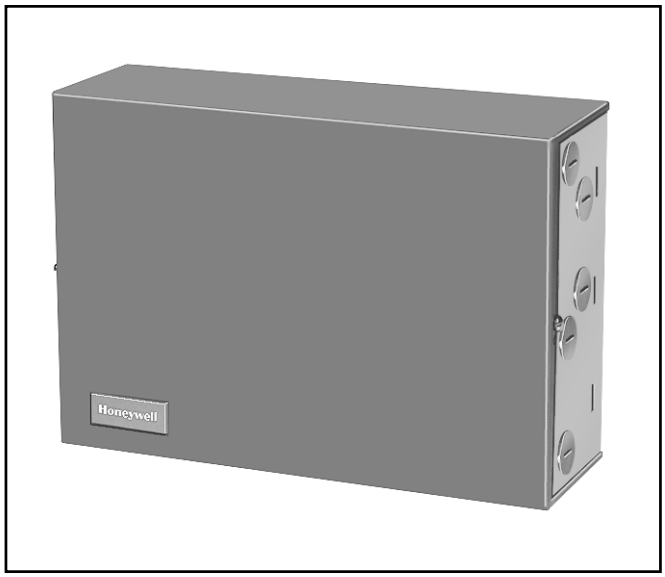
Honeywell

R8889A,B,C,D Hydronic Zone Valve Panels with Priority Control

PRODUCT DATA



APPLICATION

The R8889A,B,C,D Hydronic Zone Valve Panels with Priority Control provide relay switching for multizone hot water control systems.

FEATURES

- **Provide burner control and zone valve control for up to three (R8889A,C) or four (R8889B,D) zones in hot water systems.**
- **Zone 1 may be selected to give priority to the indirect hot water tank.**
- **Panels may be wired together for expansion while maintaining priority zoning.**
- **Up to four panels (12 to16 zones total) may be used in a system.**
- **R8889 may be used in combination with R8888 Hydronic Circulator Zone Panels with Priority Control.**
- **For use in residential and light commercial applications.**
- **Include replaceable 24V transformer to provide power for low voltage control circuit and valve loads.**
- **Include diagnostic light-emitting diodes (LEDs) for troubleshooting.**
- **All models include burner relays, which are socket-mounted and field-replaceable. Select models include zone relays that are field-replaceable.**
- **Clearly marked terminal designations provide easy wiring.**
- **Compatible with electronic and electromechanical thermostats and Honeywell Aquastat® Controls.**
- **Mount horizontally only.**

Contents

68-0184

SPECIFICATIONS

IMPORTANT

The specifications given in this publication do not include normal manufacturing tolerances. This unit may not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed.

Standard Models:

R8889A,B,C,D Hydronic Zone Valve Panels with Priority Control—Provide switching for hot water control systems (up to three or four zones, depending on the model) with the ability to field-configure Zone 1 as priority over the others; include separate 24V transformers that provide power to low voltage circuit and valve loads. Select models include field-replaceable zone relays. Refer to Table 1 for models and specifications.

Thermostat Heat Anticipator Setting:
0.12A.

Ambient Temperature Rating:
-20° F to 100° F (-29° C to 38° C).

Humidity:
0 to 90% rh, non-condensing.

Terminals:
Captivated wire-clamp screw terminals.

Finish:
Painted gray enamel.

Knockouts:
Knockouts for 1/2 in. conduits in sides of case.

Dimensions:
See Fig. 1.

Approvals:

Underwriters Laboratories Inc. Listed: File no. E4436
Canadian Underwriters Laboratories.

Replacement Parts:

AT87A1049 Transformer—24 Vac.
208621 Replacement Relay.

Accessories:

AT150A1007 External Transformer—24 Vac.

Table 1. R8889 models and specifications.

Model Number	Number of Zones Controlled	Number of Transformers	Electrical Rating per Zone	Priority Zone Control
R8889A	3	2	0.6A	Yes
R8889B	4	2	0.6A	Yes
R8889C	3	1	0.35A[a]	Yes
R8889D	4	1	0.35A[a]	Yes

[a]R8889C,D models can support zone loads up to 0.9A by adding an external transformer. See Installation section.

ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Home and Building Control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Logistics
   Honeywell Inc., 1885 Douglas Drive North
   Minneapolis, Minnesota 55422-4386

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9.
International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

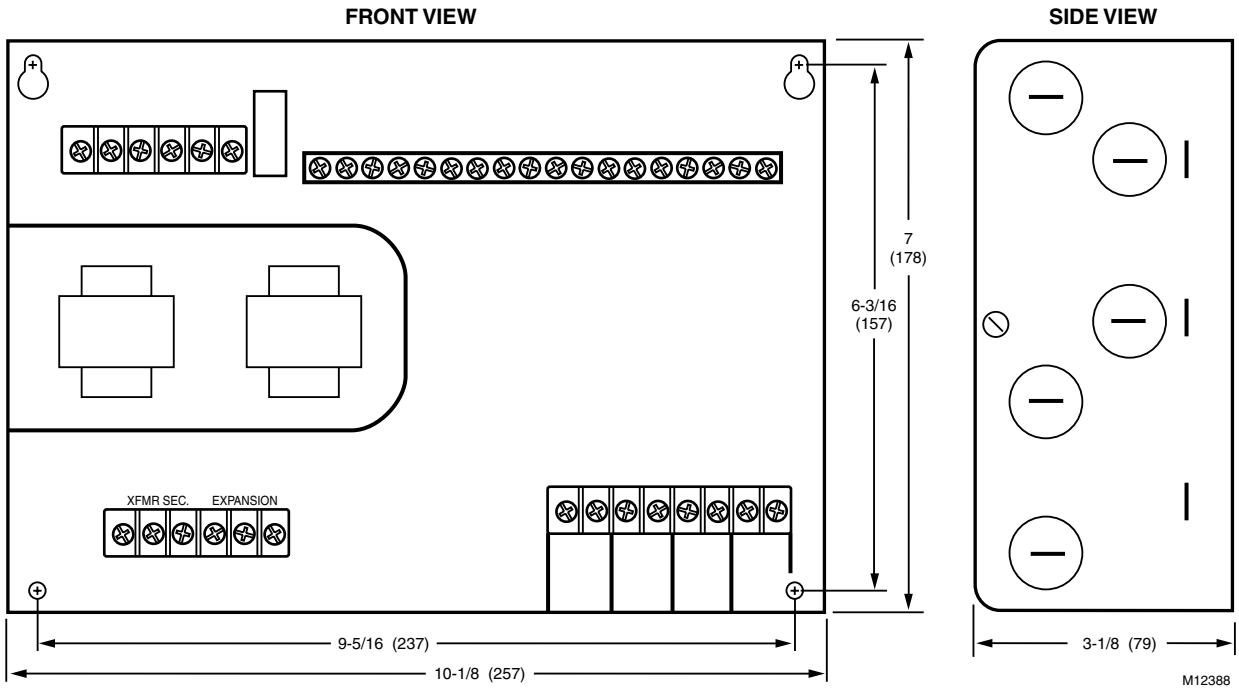


Fig. 1. R8889 mounting dimensions in in. (mm).

