

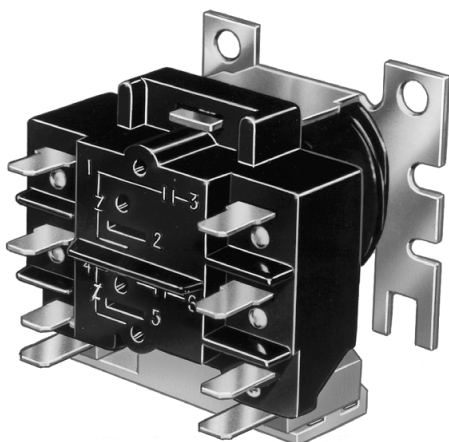


# R4222, R4228, R8222, R8228 Switching Relays

## PRODUCT DATA

THE R4222, R8222, R4228 AND R8228 are general purpose relays for use in refrigeration and air conditioning equipment, appliances, vending machines, and other applications requiring general purpose switching.

- R4222 and R8222 contacts are available for Powerpile (millivoltage), pilot duty, and power pole applications.
- R4228 and R8228 have power rated contacts only.
- R4222 and R4228 models have line voltage (120, 208/240, 277, or 480 Vac) coils. R8222 and R8228 models have low voltage (24 Vac) coils.
- Models available with a variety of switching configurations.
- Laminated magnet construction for high efficiency.
- Contacts rated for voltages up to 600 Vac.
- Molded terminal numbers and circuit diagram on top of relay provide easy identification for wiring and checking system operation.
- Relay constructed for high reliability.
- Quick-connect terminals are standard; double quick-connects available on coil terminals.



## SPECIFICATIONS

### IMPORTANT

*The specifications given in this publication do not include normal manufacturing tolerances. Therefore, this unit may not match the listed specifications exactly. 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.*

### Models:

R4222-General purpose relay: 120, 208/240, 277, and 480 Vac coil.

R8222-General purpose relay: 24 Vac coil.

### Contact Ratings:

Power Pole (amperes per pole)-

R4228-Heavy-duty general purpose relay: 120, 208/240, 277, and 480 Vac coil.

R8228-Heavy-duty general purpose relay: 24 Vac coil.

### Pilot Duty Poles for R4222 and R8222 Only:

Minimum-3 VA at 24, 120, and 480 Vac.

Maximum-25 VA at 24 Vac, 125 VA at 120, 240, and 480 Vac.

Resistive-3 A at 277 Vac (0.75 power factor).

### Powerpile (millivoltage) for R4222 and R8222 Only:

Power Pole (amperes per pole)-

The normally open pilot duty contacts are rated for Powerpile (millivoltage) applications-0.25 A at 0.25 to 12 Vdc.



R4222, R4228, R8222, R8228 SWITCHING RELAYS

<b>R4222,R8222<sup>C</sup></b>	<b>120 Vac</b>	<b>208 Vac</b>	<b>240 Vac</b>	<b>277 Vac</b>	<b>480 Vac</b>
<b>Inductive</b>					
Full load	12	6	6	6	3
Locked rotor	60	35	35	35	18
<b>Resistive</b>					
A and C Models <sup>b</sup>	20.8	20.8	20.8	20.8	10
(equivalent resistive power)	(2.5 kW)	(4.3 kW)	(5.0 kW)	(5.7 kW)	(4.8 kW)
All others <sup>b</sup>	15	15	15	15	10
<b>Combined Ratings for A and C Models<sup>a</sup></b>					
Resistive	12.5	12.5	12.5	12.5	6.25
(equivalent resistive power)	(1.5 kW)	(2.6 kW)	(3.0 kW)	(3.4 kW)	(3.0 kW)
Inductive	+4.2 AFL 10.0 ALR	+4.2 AFL 10.0 ALR	+4.2 AFL 10.0 ALR	+4.2 AFL 10.0 ALR	+2.1 AFL +5.0 ALR
Horsepower	3/4 hp	3/4 hp	3/4 hp	3/4 hp	3/4 hp

<sup>a</sup> Combined ratings indicate that both a resistive and inductive load can be operated by each pole.

