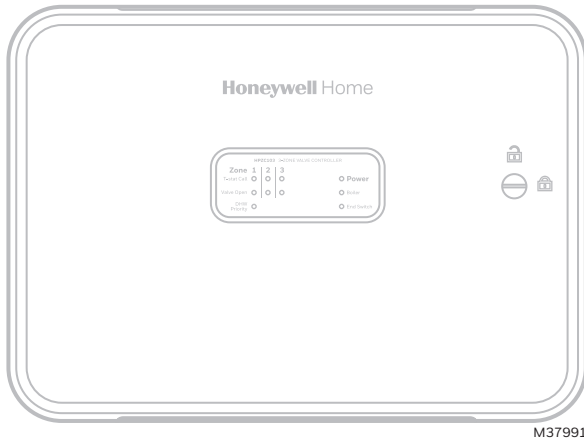




# HPZ and HSR Hydronic Panel Wiring Diagrams

## ADDENDUM



M37991

## APPLICATION

This document is an addendum that shows wiring diagrams for applications that are not shown in the Installation Instructions that are included with each panel.

The document covers the following hydronic panels:

**Table 1. Hydronic Panels.**

OS Number	Description
HPSR101	Single Zone Pump Controller
HPSR103	Three Zone Pump Controller
HPSR104	Four Zone Pump Controller
HPSR106	Six Zone Pump Controller
HPZC103	Three Zone Valve Controller
HPZC104	Four Zone Valve Controller
HPZC105	Five Zone Valve Controller
HPZC106	Six Zone Valve Controller

The document also covers some Resideo thermostats:

**Table 2. Thermostats (select models shown)**

OS Number	Description
THX321WFS2001*	T10 Pro Smart with RedLINK wireless sensor (kit)
TH8321WF1001*	VisionPRO Smart
TH6320WF2003*	T6 Pro Smart
TH6210U2001	T6 Pro programmable
TH6100AF2004	T6 Pro Hydronic with Slab Sensor Included
TH4110U2005	T4 Pro Programmable
TH11102009	T1 Pro non-programmable
TH1010D2000	T1 Pro (not for series 20)
YTH5320R1000	Wireless Non-Programmable FocusPRO kit with EIM included
YTH6320R1001	Wireless Programmable FocusPRO kit with EIM included
TH8110R1008 **	VisionPRO with RedLINK (can be wired directly to sub-base or used with THM5421R1021 EIM (ordered separate)
YTHX9421R5085WW***	Prestige kit with thermostat and EIM

\* Common required on Wi-Fi models. Optional on other models.

\*\*VisionPRO requires common wire when EIM is not used and RedLINK accessories are used.

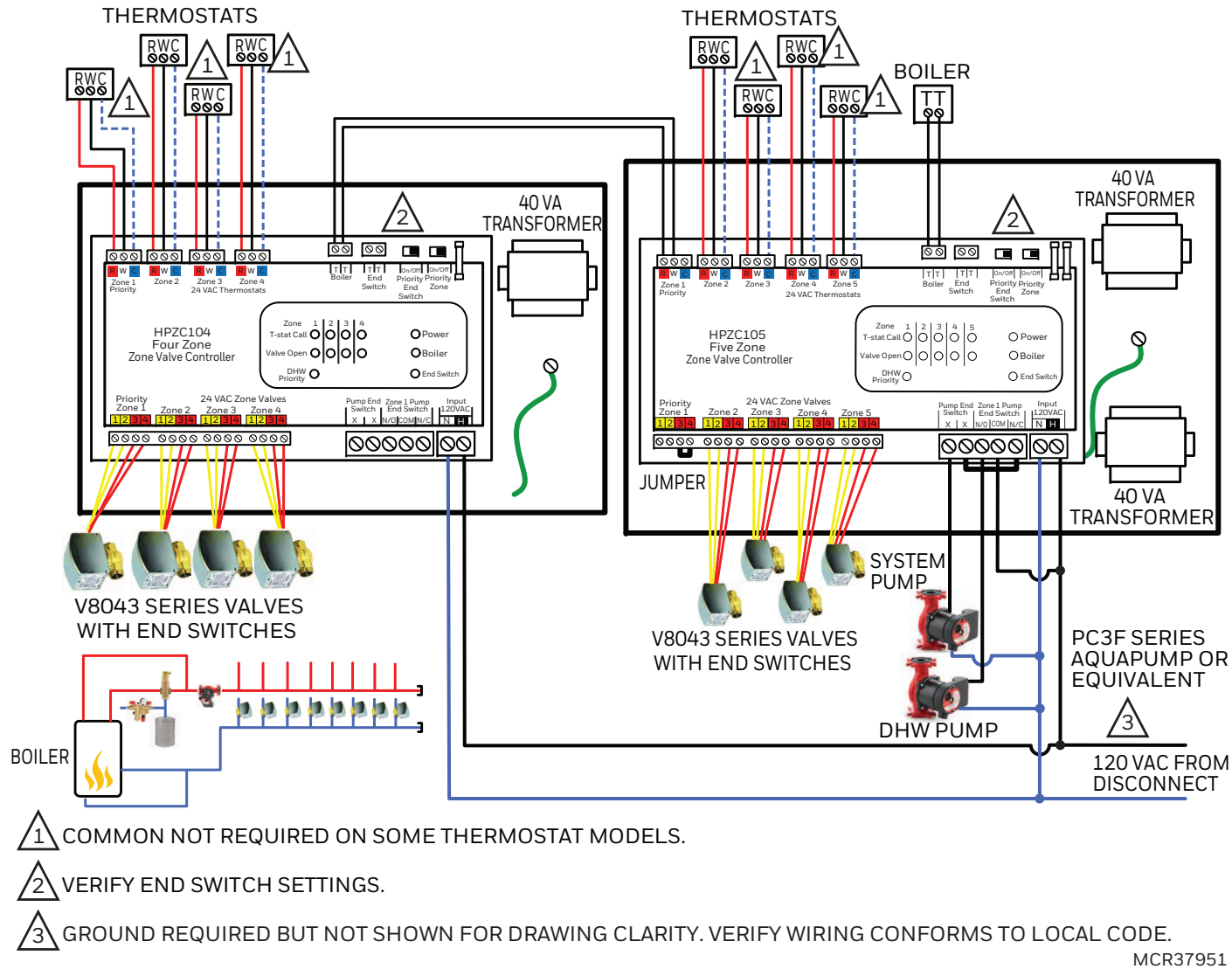
\*\*\*EIM required for Prestige. Thermostat uses 2 wires only to R and C.



