



RA889A Switching Relay

PRODUCT DATA



FEATURES

- High load switching capability.
- Troubleshooting LED.
- Push-to-test button.
- Replaceable transformer fuse.
- Long-life DC relay drive control technology.
- Relay for use with external 24 Vac or 24 Vdc supply, with line-voltage control, or with internal 24V transformer supply.
- One model replaces many Resideo models. (See Table 1 Replacement Cross Reference.)

APPLICATION

The RA889A Switching Relay provides intermediate switching of line- and low-voltage devices from a line- or low-voltage controller and is typically applied in hydronic heating systems.

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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: RA889A Switching Relay with 24V controller for switching one-line voltage load.

Electrical Ratings:

Voltage: 120 Vac, 60 Hz.

Thermostat Heat Anticipator Setting: 0.12A.

Transformer Ratings:

Primary: 120 Vac, 60 Hz.

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

Contact Ratings: 15 AFL, 30 ALR; maximum connected load 2000 VA.

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

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

Switching Action: Spdt, plus Powerpile® rated low voltage Spst relay.

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 Inc. Listed: Guide no. XAPX7.

Dimensions: See Fig. 1.

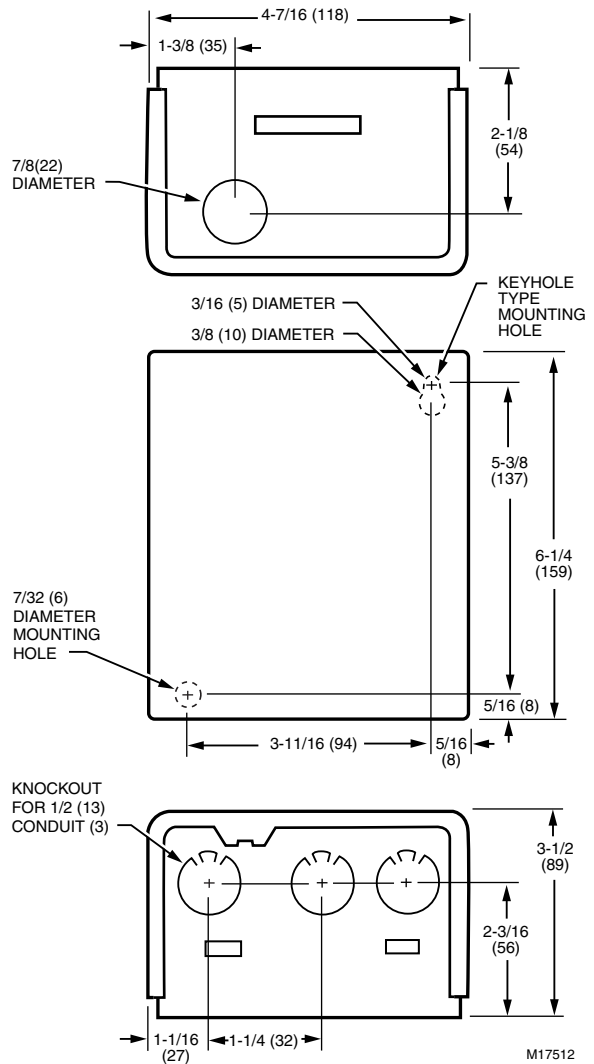


Fig. 1. RA889A dimensions in in. (mm).

Cross Reference: The RA889A replaces many Resideo models. See Table 1 for additional cross reference information.

Thermostat Compatibility: Compatible with most digital and mechanical, low-voltage thermostats. For mechanical thermostats, use 0.12A heating anticipator setting to match the electrical rating of the switching relay.

Replacement Parts:

32002190-001 Replacement Relay.

Relay Fuse: 1A automotive fuse.

Table 1. RA889A Replacement Cross Reference.