<sup>b</sup> Also rated 5 amp resistive at 600 volts.

<sup>c</sup> Underwriters Laboratories Inc. and CSA approved for 50 cycle applications.

<b>R4228A,B; R8228A,B</b>	<b>120 Vac</b>	<b>208 Vac</b>	<b>240 Vac</b>	<b>277 Vac</b>	<b>480 Vac</b>
<b>Inductive</b>					
Full load	18	18	18	12	5
Locked rotor	72	72	72	72	30
Resistive <sup>a</sup>	25	25	25	25	15
(equivalent resistive power)	(3.0 kW)	(5.2 kW)	(6.0 kW)	(6.9 kW)	(7.2 kW)
Horsepower	1 hp	2 hp	2 hp	2 hp	1.5 hp
<b>R4228C,D; R8228C,D</b>	<b>120 Vac</b>	<b>208 Vac</b>	<b>240 Vac</b>	<b>277 Vac</b>	<b>480 Vac</b>
<b>Inductive</b>					
Full load	5.5	5.5	5.5	5.5	3.0
Locked rotor	15	15	15	15	8
Resistive <sup>a</sup>	25	25	25	25	12.5
(equivalent resistive power)	(3.0 kW)	(5.2 kW)	(6.0 kW)	(6.9 kW)	(6.0 kW)
<b>Combined Ratings<sup>b</sup></b>					
Resistive	20.8	20.8	20.8	20.8	10.4
(equivalent resistive power)	(2.5 kW)	(4.3 kW)	(5.0 kW)	(5.6 kW)	(5.0 kW)
Inductive	+4.2 AFL 10.0 ALR	+4.2 AFL 10.0 ALR	+4.2 AFL 10.0 ALR	+4.2 AFL 10.0 ALR	+4.2 AFL 10.0 ALR
<b>R4228E; R8228E</b>	<b>120 Vac</b>	<b>208 Vac</b>	<b>240 Vac</b>	<b>277 Vac</b>	<b>480 Vac</b>
<b>Inductive</b>					
Full load	16	—	18	5	5
Locked rotor	96	—	72	30	30
Resistive <sup>a</sup>	25	—	25	25	15

<sup>a</sup> Also rated 10 A resistive at 600 V.

<sup>b</sup> combined ratings indicate that both a resistive and an inductive load can be operated by each pole.

COIL RATINGS: All coils meet Underwriters Laboratories Inc. requirements for Class B coils. If coil voltages other than those listed below are desired, contact your local Resideo representative for additional information.

Coil Ratings		24 V	120 V	208/240 V	277 V	480 V
DC Resistive		9.5 ohms 9.25 ohms <sup>b</sup>	232 ohms	875 ohms	1385 ohms	3600 ohms
Pickup Voltage (maximum) <sup>a</sup>		18 V	96 V	176 V	220 V	384 V
Pickup Voltage (nominal)		16 ± 2 V	80 ± 10 V	150 ± 20 V	190 ± 30 V	330 ± 40 V
Inrush VA (maximum)		20 VA	20 VA	20 VA	20 VA	20 VA
Inrush VA (nominal)		17.0 VA 17.7 VA <sup>b</sup>	17.0 VA	13.5 VA / 18.5 VA	17.8 VA	17 VA
Sealed VA (maximum)		10 VA	10 VA	10 VA	10 VA	10 VA
Sealed VA (nominal)		9 VA 9.5 VA <sup>b</sup>	9 VA	6.7 VA / 9.2 VA	9.7 VA	9 VA
Sealed Amps (nominal)		0.375 A 0.400 A <sup>b</sup>	0.075 A	0.032 A / 0.038 A	0.034 A	0.019 A
Sealed Wattage		5.0 W 5.3 W <sup>b</sup>	5.4 W	3.6 W / 5 W	5.5 W	5.5 W
Admittance	(open)	0.029 0.031 <sup>b</sup>	0.0012	0.0003	0.0002	0.00007
	(sealed)	0.016 0.016 <sup>b</sup>	0.0006	0.00015	0.00012	0.00004

<sup>a</sup> Voltages listed are for the relay base mounted vertical. With the terminals pointing down, pickup voltage is increased by 12 percent.

