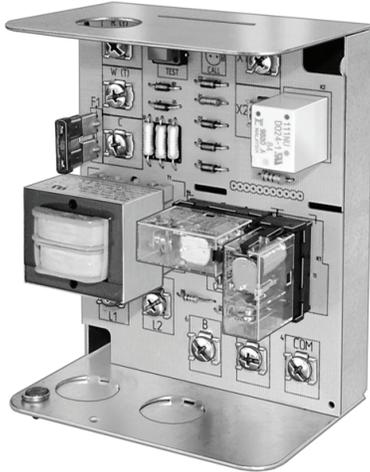




R8845U Universal Switching Relay

PRODUCT DATA



APPLICATION

The R8845U Universal Switching Relay provides intermediate switching of line- and low-voltage devices from a line- or low-voltage controller. The R8845U may be used to replace several Resideo or competitive switching relays and is typically applied in hydronic heating systems.

FEATURES

- **Replaceable, socketed relays.**
- **Replacement relay common to other hydronic replacement controls.**
- **Two troubleshooting LEDs.**
- **Push-to-test button.**
- **Replaceable transformer fuse.**
- **Low-voltage contact ratings for Powerpile® applications.**
- **Long-life DC relay drive control technology.**
- **Relays can be used with external 24 Vac or 24 Vdc supply, line-voltage control, or with internal 24V transformer.**
- **One model replaces several competitor models.**
- **One model replaces many Resideo models: R182A,B,C,J; R482A,B,C,J; R845A, R882A,B,C,J and RA832A. (See Table 1, Replacement Cross Reference.)**

SPECIFICATIONS

IMPORTANT

The specifications given in this publication do not include normal manufacturing tolerances. Therefore, 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.

Model: R8845U Universal Switching Relay with 24V controller for switching one- or two-line voltage loads and one low-voltage load.

Electrical Ratings:

Voltage: 120 Vac, 60 Hz.

Thermostat Heat Anticipator Setting: 0.12A.

Transformer Ratings:

Primary: 120V, 60 Hz.

Secondary: 24 Vac, 12 VA maximum, 9 VA available for external loads. Secondary protected by replaceable 1A automotive fuse.

Contact Ratings: 7.4 AFL, 44.4 ALR on each set of line-voltage contacts; maximum connected load is 2000 VA.

Switching Action: Two Spst, plus Powerpile® rated low-voltage Spst. If normally closed contacts are needed, use RA889A.

Temperature Ratings:

Ambient: -20°F to 120°F (-29°C to 49°C).

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

Electrical Connections: No. 8 captivated wire clamp screw terminals.

Finish: Zinc plated steel.

Knockouts:

Case Bottom: Three 1/2 in. (13 mm) for conduit box.

Case Top: One 7/8 in. (22 mm) for wiring.

Approvals:

Underwriters Laboratories Inc. Listed: File no. E4436, Guide no. XAPX.

Canadian Underwriters Laboratories Listed: Guide no. XAPX7.



Dimensions: See Fig. 1.

Cross Reference: The R8845U replaces Resideo models R182A,B,C,J; R482A,B,C,J; R845A, R882A,B,C,J and RA832A, as well as several competitive models. See Table 1 for additional cross reference information.

Thermostat Compatibility: All Resideo electromechanical and most electronic 2- or 3-wire. Select thermostats with 0.12A heating anticipator settings to match the electrical rating of the R8845A Switching Relay.

Replacement Parts:
32002190-001 Replacement Relay.
Replacement Fuse: Use a 1A automotive fuse.

Table 1. R8845U Replacement Cross Reference.

