



WHITE-RODGERS

8J48A

Relay-Hot Water Control
For use with 24 VAC or Self-Generating Gas Valve
(Suitable for External Zone Valve Load)

INSTALLATION INSTRUCTIONS

Operator: Save these instructions for future use!

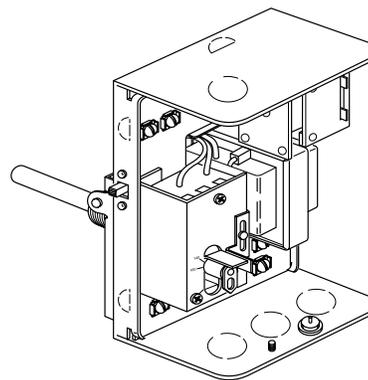
FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING OR OPERATING THIS CONTROL COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

DESCRIPTION

These relay-hot water controls combine a high limit control, a transformer, a circulator relay, and wiring terminals into a single unit. They are suitable for use on boilers equipped with a 24 volt or millivolt gas valve.

These controls are designed primarily for use on boilers that do not supply domestic hot water. (However, they are equipped with an extra terminal to permit them to be used on boilers with a tankless domestic coil by the addition of a separate SPDT low limit-circulator control on systems using a 24 volt gas valve.)

The internal transformer supplies power for operating a gas valve as well as the relay coil. On systems zones with motorized water valves, the internal transformer may also be used for powering some (or all) of the water valves.



PRECAUTIONS

If in doubt about whether your wiring is millivolt, line, or low voltage, have it inspected by a qualified heating and air conditioning contractor, electrician, or someone familiar with basic electricity and wiring.

Do not exceed the specification ratings.

All wiring must conform to local and national electrical codes and ordinances.

This control is a precision instrument, and should be handled carefully. Rough handling or distorting components could cause the control to malfunction.

⚠ CAUTION

To prevent electrical shock and/or equipment damage, disconnect electric power to system, at main fuse or circuit breaker box, until installation is complete.

⚠ WARNING

Do not use on circuits exceeding specified voltage. Higher voltage will damage control and could cause shock or fire hazard.

Do not short out terminals on gas valve or primary control to test. Short or incorrect wiring will burn out heat anticipator. Personal injury and/or property damage may result from shorted or incorrect wiring.

SPECIFICATIONS

ELECTRICAL RATINGS

Input Voltage: 120 VAC, 60 Hz

Circulator Motor: 8.0 Amps Full Load Current (120 VAC)
48.0 Amps Locked Rotor Current (120 VAC)

Gas Valve: 24.0 VAC, 0.65 Amp OR
Millivolt Systems (0.25 to 1.0 VDC, 0.25 Amp)

Combined Load of Zone Valves:

Internal transformer (terminals TV and Z) may be used for supplying power to four W-R Type 1311 or three Type 1361 zone Valves. (For other zone valves, total zone valve load is not to exceed 1.2 Amp.)

ROOM THERMOSTAT

Set adjustable heater (anticipator) at 0.25, or use a fixed heater with a 0.25 Amp rating.

HOT WATER CONTROLS

Range: High Limit – 140° to 240°F. (Some models have a Preset Dial Stop. Adjustments should be made by authorized service personnel only.)

Differential: High Limit – 8°F Fixed

Switch Action: High Limit – Open on rise



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Replaces 37-4013B
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INSTALLATION

NOTE

If the boiler manufacturer recommends a control location, then follow such recommendations. Otherwise, locate the control as close to the top of the boiler as possible, but not in the same section of the boiler that has fittings for domestic hot water. Never locate the control near a return pipe to the boiler.

PREPARING TO MOUNT CONTROL

This control can be mounted vertically or horizontally.

1. Loosen the set-screw holding the well in place (see fig. 1).
2. Push down and out on the well and carefully slide the capillary tube in slot.
3. Place the well in new notch and tighten the set-screw to secure the well in the new position.

MOUNTING THE CONTROL

1. Disconnect electrical power to the boiler.
2. Completely drain the boiler.
3. If a well tapping is not provided, prepare one near the top of the boiler.
4. Sparingly apply pipe joint compound to the well threads and install well.

