TMP Multi Panel

Installation, Operation, and Maintenance Manual

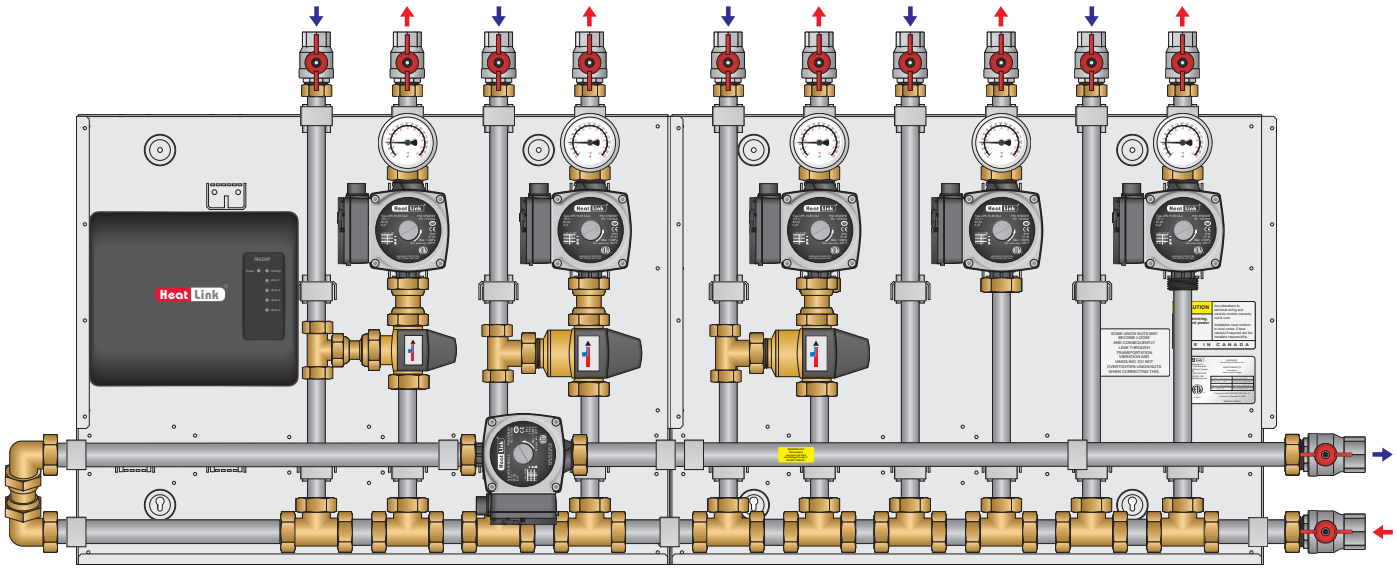


Table of Contents

2 Warnings
2 Servicing
2 Tools
3 Function
3 Unpacking
4 Panel Components
5 Panel Components
6 Specifications & Listings
7 Pump Curves
8 Panel Mounting
9 Boiler Connections
10 Piping Hookup
11 Fill & Purge
12 Panel Wiring
13 Panel Control Sequence
14 Wiring Diagram
15 Troubleshooting
15 Maintenance
16 Electrical Schematic

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Warnings

The zone control panel is for indoor use only and must be installed by a qualified installer/service technician. This product must be installed and operated in strict accordance with the terms set out in this manual and in accordance with the relevant requirements of the Local Authority Having Jurisdiction. Failure to comply will result in a void of warranty, and may also result in property damage, serious injury, or death.

Servicing

Prior to commencing installation of this panel it is necessary to read and understand all sections of this manual. The symbols below are used throughout this document to ensure proper operation of the panel, and your safety. Please pay attention to these symbols.



Warning
Possible Hazard



Warning
Live Power



Warning
Hot Pipes



Warning
Treated Water



In order to avoid injury or death, switch off the power to the panel prior to inspecting or making connections to the terminal strip.

Tools

- Level
- Screwdriver or power drill
- Flat head bit
- Phillips head bit # 2
- 2 adjustable wrenches (or 2 × 30mm wrenches)

Function

This zone control panel can provide mixing, distribution, and zoning for a wide variety of hydronic heating applications.
The effectiveness of the system is dependent on the system being designed and installed correctly. Proper consideration of factors such as BTU loads, outdoor design temperature, indoor design temperature, room set-point temperature(s), differential fluid temperatures, head loss, flow rates, and transfer capacities of the heat emitters is critical.
Once these factors have been considered and the system requirements determined, these can then be evaluated and compared to the panel capabilities.

Unpacking

Step 1 Examine carton for any damage that may have occurred during shipping. If damage is visible notify your courier and supplier immediately.