# INDEX

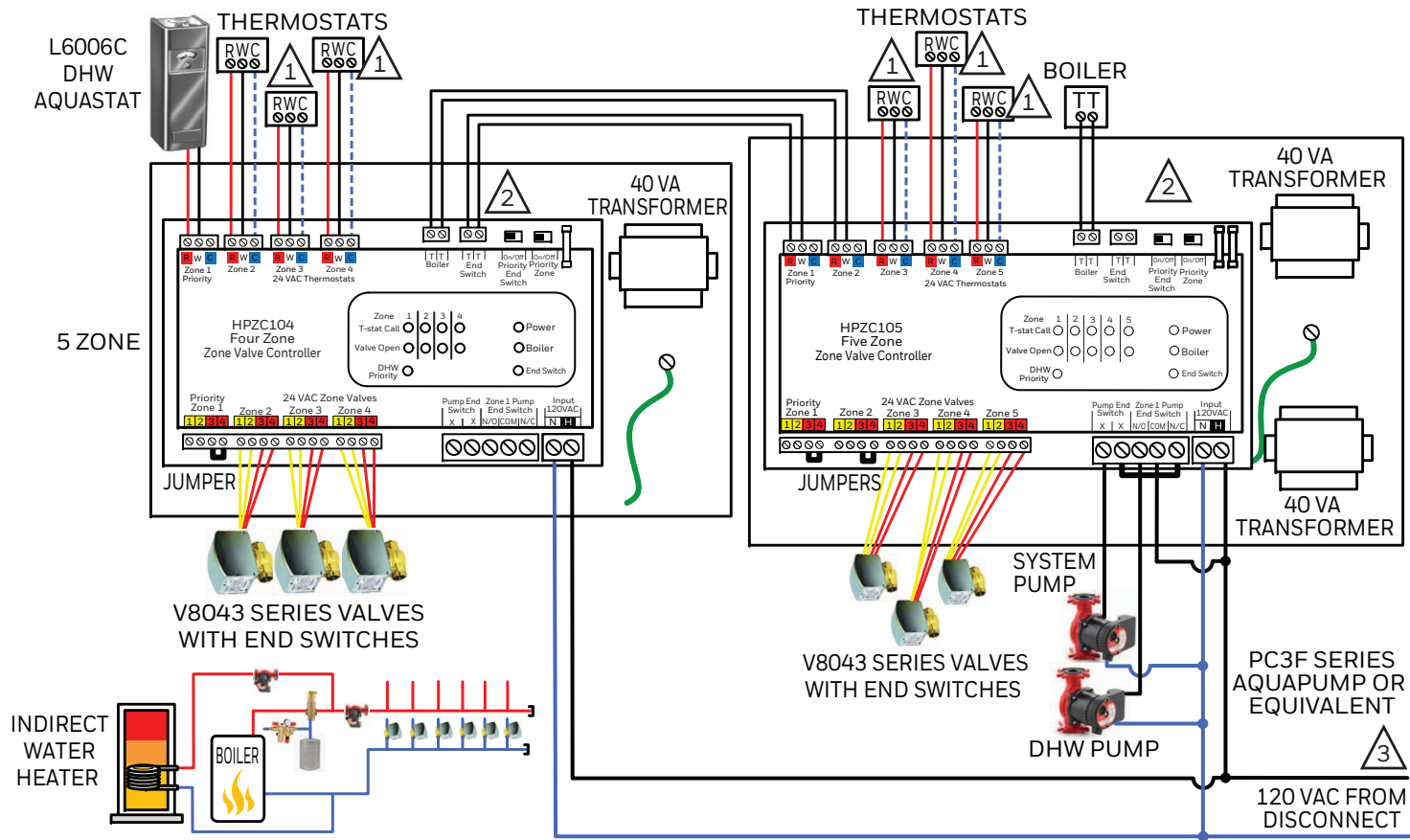
This document only covers applications not shown in the installation guide included with the panel.

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**Fig. 1. More than 6 zone valves when either the boiler doesn't control DHW or DHW priority is not desired.**

NOTE: If more than 8 total zones are needed, multiple HPZC105 (5 zone) or HPZC106 (6 zone) panels can be used. The wiring is the same as shown here except there are additional zone connections. One of the zones is used for panel communication.



1 COMMON NOT REQUIRED ON SOME THERMOSTAT MODELS.

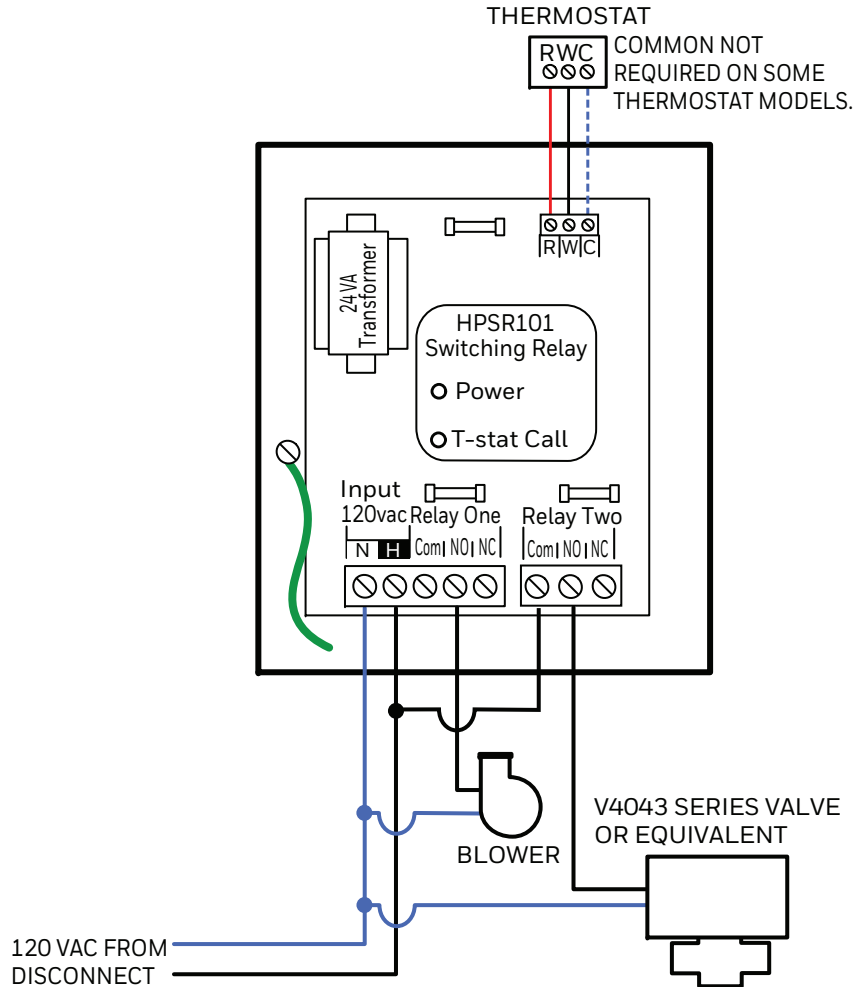
2 VERIFY END SWITCH SETTINGS.