Manufacturer	Model	Connections											Comments
		Input Line Voltage		Power Relay 1		Power Relay 2		Line Voltage Relay		Thermostat			
Resideo	R8845U	L1	L2	COM	N.O.	A	B	X1	X2	W(T)	R(T)	C	–
Resideo	R845A	1	2	3	4	5	6	–	–	T	T	–	–
	RA832A	1	2	–	3	–	4	X	X	T	T	–	Jumper L1 to COM and A in R8845U.
	R182A	1	2	7	8	–	–	–	–	See Fig. 8 thermostat connections.	R8845U has lower output load rating. Check load requirements. use RA889A if normally closed contacts are required.	–	–
	R182B	1	3	6	8	–	–	–	–				
	R182C	1	2	6	8	3	5	–	–				
	R182J	L1	L2	–	4	–	7	–	–				
	R482A	1	2	7	8	–	–	–	–	Jumper R(T) to W(T).	Line voltage switched inputs go to L1 and L2. See Fig. 9B.	–	–
	R482B	1	2	6	8	–	–	–	–				
	R482C	1	2	6	8	3	5	–	–				
	R482J	1	2	6	8	3	4	–	–				
	R882A	–	–	7	8	–	–	–	–	W	–	B	R8845U has lower output load rating. Check load requirements.
	R882B	–	–	6	8	–	–	–	–	W	–	B	Use R889A if normally closed contacts are required.
	R882C	–	–	6	8	3	5	–	–	W	–	B	
R882J	–	–	6	8	3	4	–	–	1	–	2		
Argo	AR821	1	2	3	4	5	6	–	–	T	T	–	R8845U has lower output load rating. Check load requirements.
	AR822	L1	L2	3	4 N.O.	5	6 N.O.	–	–	G(T)	R(T)	C	Use R889A if normally closed contacts are required.
Erie	SR100A T	L1	N	3	4 N.O.	5	6 N.O.	–	–	G(T)	R(T)	C	
White-Rogers	829-189	1	2	3	4	–	–	–	–	B	R	W	R8845U has lower output load ratings. Check load requirements.
	829-832	1	2	–	4	–	3	X1	X2	T	T	–	
Taco	SR501	H	N	3	4 N.O.	5	6 N.O.	–	–	W(T)	R(T)	C	Use RA889A if normally closed contacts are required.

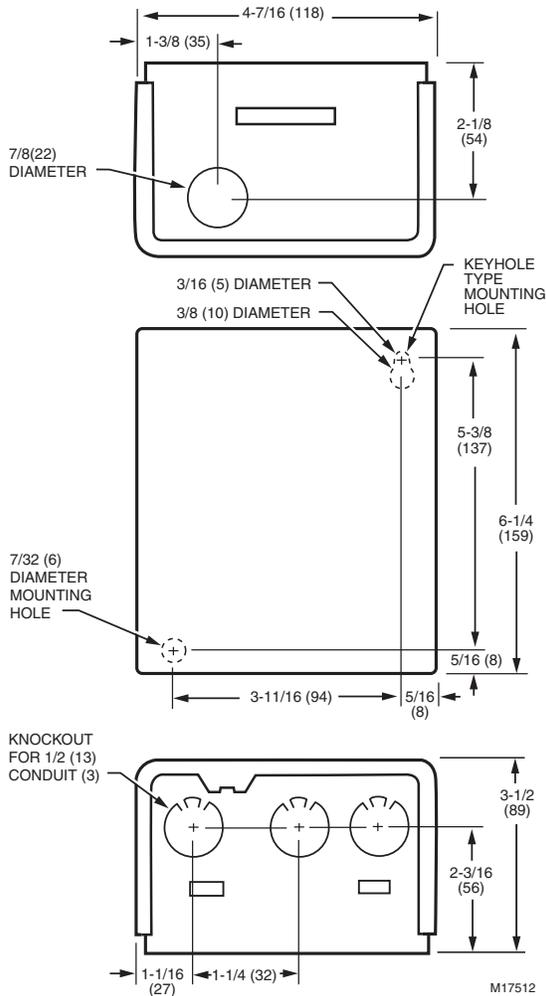


Fig. 1. R8845U dimensions in in. (mm).

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.
5. Follow local codes for installation and application.



WARNING

Electrical Shock Hazard.

Can cause severe injury or death.

The transformer core is not bonded. Disconnect power supply before wiring.

Mounting

In replacement applications, mount the new relay in the same location as the old relay. For new installations, locate the relay vertically on a solid wall or partition as close as possible to the device to be controlled. Select a location that is easily accessible for installation and service.