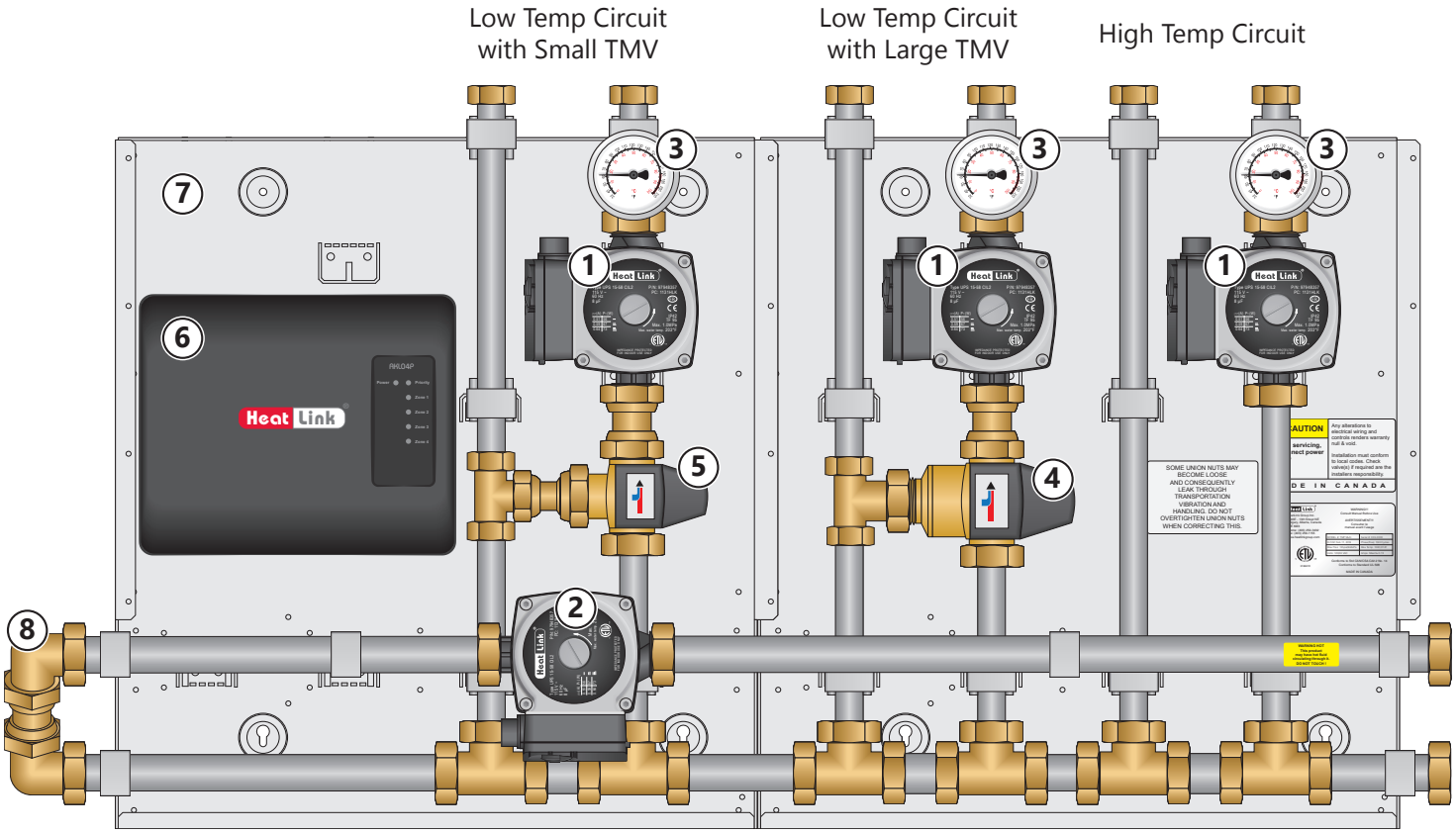
Step 2 Open the carton by removing the staples.

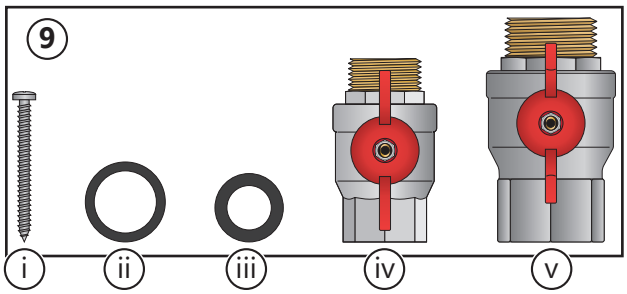
Step 3 Remove the cardboard spacers from the carton, then remove the panel from the carton. Lift the panel by the base, not the piping.

Note: For larger panel configurations two or more people may be required to lift the panel.



Panel Components





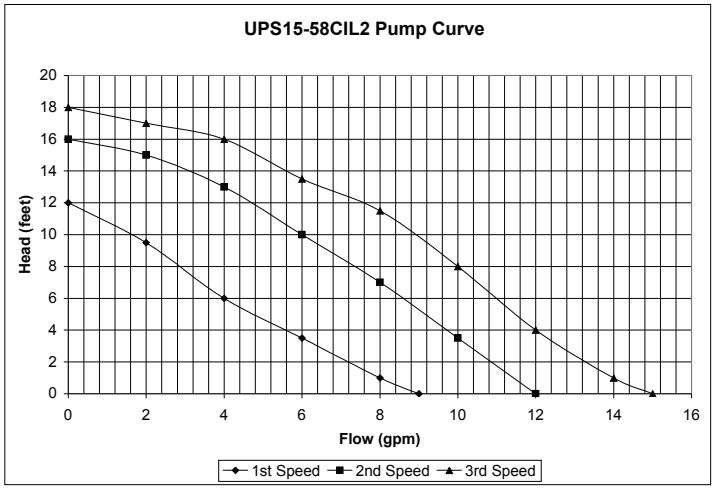
Panel Components

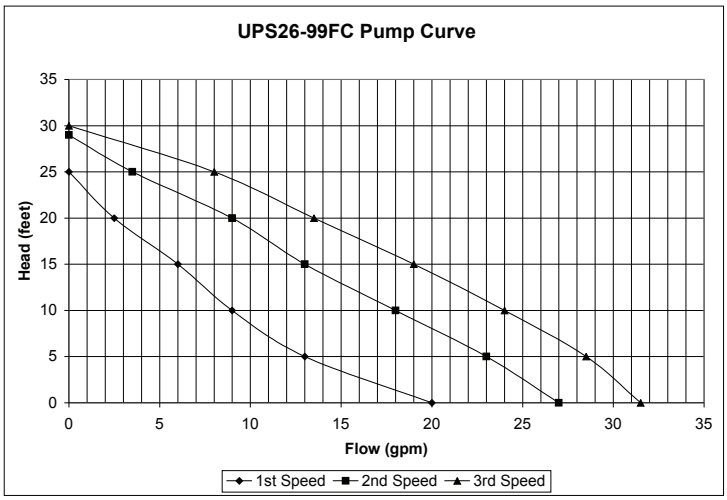
#	Components	Component Description	Part Number (Qty.)
1	Circuit Pumps	The pumps move hot water through the hydronic system when there is a call for heat from the thermometers (see page 13 for Panel Control Sequence).	UPS15-58
2	Primary Pump	The primary pump aids in moving the water from the boiler to the circuits when there is a call for heat.	UPS15-58/26-99/25-150
3	Thermometer	Measures circuit supply temperature.	-
4	Thermostatic Mixing Valve (Large)	The TMVs control the temperature of the circuit water via a self-regulating thermostat.	-
5	Thermostatic Mixing Valve (Small)		-
6	Controls	Electrical controls for the panel; interprets calls for heat from zones and governs the pump operations.	-
7	Galvanized Steel Backplate	Modular backplate.	-
8	U-Bend	U-bend is shipped as the right hand boiler configuration (pictured). See page 9 for boiler connection configurations and flow directions.	-
9	Accessory Pack	-	-
	i Mounting Screws	-	(×4)
	ii 1" Nitrile Washer	Spare washers for pumps.	(×4)
	iii ¾" Nitrile Washer	Washers (2 spare) for ¾" ball valves.	(×3 per circuit)
	iv ¾" Ball Valves	Isolation valves for each circuit to aid in fill & purge, and system maintenance.	BVLV34 (×2 per circuit)
	v 1" Ball Valves	Boiler isolation valves.	BVLV1 (×2)