3 GROUND REQUIRED BUT NOT SHOWN FOR DRAWING CLARITY. VERIFY WIRING CONFORMS TO LOCAL CODE.

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**Fig. 2. More than 6 zone valves when DHW priority is desired. (DHW is considered one of the zones).**

NOTE: If more than 7 total zones are needed, multiple HPZC105 (5 zone) or HPZC106 (6 zone) panels can be used. The wiring is the same as shown here except there are additional zone connections. Two of the zones are used for panel communication.

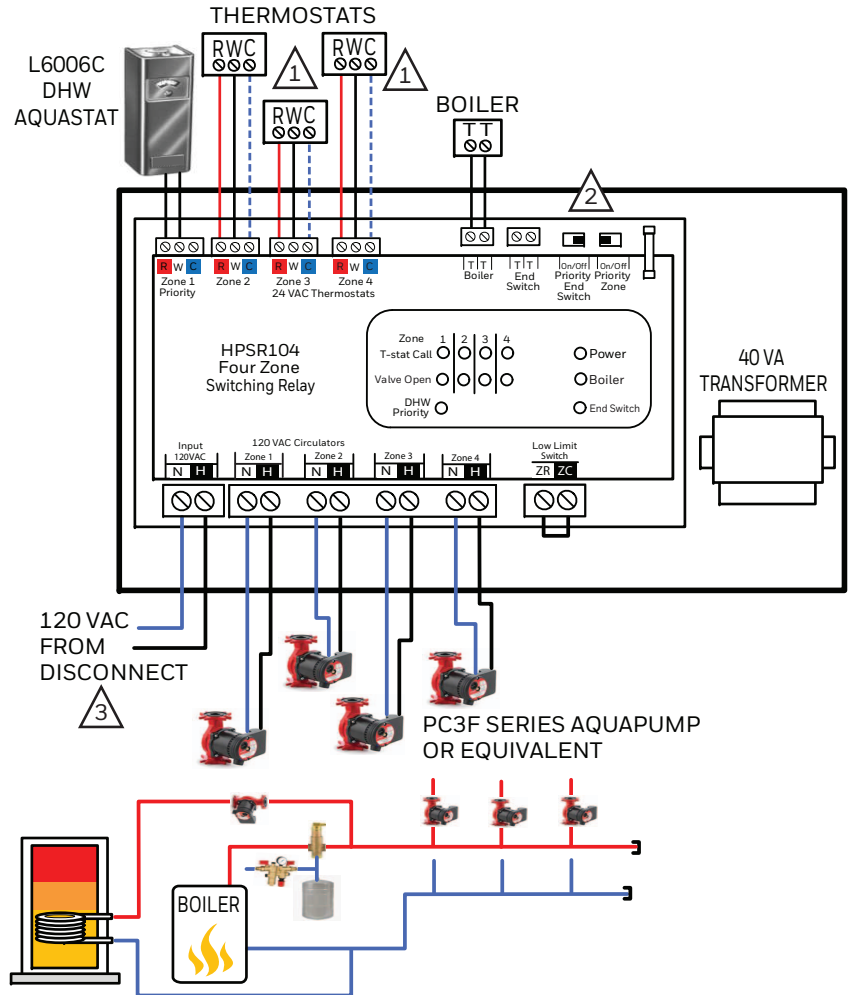


NOTES: GROUND REQUIRED BUT NOT SHOWN FOR DRAWING CLARITY. VERIFY WIRING CONFORMS TO LOCAL CODE.

- INSTALLER MUST VERIFY THE FOLLOWING:
1. BLOWER MOTOR IS POWERED BY 120 VOLTS
  2. ZONE VALVE IS POWERED BY 120 VOLTS

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**Fig. 3. HPSR101 Switching Relay with 120 volt valve and blower fan.**



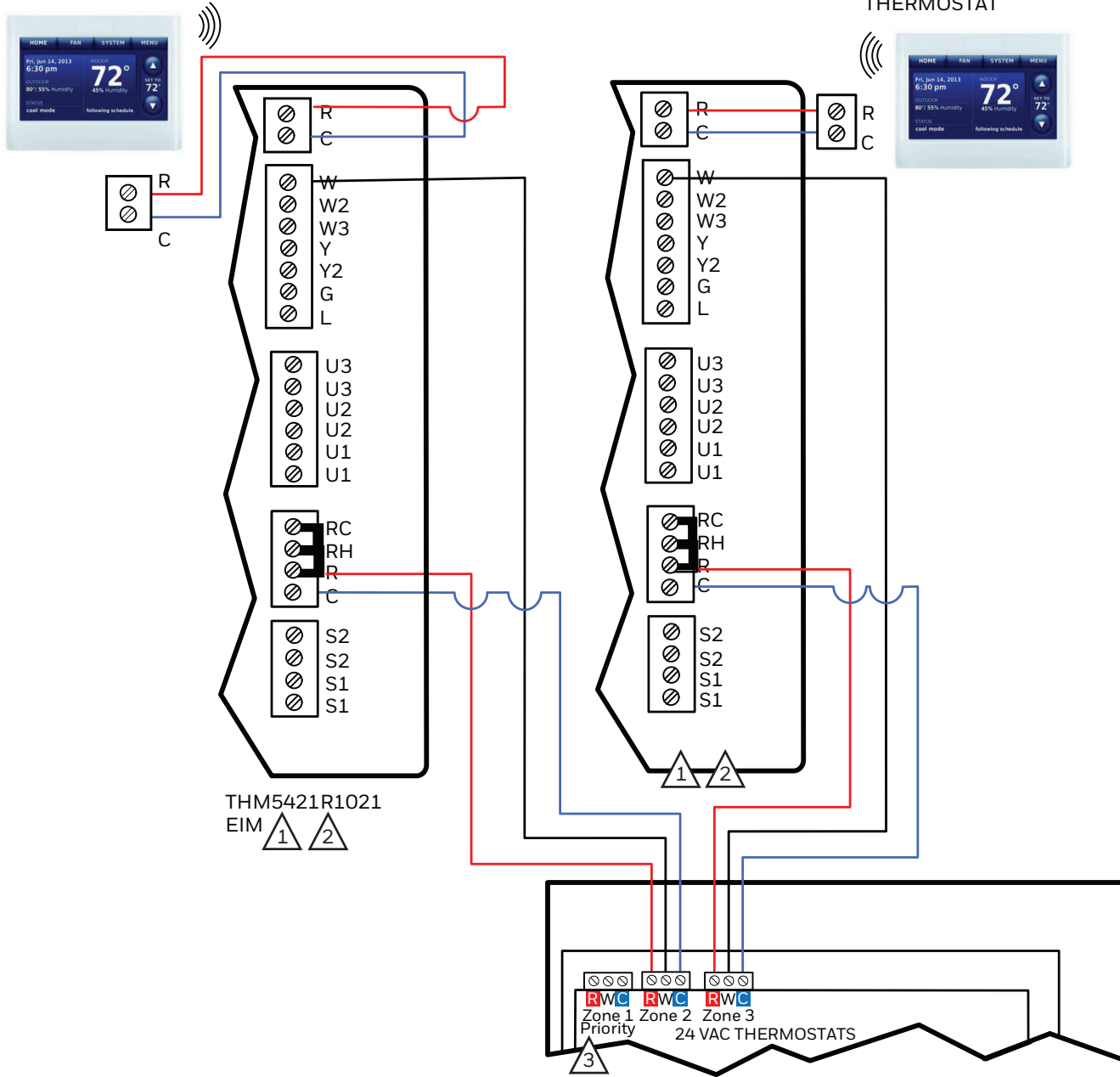
- 1 COMMON NOT REQUIRED ON SOME THERMOSTAT MODELS.
- 2 NOTE DIPSWITCH SETTINGS.
- 3 GROUND REQUIRED BUT NOT SHOWN FOR DRAWING CLARITY. VERIFY WIRING CONFORMS TO LOCAL CODE.