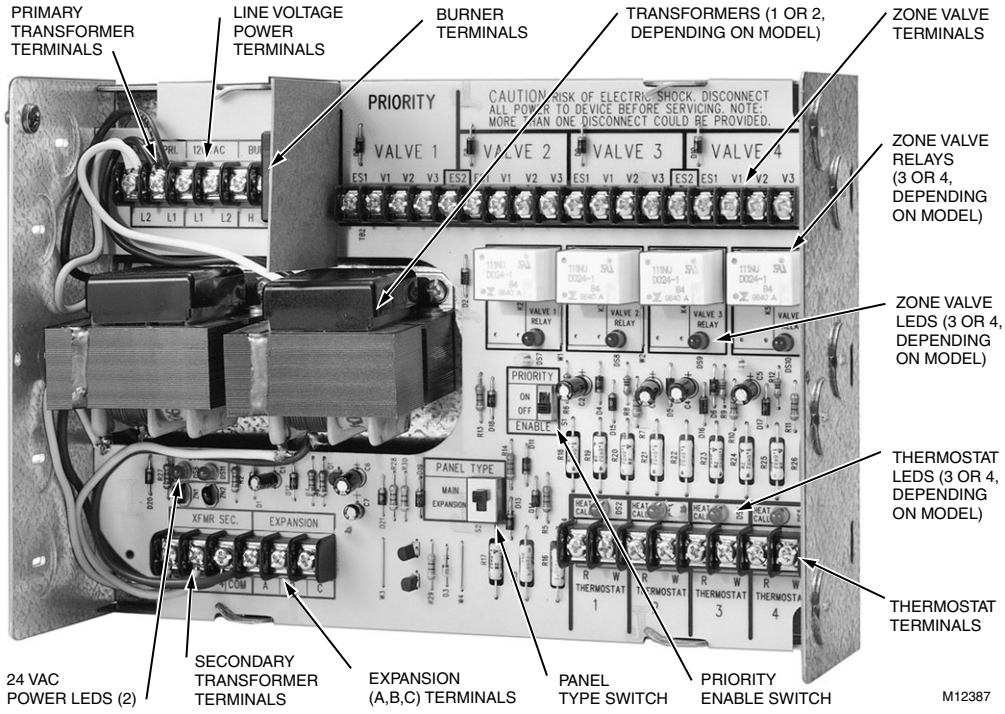


Fig. 2. Internal view of R8889 (R8889B model shown).

INSTALLATION

When Installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

⚠ CAUTION

Disconnect power supply before beginning installation to prevent electrical shock or equipment damage.

NOTE: For applications requiring an R8889C,D that can support zone loads up to 0.9A, add an AT150A1007 Transformer (external); order separately. See Zone Current Rating Upgrade section and Fig. 5 and 6.

Choose Location

If this is a replacement application, mount the R8889 in the same location as the old control or choose a suitable location as follows:

- Mount R8889 directly on a panel or wall near the equipment to be controlled.
- Make sure location is accessible for installation and service.
- Make sure operating ambient temperature at the selected location does not exceed 100°F (38°C).

Mounting

Mounting R8889

Loosen the cover screws on the sides of the panel. Carefully lift off the cover from the panel. Set aside the cover. Remove and discard the foam packing insert.

IMPORTANT

The R8889 replaceable relay(s) can become loose during shipping. Make sure the relays are securely fastened in the sockets on the R8889 panel for proper operation.

Position the R8889 panel on the wall at the selected location. Mount the R8889 horizontally only. Using the panel as a guide, mark the location of the mounting holes. Loosely fasten the panel to the wall using four No. 8-3/4 screws (included) as shown in Fig. 3. Fasten the screws securely.

Wiring

⚠ CAUTION

1. Disconnect power supply before beginning installation to prevent electrical shock or equipment damage.
2. Use copper conductors only.
3. Use only NEC Class 1 wire for all line voltage wiring connections. Class 1 wires must be rated for at least 90°C.

All wiring must comply with applicable electrical codes and ordinances.

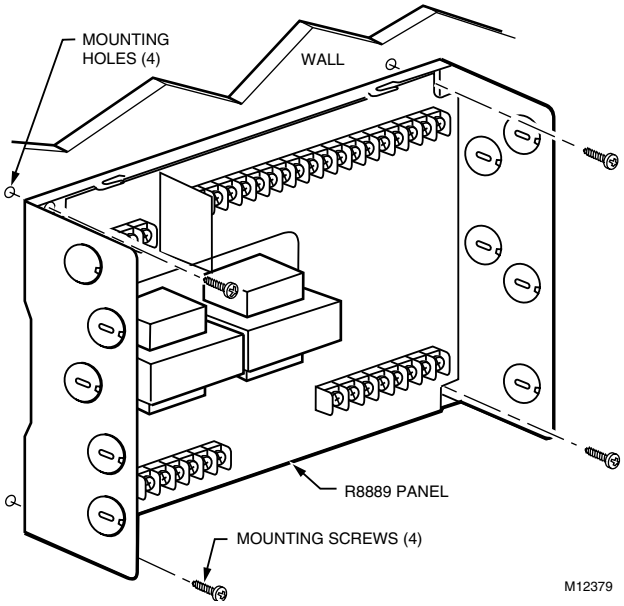


Fig. 3. Mounting R8889 on the wall.

Run wiring from the system components to the R8889 location. Make wiring connections as shown in Table 2 and Fig. 7 through 15. Make sure all line voltage connections are in the R8889 enclosure. Keep line voltage wires away from R8889 low voltage area as shown in Fig. 4. Use the plastic bushing (included) in the knockout for the thermostat wiring to avoid damaging the thermostat wires.

IMPORTANT

The R8889 has knockouts on both sides of the case. Only specific wiring can be run through each knockout. See Fig. 3.

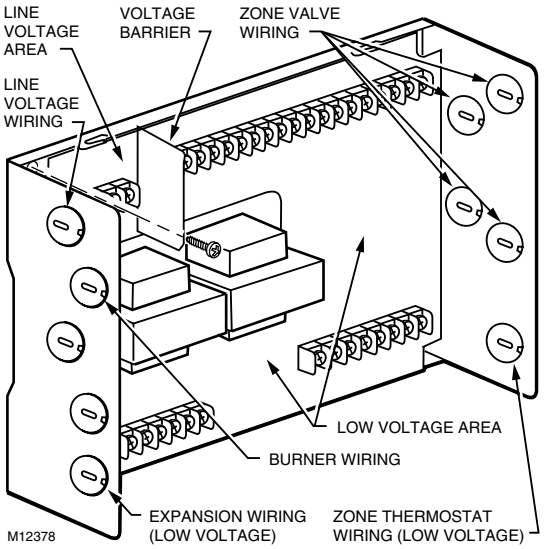


Fig. 4. R8889 knockout wiring designations.

Table 2. Wiring Connections.

Terminal Designation	Connect to System Component
H1, H2	Burner/circulator control.
V1	Valve power (hot).
V2	Valve power (common).
V3	Valve power (hot) to close three wire valve.
ES1	Valve end switch for each zone. Jumper to V1 if valve does not have end switch.
ES2	Valve end switch shared by zones 1-2 and 3-4.
L1	Line voltage (hot) power.
L2	Line voltage (neutral) power.
L1, L2 (XFMR PRI.)	Line voltage power to transformer.
R, W	Low voltage thermostat for each zone.
R1-2 (24 Vac) (XFMR SEC.)	Low voltage power from transformer for zones 1 and 2. R1-2 is jumpered to R3-4 in single transformer models.
R3-4 (24 Vac) (XFMR SEC.)	Low voltage power from transformer for zones 3 and 4.
COM (XFMR SEC.)	Low voltage common from transformer for zones 1 through 4.
A,B,C	Expansion to additional R8889 Zone Panels.

Zone Current Rating Upgrade

R8889C,D models can support zone loads up to 0.9A by adding an AT150A1007 Transformer (external); order separately. Follow the instructions below for adding an external transformer.

⚠ WARNING

Electrical Shock Hazard.
Can cause severe injury or death.
Disconnect the power supply before servicing or upgrading this system.

