V100 Boiler Panels

Installation, Operation, and Maintenance Manual

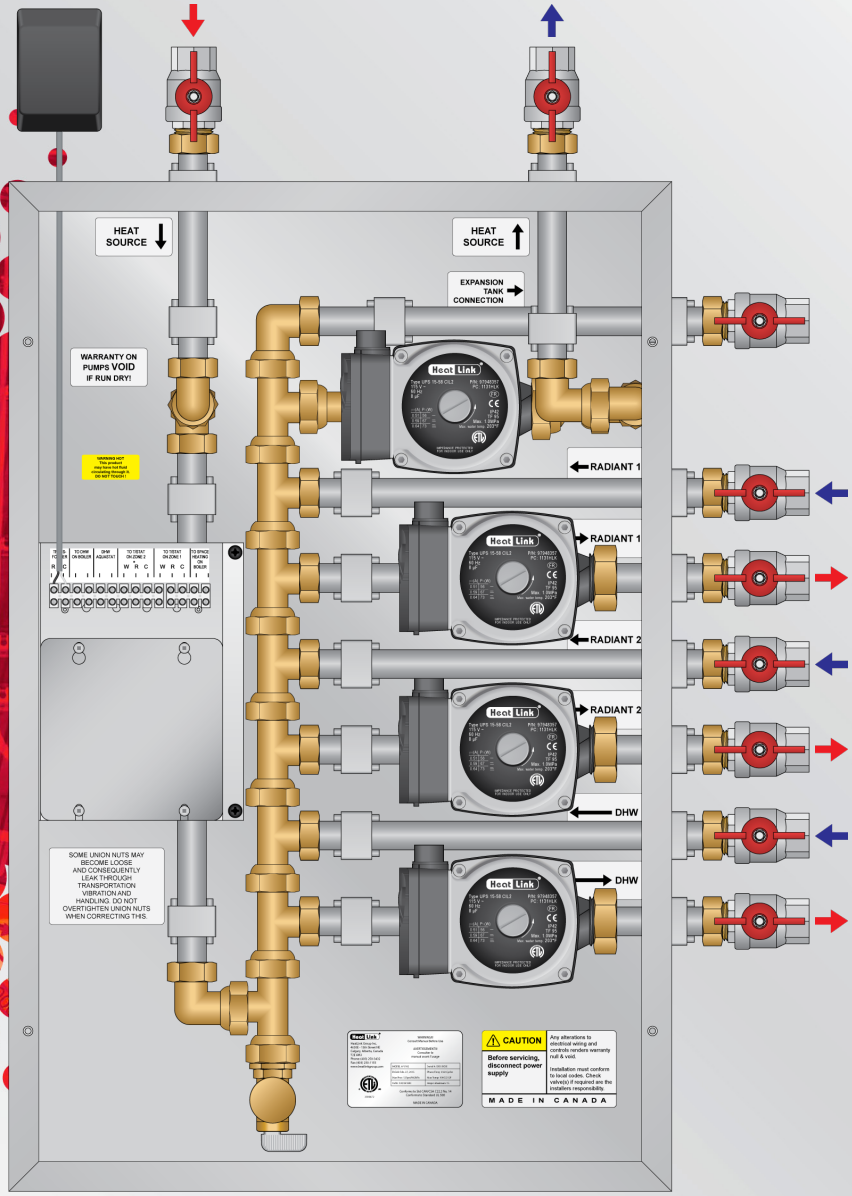


Table of Contents

2 Warnings
2 Servicing
2 Tools
3 Function
3 Unpacking
4 Panel Configurations
5 Panel Components
6 Specifications & Listings
7 Dimensions
8 Panel Mounting
9 Piping Hookup
10 Fill & Purge
11 Fill & Purge Diagram
12 Panel Wiring
12 Thermostat Wiring
13 Panel Control Sequence V101
14 Panel Control Sequence V102
15 Panel Control Sequence V103
16 Troubleshooting

Disclaimer

HeatLink Group Inc. shall not be responsible for errors in its brochures or printed materials. HeatLink Group Inc. reserves the right to alter its products at any time without notice, provided that alterations to products already on order shall not require material changes in specifications previously agreed upon HeatLink Group Inc. and the Purchaser. All trademarks in this material are property of the respective companies. HeatLink and the HeatLink logotype are trademarks of HeatLink Group Inc. All rights reserved.

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 dependant 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.

Note: The V101 and V101 boiler panels are designed to work with the Vitodens 100-W B1HA-26 or B1HA-35 boiler, and feature a primary pump.

The V103 boiler panel is designed to work with the Vitodens 100-W BIKA-35 boiler, which has a built-in primary pump, and Domestic Hot Water priority diverting valve. The panel features only three radiant pumps.

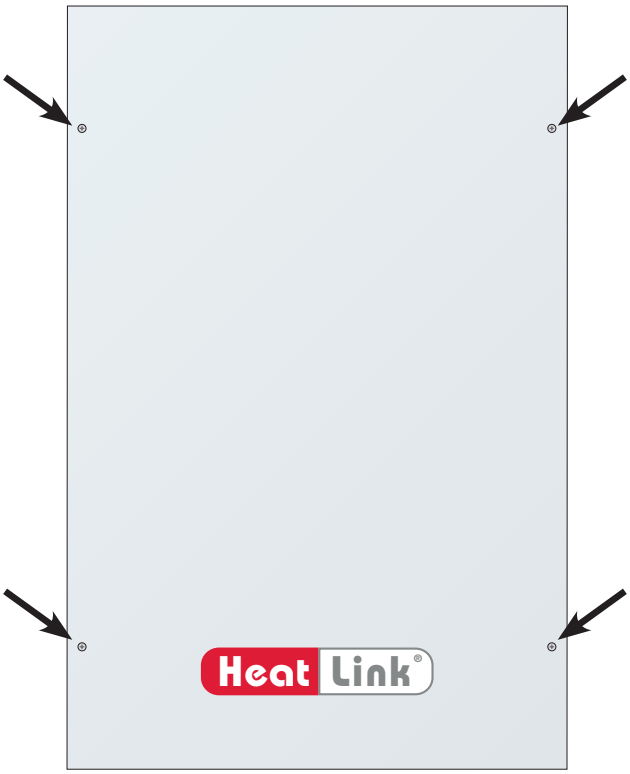
Unpacking

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

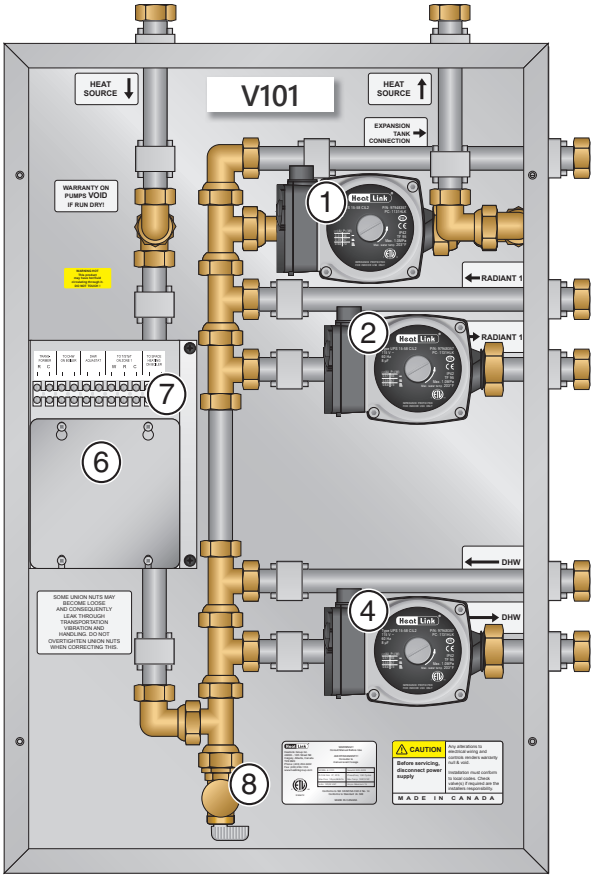
Step 2 Open the carton by removing the staples.

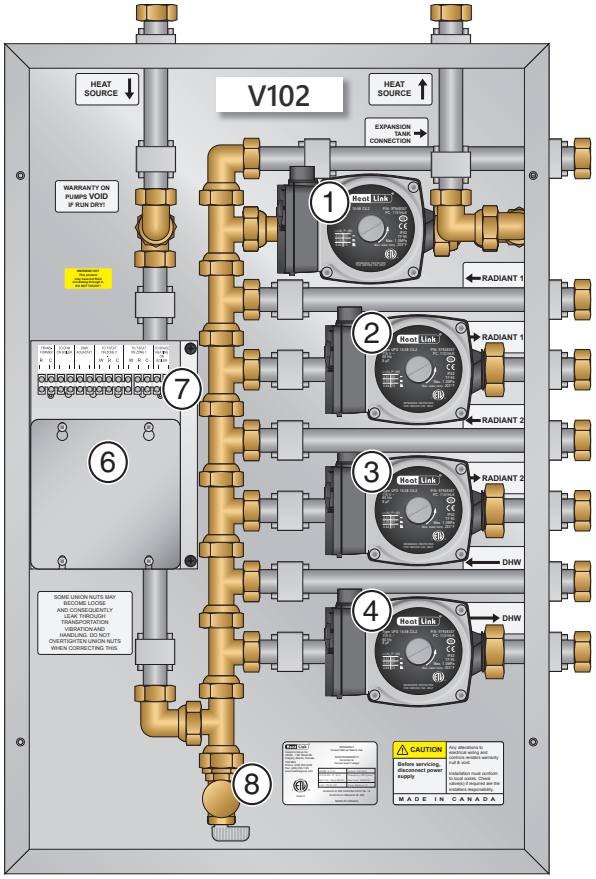
Step 3 Remove the cardboard spacers from the carton, then remove the panel from the carton. Lift the panel by the base, not the enclosure.

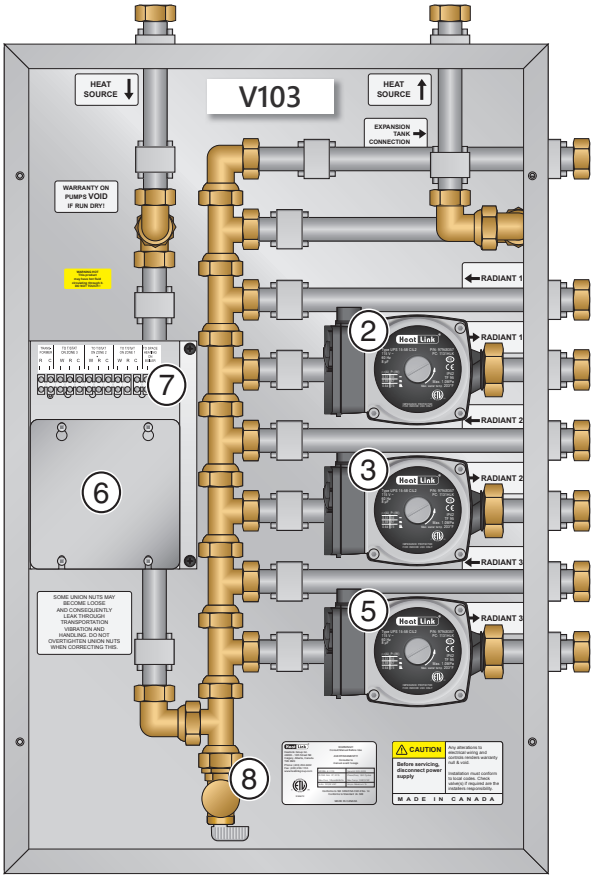
Step 4 Remove the four (4) black screws securing the cover to the enclosure. Save the screws in order to replace the cover once the installation is complete.

