



Time Delay Relay

ST82

PRODUCT DATA

APPLICATION

The ST82 Time Delay Relay is used in compressor-run air conditioning and heat pump systems. The ST82 delays the indoor blower shut-off after the compressor has shut off.

FEATURES

- **ST82 Time Delay Relay combines an electronic timer and an R8222 or R8228 Relay with double 1/4 in. quick-connect coil terminals.**
- **Contacts rated for Powerpile (millivoltage), pilot duty and power pole applications, depending on model used.**
- **Used in low voltage (24 Vac) control circuits.**
- **Delay timings available from 30 seconds to 10 minutes (80 seconds standard).**
- **Laminated magnet construction for high efficiency.**
- **Molded terminal numbers and circuit diagram on top of relay and letter-coded terminals on time delay board provide easy identification for wiring and system checkout.**
- **Relay constructed for high reliability.**

- **Quick-connect terminals for easy wiring.**
- **ST82A model available with R8228A Relay for use in pool and spa applications; allows circulator pump to continue running after burner has shut off.**

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. For exact engineering specifications, contact your Resideo sales representative.

Models:

ST82 Time Delay Relays: Low voltage electronic time delay board combined with an R8222 or R8228 Relay with double 1/4 in. quick-connect coil terminals.

See Table 1 below for specific models and switching configuration.

Table 1.

Model Number	Relay	Switching Configuration	Terminals
ST82A	R8228A	SPST, N.O.	
ST82B	R8222B	SPDT	
ST82M	R8222M	DPST, N.O.	
ST82U	R8222U	DPST, N.O. (one power and one pilot duty)	

Contents

Application	1
Features	1
Specifications	1
Installation	3
Operation and Checkout	4



TIME DELAY RELAY

Input Voltage: 24 Vac nominal.

Current Draw:

20 mA max. relay deenergized; 0.55 A max. relay energized.

Total Power Consumption (Relay with time delay board):

Relay deenergized: 0.5 VA;

Relay energized: 11.0 VA.

Terminals: 1/4 in. quick-connects.

Switching Configurations (Specify when ordering.):

See Table 1 on page 1.

R8222 Contact Ratings:

Power Pole (Amperes per pole):

	120 Vac	208/240/277 Vac	480 Vac
Full Load	12	6	3
Locked Rotor	60	36	18
Resistive	15	15	10
U.L. Approved Horsepower	3/4 hp	3/4 hp	3/4 hp

Pilot Duty Poles:

Minimum: 3 VA at 24, 120, 240 and 480 Vac.

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

Resistive: 3 A at 277 Vac.

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

R8228 Contact Ratings (Amperes):

	120 Vac		208/ 240 Vac	277 Vac	480 Vac
Full Load	16	18	18	12	5
Locked Rotor	96	72	72	72	30
Resistive ^a	18		25	25	15
Horsepower	1 hp		2 hp	2 hp	1.5 hp

^aAlso rated 10 A resistive at 600 V.

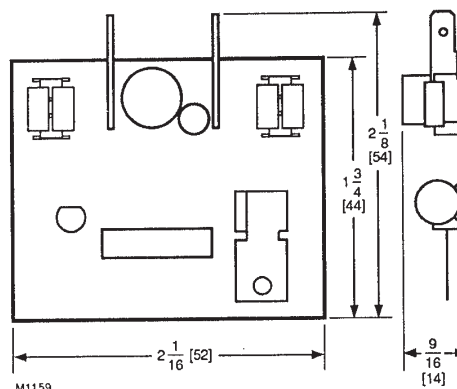


Fig. 1. Approximate dimensions of time delay board in in. [mm]. For applications requiring exact engineering dimensions, contact your Resideo sales representative.

Coil Ratings:

	24 Vac
Inrush VA (max.)	20
Sealed VA (max.)	9 to 11 ^a

^aRating varies depending on relay model used.

Minimum voltage required for pickup: 75 percent of nominal coil voltage.

Coil temperature must not exceed Underwriters Laboratories Inc. Class B rating (248° F [120° C]).