1. Remove the R8889 transformer knockout. See Fig. 5.
2. Mount the AT150A1007 Transformer in the R8889 knockout.
3. Connect the line voltage input leads (black and white) to the R8889 XFMR. PR1. L1 and L2 screw terminals (black to L1, white to L2). Make sure the internal transformer wires are connected to L1 and L2. See Fig. 6.
4. Separate and terminate the orange and red wires so that the wires are insulated from each other and other components within the wiring area.
5. Remove the jumper between R1-2 and R3-4.
6. Connect the low voltage output leads (R and C) to R3-4 and COM (R to R3-4, C to COM). See Fig. 6.

⚠ WARNING

Electrical Shock Hazard.
Can cause severe injury or death.
Make sure the low voltage on the R8889 is less than 30 Vac.

7. Check for proper transformer installation as follows:
   a. Connect external power supply to R8889.
   b. Using a voltmeter, measure the voltage between R1-2 and R3-4. If the voltage is less than 24 Vac, proceed with the mounting and wiring. If the voltage is greater than 24 Vac, reverse the low voltage output leads (R and C).
   c. Recheck the voltage.
   d. If the voltage is still greater than 24 Vac, call your Honeywell Sales Representative for assistance.
8. Complete the mounting and wiring as shown in the Installation section.

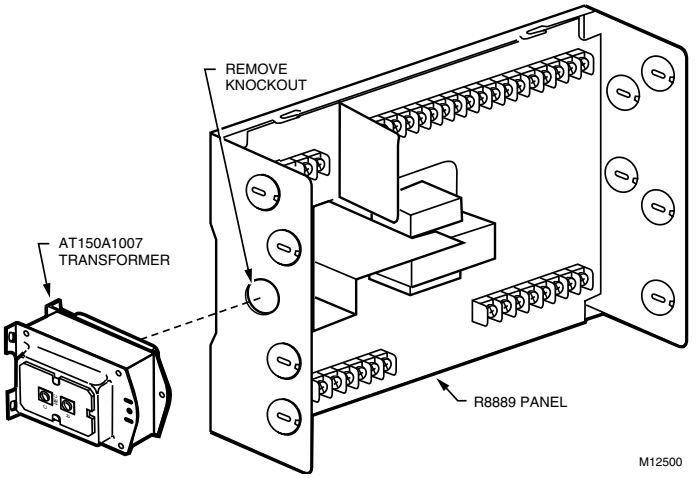


Fig. 5. Mounting AT150A1007 to R8889C,D.

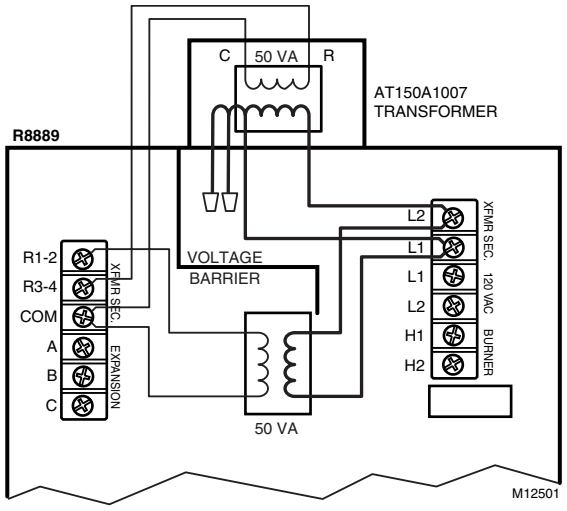


Fig. 6. Wiring AT150A1007 to R8889C,D for 0.9A zone current rating.

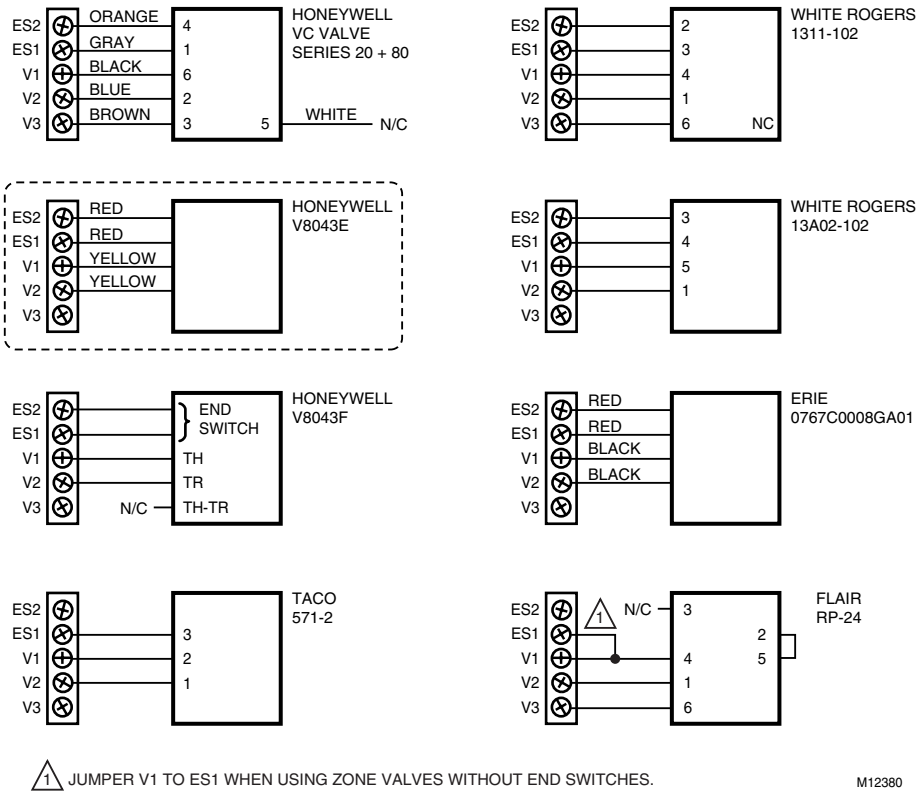


Fig. 7. Typical R8889 wiring connections with Honeywell and competitive zone valves.