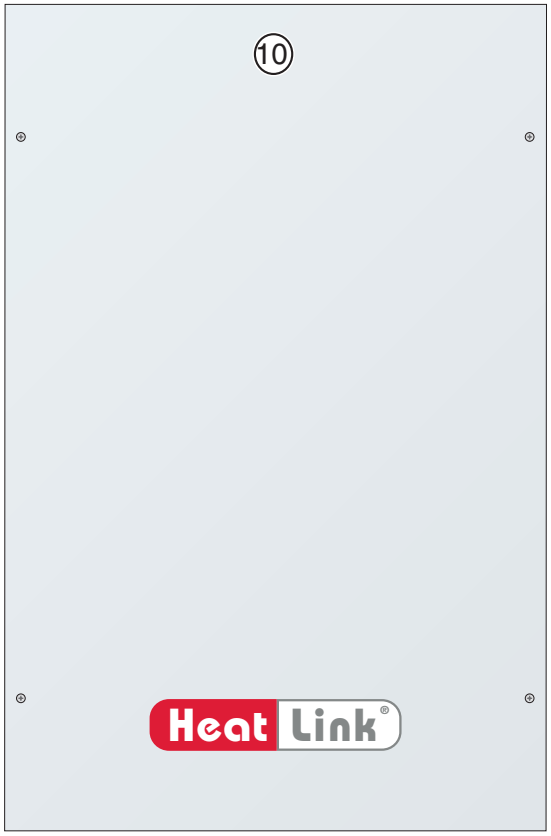


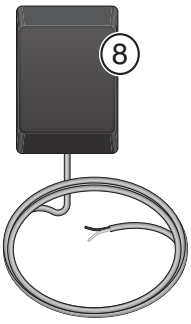
Panel Configurations

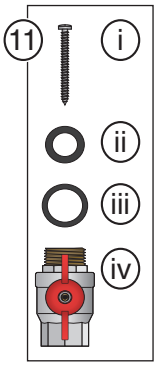












Panel Components

#	Components		Component Description	Part Number (Qty.)		
				V101	V102	V103
1	Primary pump		System pump.	PUMP1558		n/a
2	Radiant pump 1		Radiant zone 1 pump.	PUMP1558		
3	Radiant pump 2		Radiant zone 2 pump.	n/a	PUMP1558	
4	DHW pump		Domestic hot water pump.	PUMP1558		n/a
5	Radiant pump 3		Radiant zone 3 pump.	n/a	n/a	PUMP1558
6	Electrical box		Contains panel wiring	Electrical box		
7	Terminal strip		Connection block for aquatstat 24V transformer, thermostats, etc	Terminal strip		
8	24V(ac) plug-in transformer		Provides power to the panel electronics	PLINTR20VA		
9	Fill Valve		Used during fill and purge, or to drain panel for servicing.	Fill valve		
10	Cover		White, powder-coated	(×1)		
11	Accessory pack		Panel installation accessories*	ACCV101	ACCV102	ACCV103
	i	Mounting screw	Panel mounting screws.	(×4)	(×4)	(×4)
	ii	¾" Nitrile washer	Washers for installation of ¾" isolation valves, plus (4) spares.	NTRWSH34 (×10)	NTRWSH34 (×12)	NTRWSH34 (×10)
	iii	1" Nitrile washer	Spare washers (2) for pumps.	NTRWSH1 (×4)	NTRWSH1 (×4)	NTRWSH1 (×4)
	iv	¾" MSBP×FNPT Isolation valve	Ball valve for zones and boiler connections used to isolate the panel from the system during fill & purge, and maintenance.	(×6)	(×8)	(×4)

**Contact your HeatLink representative if the accessory pack is missing in whole or in part.*

Specifications & Listings

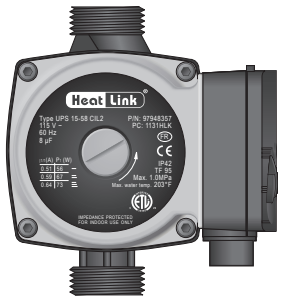
Headings	V101	V102	V103
Listing	cETLus		
Conforms to	CAN/CSA-C22 No.14, UL508		
Dimensions	26.566"H × 17.609"W × 7.628"D		
Weight	61 lbs.	69 lbs.	61 lbs.
Nominal panel output	80,000 Btu/hr	100,000 Btu/hr	100,000 Btu/hr
Max ambient temperature	120ºF (49ºC)		
Min. operating temperature	40ºF (4ºC)		
Max operating temperature	200°F (93°C)		
Max operating pressure	125 psi (862 kPa)		
Power supply	120 V(ac)/24 V(ac) 60 Hz		
Primary pump	Non-ferrous, Grundfos UPS15-58		n/a
DHW pump	Non-ferrous, Grundfos UPS15-58		n/a
Radant pump 1	Non-ferrous, Grundfos UPS15-58		
Radiant pump 2	n/a	Non-ferrous, Grundfos UPS15-58	
Radaint pump 3	n/a	n/a	Non-ferrous, Grundfos UPS15-58
Auxiliary terminal	2 dry contacts, max. load 1.5A		
Piping	¾" 304 stainless steel tubing		
Piping connections	¾" & 1" FNPT		
Backplate	16 gauge galvanized steel		
Enclosure	Powder coated steel		

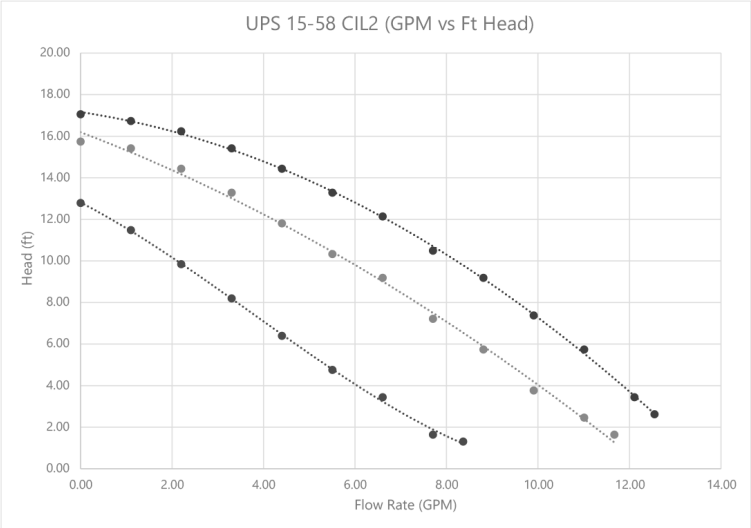
Pumps

The pumps moves the heated fluid through the hydronic system when there is a call for heat from the thermostat.

Specifications:

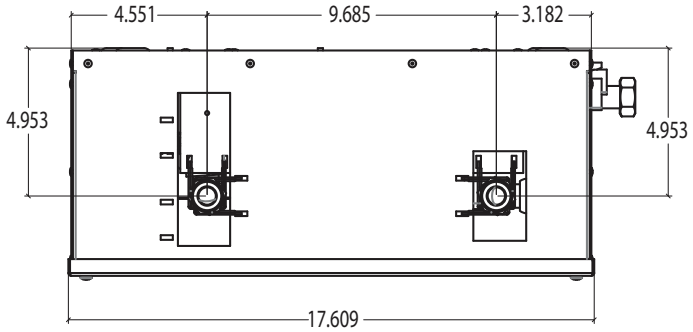
- The following pump curves apply.



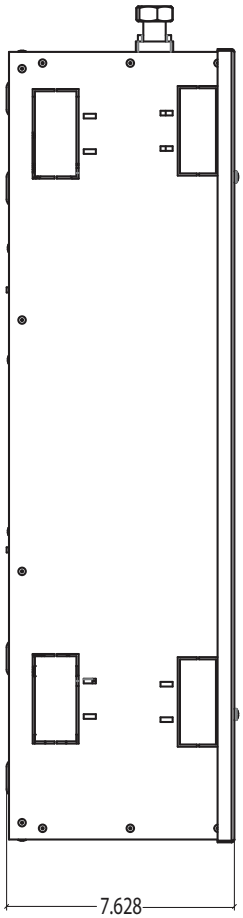


Dimensions

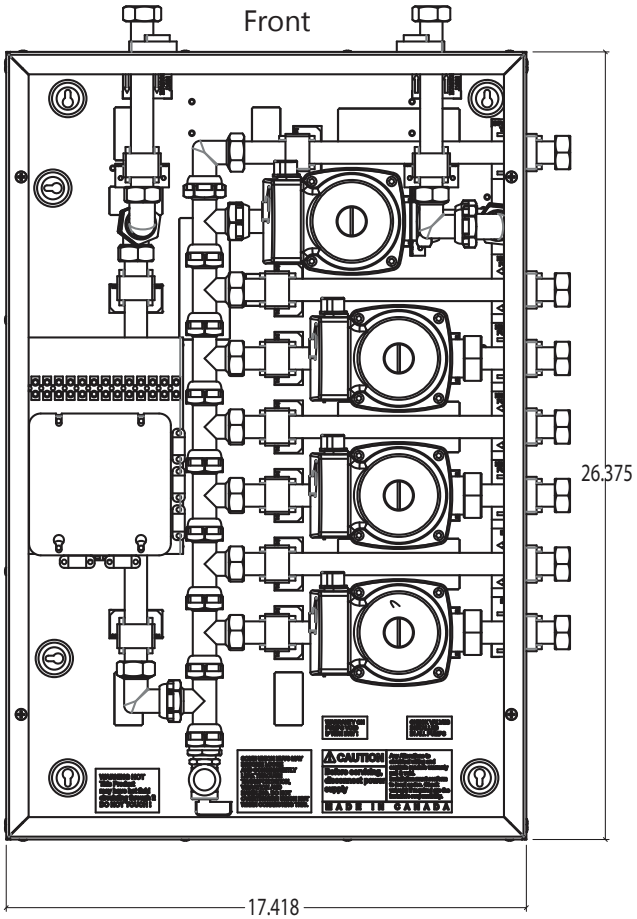
Top



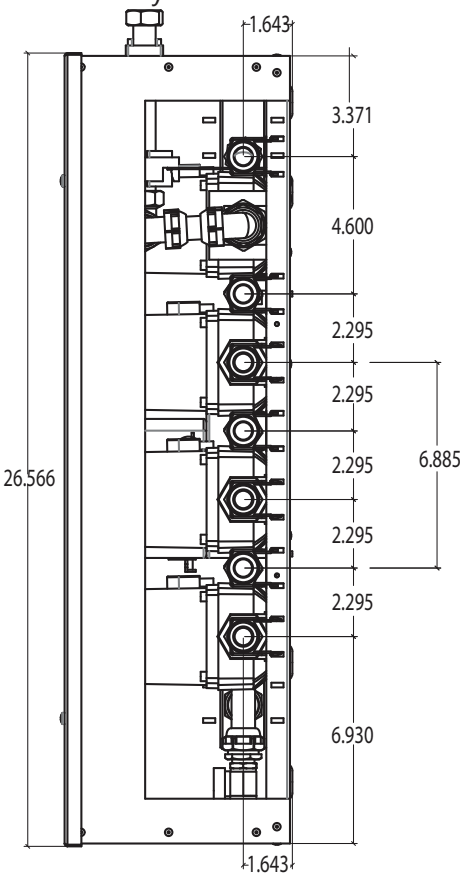
Side - Boiler Conns.



Front



Side - System Conns.



Panel Mounting

Prior to mounting the panel, ensure the wall is capable of supporting the weight of the panel, and that all required power outlets and/or wiring is available at the installation location. Depending on the position of your boiler, it may not be possible to secure the panel directly to the studs, or suitable backing boards, and plywood may need to be installed behind the panel to properly secure it in place.

The panel must be installed on the same wall plane in order to ensure that the boiler piping lines up properly.

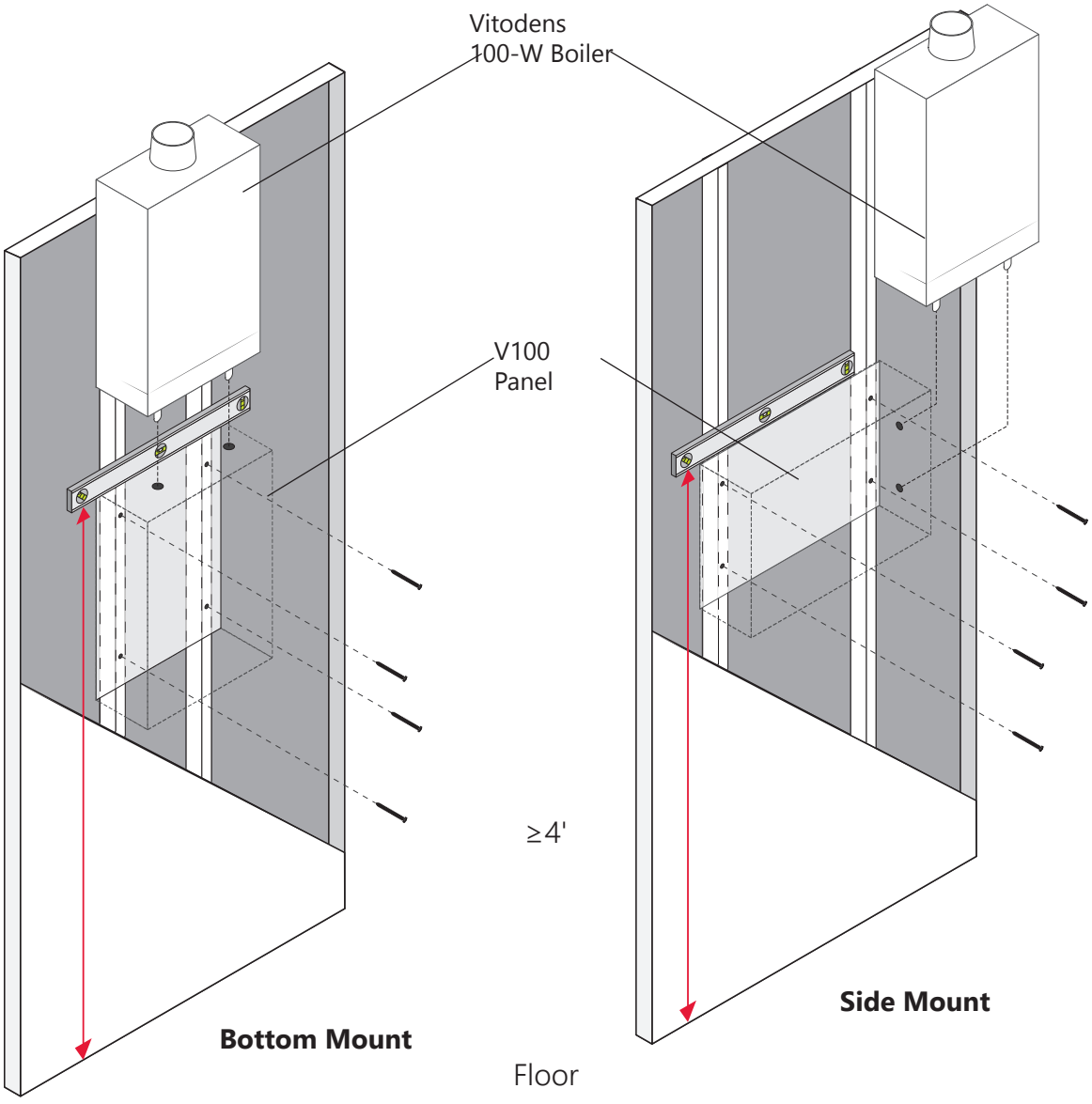
The top of the panel should be a minimum of 4 feet from the floor, and can be mounted directly below the boiler, or sideways below and to the left of the boiler with the zone connections toward the floor.