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**Fig. 4. Zoning with pumps and DHW priority.**

THX9421R5021  
THERMOSTAT

THX9421R5021  
THERMOSTAT



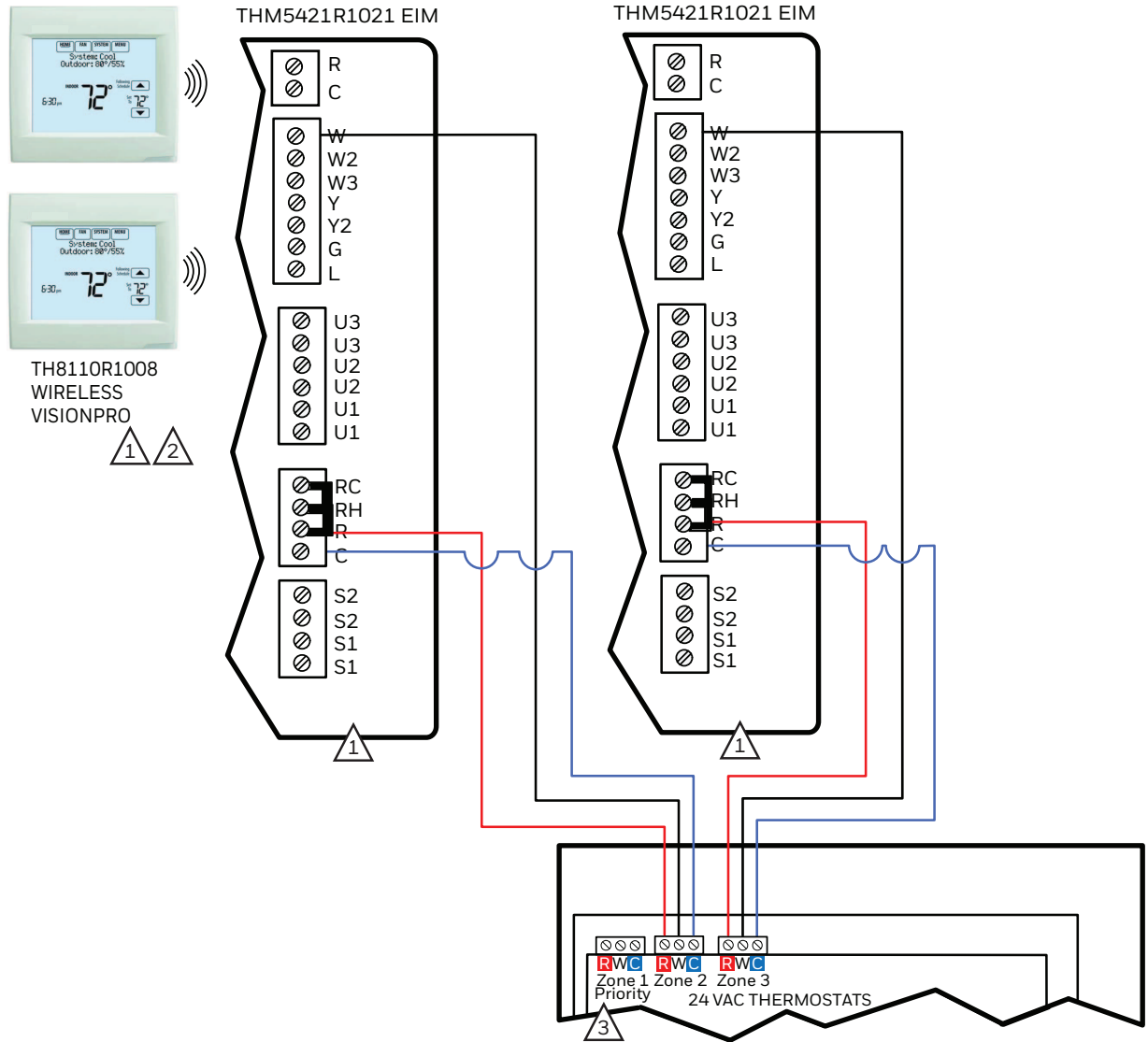
1 A SEPARATE THX9421R5021 THERMOSTAT AND THM5421R1021 EIM ARE NEEDED. THE THERMOSTAT AND EIM ARE SOLD TOGETHER IN THE YTHX9421R5085 KIT.

2 THE EIMS GET MOUNTED ON A WALL IN THE UTILITY ROOM WITH THE HYDRONIC PANEL. TO ENSURE WIRELESS COMMUNICATING RELIABILITY, WE RECOMMEND THE EIMS BE SPACED AT LEAST 2 FEET APART.

3 THE EIM WIRING IS THE SAME FOR ALL THE HPZ AND HSR HYDRONIC PANELS. FOR WIRING OF THE VALVES, PUMPS, POWER, ETC. SEE THE OTHER DIAGRAMS IN THIS FILE OR THE LITERATURE PACKED WITH THE PANEL.

