BlueRidge Company™

RADIANT HEAT SYSTEMS

Heat Pump Dominator

Install Guide

Contents

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

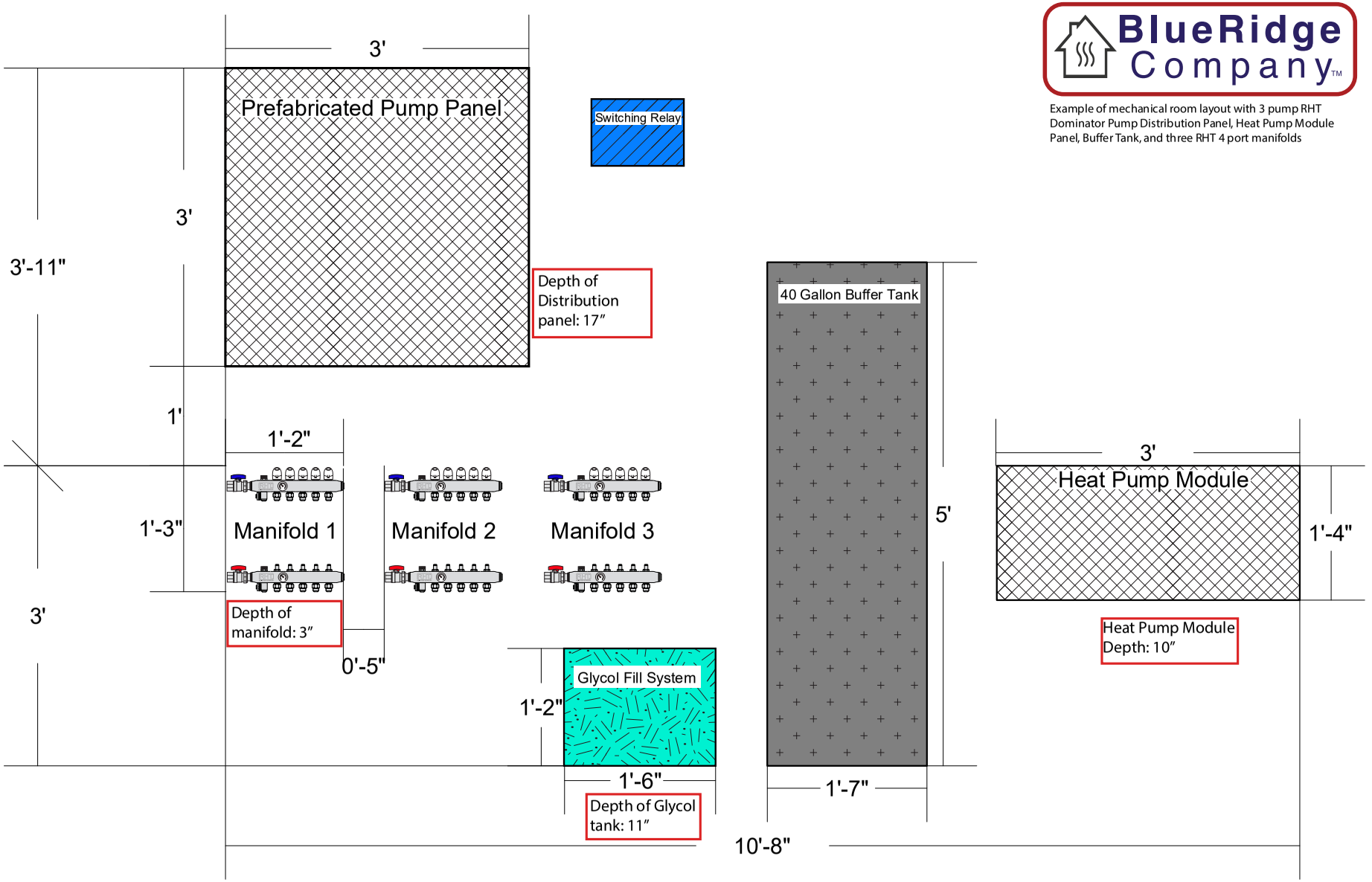
2. Layout and PEX Installation

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 panels. 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.



BlueRidge Company™

Example of mechanical room layout with 3 pump RHT Dominator Pump Distribution Panel, Heat Pump Module Panel, Buffer Tank, and three RHT 4 port manifolds