Step 1 Align and level the panel inlet/outlet piping with the boiler outlet/inlet piping.

Step 2 Secure the panel in place with supplied screws.

Step 3 Connect the boiler to the panel isolation valves.

Step 4 Refer to piping hookup and fill and purge.



Piping Hookup

You will need 2 x 30mm, or large adjustable (Crescent®) or smooth jaw pipe wrenches to tighten fittings.

The supplied washers (B) must be used for all panel connections - do not overtighten the panel connections, as this will damage the rubber washers.

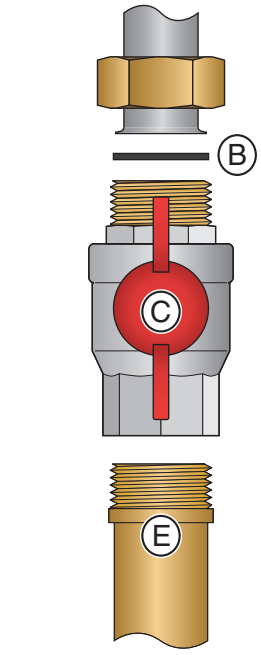
Step 1 Connect the ball valves (C) to the boiler piping (E) (fig. 1). Additional piping may be used as needed.

Step 2 Connect the ball valves to the panel piping, ensuring the washer (B) is seated properly.

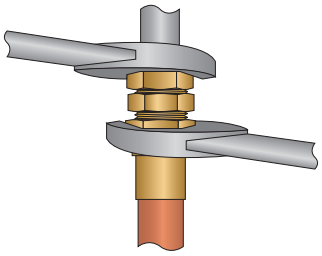
Step 3 Connect the ball valves (C) to copper pipe or PEX tubing using a MNPT fitting (D), or adapter.

Step 4 First finger tighten the valves, then use wrenches, being careful not to overtighten.

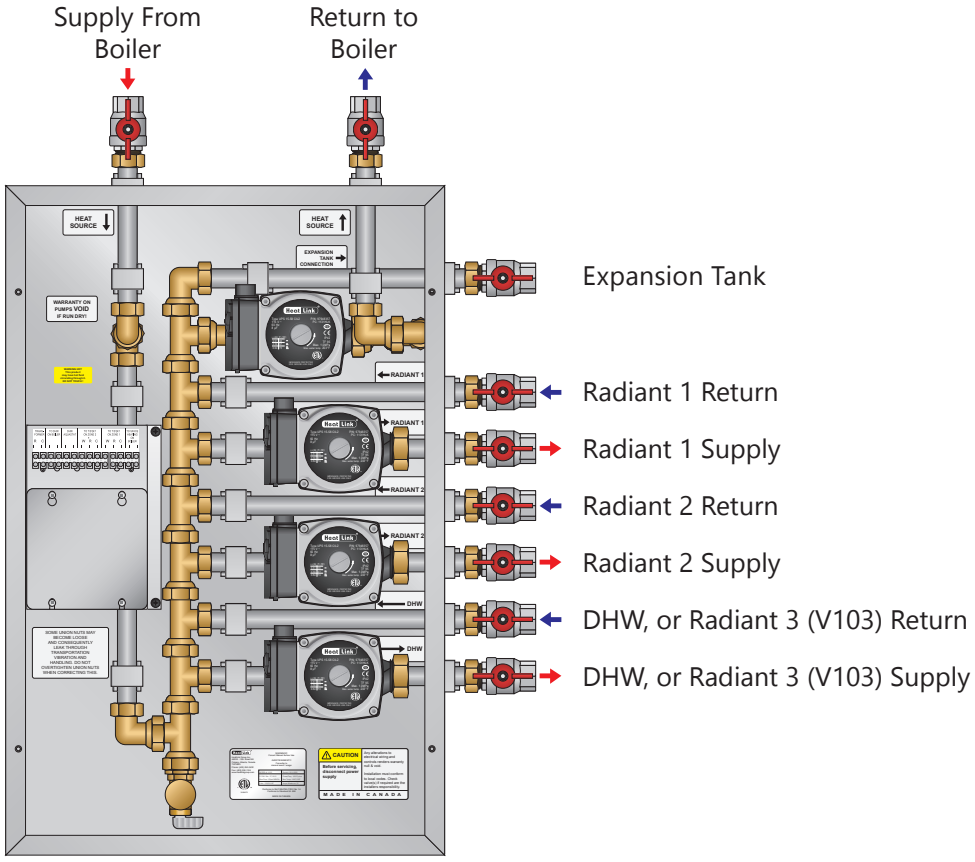
Step 5 Connect the ball valves to the panel piping, ensuring the washer (B) is seated properly.



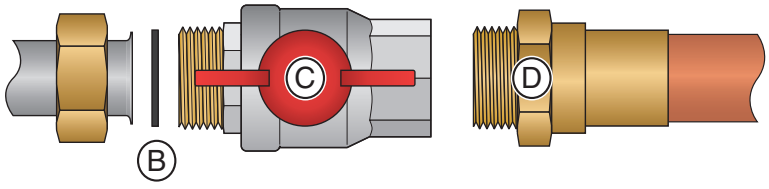
Boiler Connections



Always use a Backup Wrench
Do not overtighten brass nuts!



System Connections



Fill & Purge

Step 1 The following steps are recommended in order to fill the panel with water and purge entrained air once piping is completed, and before activation of the panel.

Step 2 Note:Additional purging steps may be required for the rest of the hydronic system.

Step 3 Ensure the panel is not plugged in.

Step 4 Fully close valves Ⓐ, Ⓑ, Ⓒ, Ⓓ, Ⓔ, Ⓕ, Ⓖ and Ⓗ.

Step 5 Attach a fill hose and a purge hose (not included) to the Heating Manifolds connected to valves Ⓒ and Ⓓ .

Step 6 Fill the system.

Step 7 When the water coming out of the purge hose is free of bubbles fully open valves Ⓒ and Ⓓ.

Step 8 When exiting water from manifold is free of bubbles, close valve Ⓒ and Ⓓ.

Step 9 Repeat for valves Ⓔ & Ⓕ .

Step 10 Repeat for valves Ⓐ & Ⓑ (DHW), and purge from drain point and indirect tank.

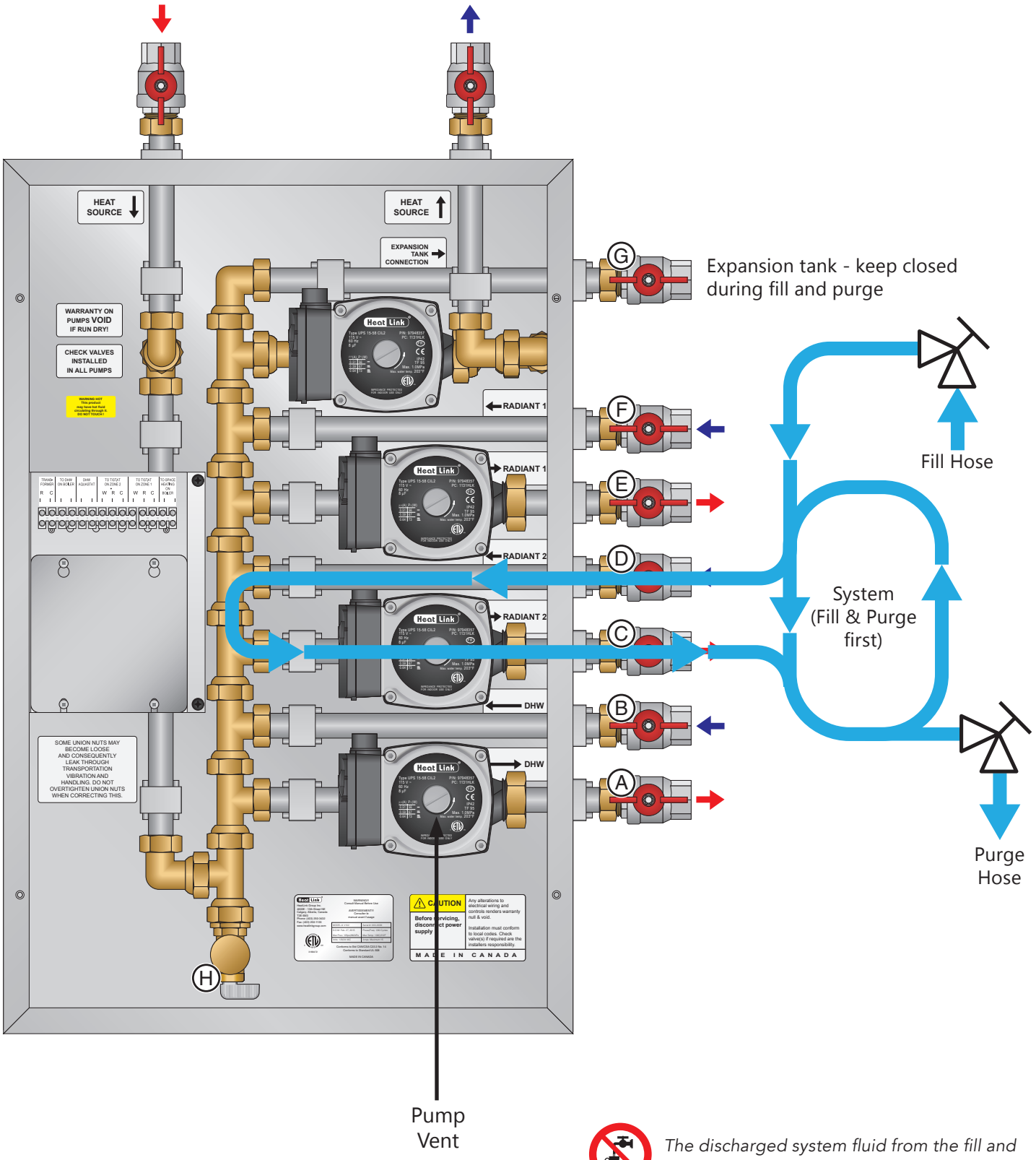
Step 11 Remove hoses from manifolds and fully open valves Ⓐ, Ⓑ, Ⓒ, Ⓓ, Ⓔ, Ⓕ, and Ⓖ. (Ⓗ Should only be used to drain the panel during maintenance or service.)

Step 12 Vent all pumps (use a large flat head screwdriver to avoid damage to vents) before starting the system.

Step 13 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 14 Pressurize system to the required operating pressure.

Fill & Purge Diagram

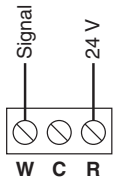


The discharged system fluid from the fill and purge process is not for consumption or washing.

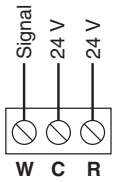
Panel Wiring

Thermostat Wiring

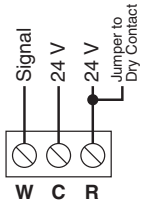
- 24V low voltage power may be supplied to the thermostat. Wiring of thermostat should be done by qualified electrician and should meet local codes and jurisdictions. Wiring to the terminal strip requires 18 gauge wire.
- **Do not exceed 2VA per thermostat.**
- **Do not cross terminals *C* and *R***



2-Wire Thermostat or StatLink®
(battery only or non-electric)



3-Wire Thermostat
(HeatLink thermostats)



4-Wire Thermostat
(with dry contact signal)

See following pages for panel wiring diagrams and panel control sequences.