<sup>b</sup> R8222D,G,J,N,R,T,V only.

NOTE: Pickup voltage varies with pole form. Specific models will have lower tolerance than shown above.

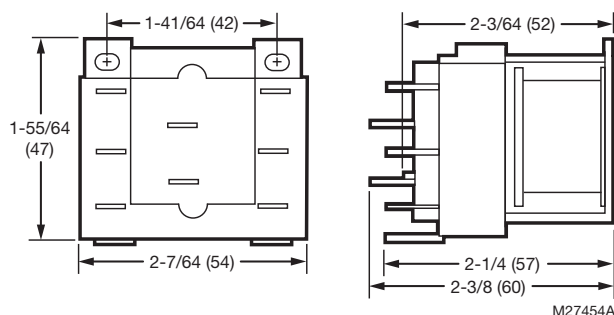
**Terminals:** Quick-connects are provided as shown:

Model	Terminals	Number of Quick-Connects	
		Single	Double
R4222 & R8222	Coil	Std.	Opt.
	Load	Std.	—
R4228 & R8228E	Coil	—	Std.
R4228A,B & R8228A,B	Load	—	Std.
R4228C,D & R8228C,D	Load	Std.	—

**Mounting:** Use 2 screws (up to No. 10 size) through holes in the metal base. Base is designed for easy replacement of competitive relays.

**Ambient Temperature Range:** -20 F [-29 C] to 155 F [68 C].

**Dimensions:** See Fig. 1.



**Fig. 1. Relay Dimensions in in. (mm in brackets).**

#### SWITCHING CONFIGURATIONS

The following tables give switching configurations, contact ratings, and terminal designations for the switching relays. For example, the R4222A is a spst switching relay with normally open power rated contacts. The R4222K is a spst relay with normally open contacts rated for pilot duty applications. Electrical connections to the A and K models would be made to terminals 1 and 3.

**Table 1. R4228, R8228**

Switching Configuration	Terminals	R4228 or R8228 Model Suffix	
		Power Rated	Pilot Duty Rated
SPST, N.O. (double quick-connects)		A	
SPDT, (double quick-connects)		B	
SPST, N.O.		C	
DPST, N.O.		D	
SPST, N.C.		E	

**Table 2. R4222, R8222**

Switching Configuration	Terminals	R4222 or R8222 Model Suffix	
		Power Rated	Pilot Duty Rated
SPST, N.O.		A	K
SPDT		B	L
DPST, N.O.		C	M
DPDT		D	N
SPST, N.C.		E	P
DPST, 1-N.O. and 1-N.C.		F	Q
DPST, N.C.		G	R

**Table 2. R4222, R8222**

Switching Configuration	Terminals	R4222 or R8222 Model Suffix	
		Power Rated	Pilot Duty Rated
SPDT and SPST, N.O.		H	S
SPDT and SPST, N.C.		J	T
DPST N.O. (one power and one pilot duty)		†U	
DPDT (one power and one pilot duty)		†V	
SPDT and SPST, N.O. (one power and one pilot duty)		†W	
SPDT and SPST, N.O. (one power and one pilot duty)		†Y	
DPST, N.C.		†Z	

† Models with suffix letters U,V,W,Y and Z have power rated contacts on silver colored terminals and pilot duty rated contacts on brass colored terminals.

**Accessories**

1. 129384A Case and Cover Assembly.
2. 4074BVJ Receptacle with 8 color-coded plug-in leadwires and retaining bail, for panel mounting applications; see Fig. 2.
3. Q633A1003-4 x 4 plate-mounted relay receptacle with metal relay cover and 8 color-coded plug-in leadwires.

**NOTE:**

- a. Use the receptacle in applications within the current carrying rating of the wire size and quick-connect terminal being used.
  - b. The receptacle will accept relays with double quick-connect terminals.
4. 135959 Receptacle only. Leads and quick-connect terminals are not supplied with the receptacle.