NOTE: To reduce the possible transformer hum and relay noise that is sometimes amplified by mounting surfaces such as sheet metal, plasterboard, and similar materials, place rubber or felt washers between the case and the mounting surface.

1. Position the relay and mark the mounting holes. See Fig. 1.
2. Start a screw in the upper right corner for the keyhole type mounting hole. Screw it down within about 1/8 in. (3 mm) of the surface.
3. Hang the relay on the screw, position the case, and start the bottom screw.
4. Tighten both screws.

WIRING



WARNING

Electrical Shock or Personal Injury Hazard.

Can cause severe injury or death.

Use only NEC Class 1 wire for all line voltage wiring connections. Class 1 wires must be rated for at least 167°F (75°C).

All wiring must comply with all applicable electrical codes, ordinances, and regulations. Follow all instructions furnished with the controlled equipment.

IMPORTANT

The switching relay terminals are approved only for use with copper wires.

When two or more line-voltage load devices are to be controlled in parallel, the total current must not exceed the rating for the relay load outputs. Never connect load terminals to a load that uses more current than the amount listed in the electrical ratings on the relay. See Table 2 for maximum lowvoltage wiring length specifications. See the schematic and typical hookups in Fig. 2 through 9.

Table 2. Low Voltage Maximum Wire Lengths.

Wire Size (AWG)	Total Wire Length		Wire Length of Run to Thermostat	
	Feet	Meters	Feet	Meters
22	120	38.0	60	18.0
20	200	61.0	100	30.5
18	300	91.5	150	45.5
16	500	152.5	250	76.0
14	800	244.0	400	122.0

R8845U UNIVERSAL SWITCHING RELAY

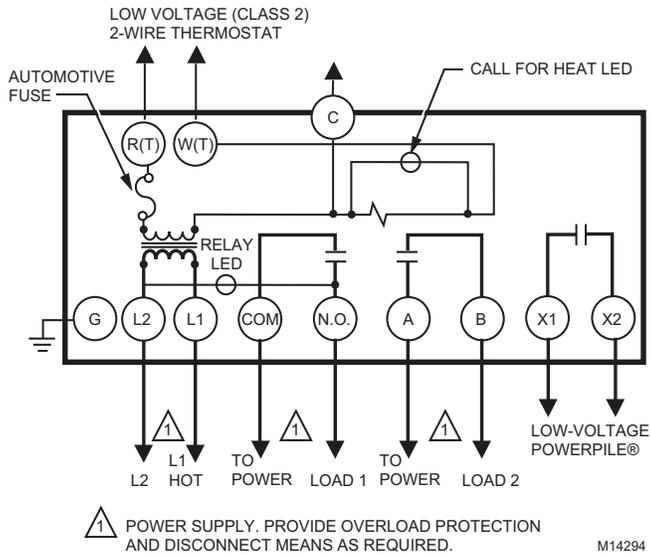


Fig. 2. R8845U Internal schematic and typical hookup.

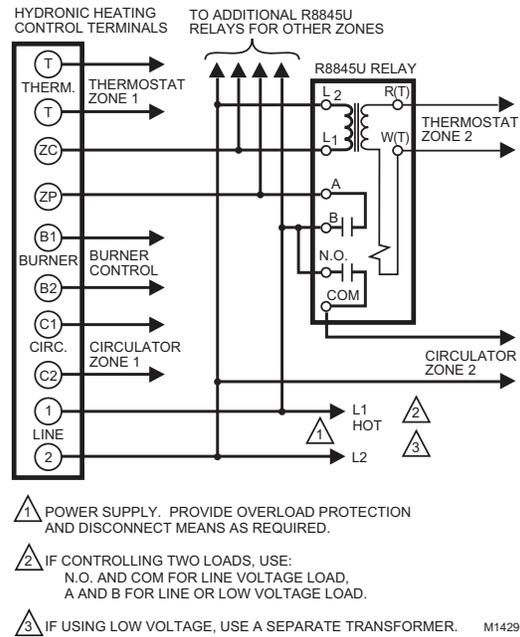


Fig. 3. R8845U schematic diagram for multizone, hydronic heating system (applies for any number of additional zones).