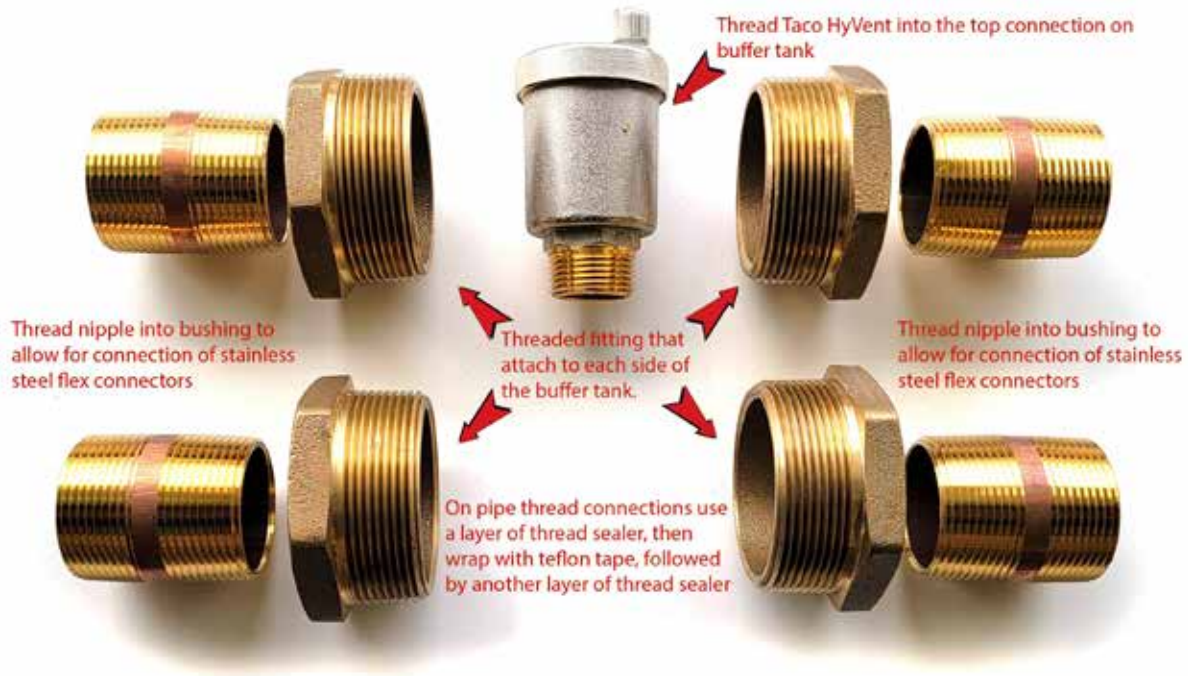
blueridgecompany.com 866-361-4782

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. Buffer Tank Connections

Connect buffer tank bushings and nipples to both sides of your buffer tank. Connect the Taco HyVent to the 3/4” connection on top of your buffer tank.



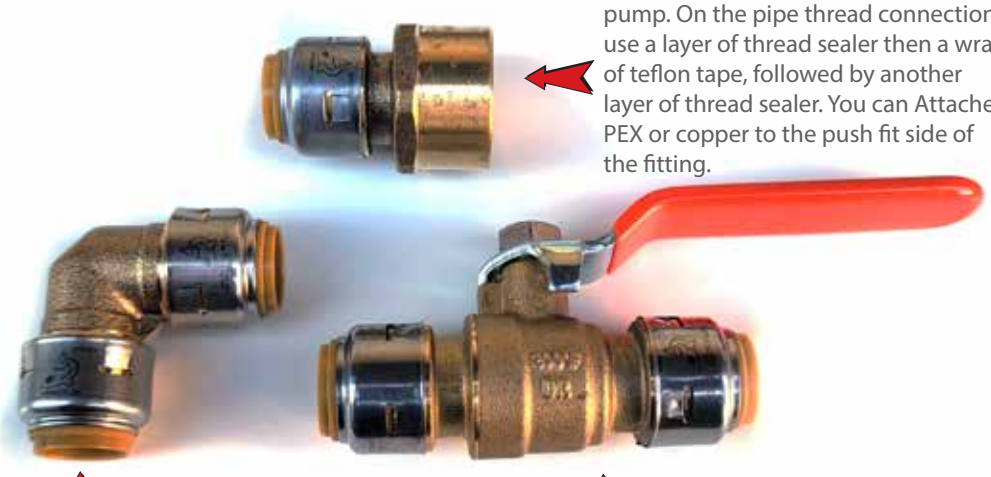
6. Connect Buffer Tank To Module Panel and Buffer Tank

Connect the stainless steel flex connecters to your prefabricated pump panel and module panel from the buffer tank.

7. 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.