Panel Control Sequence V101

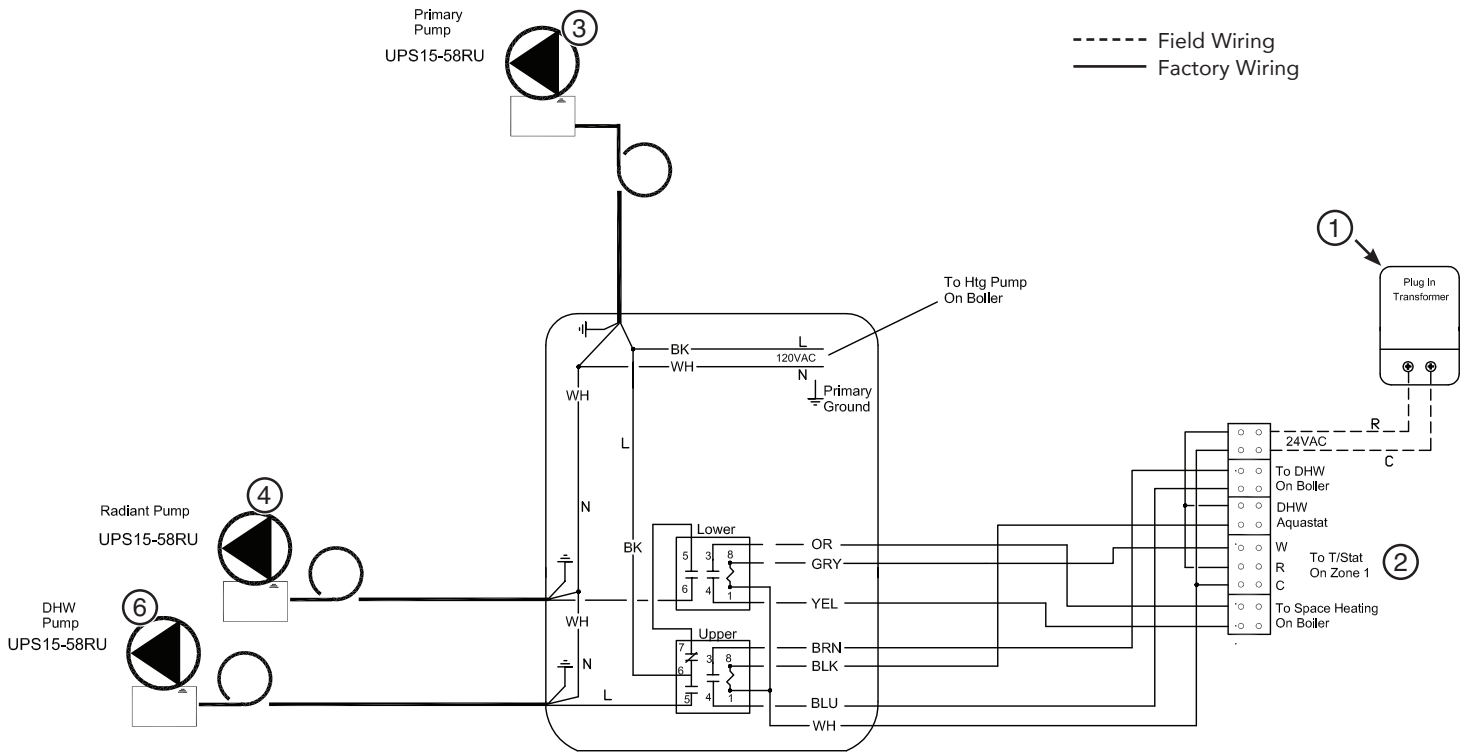
Sequence of Operations – Space Heating

With 110V connections made to the boiler and the transformer ① plugged in, a heat demand from the room thermostat ② will close its relay in the panel and send a heating demand to the boiler. The boiler will turn on the Primary ③ pump and Radiant ④ pump. The supply water temp is determined by the boiler. When the heat demand is removed, the Radiant ④ pump will stop and the Primary ③ pump will continue to run for as long as the boiler control requires.

Sequence of Operations – DHW

A demand from the DHW aquastat will close its relay in the panel, disable the Radiant ④ pump (if running), and send a DHW demand to the boiler. The boiler will turn on the Primary ③ and DHW ⑥ pumps and change the supply water temp according to its settings. When the DHW demand is removed, the DHW ⑥ pump will stop and the Primary ③ pump will continue to run for as long as the boiler control requires.

- 24V low voltage power may be supplied to the thermostat. Wiring to the terminal strip requires 18 gauge wire.
- All wiring should be done by a qualified electrician and should meet local codes and jurisdictions.



Panel Control Sequence V102

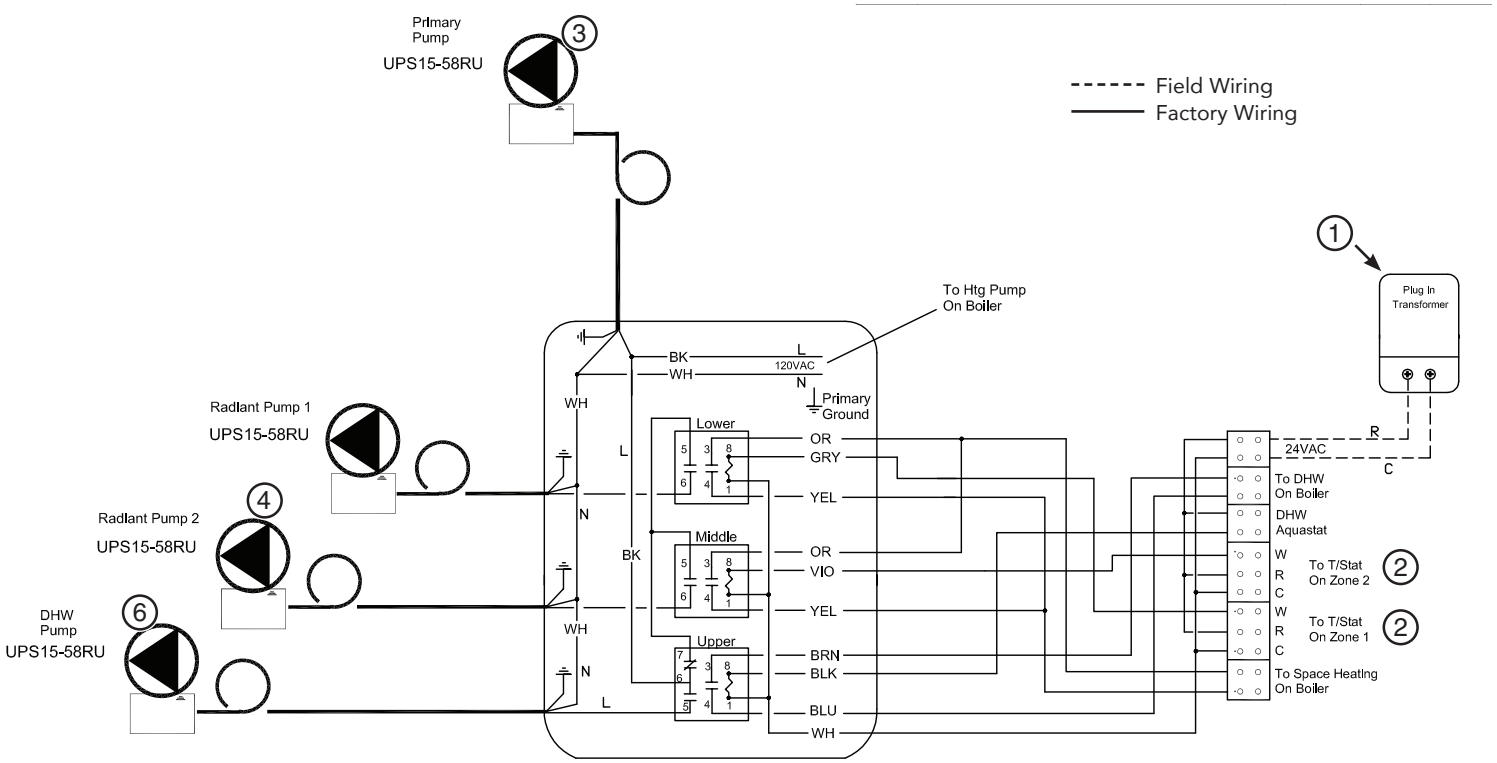
Sequence of Operations – Space Heating

With 110V connections made to the boiler and the transformer ① plugged in, a heat demand from either room thermostat ② will close its corresponding relay in the panel and send a heating demand to the boiler. The boiler will turn on the Primary ③ pump and appropriate Radiant ④⑤ pump. The supply water temp is determined by the boiler. When the heat demand is removed, the Radiant ④⑤ pumps will stop and the Primary ③ pump will continue to run for as long as the boiler control requires.

Sequence of Operations – DHW

A demand from the DHW aquastat will close its relay in the panel, disable the Radiant ④⑤ pumps (if running), and send a DHW demand to the boiler. The boiler will turn on the Primary ③ and DHW ⑥ pumps and change the supply water temp according to its settings. When the DHW demand is removed, the DHW ⑥ pump will stop and the Primary ③ pump will continue to run for as long as the boiler control requires.

- 24V low voltage power may be supplied to the thermostat. Wiring to the terminal strip requires 18 gauge wire.
- All wiring should be done by a qualified electrician and should meet local codes and jurisdictions.



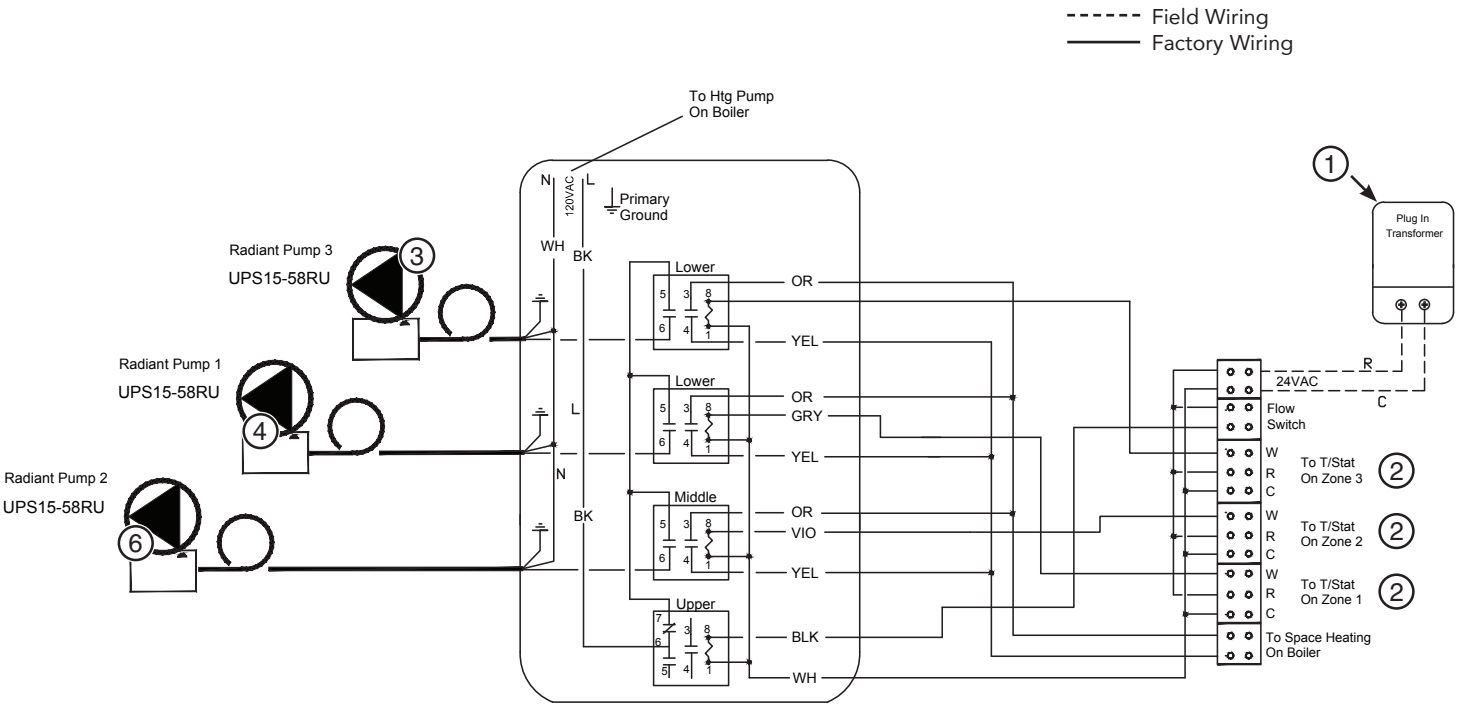
Panel Control Sequence V103

Sequence of Operations – Space Heating

Note: The Vitodens 100-W BIHA-35 boiler contains its own primary pump - for boiler control sequences see your boiler manual.