**NOTE:**

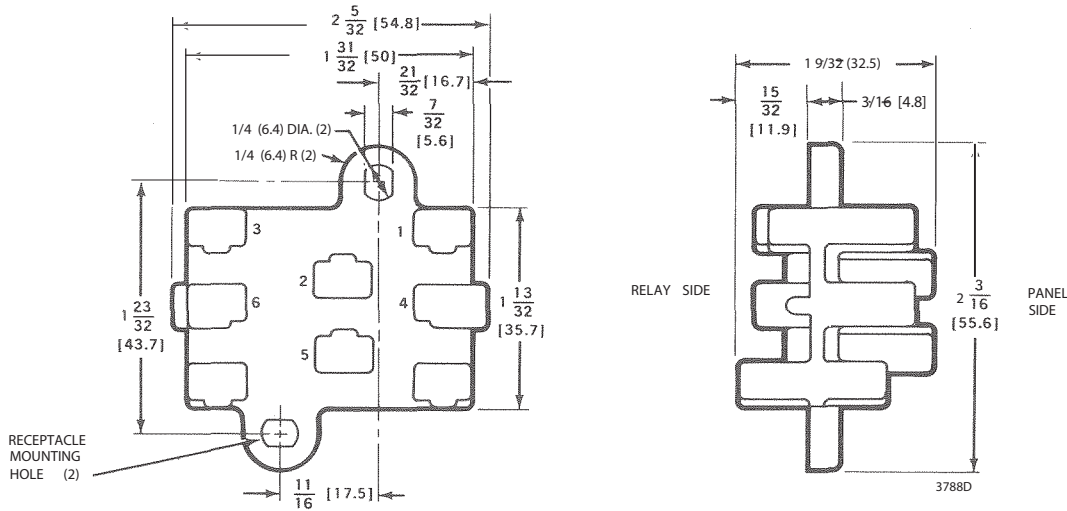
Not all standard quick-connect terminals will be adequately retained in this receptacle. It is recommended that a quick-connect terminal with 0.016 inch [0.406 mm] maximum material thickness be

used (0.012 inch [0.305 mm] preferred). The maximum permissible dimension between the rolls is 0.115 inch [2.92 mm]. These requirements are met by AMP, Inc. Faston "250" series terminal No. 42100-1 quick-connects or equivalent.

5. 135887 Wire Bail only.
6. 137881A Adapters for converting 1/4 inch [6.4 mm] quick-connects to No. 6 screw terminals (bag of eight).

**Underwriters Laboratories Inc. Component Recognized:**  
 R4222 and R8222 models: A to H,J,U,V,W,Y,Z; File No. E59779; Guide No. NLDX2.  
 R4222 and R8222 models: K,L,M,N,P,Q,R,S,T; File No. E49809; Guide No. NKCR2.  
 R4228 and R8228 models: A,B,C,D,E; File No. E59779; Guide No. NLDX2.

**Canadian Standards Association Component Certified:**  
 R4222 and R8222: File No. LR35066; Guide No. 184-N-13.13.  
 R4228 and R8228: File No. LR35066; Guide No. 184-N-13.13.



**Fig. 2. Dimensions of Wiring Receptacle**

# 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.

## Location

Mount the relay on a flat, solid surface as close as possible to the equipment being controlled. The relay may be mounted in any position except with the terminals pointed down. Secure in place with two screws through holes or slots in the mounting base or as shown in Fig. 3 or 4. See Fig. 1 for mounting dimensions.