Specifications & Listings

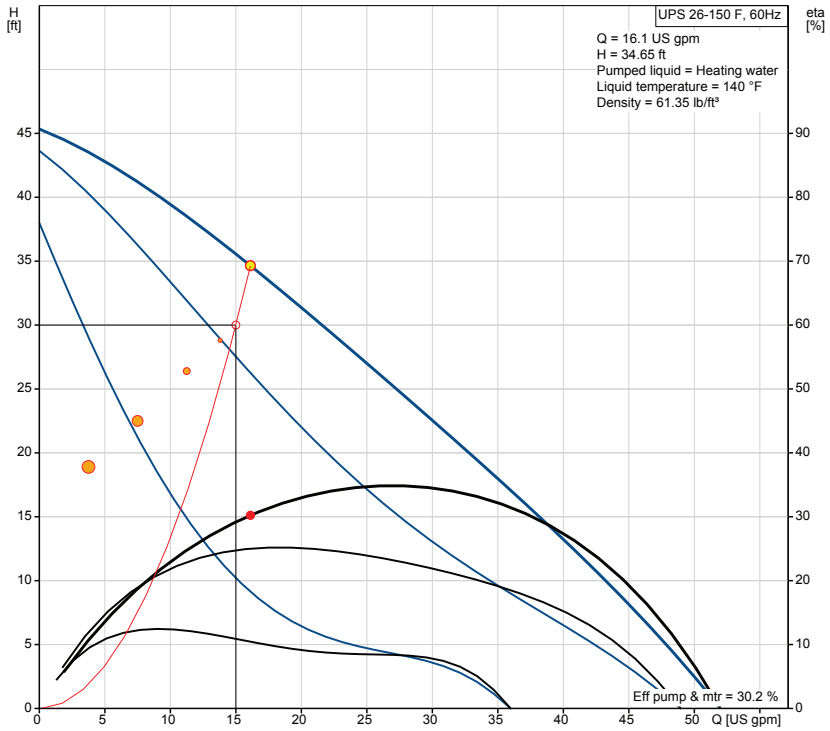
	Primary Pump			Circuit Type		
	UPS26-150	UPS26-99	UPS15-58	High	Low, Large TMV	Low, Small TMV
Listing	cETLus					
Conforms to	CAN/CSA-C22 No.14, UL508					
Dimensions						
Weight						
Nominal panel output	300,000 BTU	300,000 BTU	100,000 BTU	100,000 BTU	70,000 BTU	40,000 BTU
Nominal flow	15.0 usgpm @40°F ΔT	15.0 usgpm @40°F ΔT	5.0 usgpm @40°F ΔT	6.5 usgpm @30°F ΔT	7.0 usgpm @20°F ΔT	4.0 usgpm @20°F ΔT
Nominal pressure drop outside of panel	29ft.	12ft.	12ft.	10ft.	4ft.	4ft.
Max ambient temperature	120°F					
Max water temperature	200°F					
Min required flow for correct temp control	1 usgpm					
Power requirements		120 V(ac)/24 V(ac) 60 Hz				
Circulator		Ferrous, Grundfos UPS26-99FC	Non-ferrous, Grundfos UPS15-58CIL2			
Auxiliary terminal		Heat demand on StatLink®				
Temperature control method		-	-	-	3-Way Thermostatic	
Temperature control range		-	-		110°-140°	
Mixing valve Cv		N/A	N/A	N/A	1.8	3.7
Piping	¾" & 1" stainless steel tubing					
Piping connections	1" FIP - Boiler/¾" FIP - Circuits					
Backplate	16 ga. Galvanized steel					
Control cover	Plastic					

Pump Curves





UPS 26-150 F 60 Hz



Panel Mounting

Prior to mounting the panel, ensure the wall is capable of supporting the weight of the panel.
Ensure that a 120V receptacle is within reach of the plug-in transformer, and the 6-foot 120V cord and plug.

Step 1 Find studs and, using a level, draw a line a minimum of 4 feet from the floor.