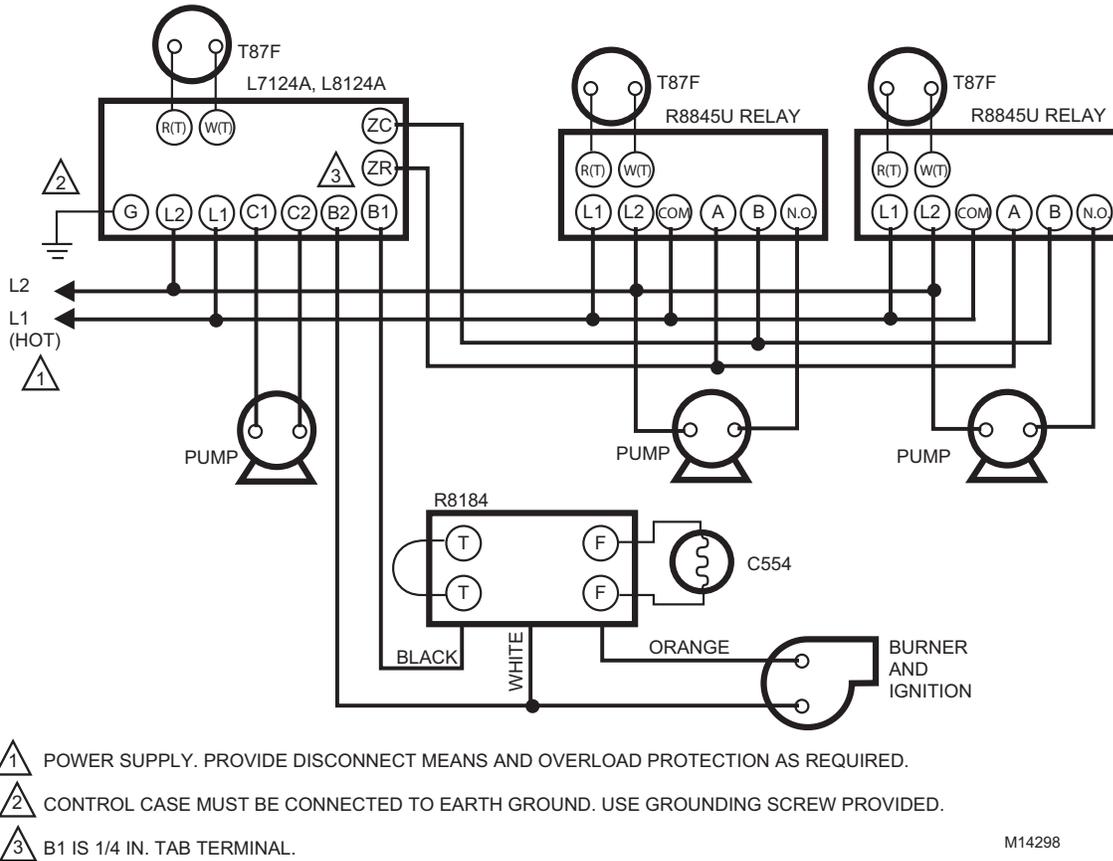
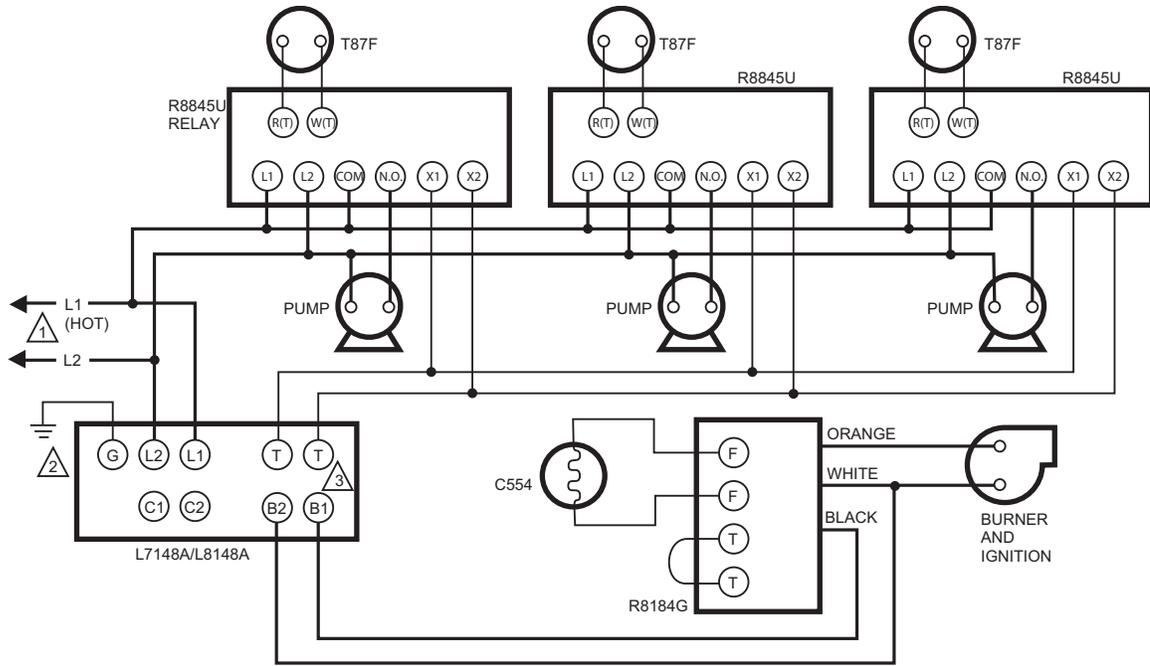