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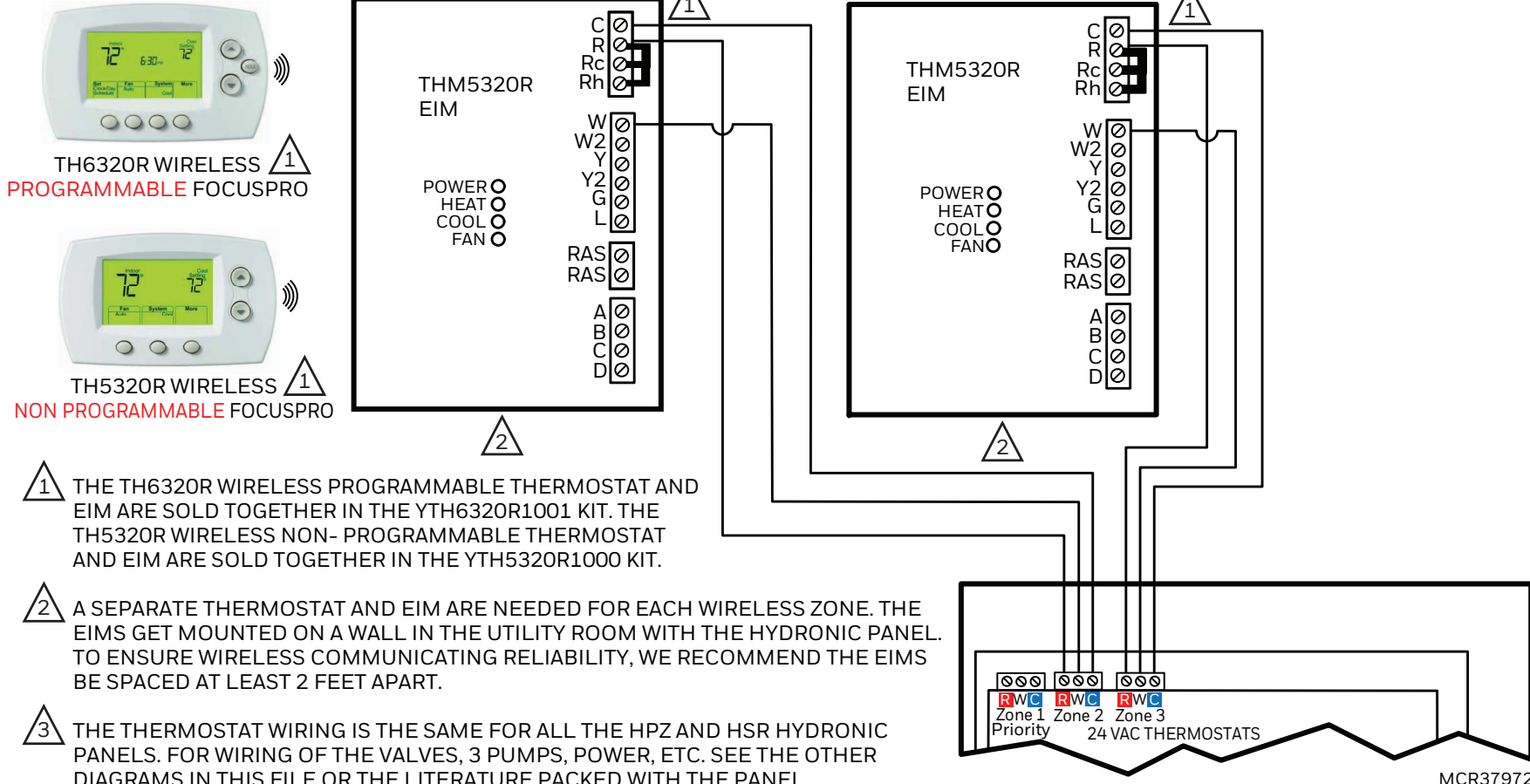
**Fig. 5. Prestige thermostats with Hydronic panels.**



- 1 A SEPARATE TH8110R1008 THERMOSTAT AND THM5421R1021 EIM ARE NEEDED FOR EACH WIRELESS ZONE. THE EIMS GET MOUNTED ON A WALL IN THE UTILITY ROOM WITH THE HYDRONIC PANEL. TO ENSURE WIRELESS COMMUNICATING RELIABILITY, WE RECOMMEND THE EIMS BE SPACED AT LEAST TWO FEET APART.
- 2 THE TH8110R THERMOSTATS CAN BE COMPLETELY WIRELESS AND POWERED BY FOUR AA ALKALINE BATTERIES, HOWEVER IF THERE ARE TWO WIRES AVAILABLE AT THE THERMOSTAT YOU CAN WIRE THOSE TO R AND C ON A TRANSFORMER OR ON THE R AND C AT THE TOP OF THE EIM.
- 3 FOR WIRING OF THE VALVES, PUMPS, POWER, DOMESTIC HOT WATER (IF USED), ETC. SEE THE OTHER DIAGRAMS IN THIS FILE OR THE LITERATURE PACKED WITH THE PANEL.

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**Fig. 6. Wireless VisionPRO thermostats with Hydronic panels.**

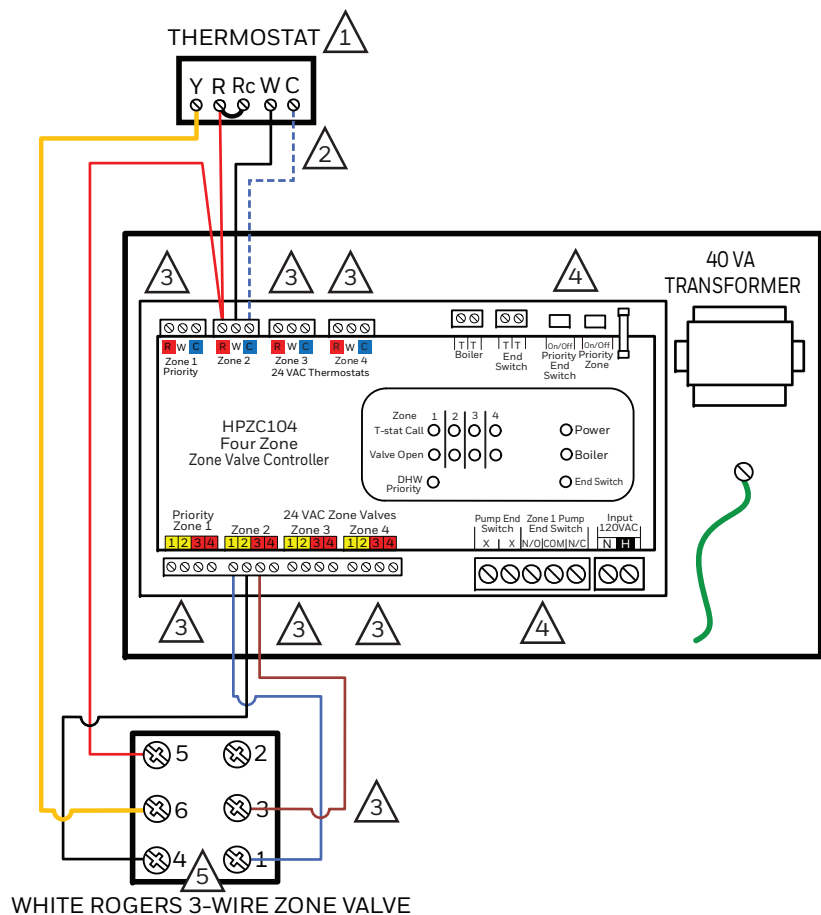


- 1 THE TH6320R WIRELESS PROGRAMMABLE THERMOSTAT AND EIM ARE SOLD TOGETHER IN THE YTH6320R1001 KIT. THE TH5320R WIRELESS NON- PROGRAMMABLE THERMOSTAT AND EIM ARE SOLD TOGETHER IN THE YTH5320R1000 KIT.
- 2 A SEPARATE THERMOSTAT AND EIM ARE NEEDED FOR EACH WIRELESS ZONE. THE EIMS GET MOUNTED ON A WALL IN THE UTILITY ROOM WITH THE HYDRONIC PANEL. TO ENSURE WIRELESS COMMUNICATING RELIABILITY, WE RECOMMEND THE EIMS BE SPACED AT LEAST 2 FEET APART.
- 3 THE THERMOSTAT WIRING IS THE SAME FOR ALL THE HPZ AND HSR HYDRONIC PANELS. FOR WIRING OF THE VALVES, 3 PUMPS, POWER, ETC. SEE THE OTHER DIAGRAMS IN THIS FILE OR THE LITERATURE PACKED WITH THE PANEL.

