



**BlueRidge
Company™**

RADIANT HEAT SYSTEMS

Spartan Prefab

Instal Guide

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1. Tools Required

- Adjustable Crescent Wrench
- Phillips Head Screwdriver
- Channel Locks
- 5mm Allen Key (included)
- 6mm Allen Key (included)
- Teflon Tape
- Pipe Dope (thread sealant)
- PEX Cutter
- Drill and Fasteners (e.g., screws)
- 18-Gauge 5-Conductor Solid Wire
- 14-Gauge 2-Conductor Solid Wire

Mr. Post Frame video series

for a full installation example of our in-floor heating system:

[Part 1](#), [Part 2](#), [Part 3](#): Coming Soon!

2. Layout and PEX Installation

Begin by reviewing your loop layout and installing the PEX tubing. Start from the furthest circuit away from the mechanical location and work your way to the closest circuit.

- A link of how to install your pex in a slab on grade system: [PEX In Concrete Slab Install Guide](#)
- A link of how to install your pex in a staple up system: [PEX Staple Up Install Guide](#)
- A link of how to install your pex in a floor panel system: [RHT Floor Panel System Install Guide](#)
- A link of how to install your pex in a staple down with topping pour: [PEX Staple Down With Topping Pour](#)

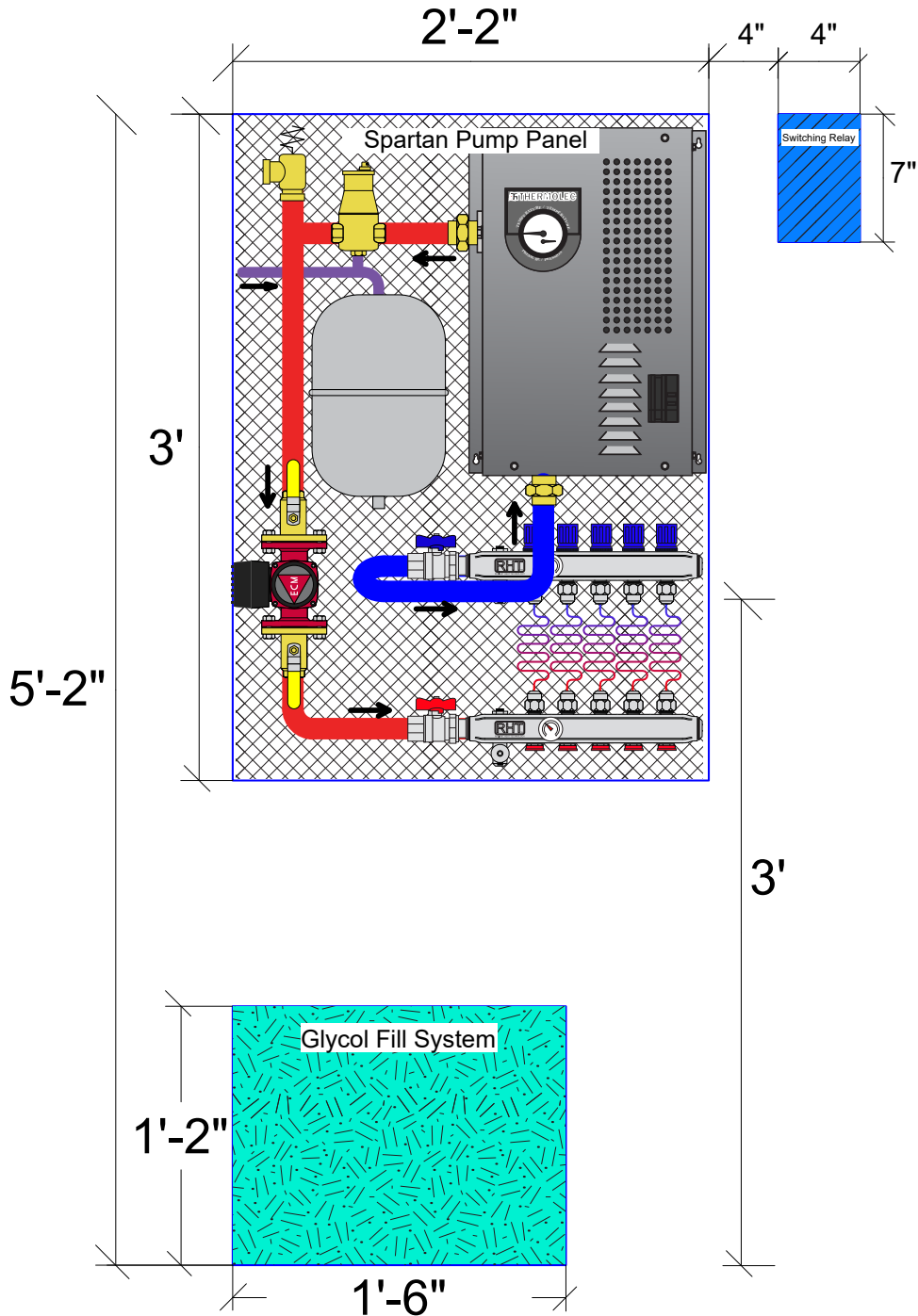
3. Pump Panel Installation

Hang your prefabricated pump panel on the wall using the predrilled holes in the panel. It is best to have at least two people for this part of the installation. We recommend adding additional fasteners if your panel width is longer than three feet. Additional framing materials should be added to provide support as needed.



Mechanical Room Layout Example

Example of mechanical room layout with 1 pump RHT Spartan Pump Distribution Panel, Thermolec boiler, and a RHT 5 port manifold.



4. Connect Manifold to Pump Panel

Connect your manifold to the pump distribution panel using copper or PEX piping. The threaded fittings below will attach to the supply/return ball valves on your manifold, while the straight couplers will connect to the supply/return lines on the pump distribution panel.

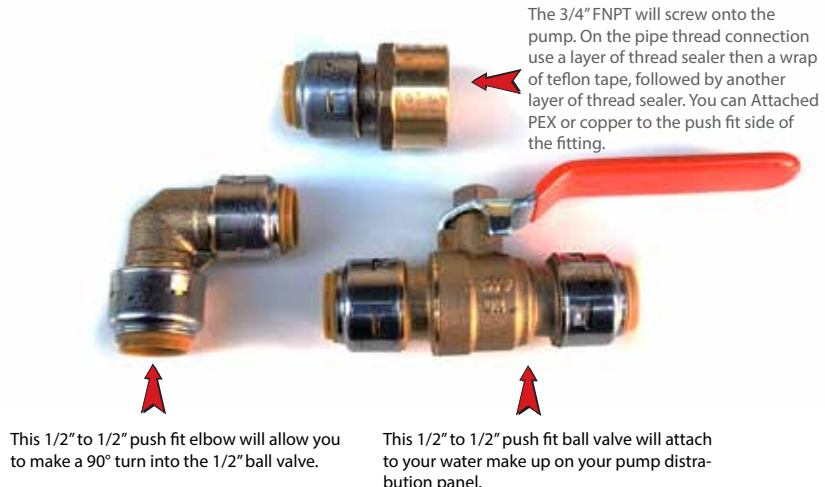


5. Hydronic Fill and Purge System

Connect your fill system to the water makeup of the prefabricated pump panel using the provided fittings.



This is how you will receive your connection kit.