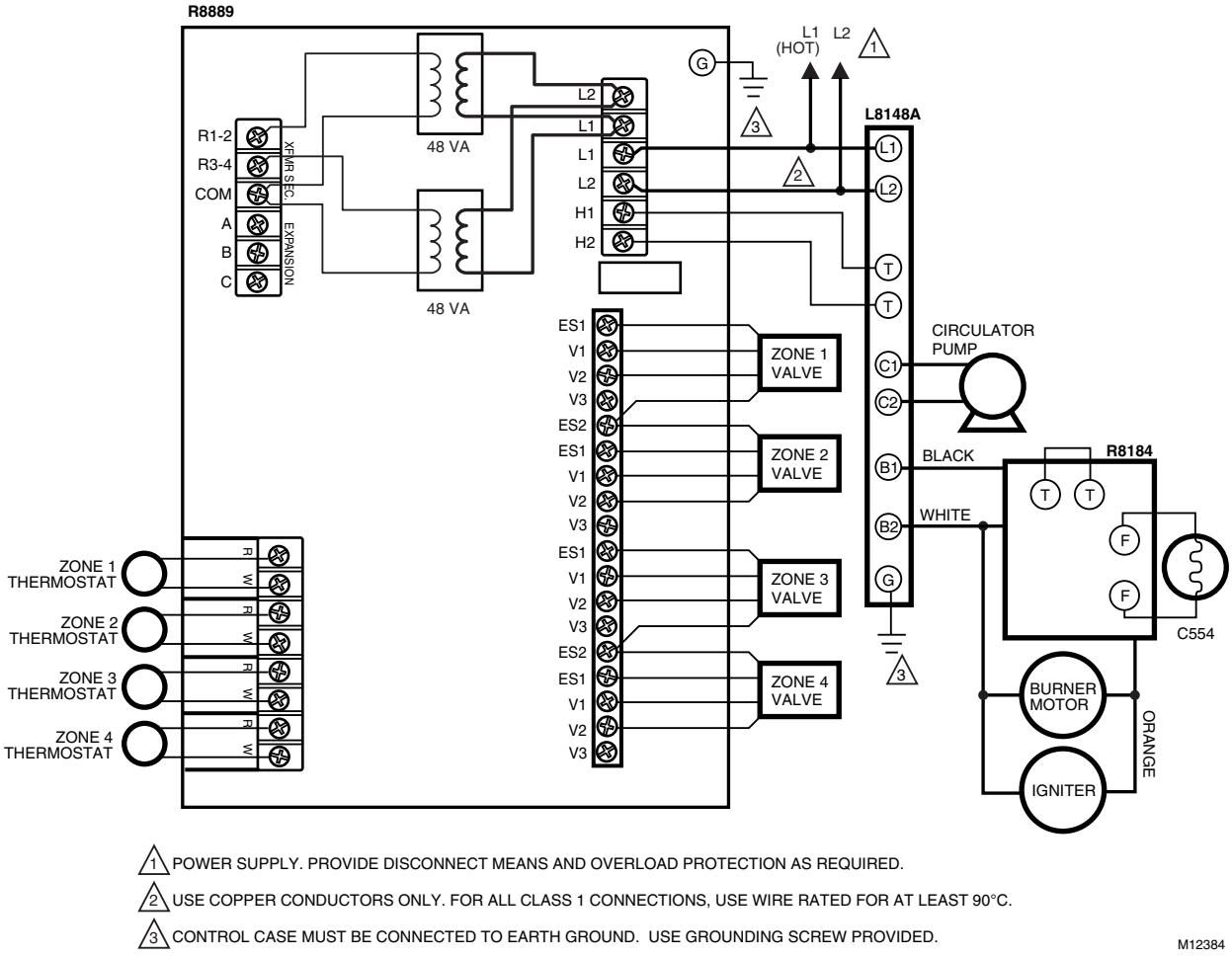


Fig. 8. Typical hookup for R8889 in oil-fired, tankless zoned systems with L8148A Aquastat® Controller and R8184P Oil Primary Control.

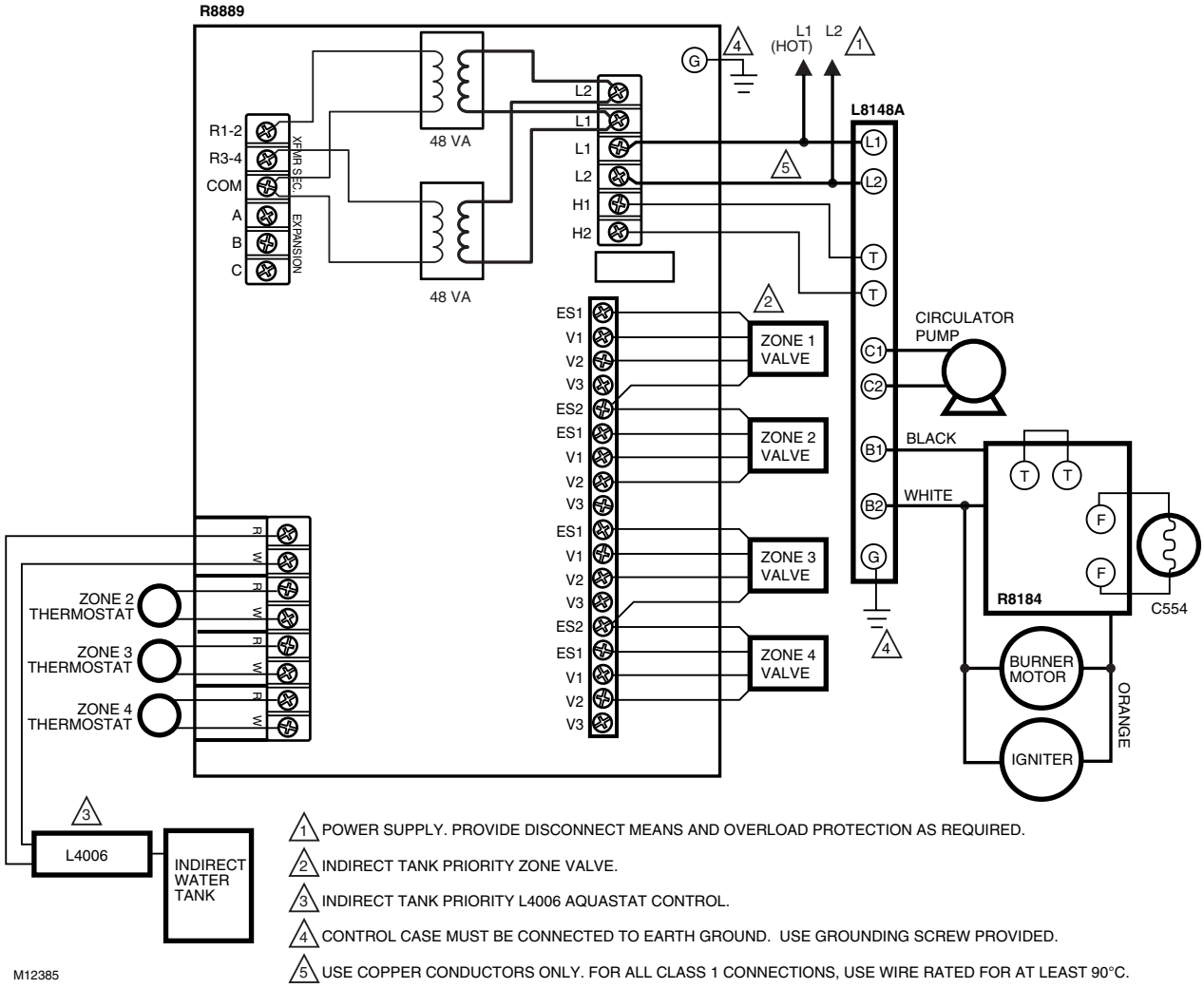


Fig. 9. Typical hookup for R8889 in oil-fired, zoned systems using L8148A Aquastat Controller and priority zoned indirect water tank.