NOTE

Use hex on well for tightening the well. Do not attempt to tighten by using the case as a handle.

5. Refill the boiler and check for water leaks.
6. Insert the bulb element into the well until it bottoms.
7. Locate and secure the coil of excess tubing so that it cannot touch electrical components.
8. Fit the back of the case into the well and tighten using the set-screw on the back panel.

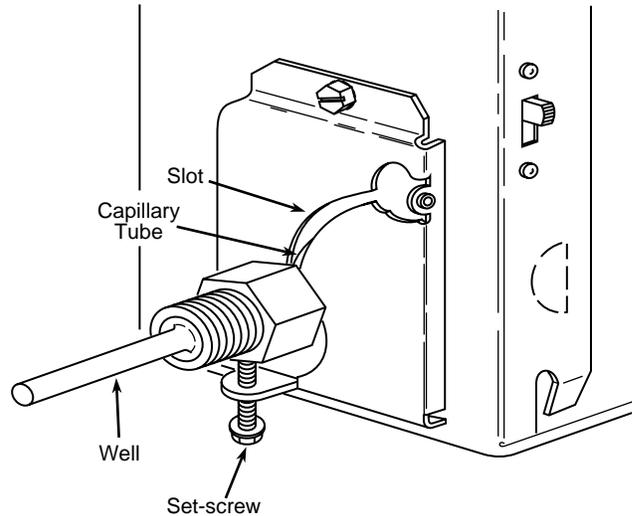
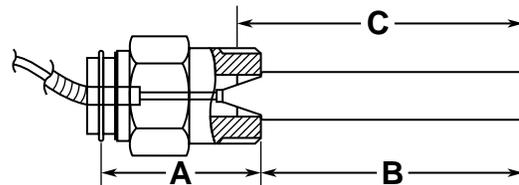


Figure 1

MOUNTING TO EXISTING WELL

(For use with well adaptor, which may be ordered separately.)

For best control performance, a well comparable to that shown in fig. 2 is recommended. However, by using a heat conductive grease, these controls will give satisfactory performance when used with large-diameter existing wells. If desired, both the conductive grease and replacement wells may be ordered separately (see fig. 2).



Well No.	Description	A	B	C
89-0211	1/2" Std. Shank	1 13/16"	3"	3 5/16"
89-0212	1/2" Std. Ext. Shank	3 5/16"	3"	3 5/16"
89-0213	3/4" Std. Shank	1 13/16"	3"	3 5/16"
89-0214	3/4" Std. Ext. Shank	3 5/16"	3"	3 5/16"
89-0215	3/4" Extra Ext. Shank	4 13/16"	3"	3 5/16"

Conductive Grease No. 145-0163

Figure 2

DIAL SETTING

When replacing an existing control, adjust the setting of the high limit to correspond with that of the old control.

Set the pointer to the temperature at which the contacts of the high limit are to open (see fig. 3)

Models with a preset dial stop are to be adjusted by authorized service personnel only.

To reset the dial stop, loosen the stop adjust screw and reposition the stop to the desired setting.

Retighten the stop adjust screw.

WARNING

DO NOT set the stop higher than the original manufacturer's recommended setting. Personal injury and/or property damage may result.

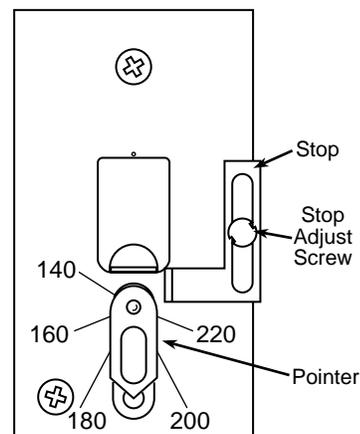


Figure 3

WIRING AND OPERATION

All wiring should be installed according to local and national electrical codes and ordinances.

Figure 4 shows wiring connections for a typical installation using the 8J48A with a 36C03 or a 36C53 24V manifold gas valve. Figure 5 shows wiring connections for the 8J48A with a 36C03U or 36C53U self-generating gas valve. Operation is as follows:

As the room thermostat contacts close, the relay coil is energized and closes its two sets of relay contacts. The manifold gas valve opens as the no. 1 relay contacts close, while the circulator motor starts as the no. 2 relay contacts close.