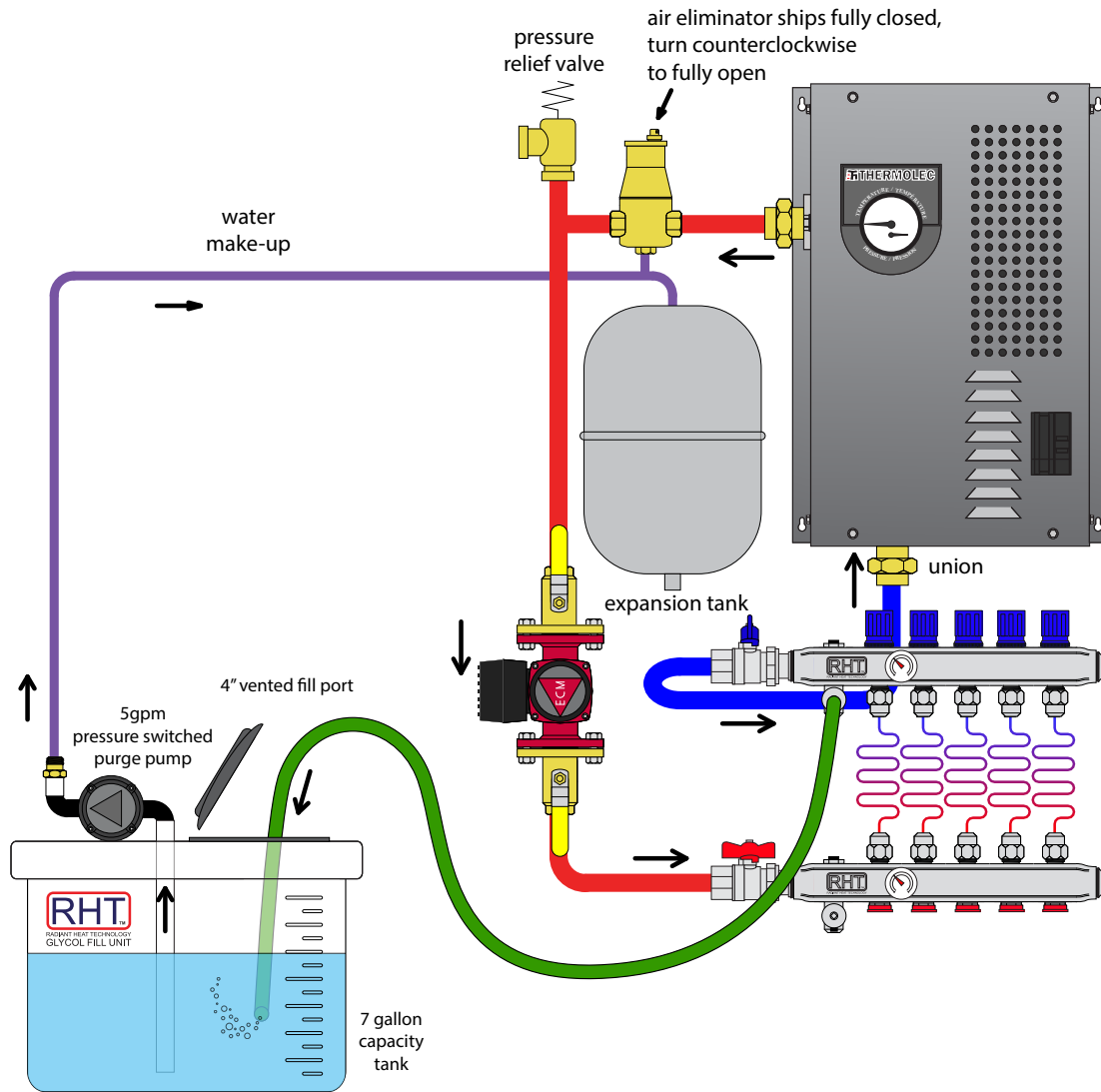


6. Filling

Fill the reservoir with plain water or a glycol mix as appropriate. We recommend sourcing 95% Propylene glycol and for residential systems, a recommended mixture is 20-25% Propylene glycol and 75%-80% water.



RHT Spartan 1-Zone Prefabricated Electric Boiler Pump Panel Purging Mode



Run a hose from the return manifold drain to the RHT Hydronic Fill & Purge Unit's 4" fill port. Close return manifold ball valve and open drain (the drain cap is the key). Double hose washers are required for a good seal. Watch for air bubbles coming out of the hose in the tank. When no more bubbles are observed, wait an additional five minutes to be certain no air is coming down the line. Air removal is critical with electric boilers. Running an electric boiler dry can damage elements. BlueRidge Company recommends running pumps for 12 hours after purging is complete to remove any remaining air in the system. An operating pressure no less than 15psi is recommended.