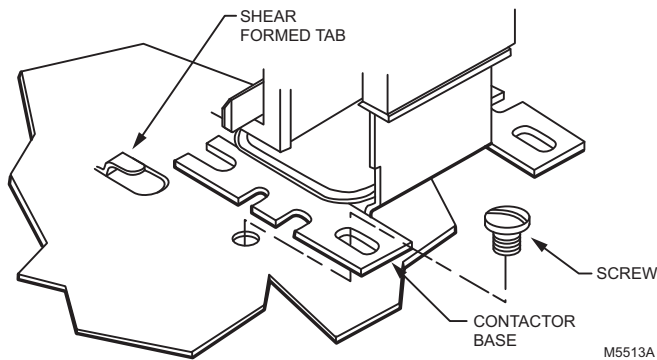


Fig. 3. Mounting Relay on Panel with Shear Formed Tab and One Screw.

## Wiring

Disconnect power supply before connecting wiring to avoid electrical shock or equipment damage.

All wiring must comply with local codes and ordinances. Crimp female quick-connects to the system wires and attach to the male quick-connect terminals of the relay. The relay has molded terminal numbers and circuit diagram for easy identification when wiring. Fig. 6 shows the location and circuits of all models.

Do not exceed contact and coil ratings when wiring into system.

Leadwires are provided with the 135959 Receptacle in 4074BVJ Bag Assembly for additional relay pole positions. Insert the required leadwires in the relay receptacle as follows.

Determine the leadwire colors required for the relay and application desired. Push the leadwire terminal into the receptacle plate from the side stamped with the numbers (Fig. 5). When inserting the leadwire, the tang on the quick-connect terminal must align with the small clearance slot in the terminal opening. Press the terminal in until it locks in place.

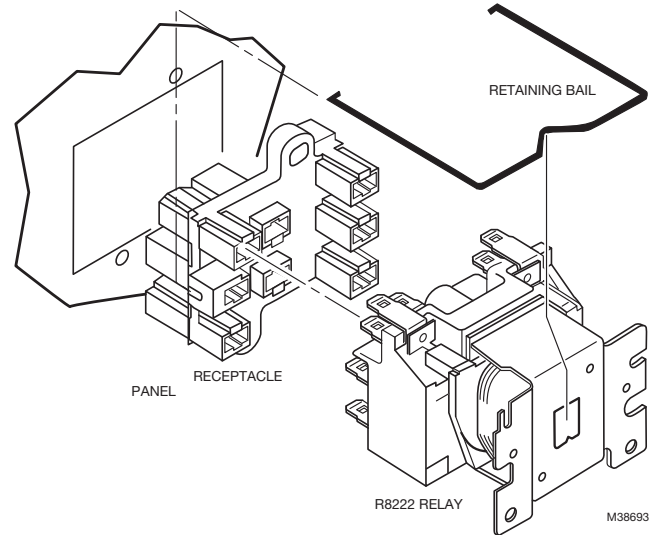


Fig. 4. Relay Mounting using Receptacle and Retaining Bail.

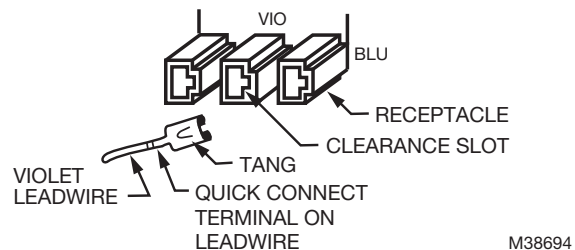
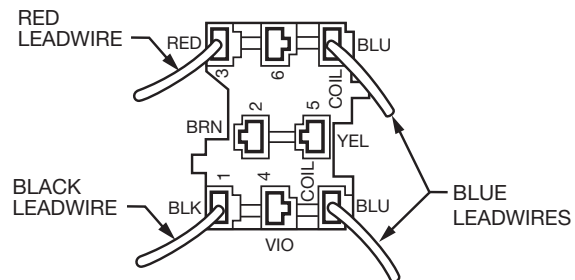


Fig. 5. Bottom of 135959 Receptacle Showing Leadwire Installation.

# CHECKOUT

Operate the relay and controlled equipment to make sure that relay pulls in when the coil is energized and that controlled equipment operates as intended.