When the room thermostat opens its contacts, the manifold gas valve closes and the circulator motor stops.

If the boiler temperature exceeds the setting of the high limit while the thermostat is calling for heat, the high limit will close the gas valve but permit the circulator to run as long as the thermostat is calling for heat.

AUTO/MANUAL SWITCH

NOTE

For manual operation of self-generating millivolt systems only.

The manual switch, located on the outside of the controls case, allows operation of the burner during power failures. When the switch is set to **MANUAL**, the burner will operate continuously until the high limit temperature is reached. The circulator, which requires line voltage to operate, will not function in **MANUAL** mode. When power is restored, reset the switch to **AUTO** to resume automatic operation.

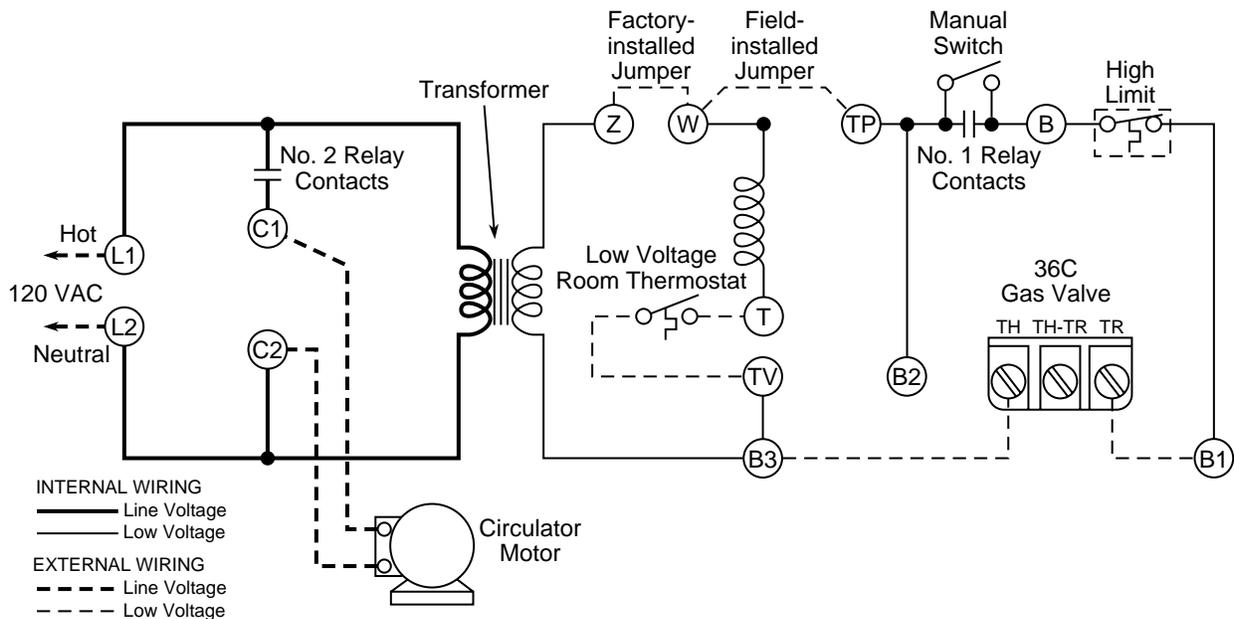


Figure 4. 24 Volt AC Gas Valve

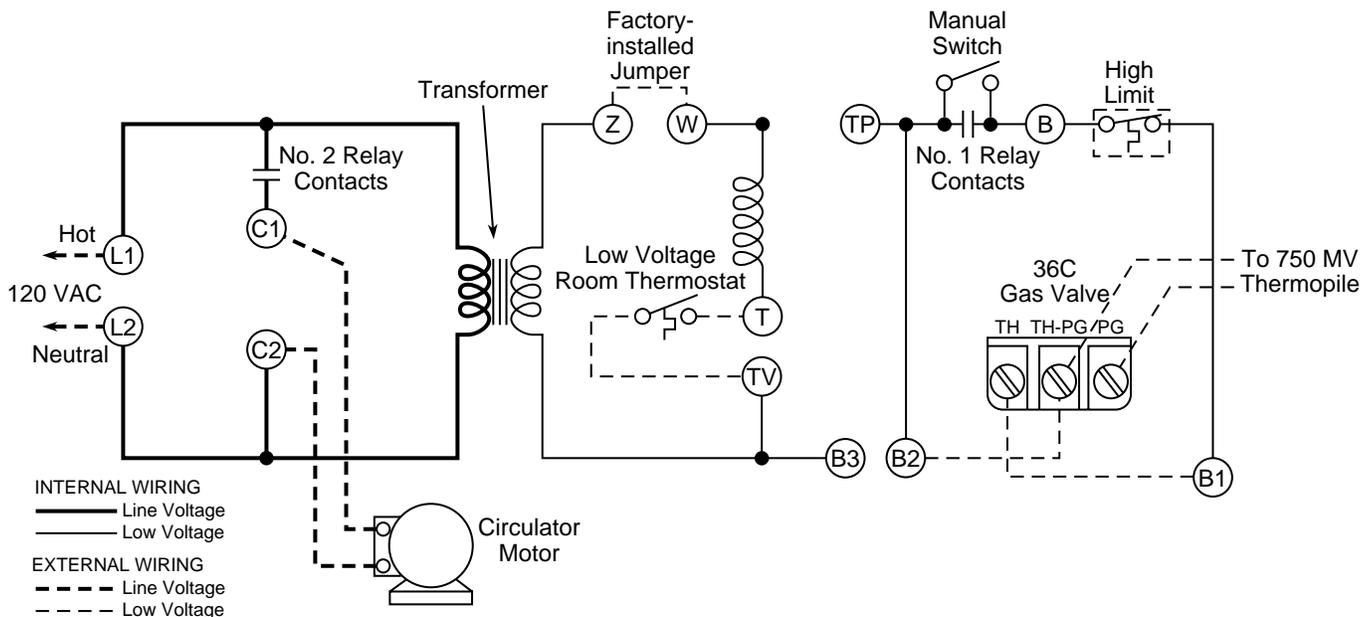


Figure 5. Millivolt Gas Valve

WIRING AND OPERATION (cont'd)

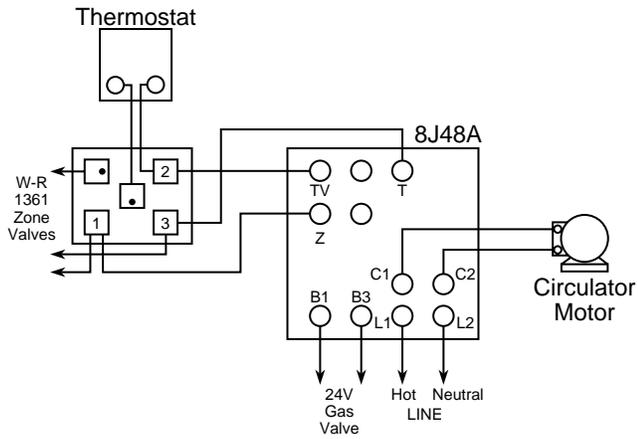
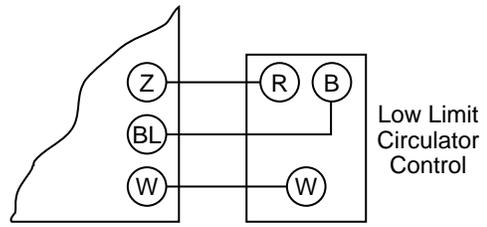


Figure 6. Typical Connections for Zoning with 2-Wire Zone Valves



NOTE: Remove external jumper between W and Z terminals

Figure 7. Alternate Connections for using Separate Low Limit-Circulator Control on Boiler with Tankless Domestic Coil