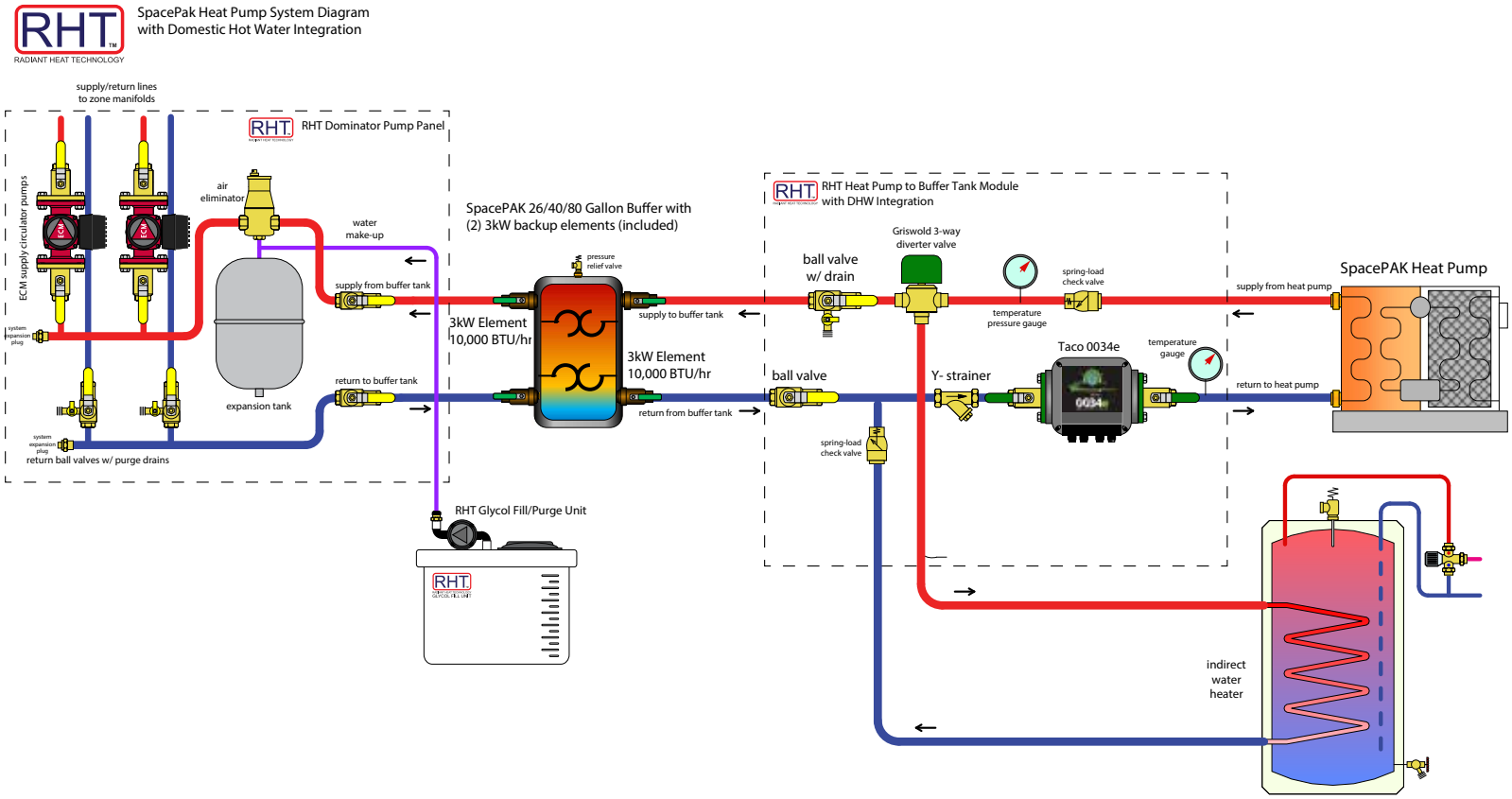


The 3/4" FNPT will screw onto the pump. On the pipe thread connection use a layer of thread sealer then a wrap of teflon tape, followed by another layer of thread sealer. You can Attached PEX or copper to the push fit side of the fitting.

This 1/2" to 1/2" push fit elbow will allow you to make a 90° turn into the 1/2" ball valve.

This 1/2" to 1/2" push fit ball valve will attach to your water make up on your pump distra-bution panel.

Example of a SpacePak Heat Pump System with Domestic Hot Water



8. Filling

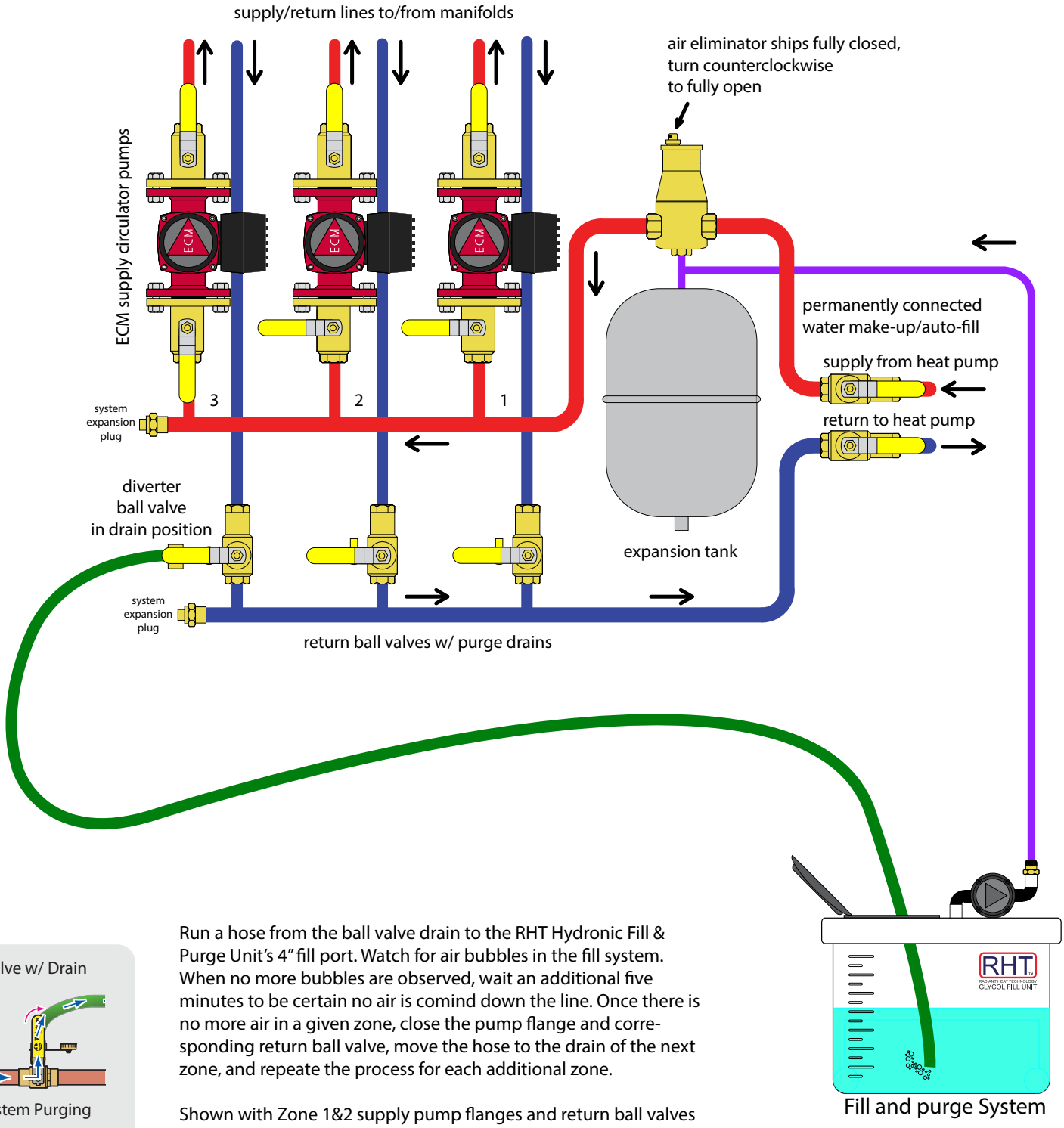
Fill the reservoir with a glycol mix as appropriate. We recommend sourcing 95% Propylene glycol and for residential systems, a recommended mixture can be found in the heat pump installation manual in SECTION 3: GLYCOL/WATER SYSTEM.