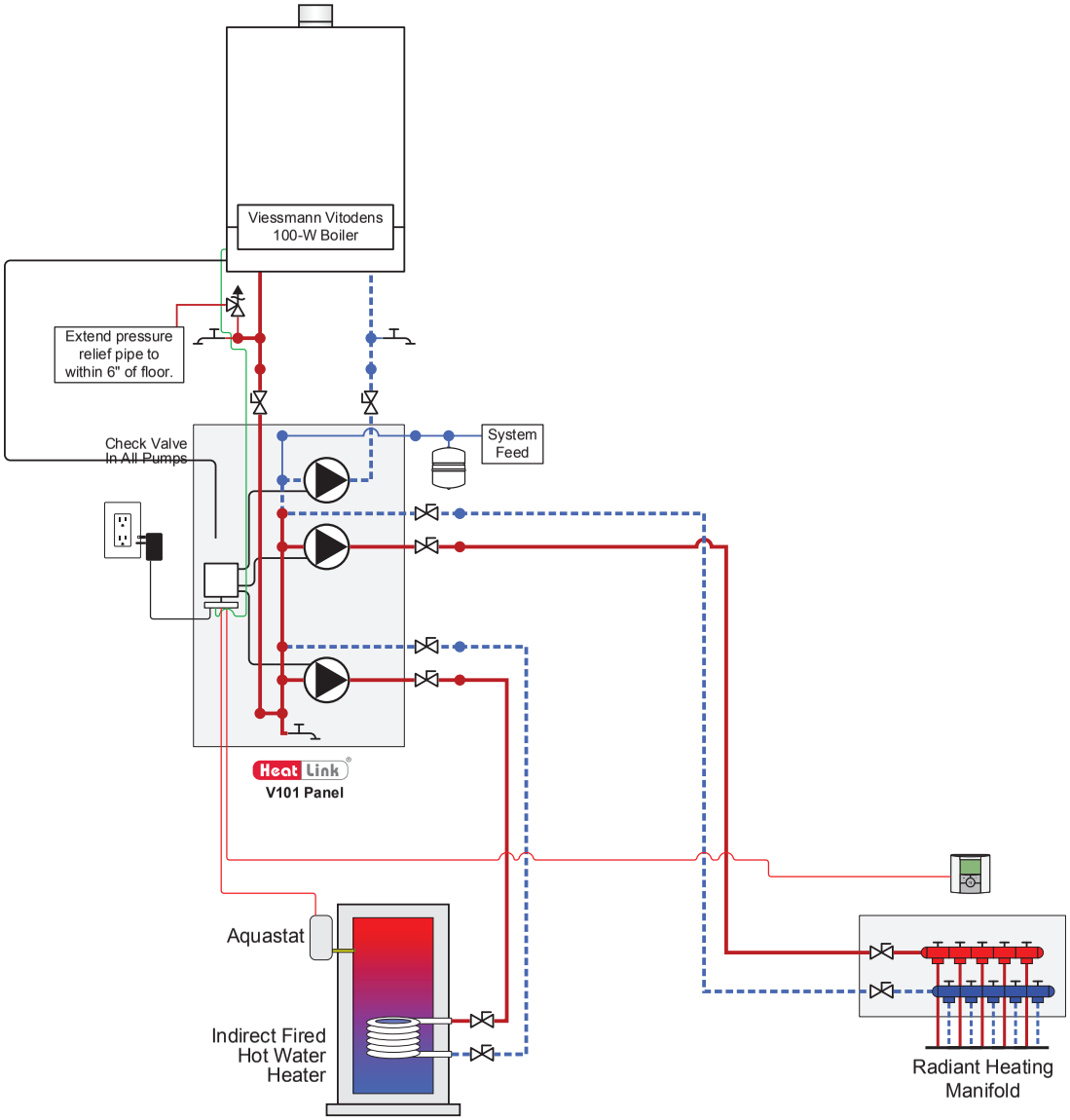
With 110V connections made to the boiler and the transformer ① plugged in, a heat demand from any room thermostat ② will close its corresponding relay in the panel and send a heating demand to the boiler and enabling its corresponding pump. The boiler supplies power to turn on the pump(s). The supply water temp is determined by the boiler. When the thermostat heat demand is removed, the corresponding relay in the panel will open, disabling it's corresponding pump. If the thermostat was only one that had a heat demand, the heat demand to the boiler will also end, and the boiler will shut off power to the pumps.

- 24V low voltage power may be supplied to the thermostat. Wiring to the terminal strip requires 18 gauge wire.
- All wiring should be done by a qualified electrician and should meet local codes and jurisdictions.



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.
	Pump is not on during a call for heat. (Use a stethoscope or similar device to verify)	The pump 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 pump.
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.



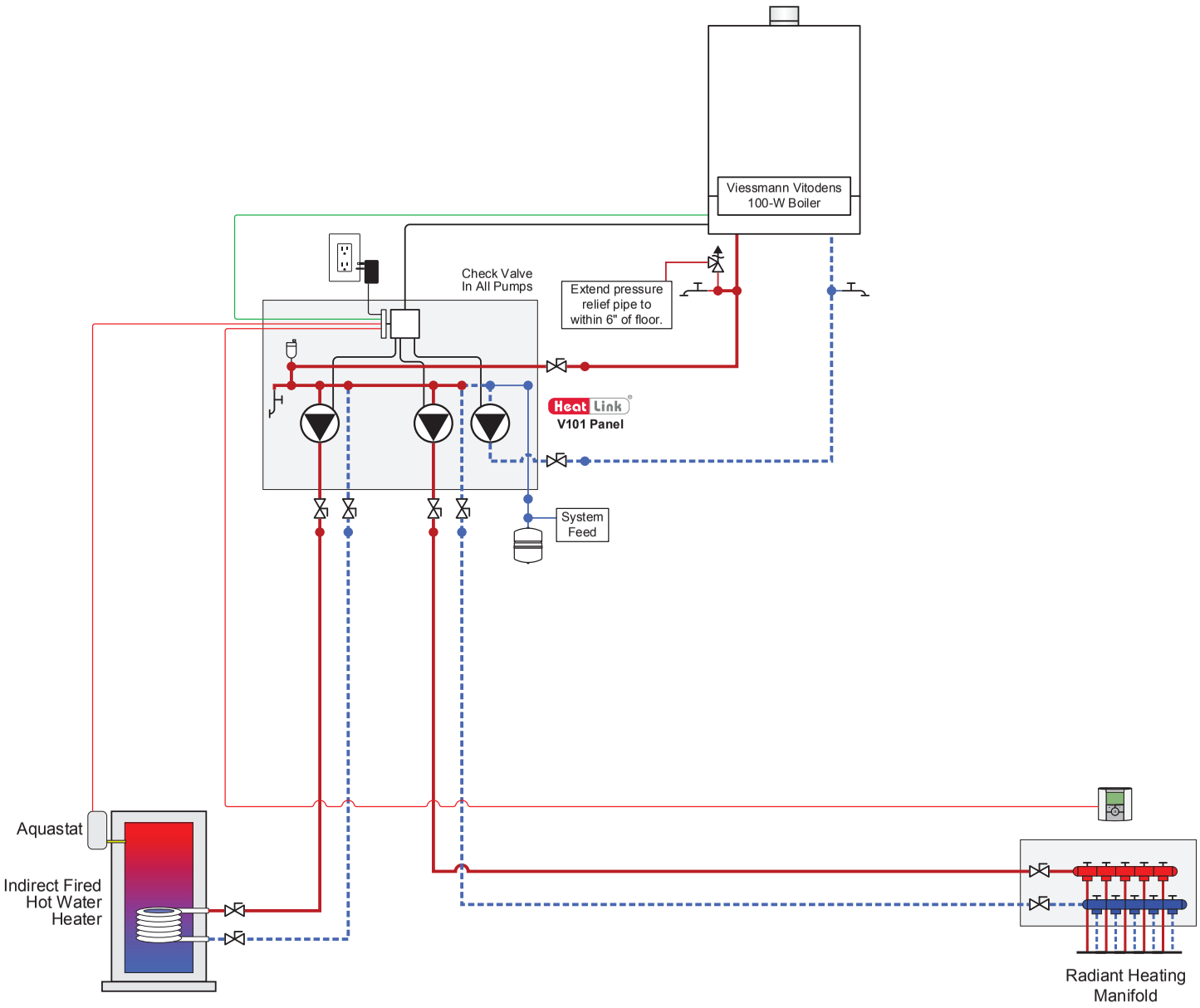
Heat Link®
www.heatlink.com
1-866-661-5332

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: Viessmann Vitodens 100-W Boiler
Panel(s): V101
Heat Load(s): IFHWH, Radiant Heating

Date: 2015-07-06

Schematic #: **SCH-V100-M001**
Rough-in wiring see: SCH-MRIB-R001
Wiring detail see: SCH-V100-E001



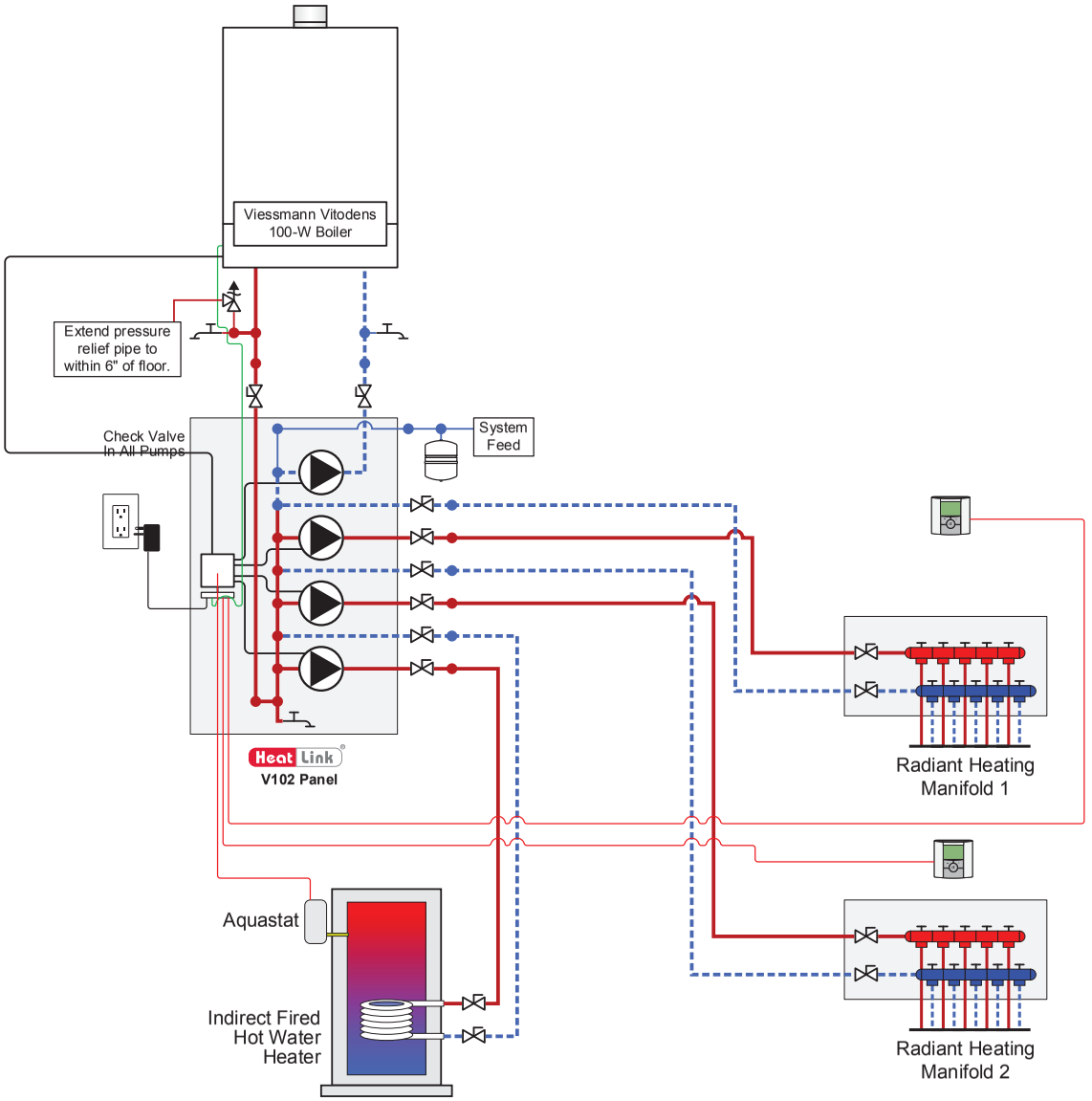
Heat Link®
www.heatlink.com
1-866-661-5332

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: Viessmann Vitodens 100-W Boiler
Panel(s): V101
Heat Load(s): IFHWH, Radiant Heating