Model	Connections										Comments
	Input Line Voltage		Power Relay			Low Voltage Relay		Thermostat			
RA889A	L1	L2	COM	N.O.	N.C. (A)	X1	X2	W(T)	R(T)	C	—
RA89A ^a	1	2	3	4	—	—	—	T	T	—	—
R182A ^a	1	2	7	8	—	B	R	See Fig. 6 thermostat connections			Jumper L1 to COM and between X1 and R(T) in RA889A.
R182B	1	2	8	6	7	B	R				Requires jumper between X1 and R(T).
R182C ^b	1	2	8	6	7	B	R				
R482B	1	2	8	6	7	—	—	Jumper R(T) to W(T).			Line voltage switched inputs go to L1 and L2. See Fig. 7B.
R482C ^b	1	2	8	6	7	—	—				
R482J ^b	1	2	6	8	7	—	—				Line voltage inputs go to L1 and L2. See Fig. 7B.
R882A ^a	—	—	8	7	—	—	—	W	—	B	—
R882B	—	—	8	6	7	—	—	W	—	B	
R882C ^b	—	—	8	6	7	—	—	W	—	B	
R882J ^b	—	—	6	8	7	—	—	1	—	2	

^a RA889A has SPDT relay with one normally-open and one normally-closed, line-voltage rated contacts. Use R8845U if two sets of normally-open, line-voltage rated contacts are required.

^b RA89A has lower output load rating. Check load requirements.

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.
Power supply can cause severe injury or death.
 Transformer core 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 Hazard.
Can cause serious personal 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.

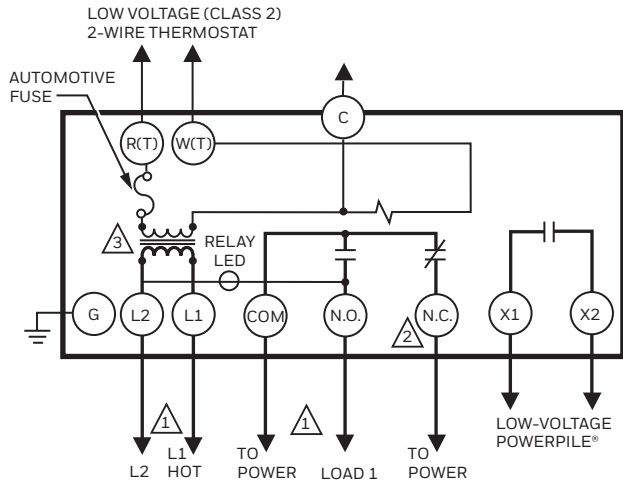
IMPORTANT

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. Never connect load terminals to a load that uses more current than the amount listed in the electrical ratings on the relay. See Table 3 for wiring length specifications. See the schematic and typical hookups in Fig. 2 through 7.

Table 2. 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



- 1. POWER SUPPLY. PROVIDE OVERLOAD PROTECTION AND DISCONNECT MEANS AS REQUIRED.
- 2. N.C. IS LABELED "A" ON SOME RA889A MODELS.
- 3. TO SIMPLIFY THE DIAGRAM, THE ABOVE DRAWING DOES NOT MATCH THE TERMINAL LOCATION ON RA889A.

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Fig. 2. RA889A internal schematic and typical hookup.

OPERATION

The RA889A consists of a transformer, an Spdt line-voltage relay, an 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.