9. Air Purging Procedure

Connect a hose from the return ball valve drain of a specific zone to your fill tank. Orient the valves for air purging as depicted in the illustration below 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

RHT™
RADIANT HEAT TECHNOLOGY

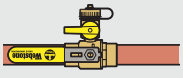
Dominator Pump Distribution Panel Modified for Heat Pump, Purging Mode



Fill and purge System

Ball Valve w/ Drain

System Purging



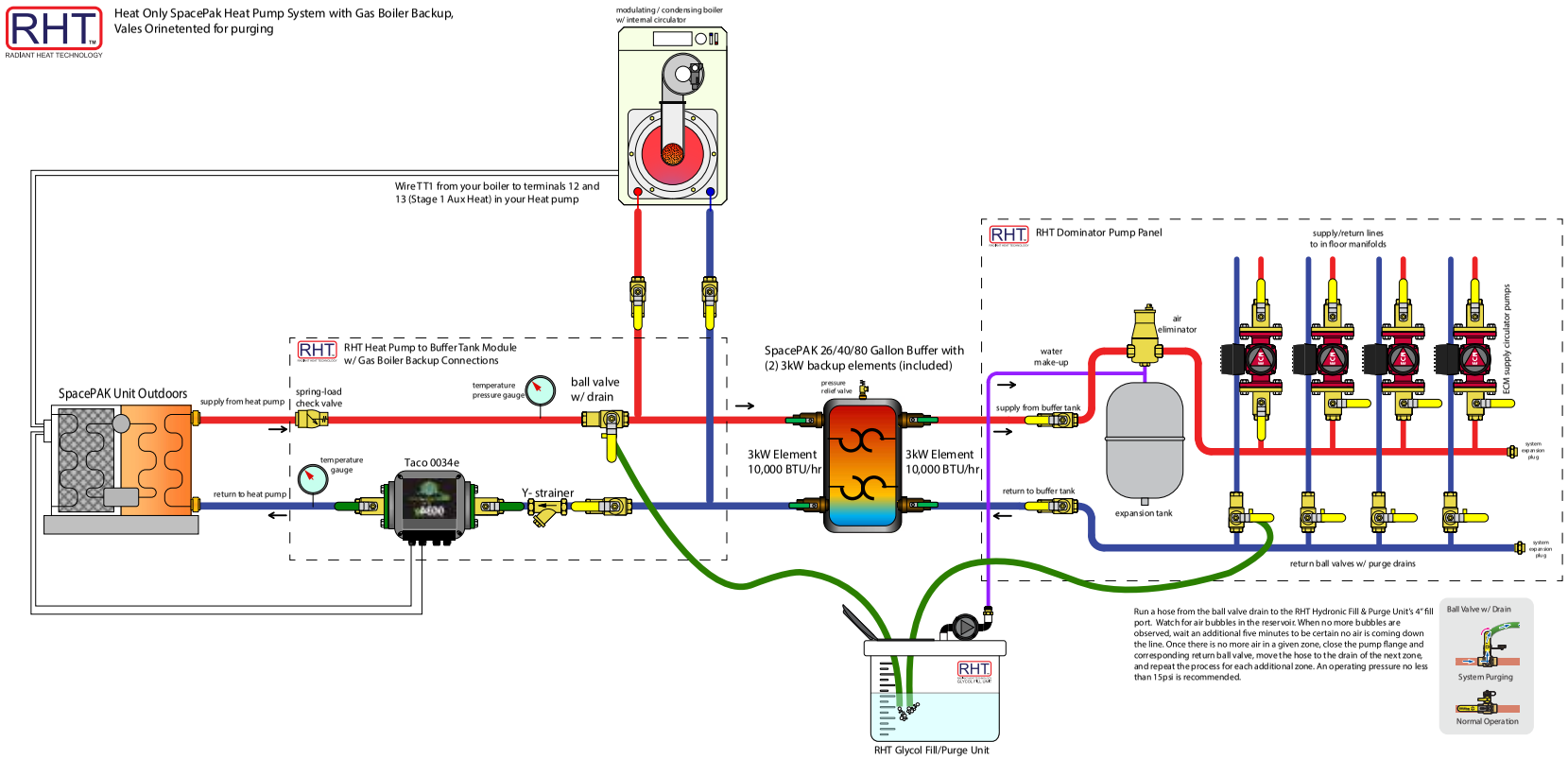
Normal Operation

Run a hose from the ball valve drain to the RHT Hydronic Fill & Purge Unit's 4" fill port. Watch for air bubbles in the fill system. When no more bubbles are observed, wait an additional five minutes to be certain no air is comind down the line. Once there is no more air in a given zone, close the pump flange and corre-sponding return ball valve, move the hose to the drain of the next zone, and repeate the process for each additional zone.