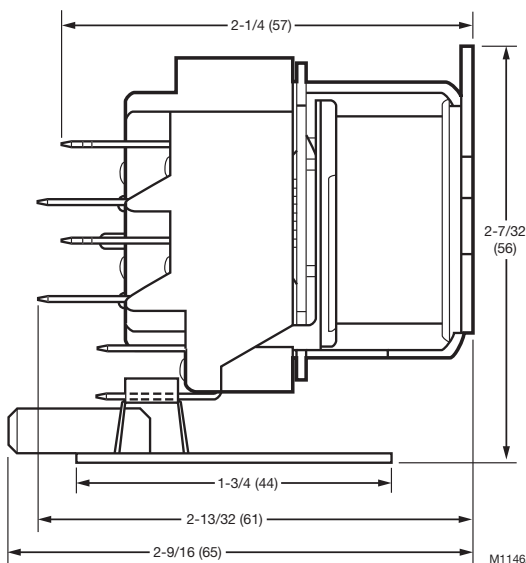
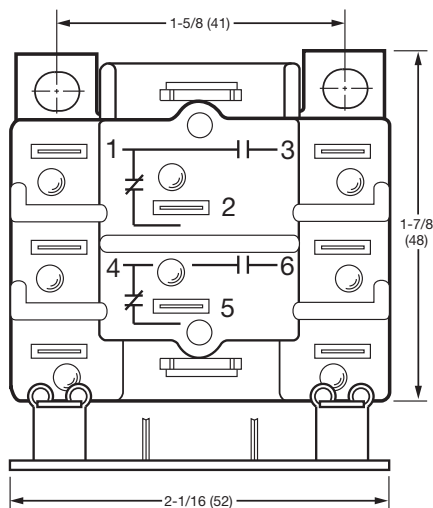


Fig. 2. Approximate dimensions of ST82 in in. [mm]. For applications requiring exact engineering dimensions, contact your Resideo sales representative.

Mounting:

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

Delay Timing:

30 seconds to 10 minutes, depending on model (contact your Resideo Sales Representative).

Ambient Temperature Range:

-20 °F to 150 °F [-29 °C to 65 °C].

Max. Humidity Rating: 95% RH.**Dimensions:** See Figs. 1 and 2.**Underwriters Laboratories Inc. Listed:**

File No. MP466, Guide No. MBPRZ2.

Canadian Standards Association Certified:

File No. LR 69073-3.

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.

IMPORTANT

Disconnect the time delay board from the relay before performing UL 500 V, 60 Hz one minute equipment dielectric test.

Mounting

Mount the relay on a flat, solid surface close to the equipment being controlled. The relay may be panel or wall-mounted with the base vertical or horizontal. *If base is horizontal, it must be mounted with the terminals up.* Secure with the two screws through holes in the mounting base or as shown in Fig. 3.

Wiring

Disconnect power supply before connecting wiring to prevent 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 ST82. The time delay board has letter-coded terminals, and the relay has molded terminal numbers and circuit diagram on top for easy identification when wiring.

Make sure system wires are connected to the A, B and T terminals on the time delay board for proper system operation. The time delay board requires constant 24 Vac power across the A (hot) and B (ground) terminals. The T terminal connects to the fan terminal on the thermostat or other controller. Refer to Figs. 4-6 for terminal designations and wiring connections.

