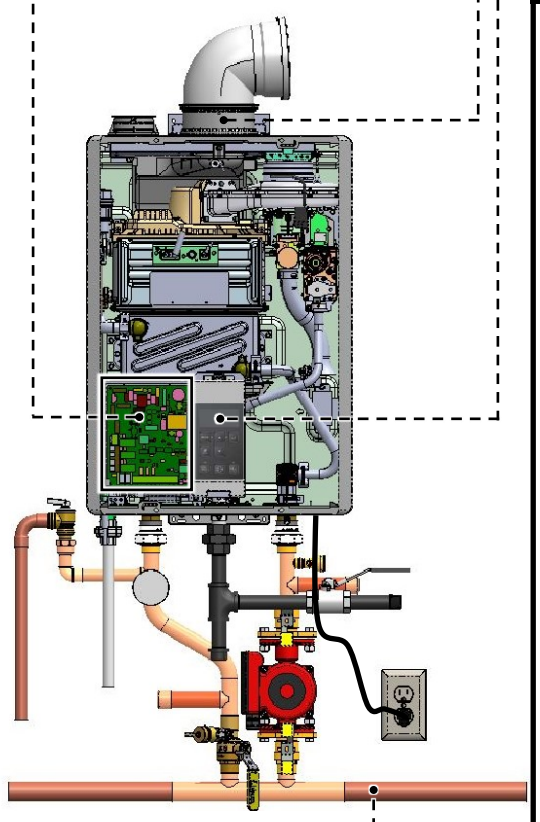
Do not use an electric or torque screwdriver for wiring on the PC Board.

This boiler requires 120 VAC, 60 Hz power from a properly grounded circuit. Use caution when connecting power to the boiler.

SOLO

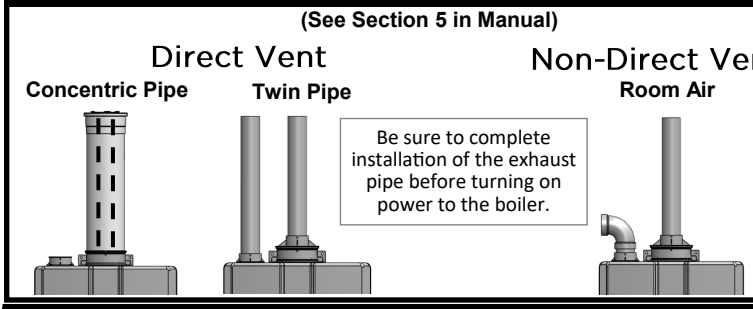
Combi on Reverse Side

I-Series Condensing Boiler



Venting Options

(See Section 5 in Manual)



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30	Indirect Tank Supply Temperature with *Thermostat* Control	180°F (82°C)	160°F (71°C)	140°F (60°C)	
	Indirect Tank Supply Temperature with *Thermistor* Control	180°F (82°C)	Setting Temp +18°F (+10°C)	Setting Temp +27°F (+15°C)	
A0	**Gas Type:** Selects the gas type when conducting gas conversion.	Natural Gas	Liquid Propane		
A2	**Vent Material Used:** Selects the venting material used. The boiler is set from the factory to be installed in a PVC venting system. If CPVC, PP, or other approved venting is used, this setting may be adjusted. See Section 5 in Manual for more information.	PVC	Material other than PVC: CPVC/PP/ Other		

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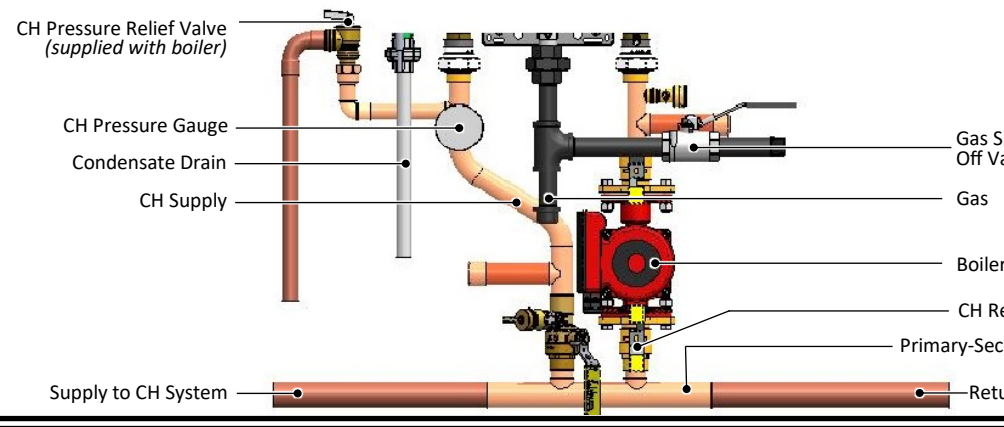