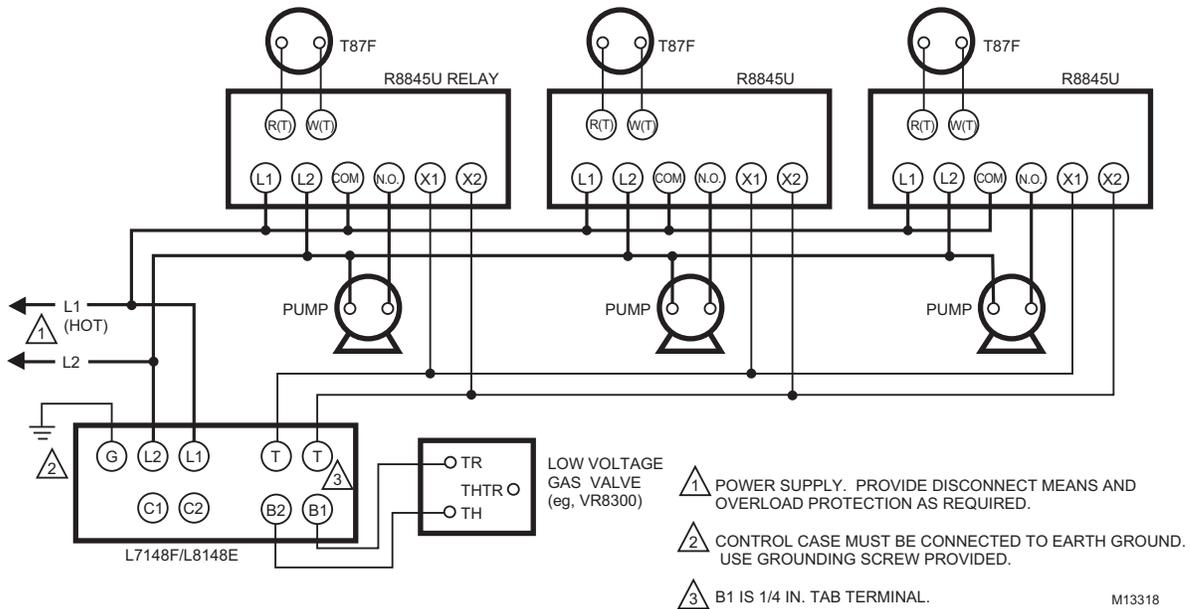
Fig. 4. R8845U hookup for L7124A/L8124A in an oil-fired, tankless hot water, zoned, pump system.



- 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 B1 IS 1/4 IN. TAB TERMINAL.

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Fig. 5. R8845U hookup for L7148A/L8148A in an oil-fired, tankless hot water, zoned, pump system.