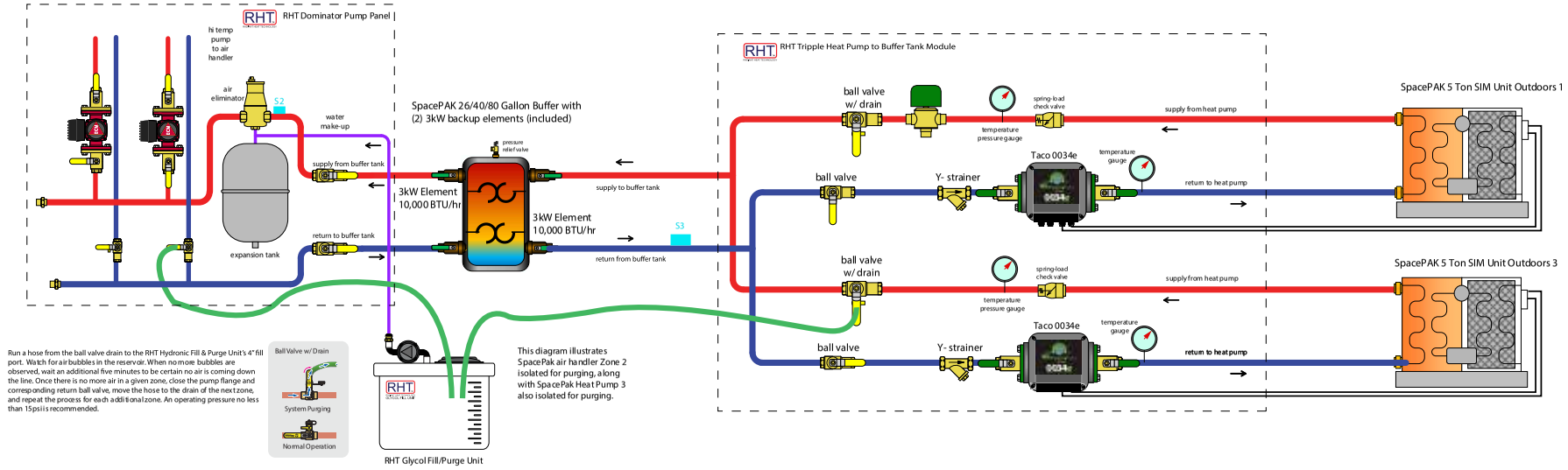
Shown with Zone 1&2 supply pump flanges and return ball valves closed for purging of Zone 3. Re-open pump flanges and return ball valves during normal operation.

An operating pressure no less than 15psi is recommended.

Example of a heat pump system with ball valves oriented to purging



Example of a dual heat pump system with ball valves oriented to purging



10. Zone Purging

When no more air bubbles are observed, wait an additional five minutes to be certain no air is coming down the line. Once there is no more air in a zone, close the corresponding return ball valve and move onto purging the next zone until all zones are purged. 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.