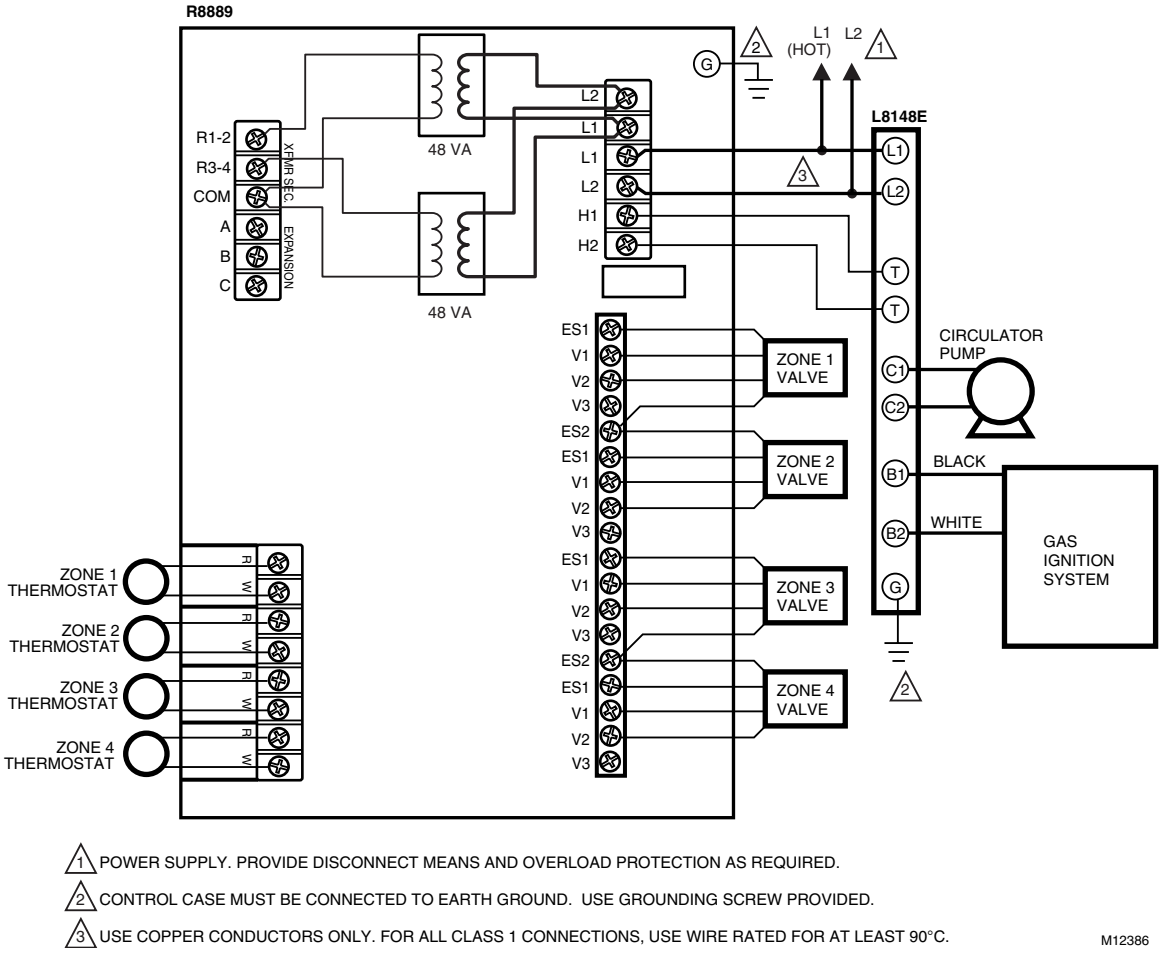


Fig. 10. Typical hookup for R8889 in 24V, gas-fired, tankless, zoned systems using L8148E Aquastat Controller.

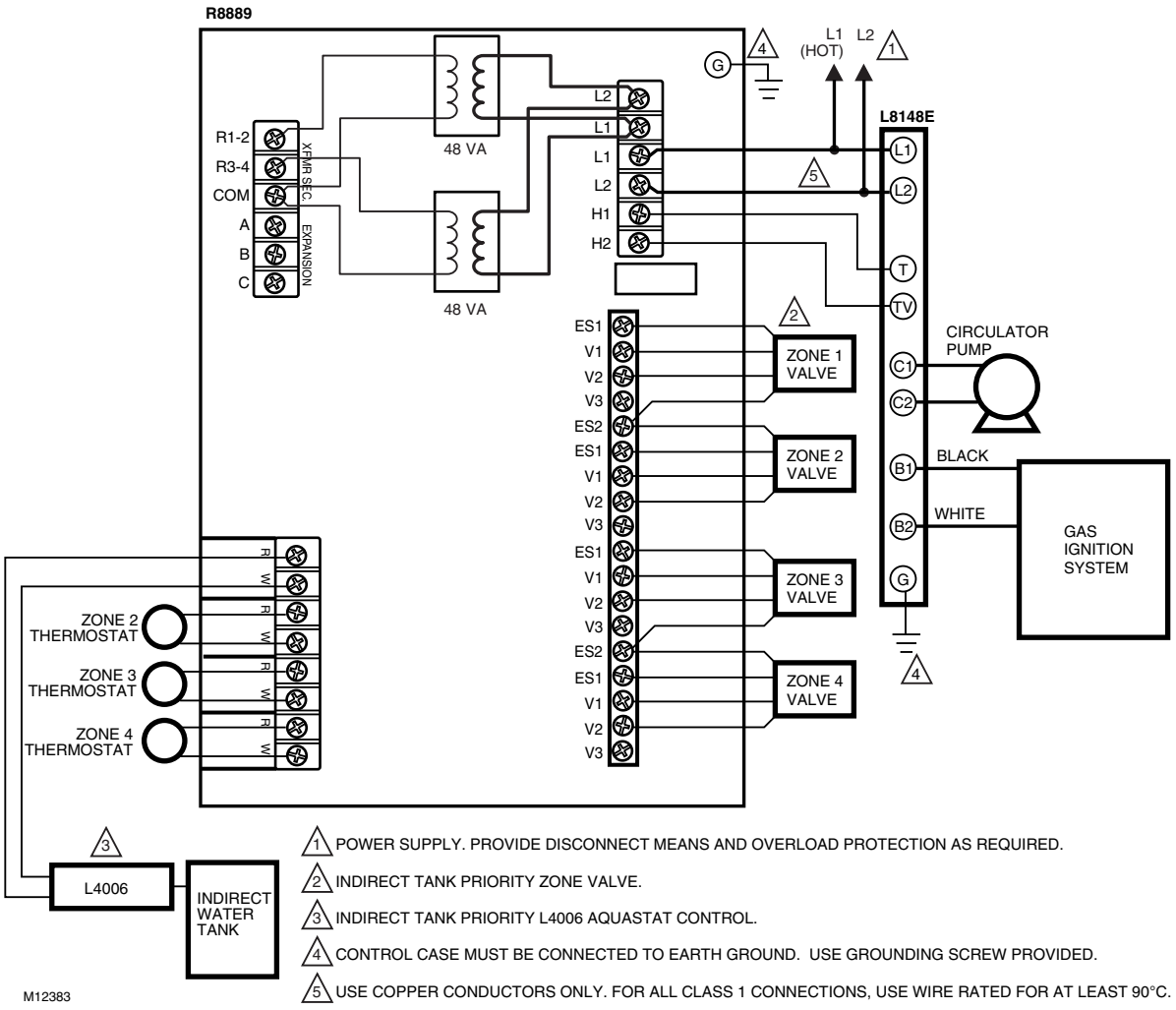


Fig. 11. Typical hookup for R8889 in 24V, gas-fired, zoned systems with L8148E Aquastat Controller and priority zoned indirect water tank.