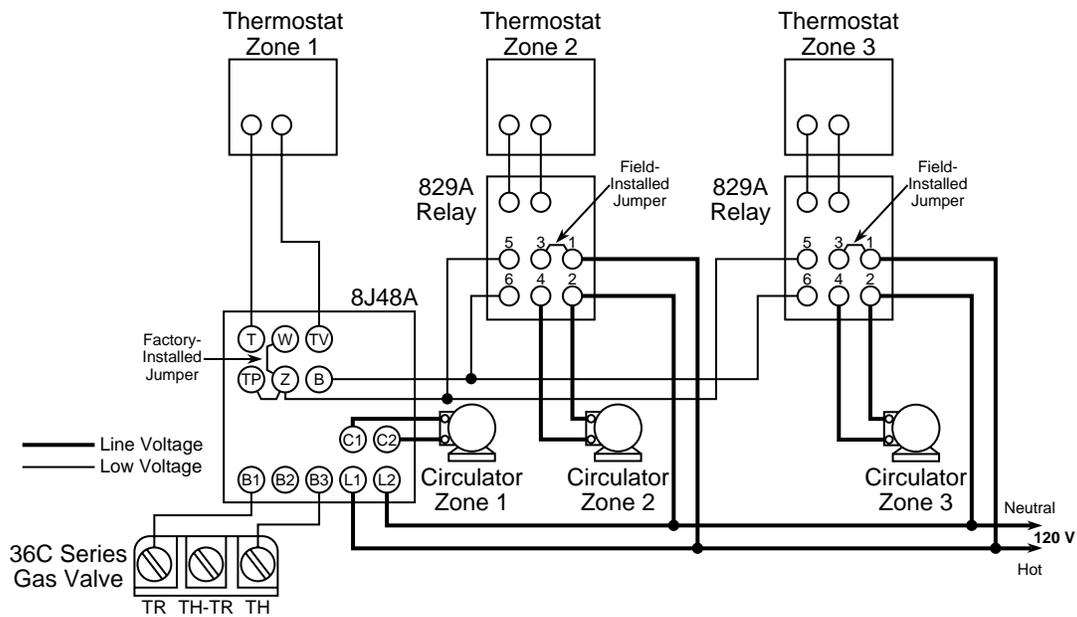


Figure 8. 8J48A - 24 Volt Systems Zoned with Circulators

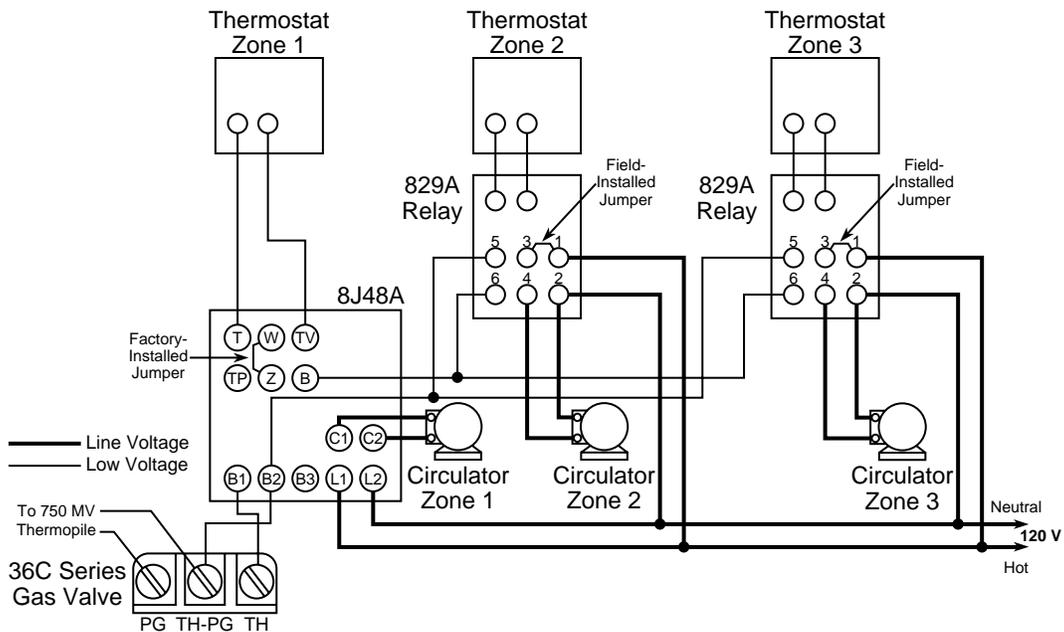


Figure 9. 8J48A - Millivolt Systems Zoned with Circulators