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**Fig. 7. Wireless FocusPRO thermostats with Hydronic panels.**





WHITE ROGERS 3-WIRE ZONE VALVE

- △ 3 THIS DIAGRAM SHOWS THE WIRING ON ZONE 2 BECAUSE IN SOME CASES ZONE 1 IS CONTROLLING DHW. ALL ZONES CONTROLLED BY THERMOSTATS ARE WIRED THE SAME AS ZONE 2 (SHOWN).
- △ 4 THIS DIAGRAM IS SPECIFIC TO THE SERIES 20 ZONE VALVE WIRING ON THE HPZC PANELS. WIRING OF THE PUMPS, DHW ZONE (IF USED), AS WELL AS DIPSWITCH SETTINGS VARY BY SYSTEM. SEE THE OTHER DIAGRAMS IN THIS FILE OR THE LITERATURE THAT COMES WITH THE HYDRONIC PANEL FOR WIRING OF THE REST OF THE SYSTEM.
- △ 5 VALVE WIRING (AS SHOWN IN DIAGRAM)
  - R FROM ZONE CONNECTION AT TOP OF HPZ PANEL TO 5 AT VALVE
  - Y FROM THERMOSTAT TO 6 ON VALVE
  - 1 FROM ZONE CONNECTION AT BOTTOM OF HPZ PANEL TO 1 ON VALVE
  - 2 FROM ZONE CONNECTION AT BOTTOM OF HPZ PANEL TO 4 ON VALVE
  - 3 FROM BOTTOM OF HPZ TO 3 ON VALVE

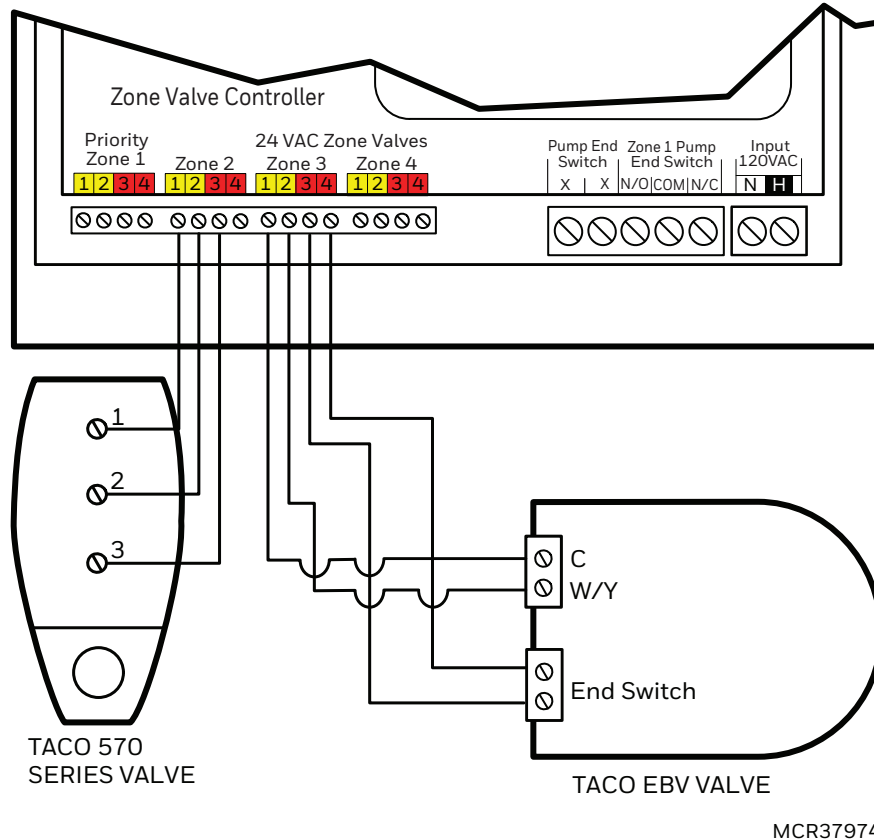
△ 1 THERE ARE MANY HONEYWELL HOME THERMOSTATS THAT SUPPORT SERIES 20, POWER-OPEN/POWER-CLOSED ZONE VALVES. SOME SELECT MODELS LISTED BELOW.

WI-FI	PROGRAMMABLE
TH8321WF1001	TH8110R1008
TH6320WF2003	TH6320U2008
TH6220WF2006	TH6220U2000
	TH6210U2001
	TH4210U2002
	TH4110U2005

NON-PROGRAMMABLE  
TH1110D2009 (THE TH1010 MODEL OF T1 DOES NOT SUPPORT THIS)

△ 2 COMMON IS OPTIONAL ON NON-WI-FI MODELS.