Date: 2015-07-06

Schematic #: **SCH-V100-M002**
Rough-in wiring see: SCH-MRIB-R001
Wiring detail see: SCH-V100-E001



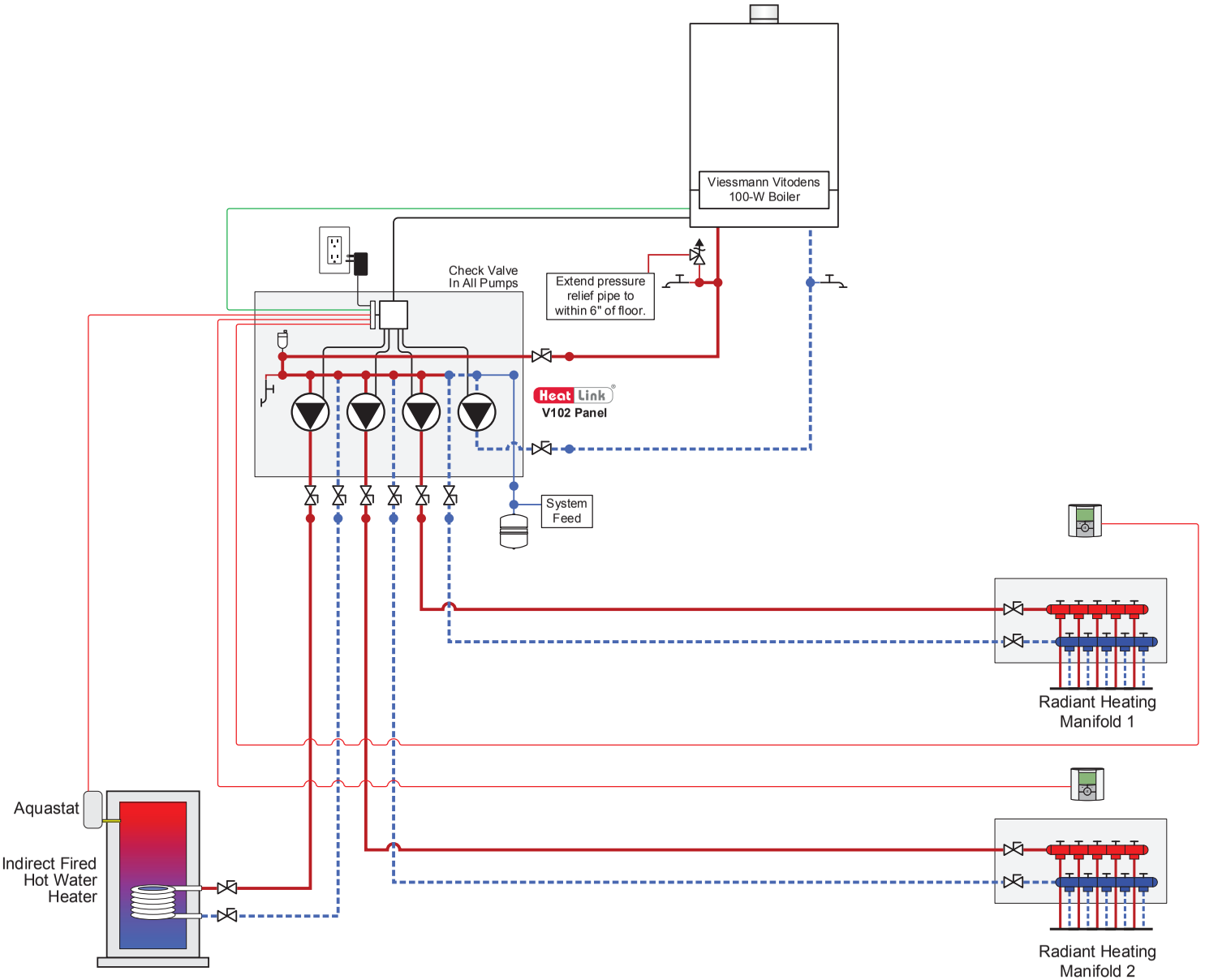
Heat Link®
www.heatlink.com
1-866-661-5332

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: Viessmann Vitodens 100-W Boiler
Panel(s): V102
Heat Load(s): IFHWH, Radiant Heating

Date: 2015-07-06

Schematic #: **SCH-V100-M003**
Rough-in wiring see: SCH-MRIB-R001
Wiring detail see: SCH-V100-E002



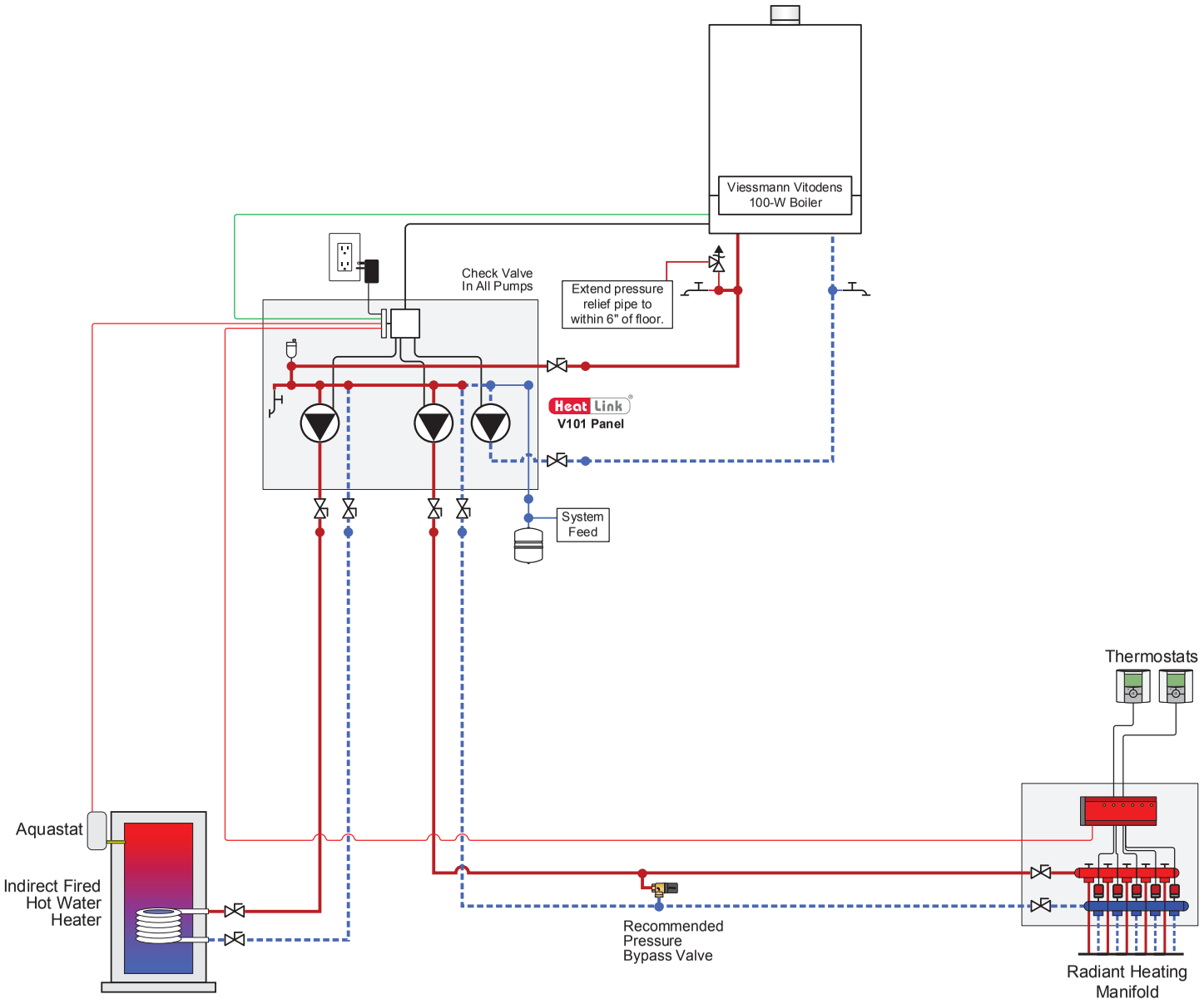
Heat Link®
www.heatlink.com
1-866-661-5332

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: Viessmann Vitodens 100-W Boiler
Panel(s): V102
Heat Load(s): IFHWH, Radiant Heating

Date: 2015-07-06

Schematic #: **SCH-V100-M004**
Rough-in wiring see: SCH-MRIB-R001
Wiring detail see: SCH-V100-E002



Heat Link®

www.heatlink.com
1-866-661-5332

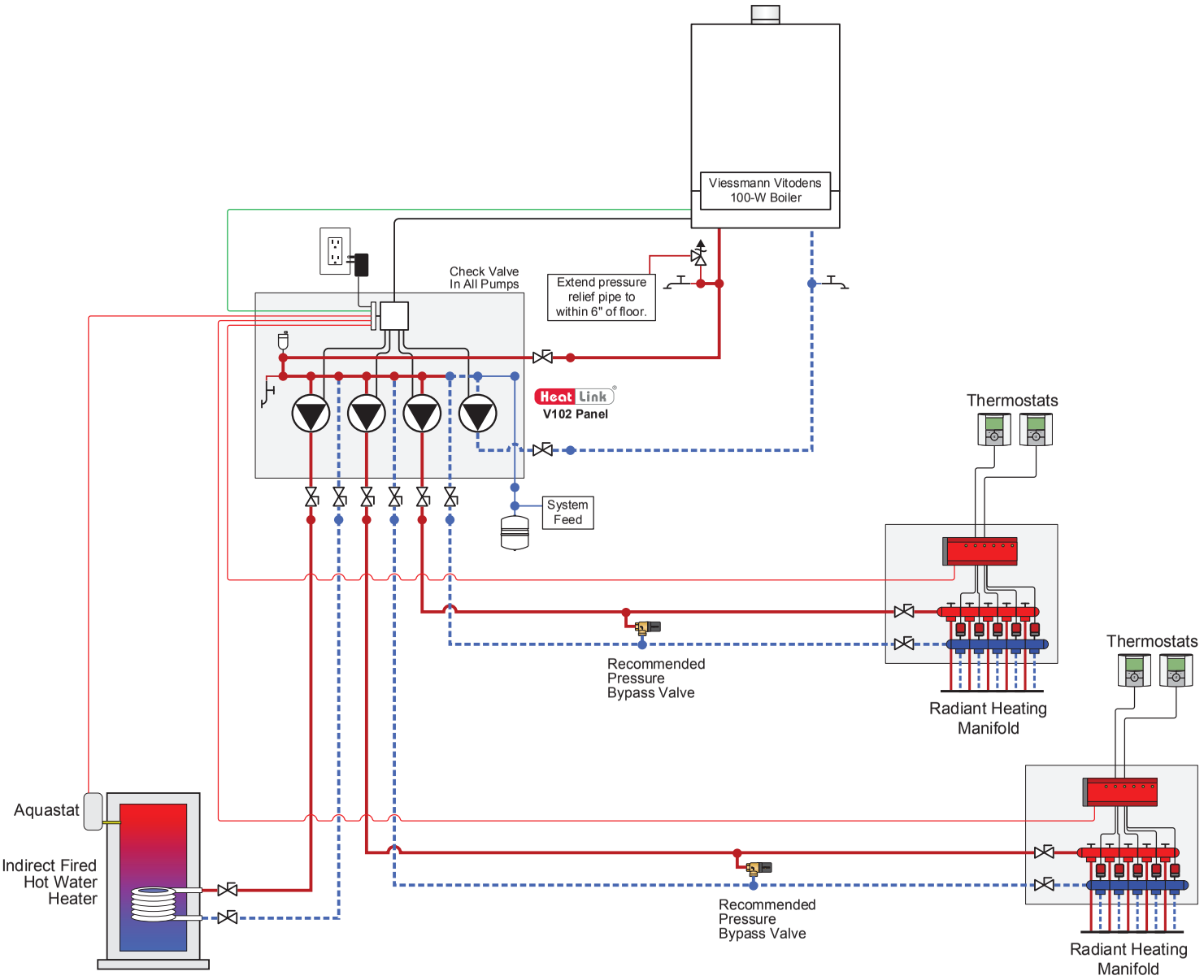
Notes:

- 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: Viessmann Vitodens 100-W Boiler
Panel(s): V101
Heat Load(s): IFHWH, Radiant Heating

Date: 2015-07-06

Schematic #: **SCH-V100-M005**
Rough-in wiring see: SCH-MRIB-R002
Wiring detail see: SCH-V100-E003