- All items are field-supplied unless otherwise noted.
- When installing piping, please make sure that no tools hit or damage the condensate trap.

Hydraulic Separation *(Section 7 in Manual)*

Rinnai requires hydraulic separation between the boiler and central heating system (except as noted below[1]). The I-Series Solo Boiler does not include a boiler pump. An external boiler pump must be installed and sized to the flow rate and pressure drop through the boiler and hydraulic separator. Hydraulic separation and primary/secondary piping allow two or more circulators in a hydronic system to operate independently, without interfering with flow in connecting piping circuits. Closely spaced tees and low loss headers are common examples of hydraulic separators and can be used to separate the boiler loop from the central heating loop.

[1] When an alternate air handler is used with a Rinnai I-Series boiler with no additional heat emitters or an indirect tank:

- It is not required to utilize primary/ secondary piping.
- A minimum of 3 GPM (11 L/min) flow is needed for proper operation of the system.

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Primary-Secondary Heating Kit

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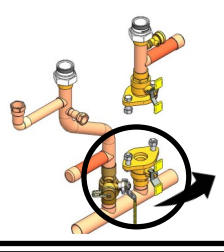
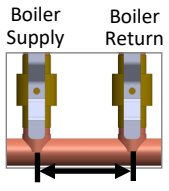
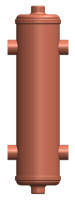




Distance no more than four pipe diameters.

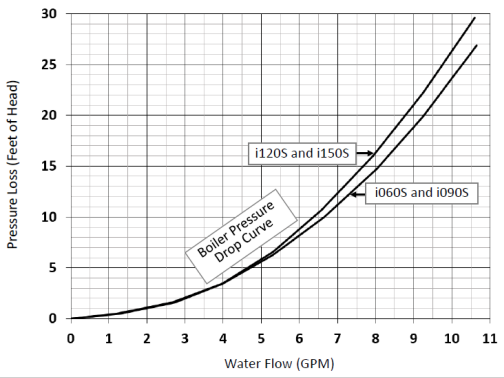
Low Loss Header



Pressure Drop and Water Flow Curve with Hydraulic Separation

Below are options for the primary pump circulating across the boiler. No additional pressure drop is accounted for through the system piping or system components. Recommended circulation pumps are listed below. The maximum amperage permitted is 2 Amps. Manufacturer part numbers are correct at time of publication and subject to change without notice. Contact manufacturer to confirm performance and part number prior to placing an order.

Model	Pump Model			
	Grundfos	Taco	Bell & Gossett	Armstrong
i060S	UPS 15-42	007-IFC	NRF-25	ASTRO 230CI
i090S	UPS 15-42	007-IFC	NRF-25	ASTRO 230CI
i120S	UPS 15-58	008-IFC	NRF-25	ASTRO 230CI
i150S	UPS 26-99	0011-IFC	N/A	ASTRO 280CI



Outdoor Reset Control and Curves *(Section 12 in Manual)*

Outdoor Temperature Sensor

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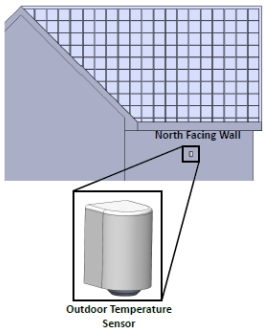
- Mount away from any vent, duct, or other device that may create an artificial heat source.
- Wire the sensor back to the outdoor temperature sensor terminal on the boiler.



The boiler has four outdoor reset heating curves, which are different target temperature lines dependent on the outdoor temperature. The selected curve should be based off of the type of heat emitter and the target temperature desired.