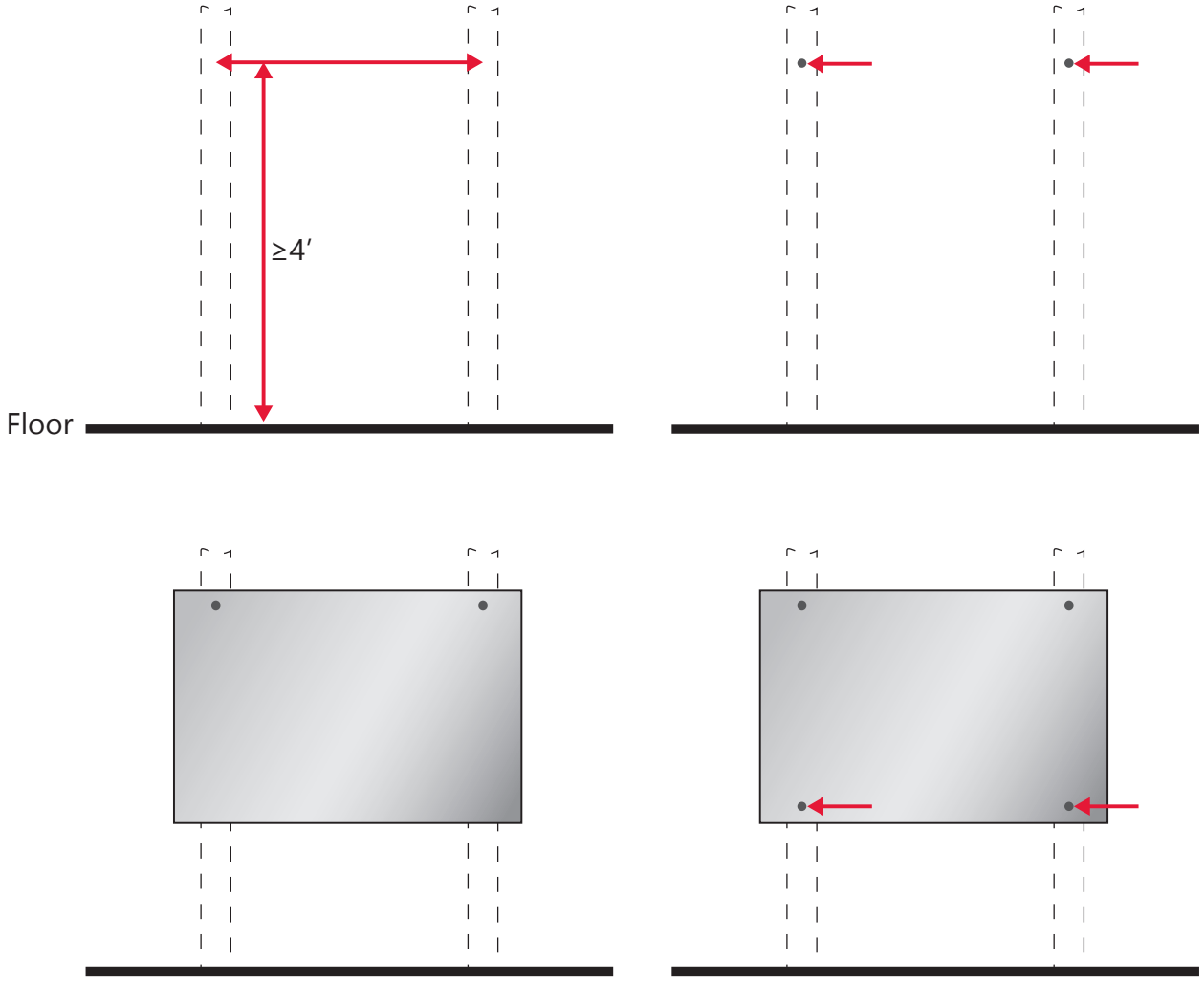
Step 2 Depending on the configuration of your panel, it may not be possible to secure it directly to the studs, or suitable backing boards, and plywood may need to be installed behind the panel to properly secure it in place.

Step 3 Screw two of the supplied mounting screws into the wall studs (or backing plywood) 2" from the top of desired height, and distance to match the mounting holes in the backpplate, leaving ¼" of screw out from the wall.

Step 4 Lift the panel onto the screws.
Note: for larger panel configurations two or more people will be required to lift the panel in order to avoid injury or damage to the panel. ***Do not lift panel by piping!***

Step 5 Screw in the remaining mounting screws, and tighten the top two screws.

Step 6 Refer to the boiler connections, piping hookup, and fill & purge.



Boiler Connections

The TMP Multi panel is able to be installed with either left or right-hand boiler connections, and includes a U-bend and 1" ball valves for connection. Refer to the below illustrations for connection diagrams; the boiler is piped to the panel to feed the high-temperature circuits first.

If you are installing the panel with a left-hand boiler connection, see figure A.
If you are installing the panel with a right-hand boiler connection, see figure B.

Figure A - Left-hand boiler connection

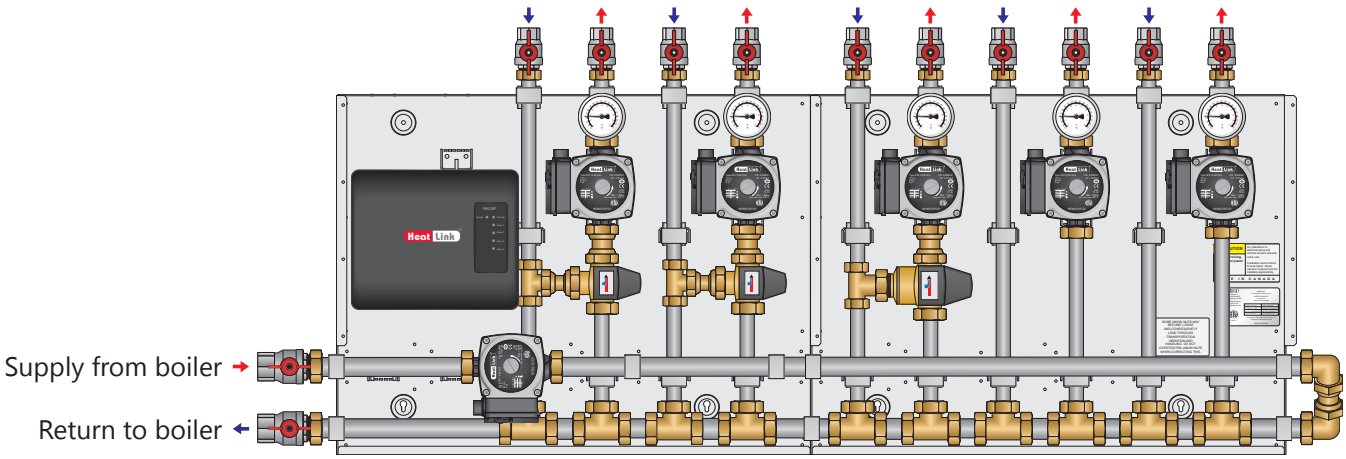
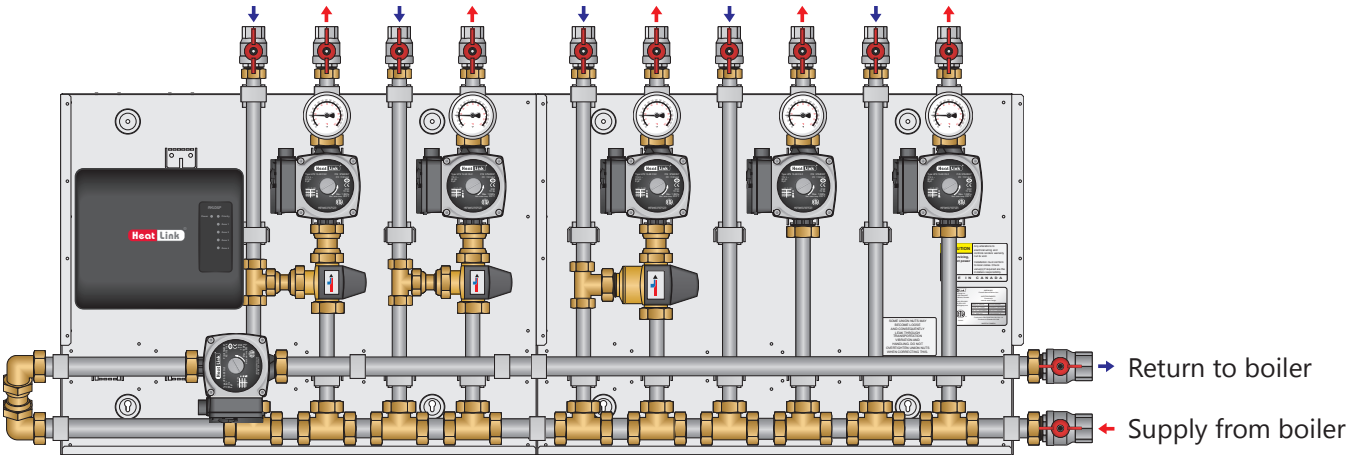