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7. Air Purging Procedure

Connect a hose from the return manifold drain to your fill tank. Orient the valves for air purging as depicted in the illustration on the previous page and plug in the fill pump. Make sure that the reservoir remains adequately filled throughout the process. Refer back to page one of this document for guidance: [Pump Panel Diagram](#)

8. Zone Purging

When no more air bubbles are observed, wait an additional five minutes to be certain no air is coming down the line. The fill pump will turn off automatically when you close the hose valve. It's crucial to keep the fill pump plugged in and connected, as it is responsible for maintaining static pressure within your system.

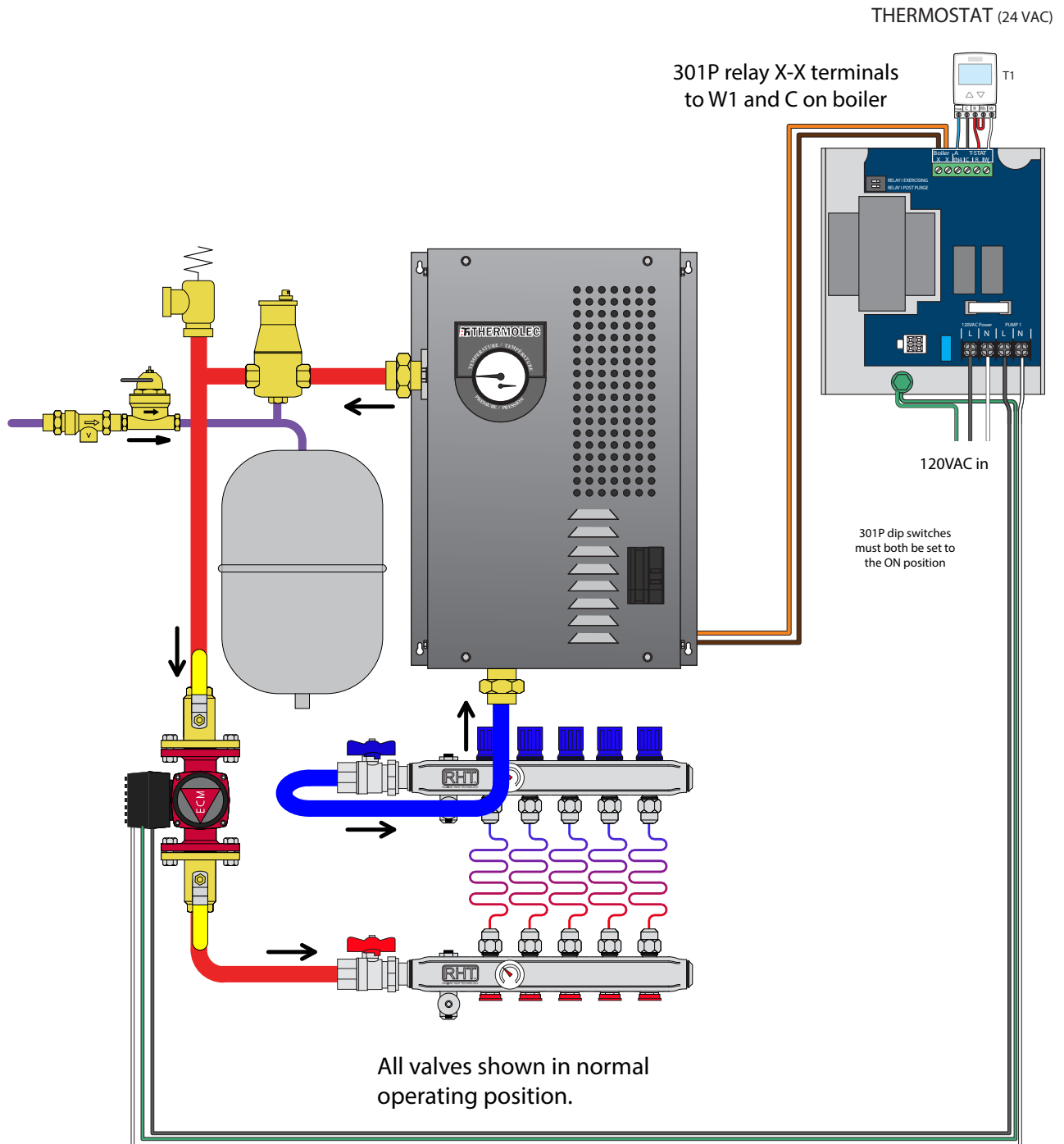
9. Valve Adjustment

Set all valves to their operating positions as shown on page two of the Column Pump Distribution Panel diagram.