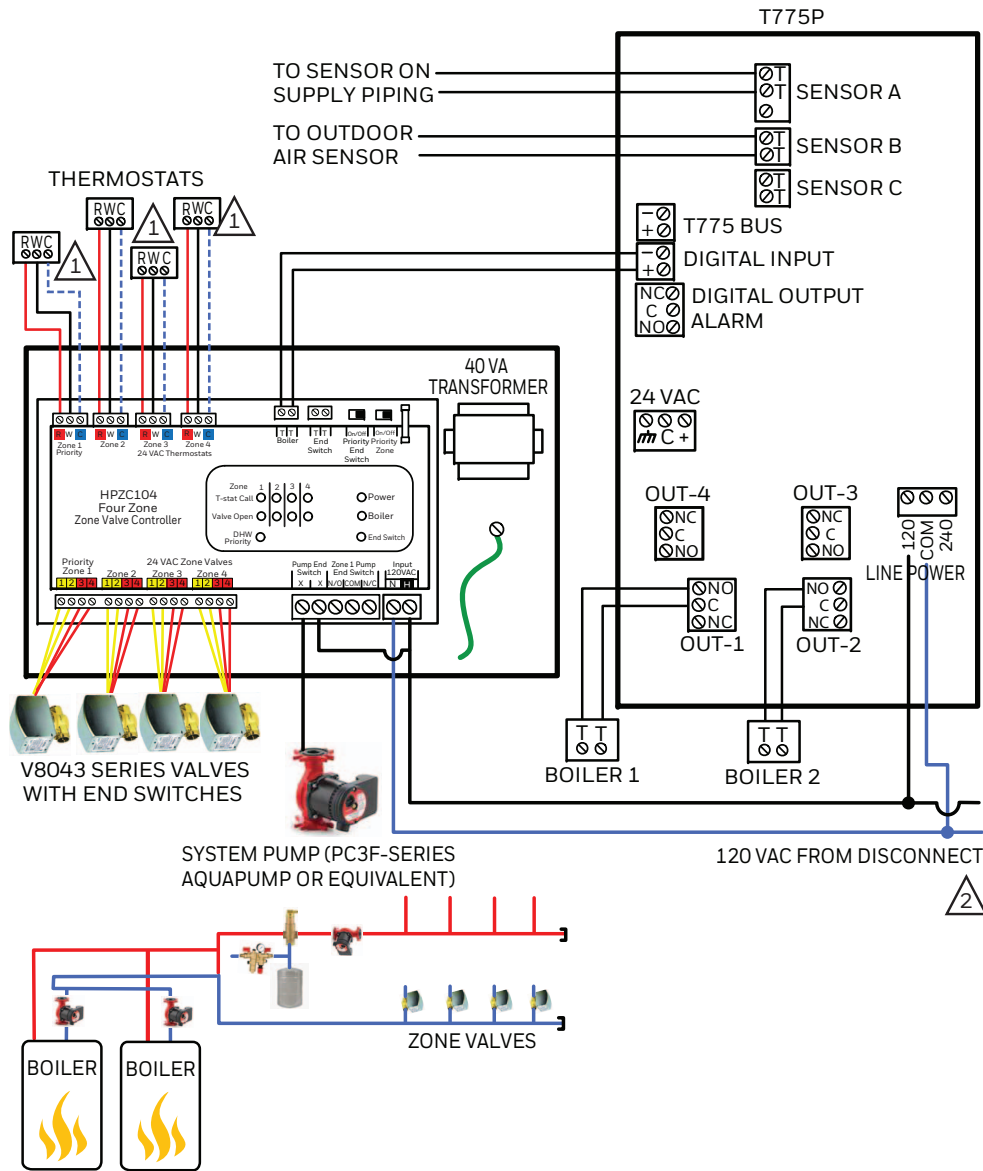
Fig. 8. 3-Wire, Power-open/Power-closed (series 20) valves used with HPZC panels.



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**Fig. 9. Taco Zone valves with HPZC Hydronic Panels.**

NOTE: This diagram is specific to how Taco valves can wire to an HPZC zone valve panel. All zones other than an optional Domestic Hot Water zone are wired the same. See other diagrams in this file for options on pump and line voltage wiring, using multiple panels for systems over 6 zones, DHW priority, etc.



- 1 COMMON NOT REQUIRED ON SOME THERMOSTAT MODELS.
- 2 GROUND REQUIRED BUT NOT SHOWN FOR DRAWING CLARITY. VERIFY WIRING CONFORMS TO LOCAL CODE.

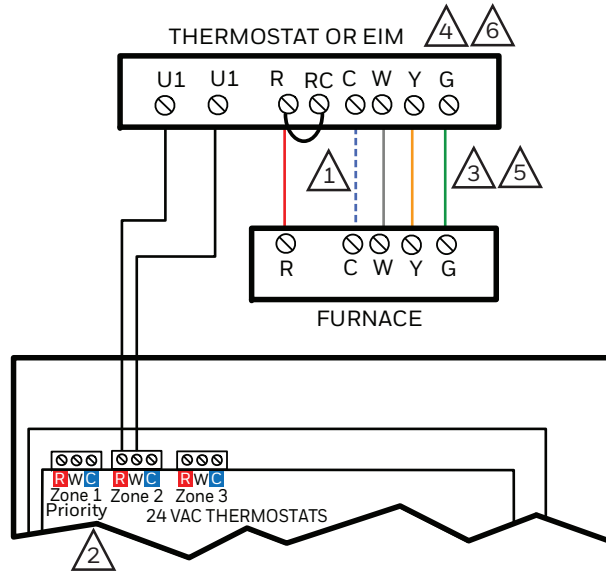
### T775P Key Program settings

- Setup
  - o Sensors
    - » # of sensors 2
    - » Sensor A Discharge A
    - » Sensor B outdoor
- Outputs
  - o # relays 6
  - o #loops 1
  - o Options
    - » Min off time 5
    - » Min on time 0
    - » DI Options Enable
  - o On Delay 600
  - o Off Delay 0
  - o Reset Yes

NOTE: HPZ series Hydronic panel, thermostats, valves, and pumps sold by Resideo (Honeywell Home). T775P sold by Honeywell.

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**Fig. 10. T775P used with Hydronic panels for outdoor reset, and/or staging two boilers.**



① COMMON WIRE IS OPTIONAL ON MOST NON-WI-FI MODELS. IF COOLING IS NOT USED, DISREGARD THE Y AND G WIRES.

② THIS DIAGRAM SHOWS HOW THE THERMOSTAT OPTIONS LISTED BELOW CAN BE INTEGRATED TO A HYDRONIC PANEL FOR STAGE 1 HEAT AND A DIFFERENT HEAT SOURCE FOR BACKUP HEAT. THE DIAGRAM DOES NOT SHOW WIRING FOR THE BOILER, PUMP(S), VALVES, DHW CIRCUIT, ETC. SEE OTHER DIAGRAMS IN THIS FILE OR THE LITERATURE THAT CAME WITH THE HOT WATER PANEL FOR THE REST OF THE HOT WATER PANEL WIRING.

③ IF THE BACKUP HEAT SOURCE IS ZONED FORCED AIR, THEN THE THERMOSTAT WOULD WIRE TO ONE OF THE ZONES ON THE ZONE PANEL RATHER THAN TO THE FURNACE DIRECTLY.