Figure B - Right-hand boiler connection



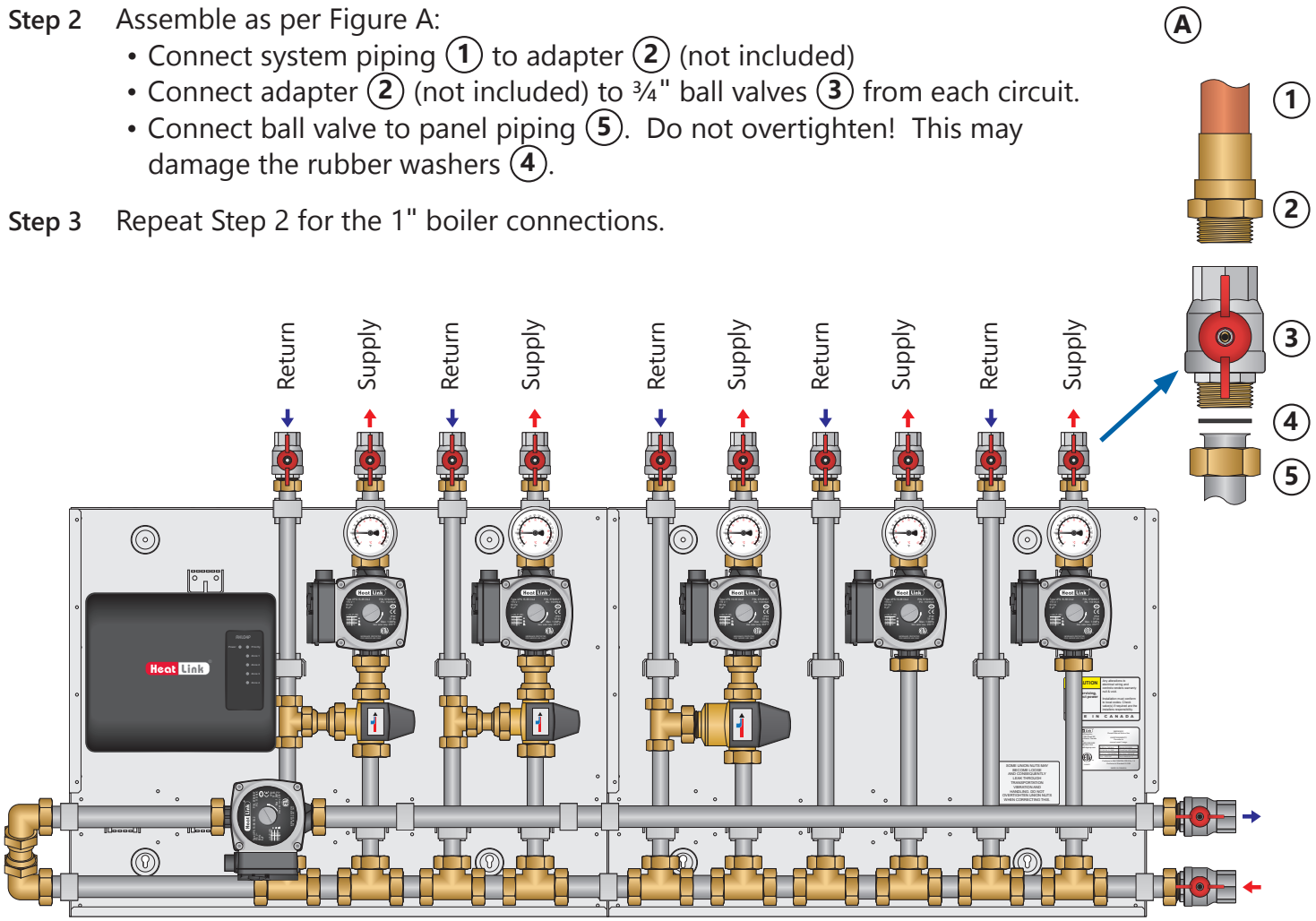
See page 10 for piping hookup instructions.

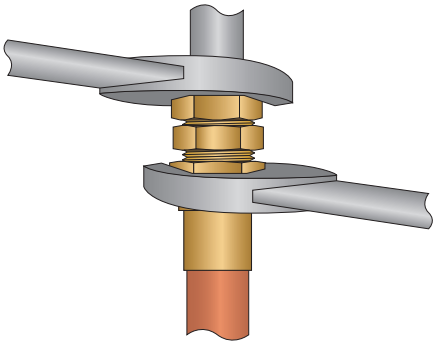
Piping Hookup

Step 1 Before making any connections, identify the required connections to and from the panel.
- Circuit ball valves ¾" FIP
- Boiler ball valves 1" FIP

Step 2 Assemble as per Figure A:
- Connect system piping (1) to adapter (2) (not included)
- Connect adapter (2) (not included) to ¾" ball valves (3) from each circuit.
- Connect ball valve to panel piping (5). Do not overtighten! This may damage the rubber washers (4).

Step 3 Repeat Step 2 for the 1" boiler connections.





Do not overtighten brass nuts!

Fill & Purge

The panel, and each system component (fan coil, domestic hot water tank, boiler, radiant zones, etc.) must be filled with water and purged of entrained air before putting the system into service to help ensure proper operation and performance of the system.
See manufacturer's documentation for fill and purge instructions for non-HeatLink® system components.

Step 1 Ensure the panel is not plugged in.

Step 2 Fully close all ball valves.

Step 3 Attach a fill hose and a purge hose (not included) to circuit 1.

Step 4 Fully open valves (A) and (B) then fill the system.