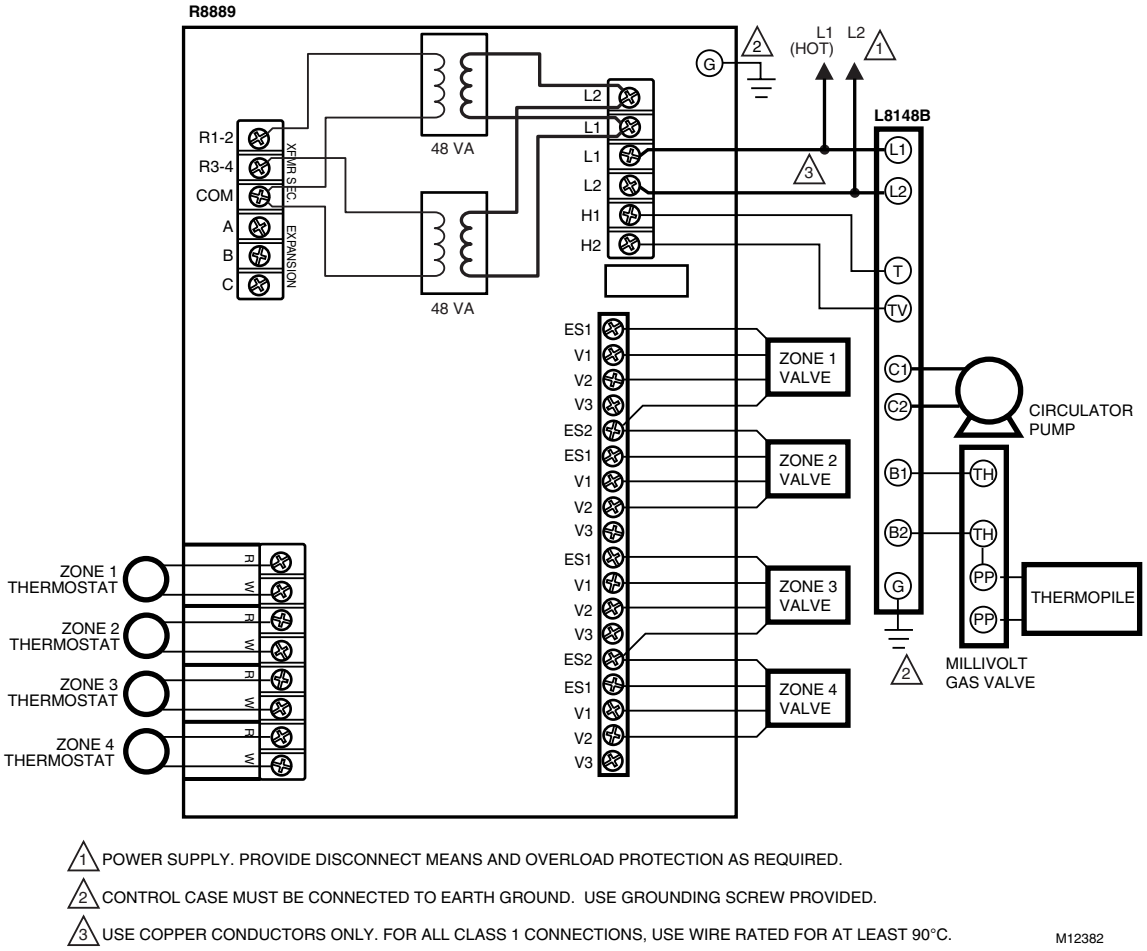
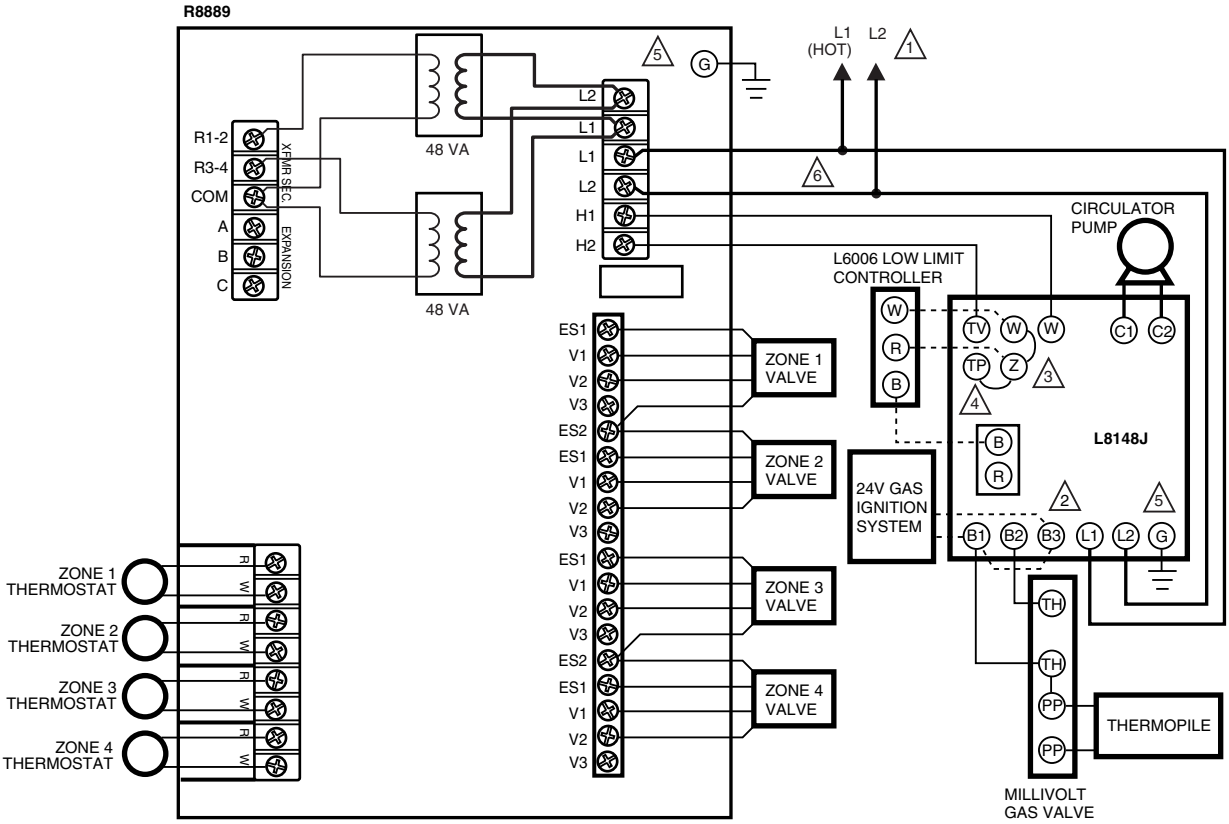


Fig. 12. Typical hookup for R8889 in millivolt, gas-fired, tankless zoned system.



1. POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
2. FOR 24 VAC OPERATION, JUMPER B1-B3; USE Z-W AND Z-TP JUMPERS. FOR MILLIVOLT OPERATION, REMOVE Z-TP JUMPER; USE Z-W JUMPER; CONNECT BURNER TO B1 TO B2.
3. REMOVE Z-W JUMPER IF SERIES 60 LIMIT US USED. WIRE LOW LIMIT CONTROLLER OR ZONE VALVES AS SHOWN. USE 24V (B1-B3) CIRCUIT ONLY.
4. FOR 24V BURNER, CONNECT B1-B3; USE JUMPERS Z-W AND TP-Z. FOR POWERPILE (MILLIVOLT) GAS VALVES, REMOVE JUMPER TP-Z. CONNECT BURNER B1-B2. DO NOT REMOVE JUMPER Z-W.
5. CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
6. USE COPPER CONDUCTORS ONLY. FOR ALL CLASS 1 CONNECTIONS, USE WIRE RATED FOR AT LEAST 90°C.

M12381

Fig. 13. Typical hookup for R8889 in millivolt or low volt, gas-fired system with L8148J Aquastat Controller.