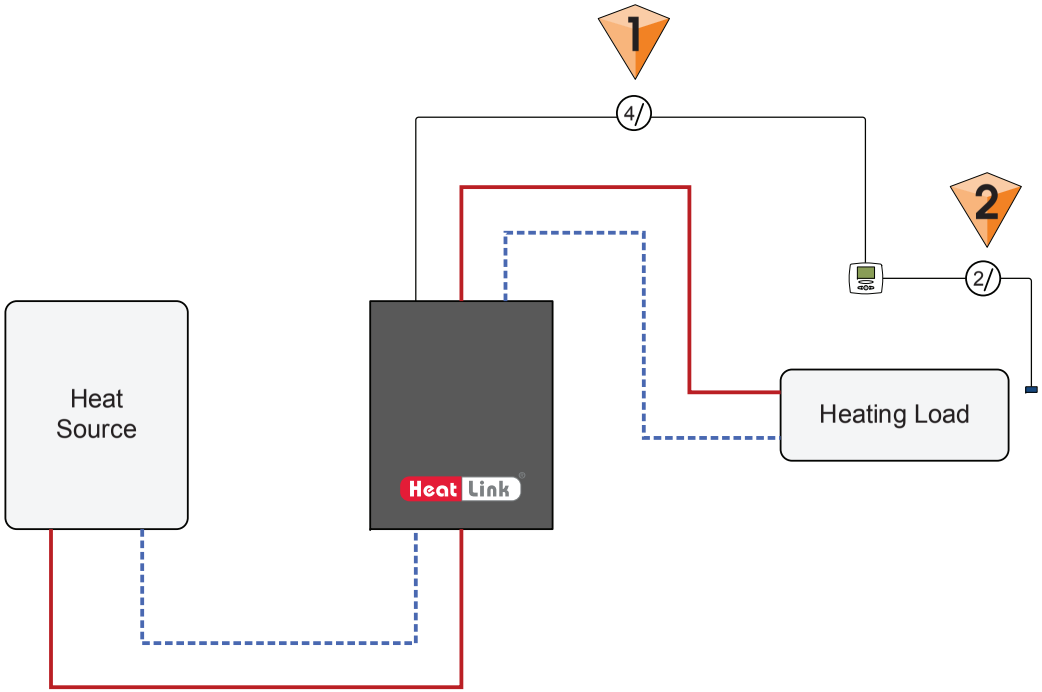
Heat Link®
www.heatlink.com
1-866-661-5332

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: Viessmann Vitodens 100-W Boiler
Panel(s): V102
Heat Load(s): IFHWH, Radiant Heating

Date: 2015-07-06

Schematic #: **SCH-V100-M006**
Rough-in wiring see: SCH-MRIB-R002
Wiring detail see: SCH-V100-E004



1 **Room Thermostat**
Standard 4-wire to be run from thermostat to mechanical room.

2 **Floor Sensor (optional)**
Standard 2-wire to be run from thermostat to floor sensor.

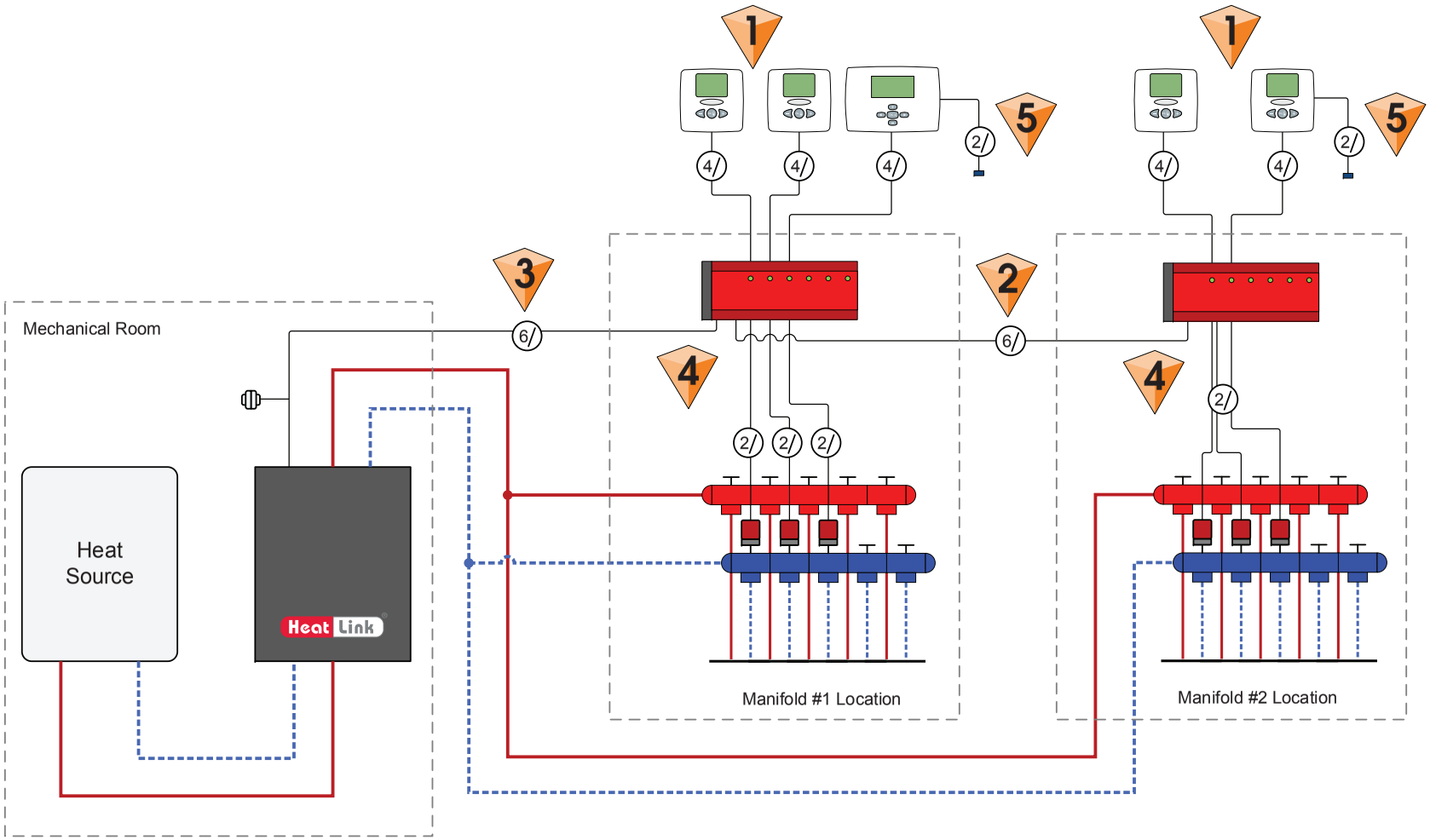
Heat Link®
www.heatlinkgroup.com
1-866-661-5332

Notes:
- Drawings are for HeatLink suggested electrical schematics only! User must determine if electrical schematic will work for their particular application. User must also confirm all HeatLink schematics with manufacturer schematics of each particular control chosen.
- In all cases manufacturer equipment schematics will take precedence over HeatLink electrical schematics.
- Local codes, regulations, and authorities have final jurisdiction.

Application: Rough-in Wiring for One Zone Heating

Date: 2012-10-19

Schematic #: **SCH-MRIB-R001**



1 Room Thermostats
Standard 4-wire to be run from each zone back to the corresponding manifold location.

2 6-wire Jumper
6-wire to be run between each manifold location. This allows for the transfer of the clock signal, heat demand information, and power from module to module.

3 6-wire Jumper
6-wire to be run from the last manifold location to the mechanical room. This allows for the transfer of the clock signal, heat demand information, and power.

4 Optional
Allow for 110V power source to a 24V transformer at each manifold location instead of supplying 24V power from the mechanical room.

5 Floor Sensor (optional)
Standard 2-wire to be run from thermostat to floor sensor.

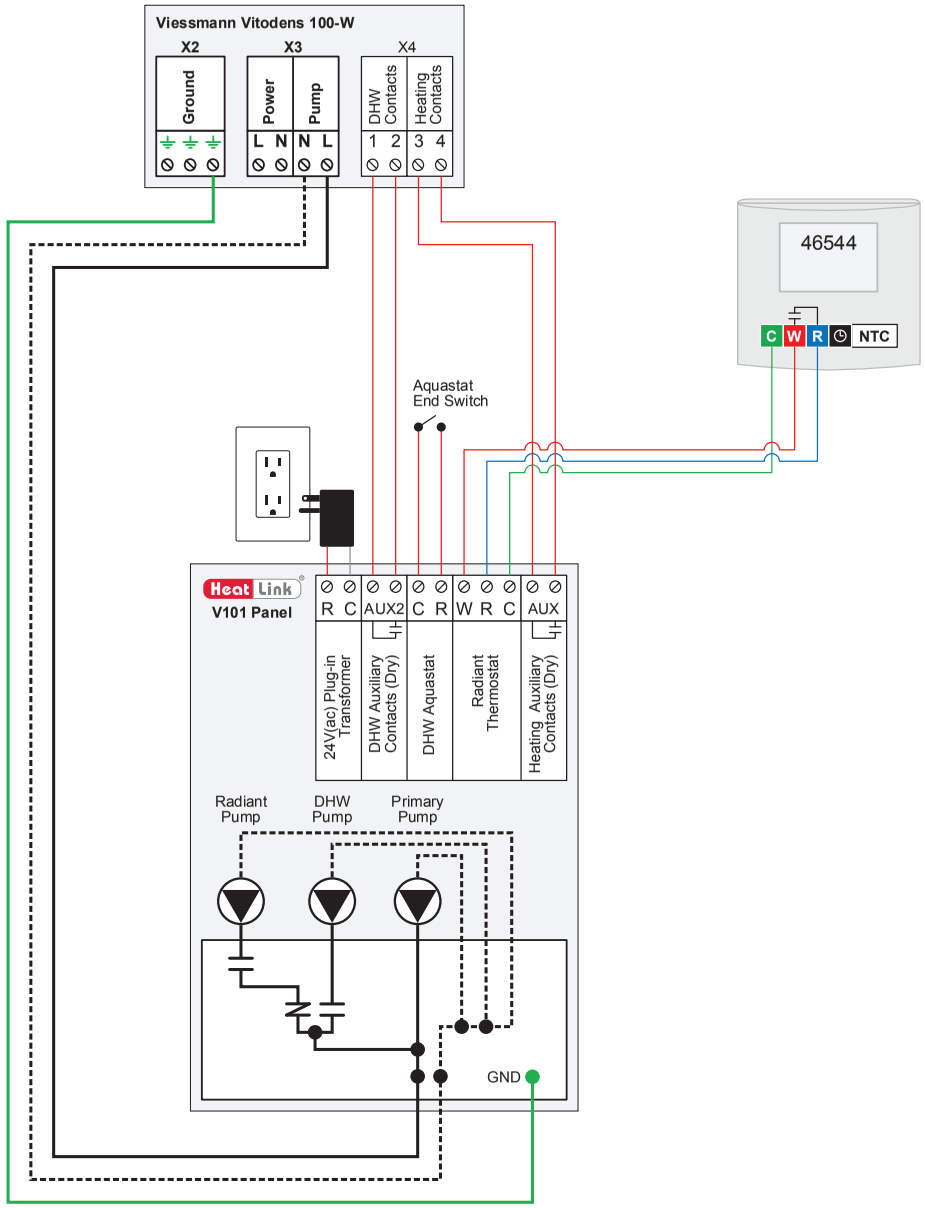
Heat Link®
www.heatlinkgroup.com
1-866-661-5332

Notes:
- Drawings are for HeatLink suggested electrical schematics only! User must determine if electrical schematic will work for their particular application. User must also confirm all HeatLink schematics with manufacturer schematics of each particular control chosen.
- In all cases manufacturer equipment schematics will take precedence over HeatLink electrical schematics.
- Local codes, regulations, and authorities have final jurisdiction.