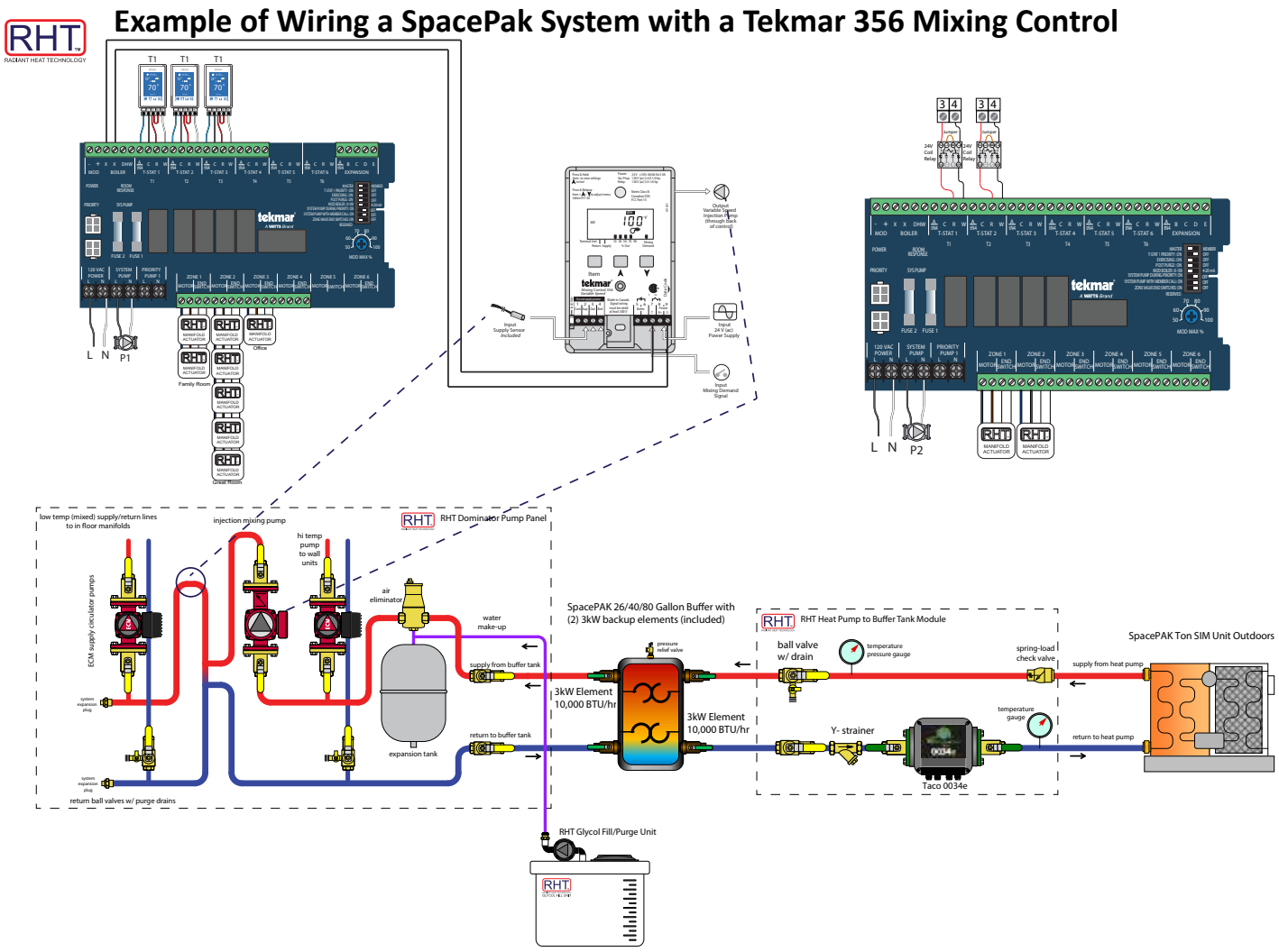
11. Valve Adjustment

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

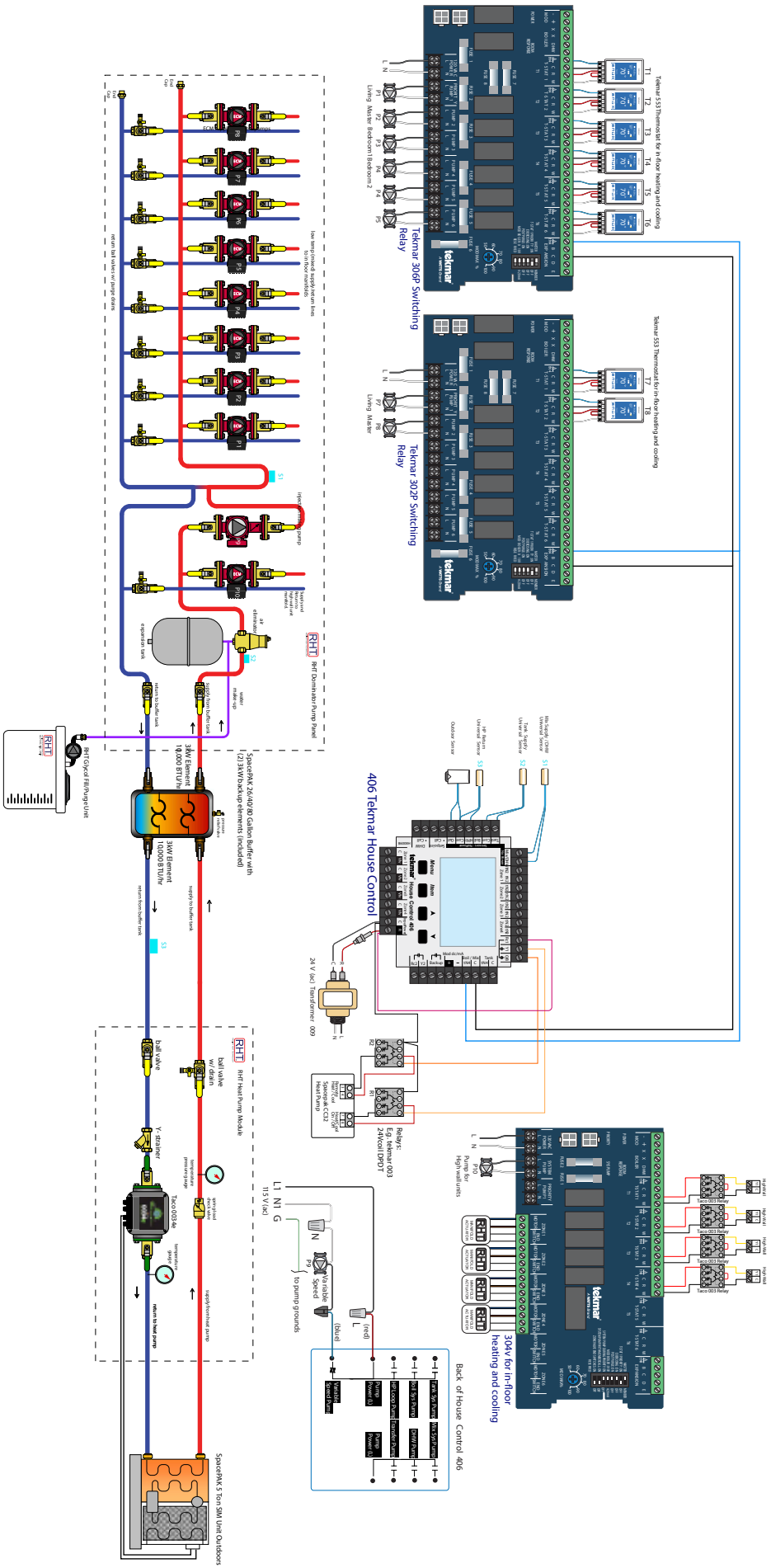
12. Wiring

There are several different applications and methods for wiring a heat pump system. For assistance, please contact BlueRidgeCompany Technical Support at Tech-Support@Blueridgecompany.com.