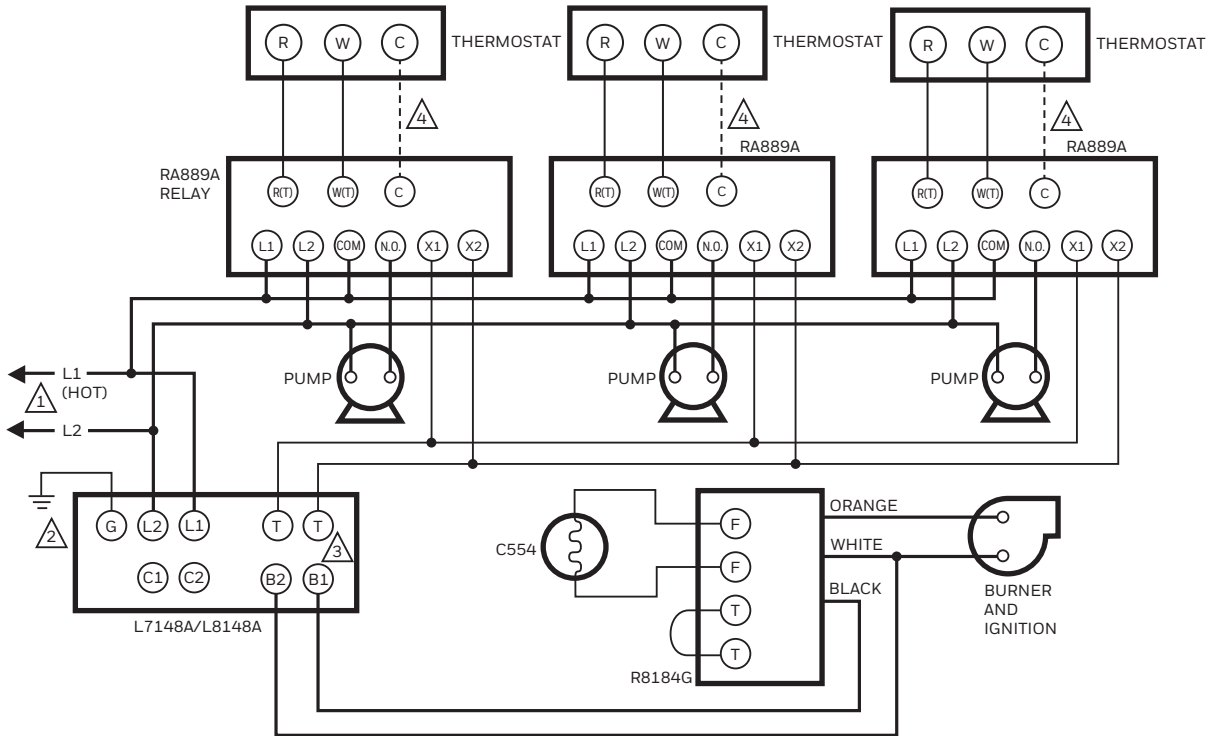
TROUBLESHOOTING

Test Button

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

Relay LED

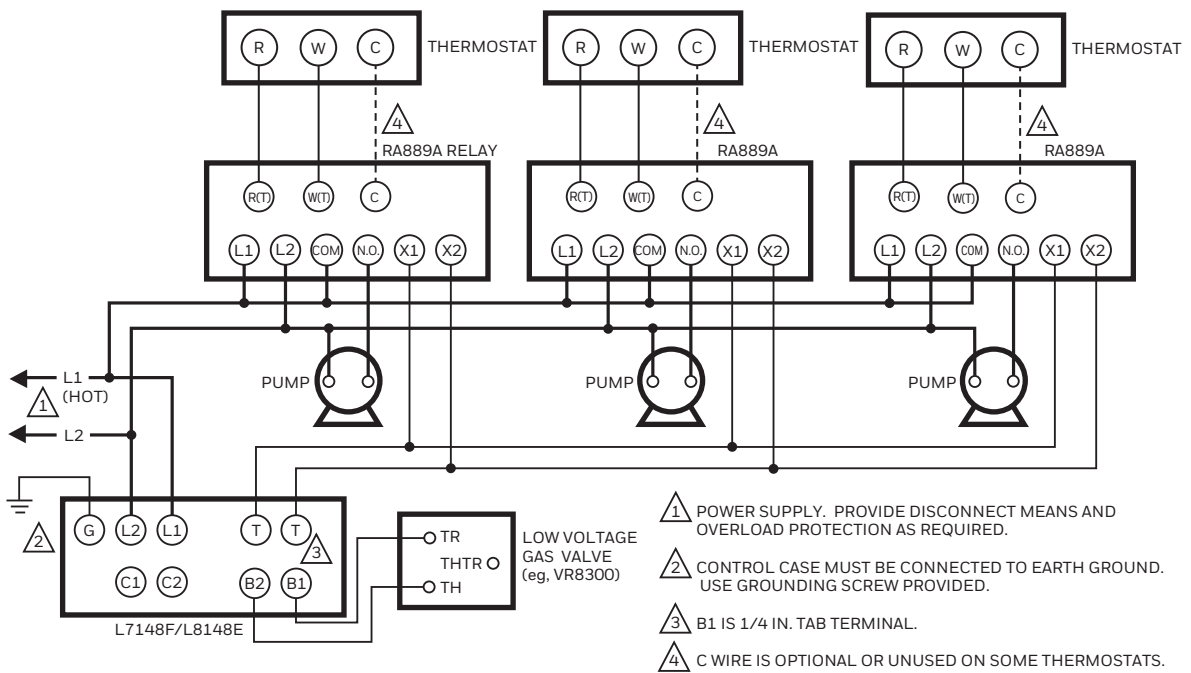
This LED lights whenever there is 120 Vac (L1) on the N.O. terminal (when COM/N.O. relay contacts are closed).