- 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 B1 IS 1/4 IN. TAB TERMINAL.

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Fig. 6. R8845U hookup for L7148F/L8148E in a gas-fired, 24V, zoned, pump system.

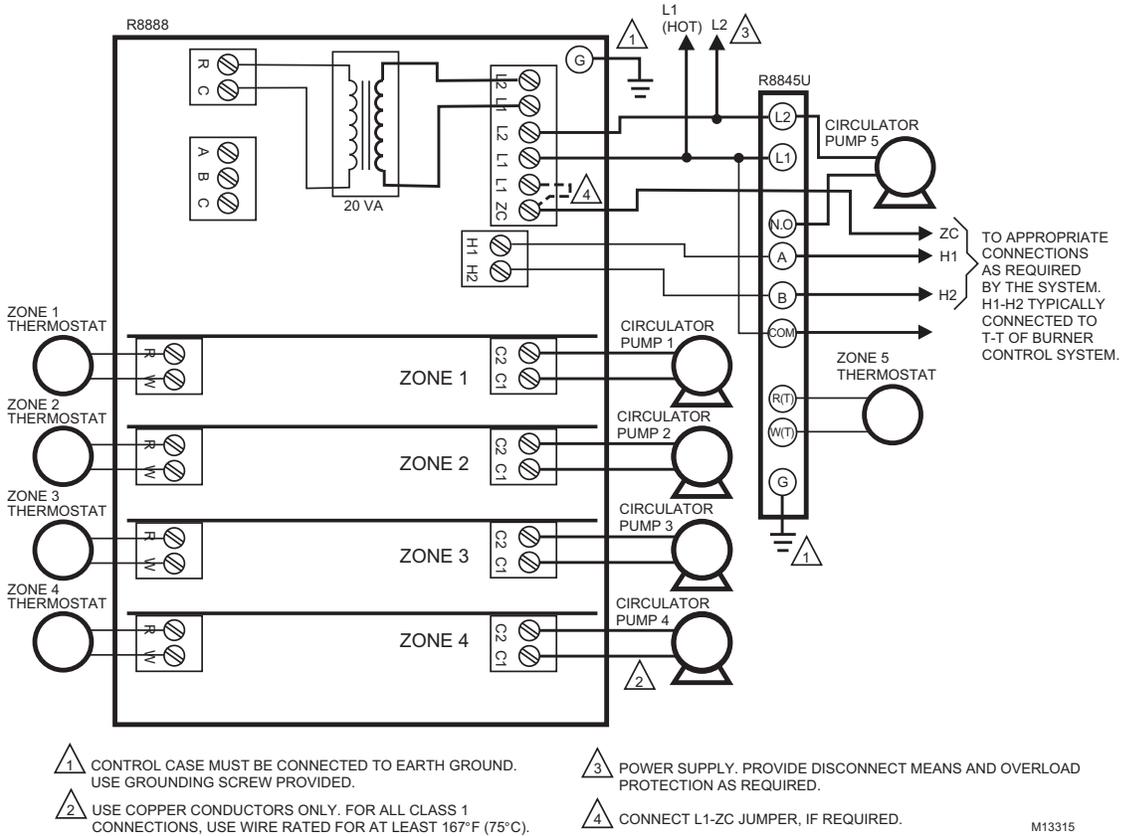


Fig. 7. R8888 zone expansion using additional R8845U Universal Switching Relays.

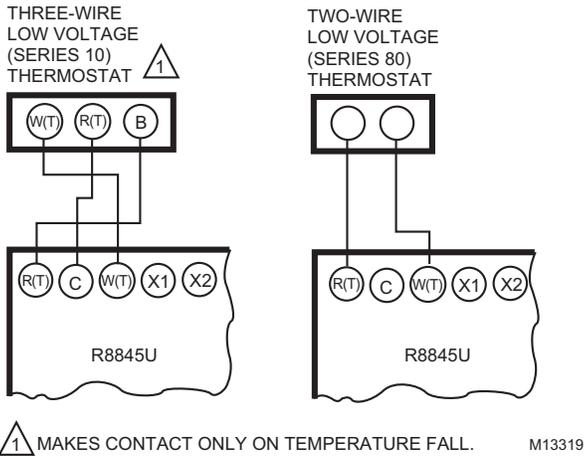


Fig. 8. R8845U thermostat connections.