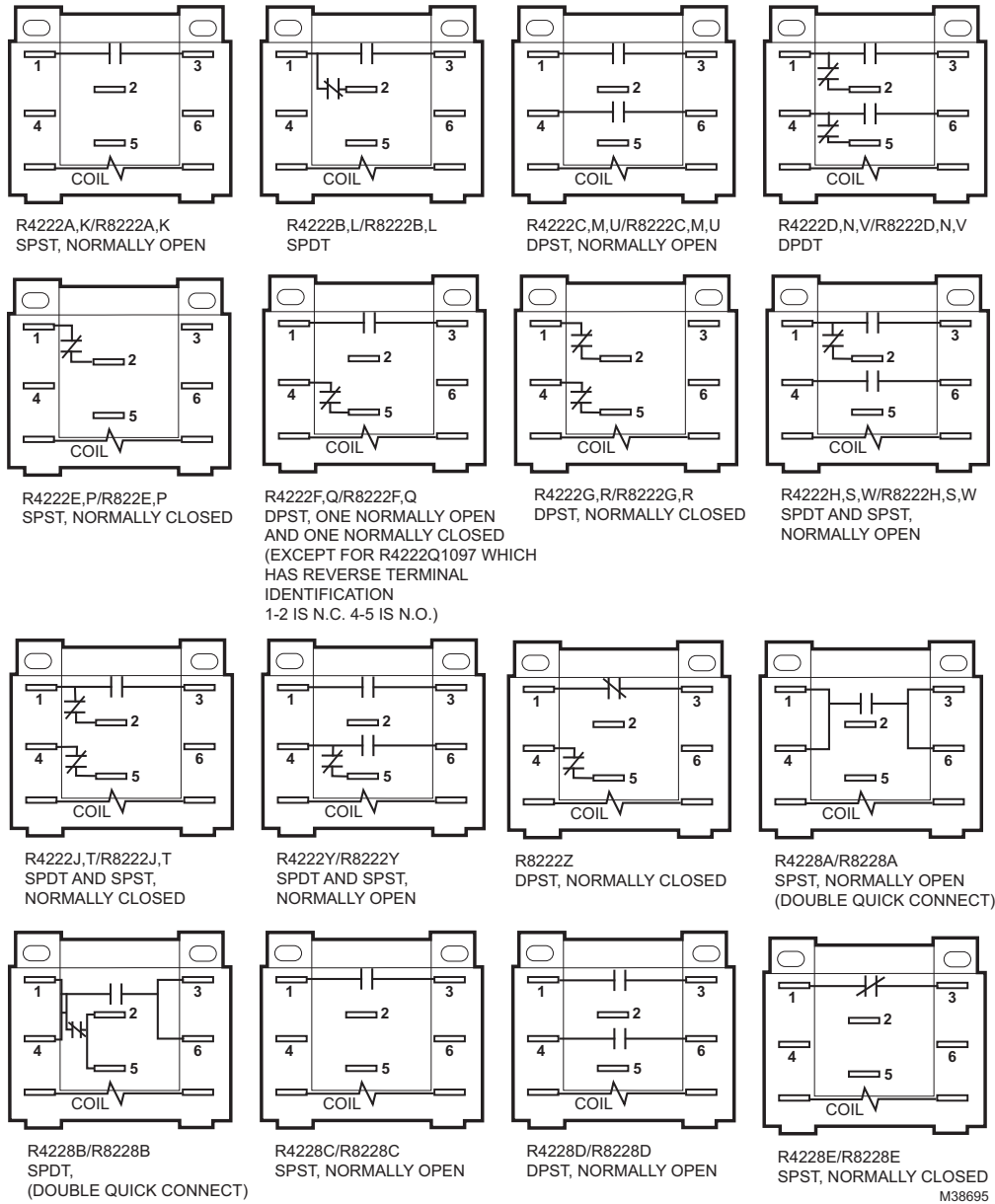


Fig. 6. R4222/R8222, R4228/R8228 Circuit and Terminal Designation.



www.resideo.com

Resideo Technologies, Inc.  
 1985 Douglas Drive North, Golden Valley, MN 55422  
 1-800-468-1502  
 60-2056-05 M.S. Rev. 08-21 | Printed in United States