Step 5 When the water coming out of the purge hose is free of bubbles fully open valves (A) and (B) on circuit 1.

Step 6 When exiting water from manifold is free of bubbles, close valve (A) and (B).

Step 7 Repeat for other circuits.

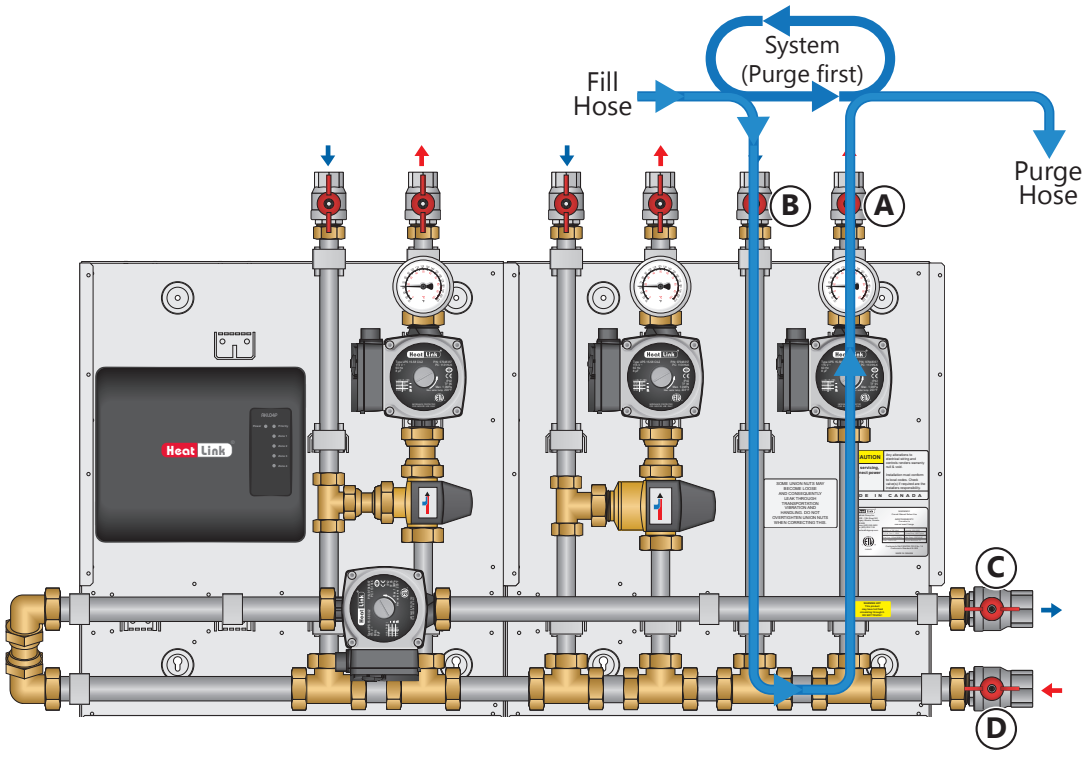
Step 8 Repeat for boiler (valves (C) and (D)).

Step 9 Remove hoses from manifolds and fully open all valves.

Step 10 Vent all pumps (use a large flat head screwdriver to avoid damage to vents) before starting the system.

Step 11 Check for leaks at connections. If any leaks are found, use a back-up wrench and carefully tighten until leak stops. Do not overtighten.

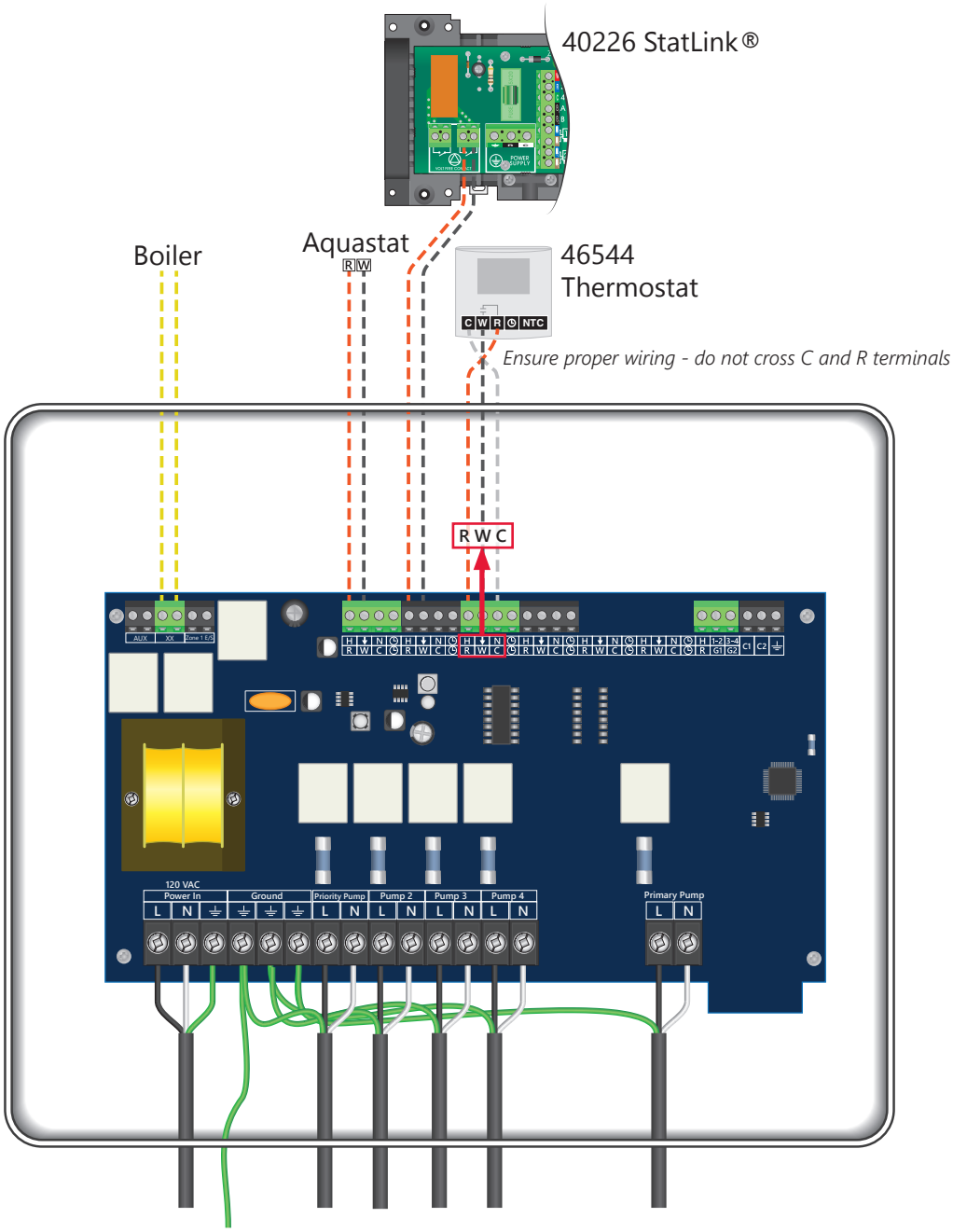
Step 12 Pressurize system to the required operating pressure.