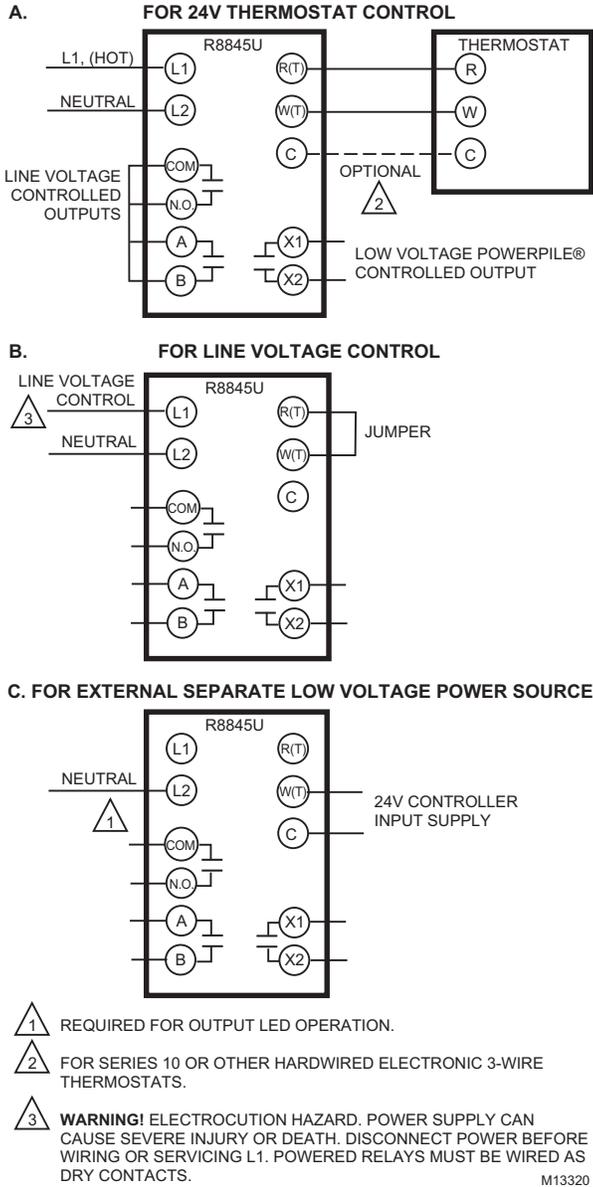


Fig. 9. R8845U control options.

OPERATION

The R8845U consists of a transformer, two Spst line voltage relays, a Spst low-voltage relay and wiring terminals. When line-voltage is applied to the transformer, the relay is powered on thermostat contact closure. The relay may also be used to provide electrical isolation in low-voltage circuits, if powered from a 24 Vac or 24 Vdc external source connected to W(T) and C. Fiber barriers separate line- and low-voltage connections.

CHECKOUT

1. Keep the cover on the relay during normal operation and remove only for service and checkout.
2. Relay contacts require no cleaning; they are arranged to close with a wiping action and are self-cleaning. The contacts may turn black after being in service for some time; this discoloration does not prevent proper operation.
3. After installation is complete, operate system through at least one cycle from the controller to make certain the relay controls the equipment as intended.

TROUBLESHOOTING

Test Button

This connection is the same as a call for heat connection between the R(T) and W(T) terminals.

Heat Call LED

- The LED should light if there is a call for heat or if the test button is pressed.
- If the LED remains off during a call for heat and turns on when the Test Button is pressed, the thermostat is not operating correctly.
- If the LED remains off on a call for heat and also remains off when the Test Button is pressed, the R8845U is not operating correctly. Check the fuse; if the fuse is intact, replace the control.

Relay LED

This LED lights whenever there is 120 Vac (L1) on the N.O. terminal (when COM/N.O. relay contacts are closed).



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1-800-468-1502
68-0215-02 M.S. Rev. 07-21 | Printed in United States

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