Application: Rough-in Wiring for Multiple Zone Heating with StatLink

Date: 2012-10-19

Schematic #: **SCH-MRIB-R002**



Heat Link®
www.heatlink.com
1-866-661-5332

Notes:

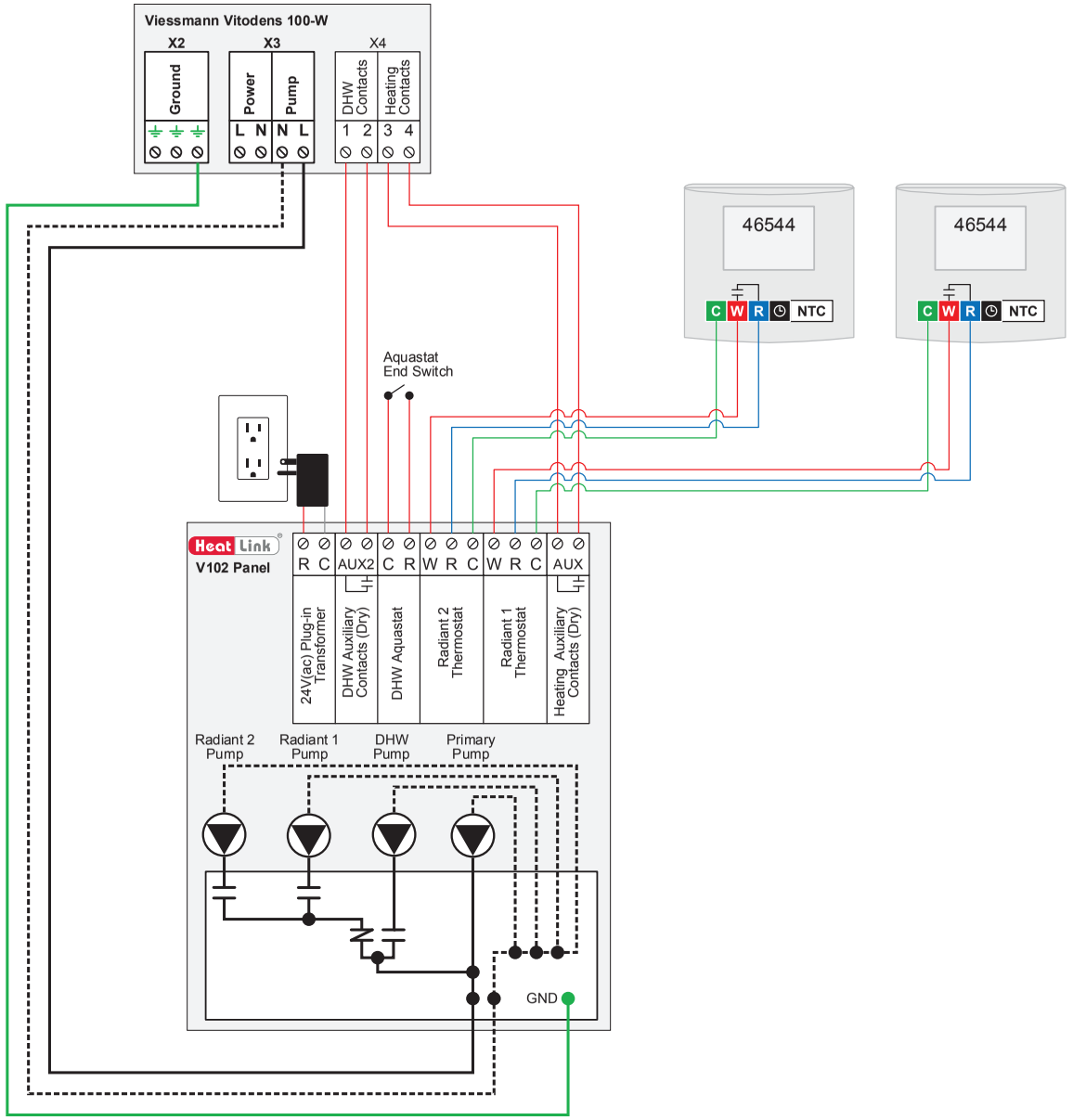
- Drawings are for HeatLink suggested electrical schematics only! User must determine if electrical schematic will work for their particular application. User must also confirm all HeatLink schematics with manufacturer schematics of each particular control chosen.
- In all cases manufacturer equipment schematics will take precedence over HeatLink electrical schematics.
- Local codes, regulations, and authorities have final jurisdiction.

Application: Radiant Heating and Indirect Fired Hot Water Heater

Schematic #: **SCH-V100-E001**

Rough-in wiring see: SCH-MRIB-R001

Date: 2014-08-21



Heat Link®
www.heatlink.com
1-866-661-5332

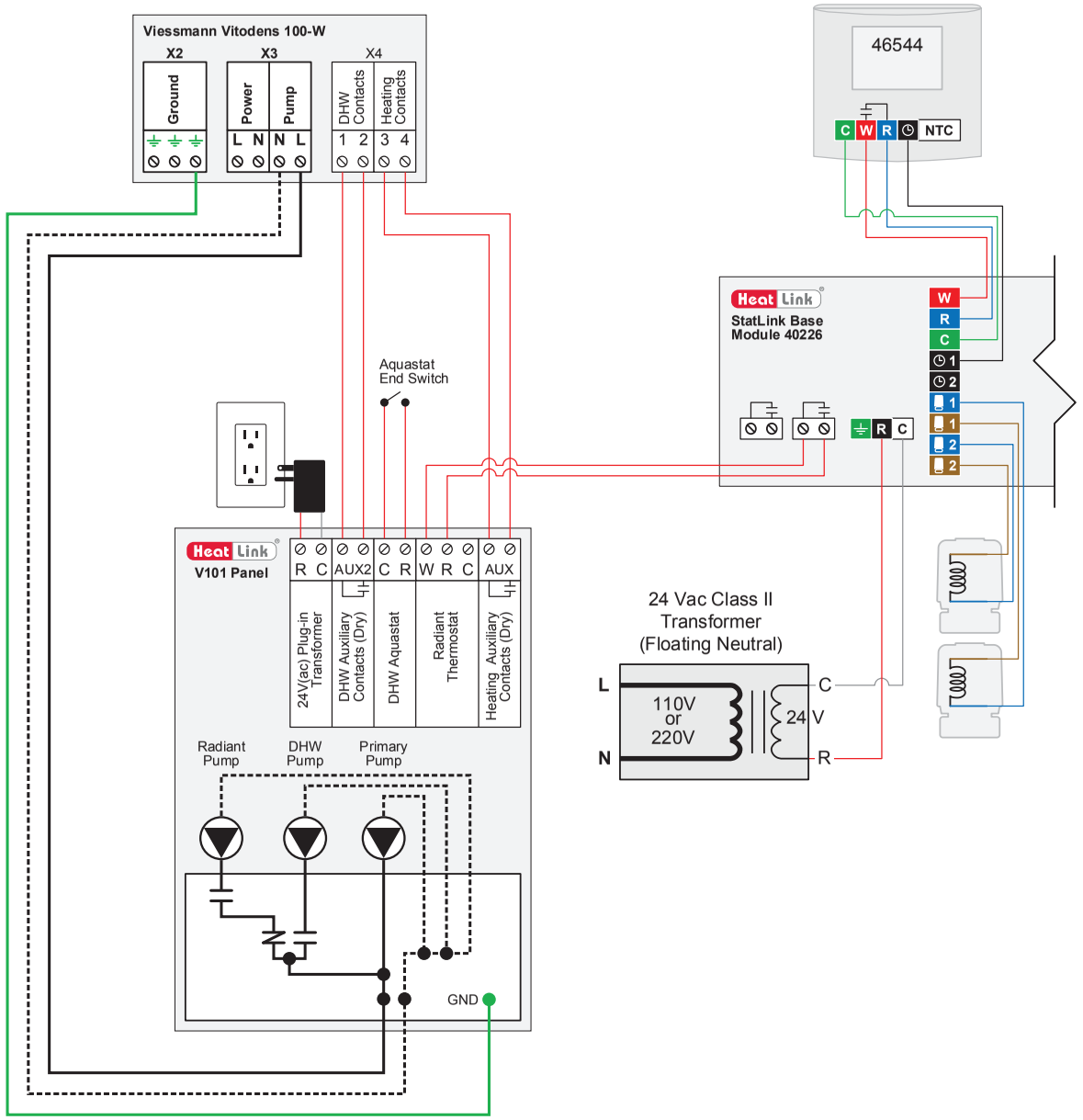
Notes:
- Drawings are for HeatLink suggested electrical schematics only! User must determine if electrical schematic will work for their particular application. User must also confirm all HeatLink schematics with manufacturer schematics of each particular control chosen.
- In all cases manufacturer equipment schematics will take precedence over HeatLink electrical schematics.
- Local codes, regulations, and authorities have final jurisdiction.

Application: Radiant Heating and Indirect Fired Hot Water Heater

Date: 2014-08-21

Schematic #: **SCH-V100-E002**

Rough-in wiring see: SCH-MRIB-R001



Heat Link®
www.heatlink.com
1-866-661-5332

Notes:

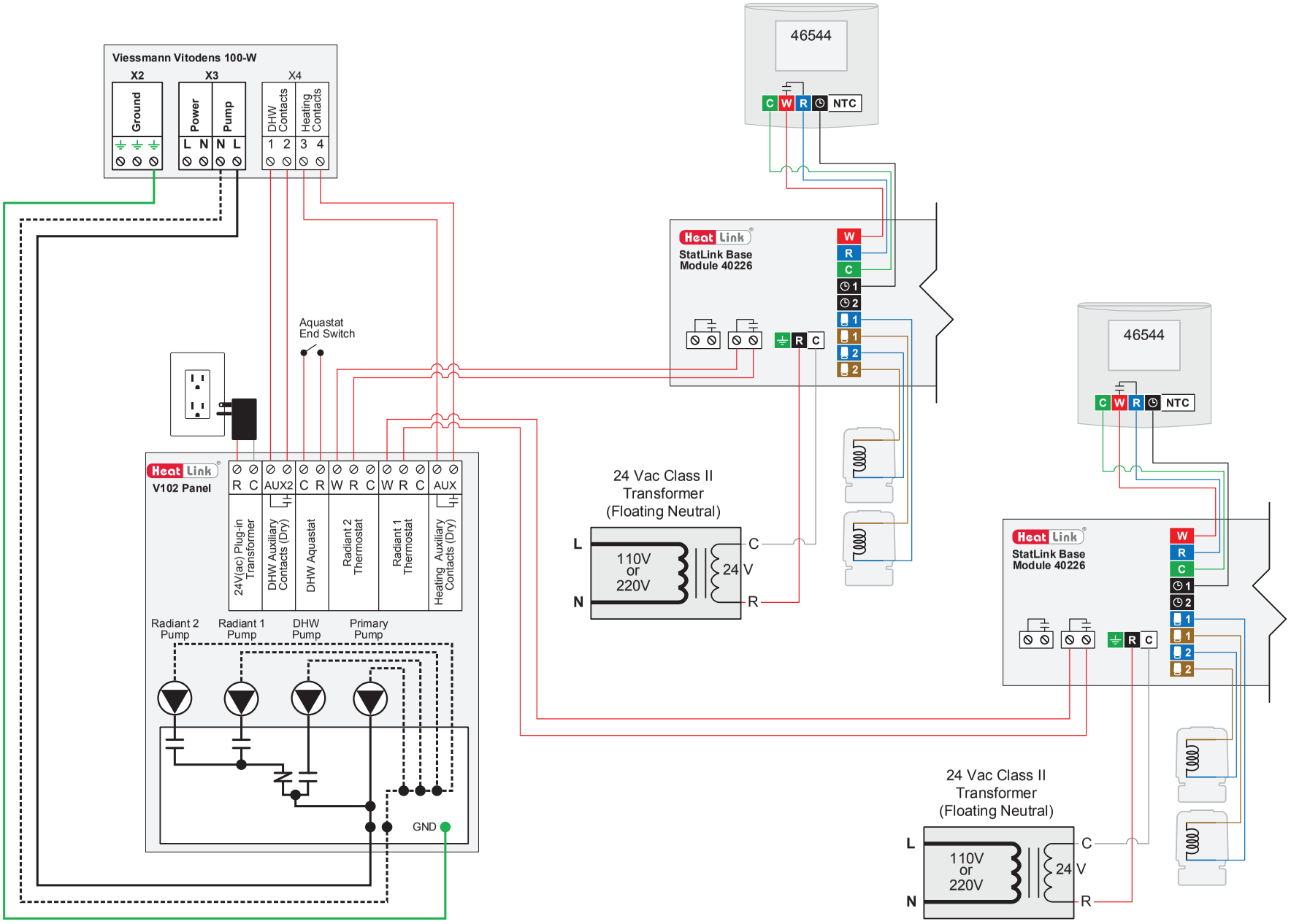
- Drawings are for HeatLink suggested electrical schematics only! User must determine if electrical schematic will work for their particular application. User must also confirm all HeatLink schematics with manufacturer schematics of each particular control chosen.
- In all cases manufacturer equipment schematics will take precedence over HeatLink electrical schematics.
- Local codes, regulations, and authorities have final jurisdiction.

Application: Radiant Heating and Indirect Fired Hot Water Heater

Schematic #: **SCH-V100-E003**

Rough-in wiring see: SCH-MRIB-R002

Date: 2014-08-22



Heat Link®
www.heatlink.com
1-866-661-5332

Notes:

- Drawings are for HeatLink suggested electrical schematics only! User must determine if electrical schematic will work for their particular application. User must also confirm all HeatLink schematics with manufacturer schematics of each particular control chosen.
- In all cases manufacturer equipment schematics will take precedence over HeatLink electrical schematics.
- Local codes, regulations, and authorities have final jurisdiction.

Application: Radiant Heating and Indirect Fired Hot Water Heater

Date: 2014-08-22

Schematic #: **SCH-V100-E004**

Rough-in wiring see: SCH-MRIB-R002



www.heatlink.com

February 05, 2025

Printed in Canada

©HeatLink Group Inc.