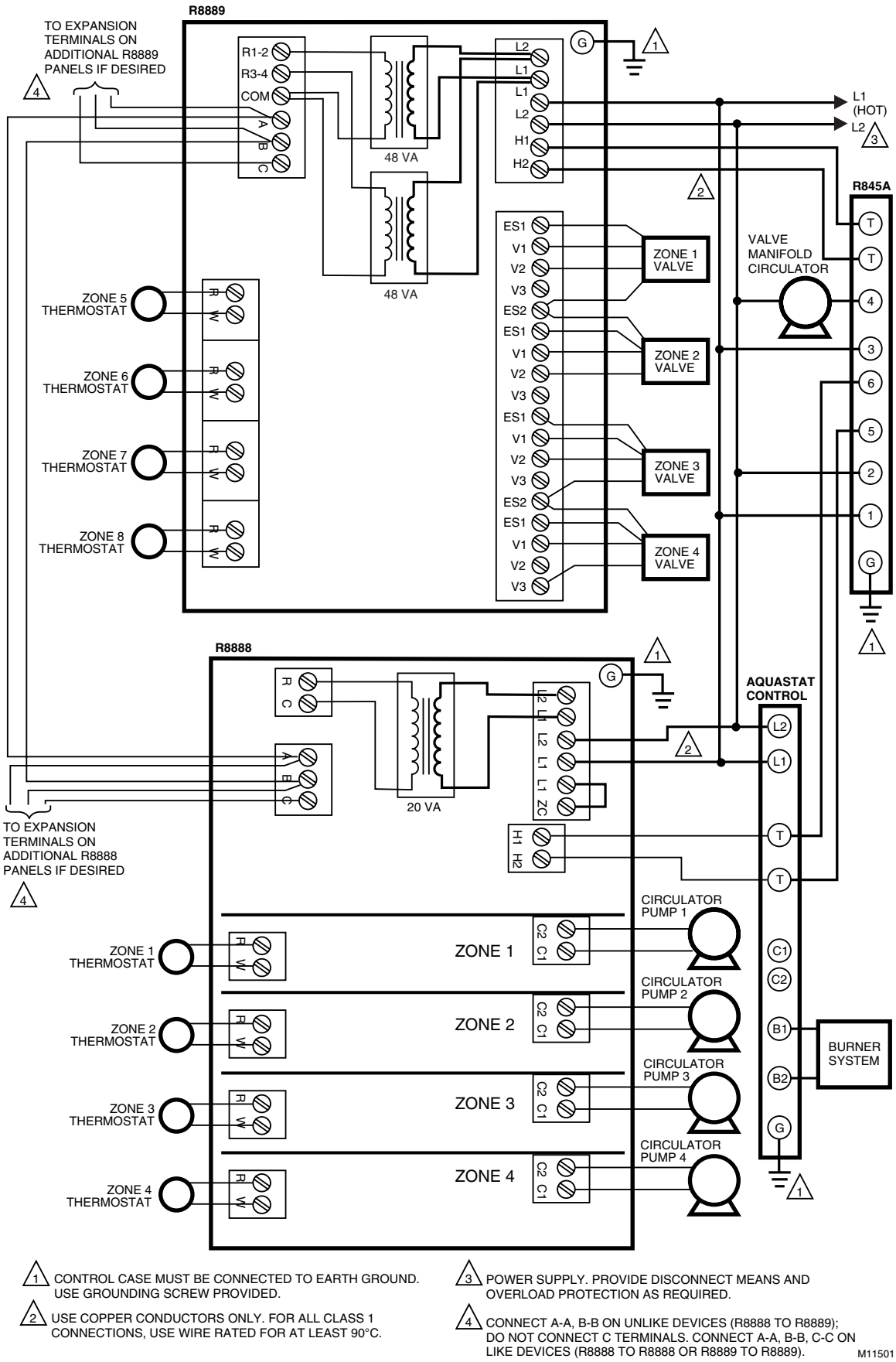
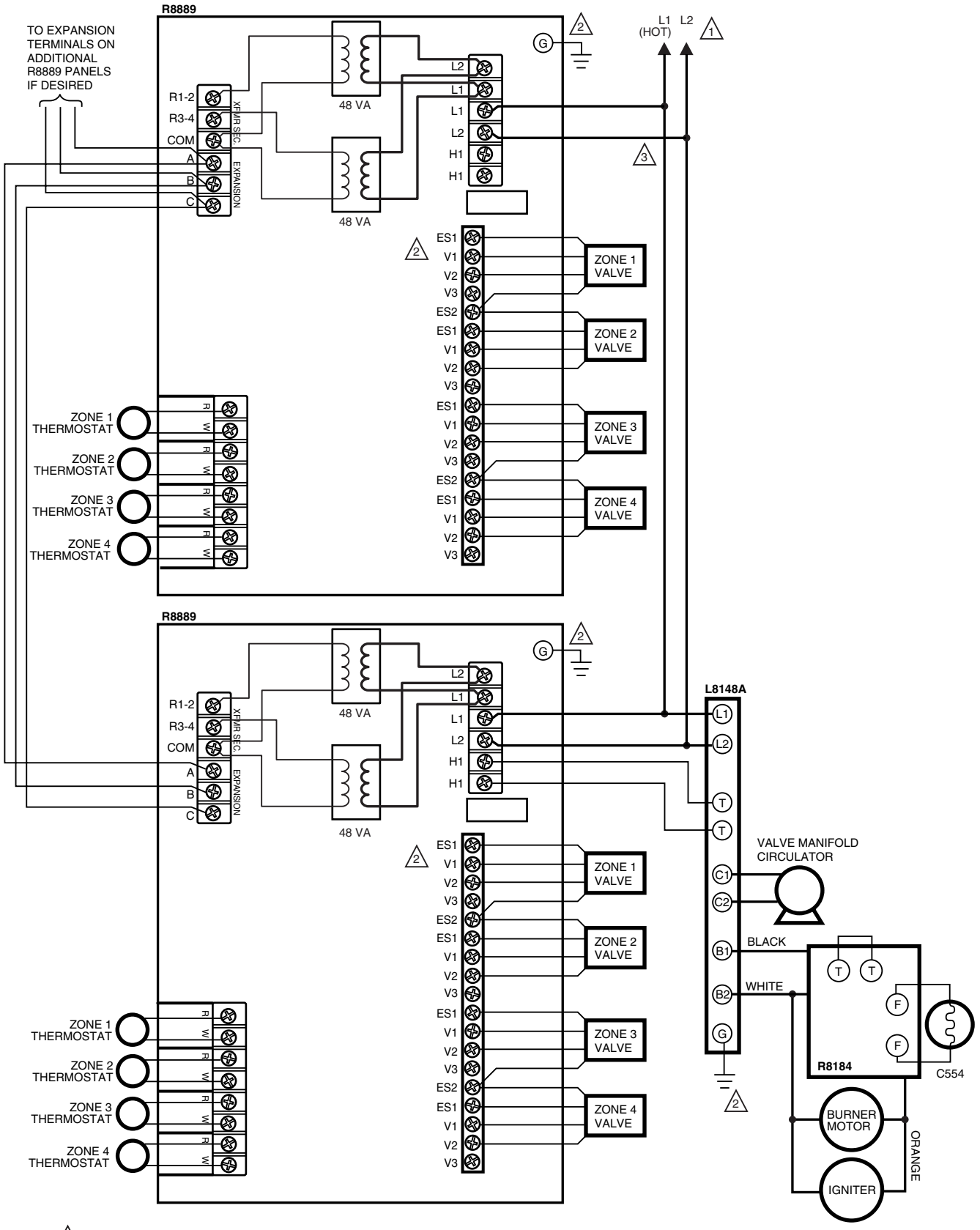


Fig. 14. Zone expansion using additional R8888s or R8889s in a mixed mode zoning application.



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.

3 USE COPPER CONDUCTORS ONLY. FOR ALL CLASS 1 CONNECTIONS, USE WIRE RATED FOR AT LEAST 90°C.

M12370

Fig.15. Zone expansion using additional R8889 Zone Panels.

OPERATION

Overview

The R8889 Hydronic Zone Valve Panel with Priority Control can control up to three or four (depending on model) zone valves. Additional zones may be added three or four zones at a time using additional R8889A,C or B,D Zone Panels, respectively.

Line voltage power connected to L1 and L2 on the R8889 Panel provides power to the 24V transformer. The transformer provides 24 Vac power to the R8889 Panel and the zone valves. A green light-emitting diode (LED) on the panel indicates that there is 24 Vac power applied to the R8889 Panel by each transformer.