Panel Wiring

Note: Do not remove or alter the factory wiring, doing so may void your warranty.

Step 1 Remove the Control cover.



Step 2 Wire thermostats to the control with 18 gauge wire. This should be done by a qualified electrician, and meet local codes and jursidictions.

- Do not exceed 24VA per thermostat.
- Do not cross terminals C and R.

Step 3 Wire the heat demand dry (Aux) contacts to the heat demand contacts on the boiler as per boiler manufacturer instructions.

Panel Control Sequence

Step 1 Ensure 120v cord is plugged in.

Step 2 Room thermostat triggers a call for heat.

Step 3 The control switches on the primary pump and the appropriate circuit pump. The appropriate Zone Indicator Lights on the control turn on.

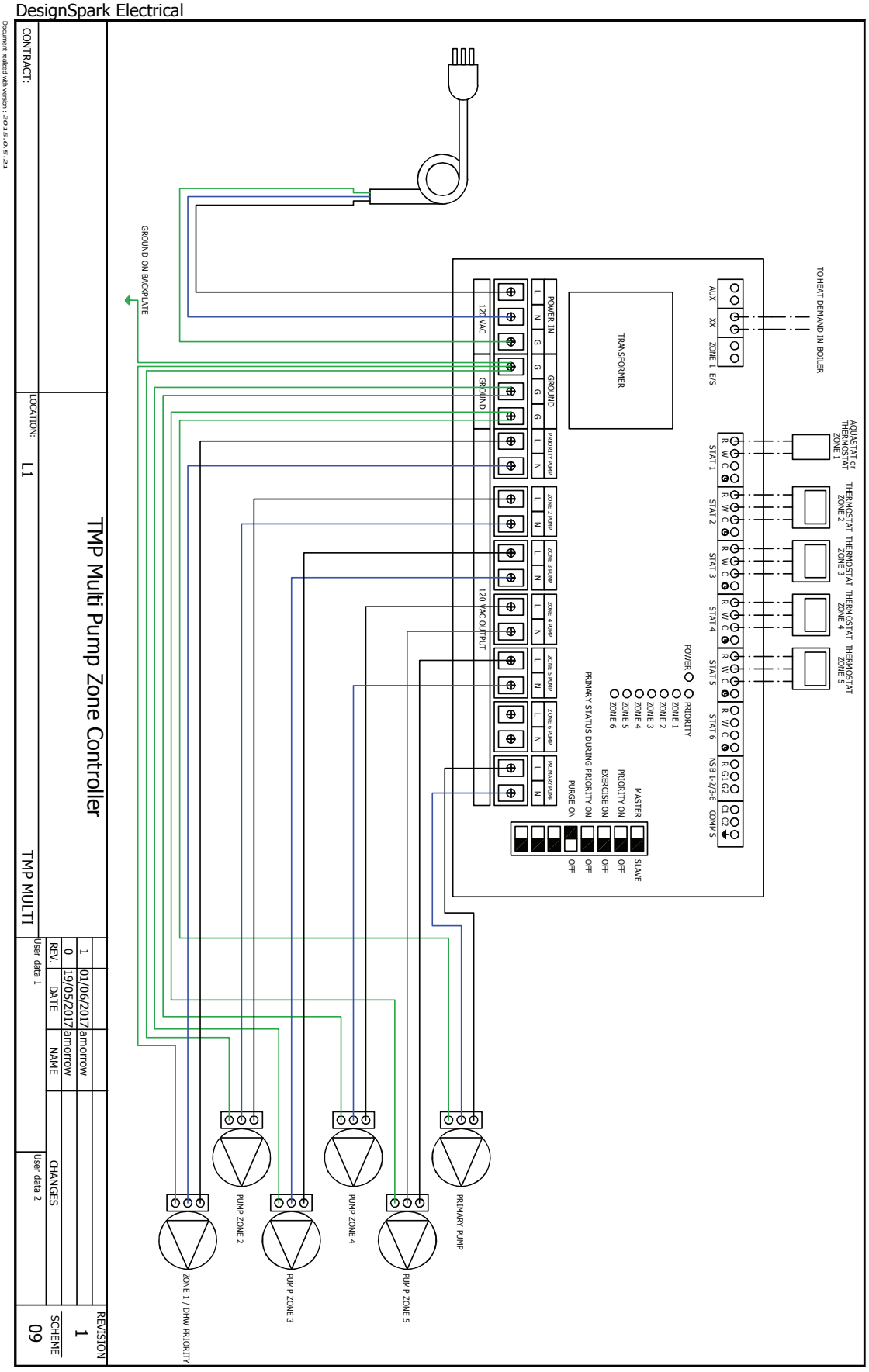
Step 4 The boiler turns on.

Step 5 If there is a DHW call for heat, all other pumps - except the primary pump - turn off for the duration of the call. If the Purge DIP switch is in the ON position, the DHW circuit continues for 2 minutes after the call ends. (The panel ships with the DIP switch in the OFF position).

Step 6 Once the heat demand has been met, the thermostat contacts open, the pumps shut off, and the boiler turns off.