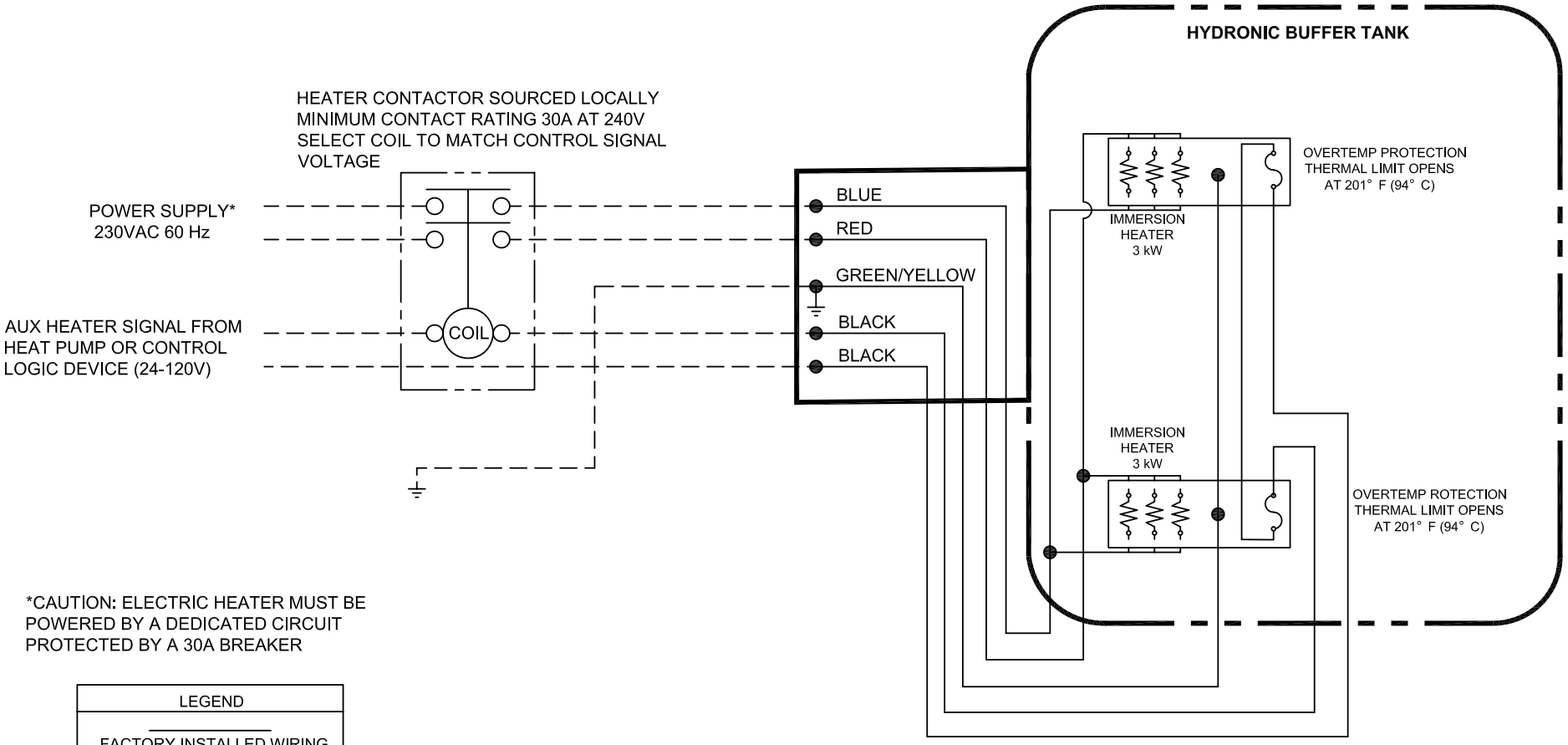
Example of Wiring a SpacePak System with a Tekmar 356 Mixing Control



Example of wiring a SpacePak System with a Tekmar 406 House Control



Buffer Tank Wiring Example:



*CAUTION: ELECTRIC HEATER MUST BE POWERED BY A DEDICATED CIRCUIT PROTECTED BY A 30A BREAKER

LEGEND
——— FACTORY INSTALLED WIRING
— — — — — FIELD INSTALLED WIRING

BT26-H, BT40-H & BT80-H

SPL–WG0906–01 Rev. B

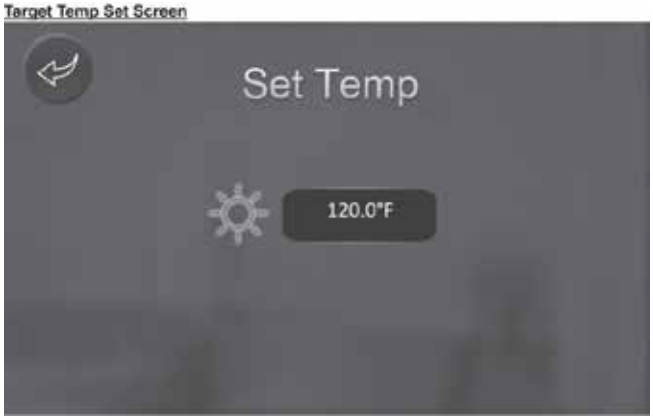
13. Powering the System On

Once you have purged and wired your radiant heat system, power on the heat pump first. After that, power on your Tekmar controls and proceed with the following steps.