10. Wiring

Wire the system following the recommended wiring diagram. It's advisable to have a licensed electrician handle all high voltage wiring. The recommended wiring diagram can be found on the next page and on page two of the [Pump Panel Diagram](#).

RHT Spartan 1-Zone Prefabricated Electric Boiler Pump Panel Reccomended Wiring



*Wiring diagram provided for educational purposes only, please follow all manufacturer's wiring schematics when installing products. BlueRidge Company will not be responsible for improperly wired devices.

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11. Boiler Commissioning

Finally, refer to the boiler installation manual for guidance on commissioning the boiler:

[Thermolec Boiler Install Manual](#)

12. Set Boiler Temperature

On the boiler's circuit board, you'll find a temperature control dial labeled with settings from 1 to 10. These settings determine the water temperature supplied to your radiant heating system. The table below shows the corresponding water temperatures for each setting.

Water Temperature controlled by Electronic Aquastat											
Set-point		10	9	8	7	6	5	4	3	2	1
Maximum temperature	°C	88	81	75	67	58	50	45	42	39	36
	°F	190	178	167	153	137	122	113	107	102	97
Minimum temperature	°C	48	48	48	45	40	38	34	31	29	28
	°F	118	118	118	113	104	100	93	88	84	82

13. Slab Sensor Minimum Temperature

If you installed a slab sensor remember to set the floor minimum temperature. Available when an auxiliary floor sensor is connected, and the built-in room sensor is on.

Tekmar 519 Thermostat:

Setting	Display
User settings. Press the Δ and ∇ buttons together for 3 seconds to enter and advance to the next setting.	
MODE Select heat or off.	NO HEAT HEAT
Range: HEAT, OFF	Default: HEAT
UNITS Select the temperature units.	UNITS F
Range: °F or °C	Default: °F
LIGHT Select when the display back light should operate. Auto operates the backlight for 30 seconds after a keystroke.	LIGHT AUTO
Range: OFF, AUTO, ON	Default: AUTO
SET FLOOR Set the floor minimum temperature. Available when an auxiliary floor sensor is connected and the built-in room sensor is on.	SET FLOOR 72
Range: OFF, 40 to 122°F (4.5 to 50.0°C)	Default: 72°F (22.0°C)
TYPE Device Type number. Hold the Δ button to view the software version.	TYPE 519
ESCAPE Release the Δ and ∇ buttons to return to the home screen.	ESCAPE

Tekmar 561 Thermostat:

Setup - Temp		
Setting	Range	Default
Screen Page 1		
FLOOR MIN - WAKE Select the floor temperature while in the wake schedule. Applies when there is both a floor and an air sensor.	Off, 40 to 95°F Off, 4.5 to 35.0°C	Off
FLOOR MIN - LEAVE Select the floor temperature while in the leave schedule. Applies when there is both a floor and an air sensor.	Off, 40 to 95°F Off, 4.5 to 35.0°C	Off
FLOOR MIN - RETURN Select the floor temperature while in the return schedule. Applies when there is both a floor and an air sensor.	Off, 40 to 95°F Off, 4.5 to 35.0°C	Off
FLOOR MIN - SLEEP Select the floor temperature while in the sleep schedule. Applies when there is both a floor and an air sensor.	Off, 40 to 95°F Off, 4.5 to 35.0°C	Off
FLOOR MIN - AWAY Select the floor temperature while in away. Applies when there is both a floor and an air sensor.	Off, 40 to 95°F Off, 4.5 to 35.0°C	Off

14. Set Thermostats Target Air Temperature

On the home screen of your thermostat, set the desired temperature for that zone.

If you have any questions, please do not hesitate to reach out at 866-361-4782 and dial 3 for technical support.