Wiring Diagram

DesignSpark Electrical



Troubleshooting

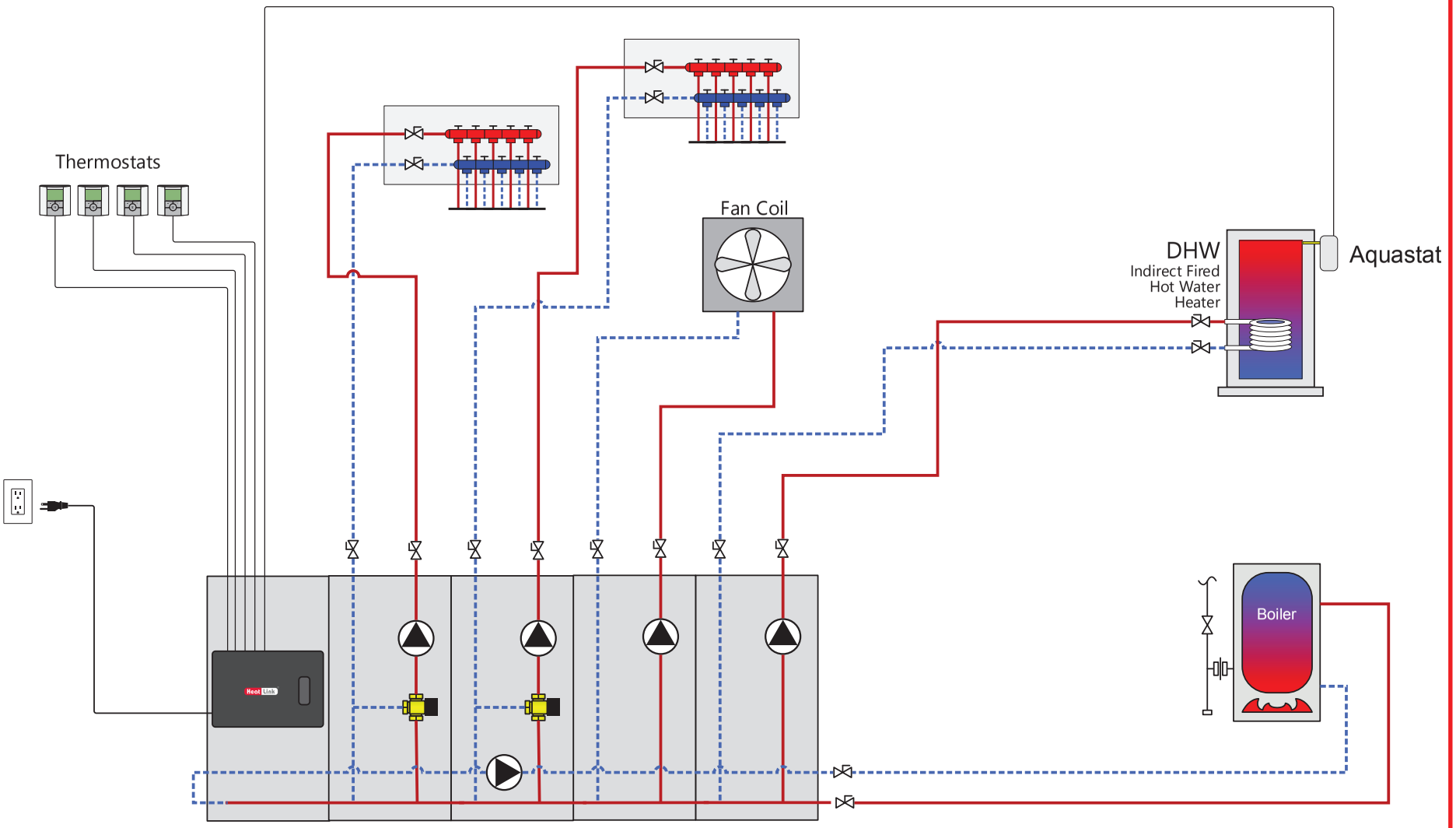
Problem	Check / Verify	Possible Cause
Low Temperature Within Room	Misplacement of thermostat location within room.	Make sure thermostat is not being influenced by an additional heat source, such as lighting or air duct.
	Low temperature setting of the thermostat.	Adjust the temperature setting on thermostat.
	The system fails to turn on if the thermostat is set to high setting	Thermostat may be out of calibration or defective. Replace thermostat.
	The electronic actuator fails to open during a call for heat	The electronic actuator may be improperly seated or may be defective. Replace if necessary.
	Wiring from heat source to panel.	Check that the wiring is done properly. Consult qualified electrician prior to alteration of wiring between heat source and panel.
	Output of heat source is unable to meet demand of heating system.	Compare output of heat source to the requirements of the heating system.
	Circulator is not on during a call for heat. (Use a stethoscope or similar device to verify)	The circulator may be defective.
	When zone valves are installed outside the panel a qualified electrician should verify 24V power is supplied to the thermostats and actuator.	The 24V transformer may have failed. Any zone valves must be opened manually to avoid dead-heading of the circulator.
High Temperature Within Room	Check current setting of the thermostat.	Adjust the temperature setting on thermostat to a lower setting.
	Installed electronic actuators remain open after the thermostat is satisfied.	An obstruction inside the zone valve is not allowing the actuator to fully close or the thermostat is still calling for heat.

Maintenance

Yearly maintenance should be done on the panel prior to each heating season to ensure the efficient and accurate operation of the panel.
Complete the following check list:

- Raise all thermostats to cause a call for heat within the system. Verify that the circulator starts, via a stethoscope or similar device.
- Confirm that the Auxiliary Contacts close.
- If applicable, verify that each zone valve opens during the call for heat – the actuator should be warm to the touch, the LED will light up (on 5620x models) and the white indicator should rise from the top of the actuator.
- Return all thermostats to a desirable setting.

You are now ready for another heating season with HeatLink.



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Notes:
- Drawings are for HeatLink suggested system layout only! User must determine if system layout will work for their particular application.
- Air vents, expansion tanks, pressure relief valves, etc. for heat source as per local codes.
- Use isolation ball valves for all circuits and components.
- Local codes, regulations, and authorities have final jurisdiction.

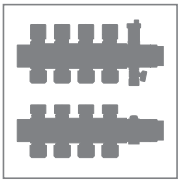
Heat Source: Boiler
Panel(s): TMP Multi
Heat Load(s): DHW, Fan Coil, Radiant Heating

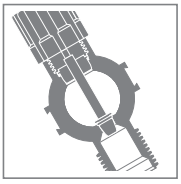
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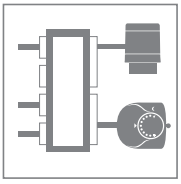
Schematic #: SCH-TMPMulti-M002
Rough-in wiring see: SCH-MRIB-R001
Wiring detail see:













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