- 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.
- 4 C WIRE IS OPTIONAL OR UNUSED ON SOME THERMOSTATS.

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Fig. 3. RA889A hookup for L7148A/L8148A in an oil-fired, tankless hot water, zoned, pump system.



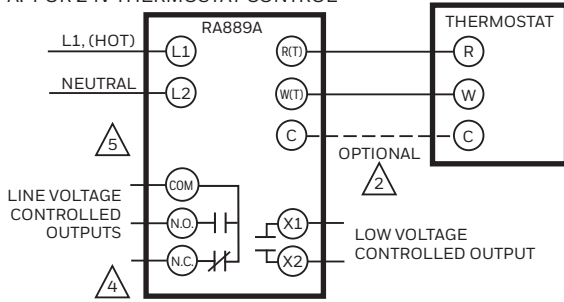
- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 3 B1 IS 1/4 IN. TAB TERMINAL.
- 4 C WIRE IS OPTIONAL OR UNUSED ON SOME THERMOSTATS.

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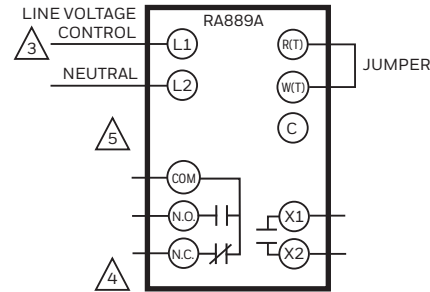
Fig. 4. RA889A hookup for L7148F/L8148E in a gas-fired, 24V, zoned, pump system.

RA889A SWITCHING RELAY

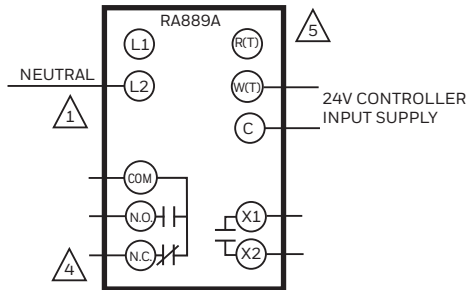
A. FOR 24V THERMOSTAT CONTROL



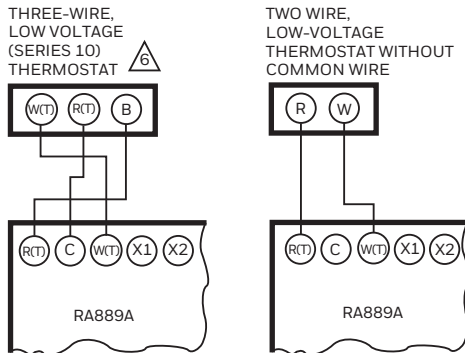
B. FOR LINE VOLTAGE CONTROL



C. FOR EXTERNAL SEPARATE LOW VOLTAGE POWER SOURCE



D. TWO WIRE, LOW-VOLTAGE THERMOSTAT WITHOUT COMMON WIRE



- 1 REQUIRED FOR OUTPUT LED OPERATION.
- 2 LOW-VOLTAGE HEATING THERMOSTAT. C WIRE IS OPTIONAL OR UNUSED ON SOME THERMOSTATS.
- 3 WARNING! ELECTROCUTION HAZARD. POWER SUPPLY CAN CAUSE SEVERE INJURY OR DEATH. DISCONNECT POWER BEFORE WIRING OR SERVICING L1. POWERED RELAYS MUST BE WIRED AS DRY CONTACTS.
- 4 N.C. IS LABELED "A" ON SOME RA889A MODELS.
- 5 TO SIMPLIFY THE DIAGRAM, THE ABOVE DRAWING DOES NOT MATCH THE TERMINAL LOCATION ON RA889A.
- 6 MAKES CONTACT ONLY ON TEMPERATURE FALL.

M13317B

Fig. 5. RA889A control options.

RA889A SWITCHING RELAY



resideo

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