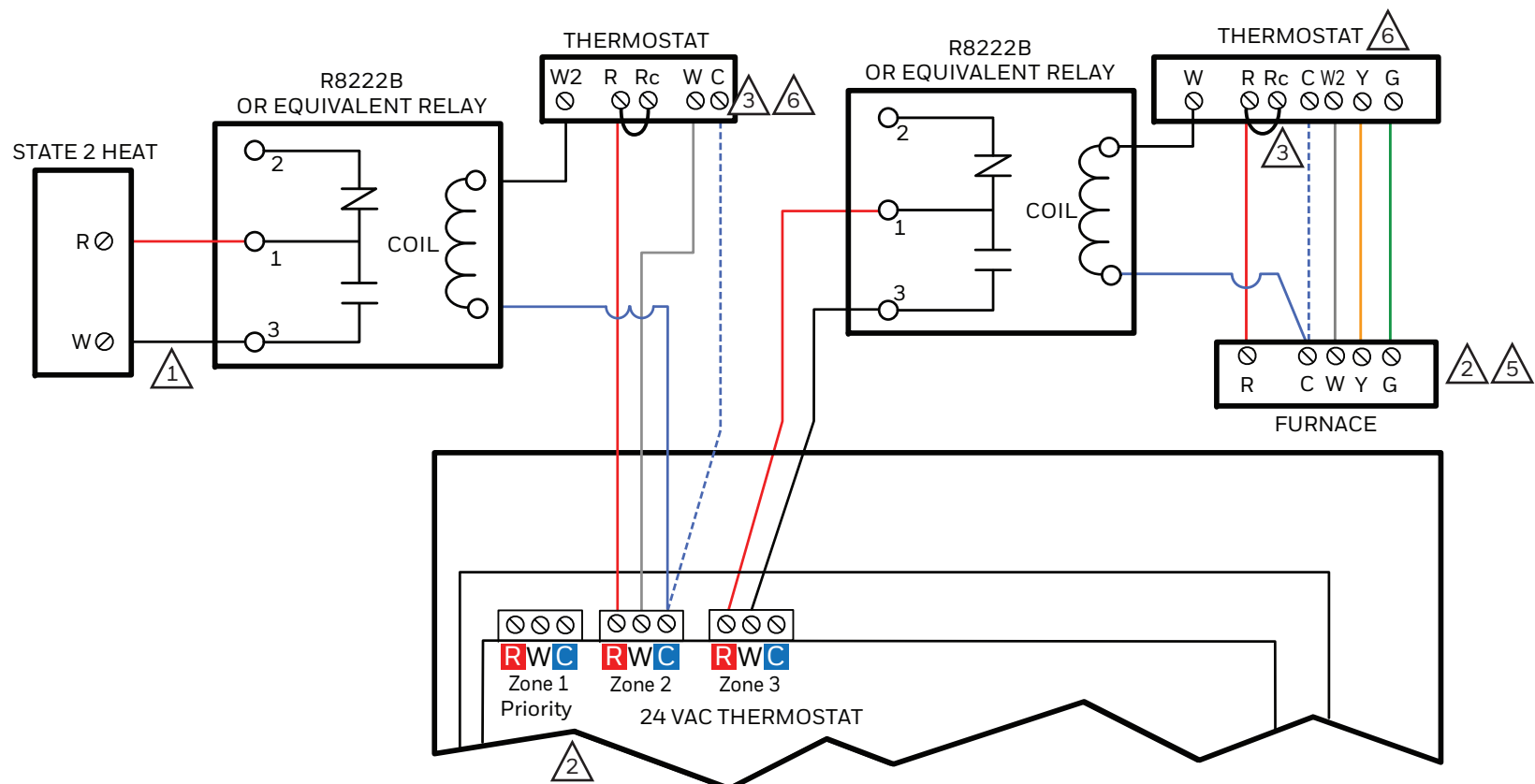
④ PERTINENT THERMOSTAT CONFIGURATION SETTINGS:  
 HEATING SYSTEM = HEAT PUMP (EVEN THOUGH THIS IS NOT CONTROLLING A HEAT PUMP APPLICATION)  
 HEATING EQUIPMENT = GEOTHERMAL RADIANT  
 RADIANT STAGES = 1  
 GEO FORCED AIR = NONE IF COOLING IS NOT USED, COOL ONLY IF THE BACKUP COOLING IS USED.  
 BACKUP HEAT STAGES = 1  
 BACKUP HEAT TYPE = ELECTRIC OR GAS/OIL  
 BACKUP HEAT DROOP = (INSTALLER PREFERENCE, COMFORT OR DROOP) COMFORT WILL RUN THE BACKUP HEAT WITH THE HOT WATER HEAT MORE FREQUENTLY.  
 DROOP WILL HOLD OFF THE BACKUP HEAT UNLESS THE INDOOR TEMPERATURE DROPS TO THE DROOP SETTING WHILE THE THERMOSTAT IS RUNNING THE RADIANT HEAT DURING STEADY STATE.

⑤ IF THERE IS A HEAT PUMP USED, THE WIRING AND CONFIG SETTINGS WOULD BE DIFFERENT THAN SHOWN IN THIS DIAGRAM.

⑥ COMPATIBLE THERMOSTATS:  
 TH8321WF1001  
 TH8321R1001 (WIRED AT WALL PLATE OR USED WITH THM5421R1021 EIM)  
 YTHX9421R5085 PRESTIGE THERMOSTAT KIT (EIM INCLUDED)

MCR37976

**Fig. 11. Staging a boiler + secondary heat using a 2 stage thermostat without isolation relay (thermostat with special Geothermal radiant settings required. See models listed in Note 6 above).**



- 1 THE WIRING EXAMPLE SHOWN ON ZONE 2 OF THE HYDRONIC PANEL WOULD BE USED IF THE SECOND STAGE HEAT SOURCE DOESN'T HAVE COMMON TERMINAL AND COOLING IS NOT USED. THE WIRING CIRCUIT ALSO ASSUMES THE STAGE 2 HEAT SOURCE HAS A BUILT-IN POWER SUPPLY. IF IT DOES NOT, THE POWER SUPPLY SHOULD BE WIRED IN SERIES WITH THE STAGE 2 HEAT CIRCUIT.
- 2 THE WIRING EXAMPLE SHOWN ON ZONE 3 OF THE HYDRONIC PANEL WOULD BE USED IF COOLING IS BEING CONTROLLED BY THE THERMOSTAT OR IF THE SECOND STAGE HEAT SOURCE HAS A COMMON TERMINAL AVAILABLE.
- 3 COMMON WIRE IS OPTIONAL ON MOST NON-WI-FI MODELS. IF COOLING IS NOT USED, DISREGARD THE Y AND G WIRES.
- 4 THIS DIAGRAM SHOWS HOW A 2 STAGE THERMOSTAT CAN BE INTEGRATED TO A HYDRONIC PANEL FOR STAGE 1 HEAT AND A DIFFERENT HEAT SOURCE FOR BACKUP HEAT. THE DIAGRAM DOES NOT SHOW WIRING FOR THE BOILER, PUMP(S), VALVES, DHW CIRCUIT, ETC. SEE OTHER DIAGRAMS IN THIS FILE OR THE LITERATURE THAT CAME WITH THE HOT WATER PANEL FOR THE REST OF THE HOT WATER PANEL WIRING.
- 5 IF THE BACKUP HEAT SOURCE IS ZONED FORCED AIR, THEN THE THERMOSTAT WOULD WIRE TO ONE OF THE ZONES ON THE ZONE PANEL RATHER THAN TO THE FURNACE DIRECTLY.

MCR37977

**Fig. 12. Staging a boiler + secondary heat using a 2 stage thermostat & an isolation relay.  
(Relay not required with select thermostat models. See Fig. 11 on page 12.)**

## HPZ AND HSR HYDRONIC PANEL WIRING DIAGRAMS



**resideo**

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