When a zone thermostat calls for heat during standard operation, the R and W terminals make for that zone thermostat. The relay for that zone is energized and the green LED for that zone comes on. The zone valve relay for that zone is energized, providing 24 Vac across the V1 and V2 terminals (energizing that zone valve). The red LED for that zone comes on.

Each zone operates in the same sequence described above. As long as any zone is calling for heat, the burner relay is energized.

Priority Zoning Operation

The R8889 allows Zone 1 to be field-configured as a priority or non-priority zone. Zone 1 is factory-set as a priority zone. (Refer to Fig. 2 for location and settings of the priority enable and burner control switches.) This feature is typically used in installations where indirect hot water tanks are installed. When configured in this manner, a call for heat from the priority zone closes the valves on the other three zones, assuring maximum heat transfer to the hot water tank. Normal control of the non-prioritized zones returns when the priority zone call for heat ends. Since this feature is field-configurable, it can be disabled, giving equal priority to all four zones. Refer to Fig. 9 (oil-fired) and Fig. 11 (gas-fired) for typical wiring connections. Note that the LED for each zone remains on as long as a call for heat remains for that zone, even though the priority zone can cause its valve relay to be de-energized.

NOTE: When a power stealing thermostat is used in a non-priority zone, the heat call LED for that zone illuminates slightly under the following conditions:
- The power stealing thermostat is in the OFF state.
- PRIORITY ENABLE is ON.
- The priority zone is calling for heat.

Expansion Using Additional R8889s or R8888 (Fig. 14-15)

The R8889 can be expanded three or four zones at a time using additional R8889 or R8888 Zone Panels. Up to four zone panels (12 to 16 zones total) may be added to the system. Connect the system burner to the burner terminals on the Aquastat control. When using additional zones panels, the priority zone is maintained.

When wiring additional R8889s, connect the wires from the three expansion terminals (A,B,C) on the one zone panel to the expansion terminals on the next zone panel. See Fig. 15.

When running a mixed mode system (R8889-R8888 combination), connect an R845A as shown in Fig. 14. Connect the wires from the expansion terminals (A,B,C) on one zone panel to the expansion terminals (A,B,C) on the next zone panel. Connect A to A, B to B, and C to C on like panels (R8888 connected to R8888, R8889 connected to R8889). Do not connect the C terminals when connecting an R8889 to an R8888.

When using multiple panels, set the PANEL TYPE switch on one panel to the MAIN position. Zone 1 on this panel is the priority zone for the system. Set the other panels to the EXPANSION position. Set the PRIORITY ENABLE switch to the same position on all panels.

Thermostat Compatibility

The R8889 is compatible with both electromechanical and electronic thermostats. In the thermostat Off state, the R8889 allows up to 0.12A to be drawn, satisfying the *trickle charge* requirement of power-stealing electronic thermostats. In the thermostat On state, the R8889 provides 0.12A to satisfy the anticipator current requirement of all electromechanical and many electronic thermostats.

SERVICE AND CHECKOUT

⚠ CAUTION

Disconnect power supply before removing cover for servicing to prevent electrical shock or equipment damage.

1. Remove the R8889 cover.
2. With the cover removed, reconnect power to R8889 Zone Panel.
3. Check for power across L1 and L2 terminals using a voltmeter.
4. Check that green 24 Vac power LED lights, indicating 24 Vac power to low voltage circuit.

⚠ CAUTION

If transformer fails and LED does not light, line voltage can continue to be present at L1 and L2 terminals. Check for power using a voltmeter.

5. If the transformer is determined defective, replace it with Honeywell part no. AT87A1049.
6. During checkout, jumper thermostat R-W terminals on R8889 separately for each zone. The green LED for that zone lights, simulating a call for heat from the zone thermostat.

TROUBLESHOOTING

Check all wiring connections. Check out system components according to equipment manufacturer instructions. To perform troubleshooting, remove the R8889 cover from the panel.

⚠ CAUTION

Although the green LED (24 Vac power) is not lit with the power connected, line voltage may be present at L1 and L2 terminals if the LED is defective. Check for power across L1 and L2 terminals using a voltmeter only.

A zone thermostat is calling for heat, but there is no heat.		
1. Check 24 Vac power indicator LEDs.	**Power LEDs are on.** 1. Go to step 3.	**A power LED is not on.** 1. Go to step 2.
2. Check for power (120 volts) at XFMR PRI. L1-L2 terminals.	**120 volts are present at XFMR PRI. L1-L2.** 2. Check for 24 volts at R1-2 and R3-4 and COM terminals. If 24 volts are not present at terminals, tighten the wiring connections and recheck. If 24 volts continue to be absent, transformer is defective. Replace the transformer with part no. AT87A1049.	**120 volts are not present at XFMR PRI. L1-L2.** 2a. Check for 120 Volts at 120 Vac L1-L2. If 120 volts are present, replace R8889. 2b. If 120 volts are not present at 120 Vac L1-L2, check main power and wiring connections.
3. Check zone thermostat (green) indicator LED.	**Zone LED is on.** 3. Go to Step 4.	**Zone LED is not on.** 3. Jumper R,W terminals (for one zone) on the R88889 to simulate a call for heat. If the zone LED does not turn on, replace R8889. If the zone LED turns on, check the current draw between the R and W terminals. If 90 to 150 mA ac is measured with L1-L2 at 120 Vac, there is a problem with the thermostat or the wiring to the thermostat. Check the thermostat and thermostat wiring. If 90 to 150 mA ac is not measured with L1-L2 at 120 Vac, replace R8889.
4. Check burner operation.	**Burner LED is on.** **System Burner is off.** 4a. Jumper H1, H2 terminals. 4b. If burner starts, burner relay is defective. Replace part no. 208621 Burner Relay. Recheck. If burner does not start, replace R8889. 4c. If the system burner does not start, there is a problem with the external burner circuit. Check Aquastat Controller according to the manufacturer instructions.	**Burner LED is on.** **System Burner is on.** 4a. Check if red zone valve relay LED is on for the zone calling for heat. 4b. If LED is on, check for 24 volts at V1, V2 terminals for the zone that is calling for heat. If 24 volts are present, the problem is with the zone valve. Check the valve for that zone. If LED is off, replace relay and recheck. If the relay is not replaceable, replace the R8889. 4c. If 24 volts are not present, make sure that the wiring between the expansion terminals is correct.
	Burner LED is not on. **System Burner is off.** 4a. Make sure the wiring between the expansion terminals is correct. If the system burner does not start, replace R8889.	
A zone thermostat is not calling for heat, but there is heat.		
1. Check burner operation.	**Burner LED is not on** **System Burner is on.** 1a. Remove burner relay. If the system turns off, burner relay is defective. Replace part no. 208621 Burner Relay. 1b. If the system burner is on, remove the field wire from the H1 terminal. If the system burner is still on, the problem is with the external system burner circuit. If the system burner turns off, replace R8889.	

Home and Building Control
Honeywell Inc.
Honeywell Plaza
P.O. Box 524
Minneapolis MN 55408-0524

Honeywell Latin American Region
480 Sawgrass Corporate Parkway
Suite 200
Sunrise FL 33325

Home and Building Control
Honeywell Limited-Honeywell Limitée
155 Gordon Baker Road
North York, Ontario
M2H 3N7

Honeywell Europe S.A.
3 Avenue du Bourget
1140 Brussels
Belgium

Honeywell Asia Pacific Inc.
Room 3213-3225
Sun Hung Kai Centre
No. 30 Harbour Road
Wanchai
Hong Kong

Honeywell