14. Heat Pump Temprature Setpoint

his can be adjusted by pressing the temp (on the screen) which opens a new screen and then entering in a numeric value within specified parameters in the control (see parameter chart for min and max settings). Once a target is set, the user will need to press “enter” to save the set point. This should return the user to the target set screen where they will see the new setpoint has been saved. Press the return key to return to the main interface.

Target Temp Set Screen



15. Configuring Heat Pump Control Source Parameter

To select whether the heat pump operates from the remote display or from an external controller such as a Tekmar 406 House Control or SpacePak SSIC, open the heat pump menu and navigate to:

Settings → Factory → Passcode “22” → Parameters

Use the parameter-access key to enter the menu containing user-adjustable settings. Consult the parameter chart in this manual for details on which parameters are available at this access level.

Locate Parameter H07 and adjust it according to the required control method. When H07 is set to 0, the heat pump is controlled by the remote display. When H07 is set to 1, the heat pump is controlled by field-wired inputs such as a Tekmar 406 or SpacePak SSIC. Ensure that the selected value matches the installation requirements and the intended control strategy for the system.

16. Confirm Active Circulation in All Hydronic Zones

Once your buffer tank reaches its set temperature, raise each thermostat above the current room temperature so all zones call for heat. Then check the temperature on every stainless steel manifold to confirm that hot water is circulating. If any zones are not circulating hot water, verify that all balancing valves are fully open, then return to the purging step to remove any air locks.

17. 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 △ and ▽ buttons together for 3 seconds to enter and advance to the next setting.	
MODE Select heat or off.	MODE 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 △ button to view the software version.	TYPE 519
ESCAPE Release the △ and ▽ buttons to return to the home screen.	ESCAPE

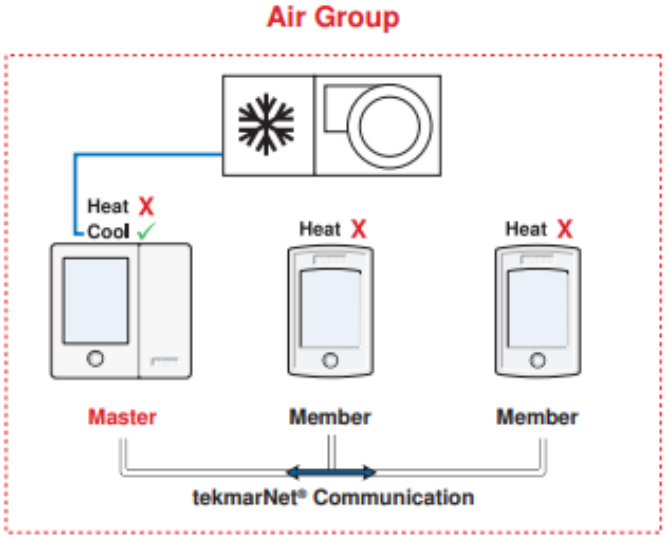
- Tekmar 561 Thermostat:

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

18. Air Group Master with Tekmar 557/532 Thermostats

In order to prevent heating and cooling at the same time, this thermostat can operate together with other thermostats on a tekmarNet® system to form an air group. On older model thermostats the air group functionality was previously described as a cool group. In an air group, one thermostat is assigned as the air group master. The air group master operates the cooling equipment for the group. When operating as a air group, the air temperature readings of all the air group member thermostats are communicated to the air group master thermostat and an average temperature is determined. When the air group master is in cooling operation, the air group member thermostats do not operate the heating system for air heating. This is most commonly used in SpacePak small duct applications.



19. Air Goup Master Applicable Settings

• Set your air group master thermostat to one. Typically the master thermostat will be the Tekamr 557 thermostat that is wired to your air handler.

Setup Menu (7 of 7)	
Setting	**Display**
AIR GROUP MASTER Select if the thermostat is a master of an air group.	AIR GROUP MASTER
Access Level: Installer	Range: NONE, 1 to 16
Conditions: The thermostat must be connected to other thermostats using tekmarNet®.	Default: NONE

• Set the member thermostats of the air group to one. Typically the member thermostats will be 532 Tekmar Net thermostats.

AIR GROUP Select if this thermostat should be included in an air group to interlock heating and cooling for the group. Requires tekmarNet.	Range: Off, 1 to 16	Default: Off

• Set Backup W2 Source to TNK1.

BACKUP W2 SOURCE Select the water temperature of the hydronic backup heating.	BACKUP W2 SOURC
Access Level: Installer	Range: BOIL, TNK1, MIX1, MIX2, MIX3
Conditions: BACKUP W2 TERMINAL is set to CONV or COIL.	Default: BOIL

• Set Y1 Relay to equal W2.

Y1 RELAY Select the cooling equipment the Y1 relay operates. HP1 = Heat pump AC1 = Air conditioner W2 = W2 turned on together with Y1. Used for 2-pipe hot / chilled water fan coils. The backup W2 relay activates the pump or zone valve for the fan coil for both heating and cooling. Only available when Backup W2 Source is set to TNK1.	Y1 RELAY
Access Level: Installer	Range: HP1, AC1, W2
Conditions: Always available.	Default: HP1

20. Set Thermostats Target Air Temperature

On the thermostat's home screen, set the desired temperature for that zone. For initial startup, it typically takes about two days for the system to come up to heat.

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