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

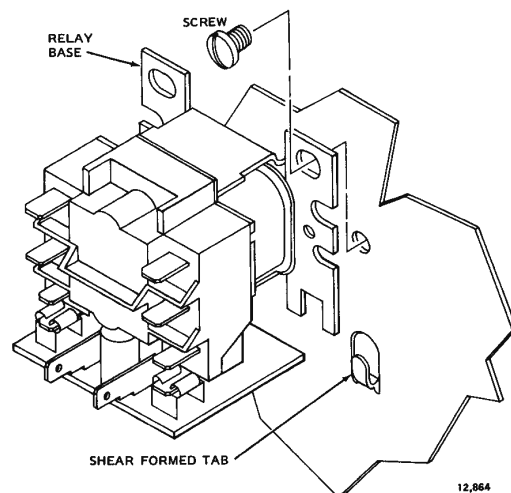
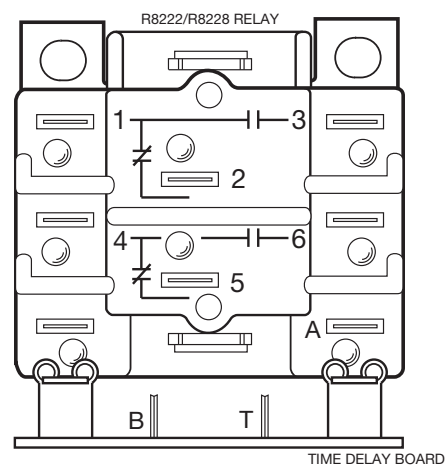


Fig. 3. Mounting relay on panel with shear-formed tab and one screw.



TERMINAL DESIGNATION	CONNECT TO	POSSIBLE TERMINAL DESIGNATION ON OLD RELAY
A	24 Vac LINE (HOT SIDE)	R
B	24 Vac COMMON	C
T	FAN TERMINAL ON THERMOSTAT OR OTHER CONTROLLER	G

M1799A

Fig. 4. Circuit and terminal designations.

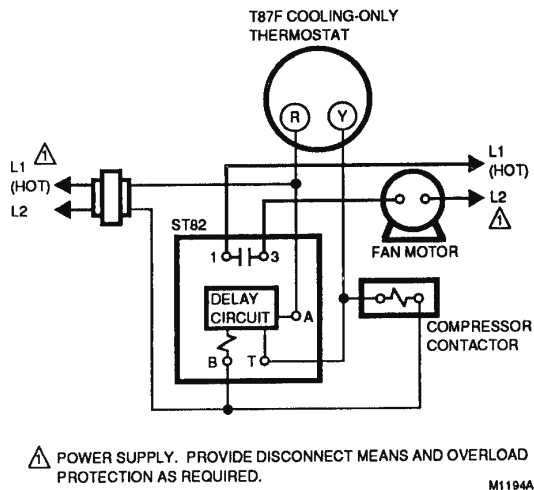


Fig. 5. ST82 in a cooling-only application.

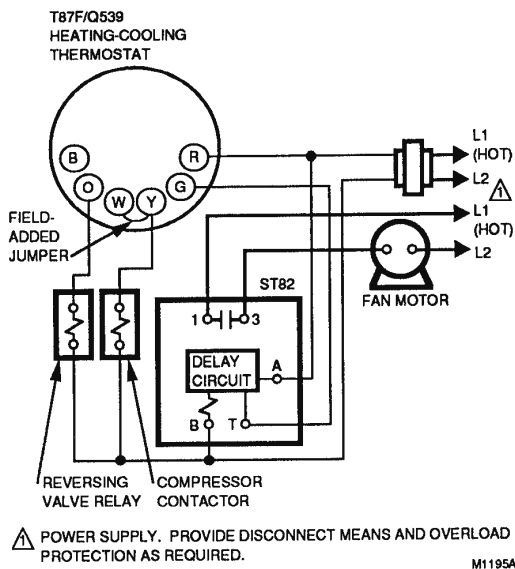


Fig. 6. ST82 in a heat pump application.

OPERATION AND CHECKOUT

Operation

When the thermostat calls for indoor blower operation, an electronic switch in the electronic board pulls in and powers the relay coil. When the call ends, the electronic switch in the electronic board holds in the relay coil for the specified delay timing (varies depending on model used). This increases the efficiency of the equipment and saves energy.

NOTE: When power is initially applied during installation or after power interruption, the relay will pull in for a maximum of 0.5 seconds and then drop out.

Checkout

When power is initially applied, check to make sure the relay pulls in for not more than 0.5 seconds and drops out. Then operate the relay and controlled equipment to make sure that the relay pulls in when the T terminal is energized with 24 Vac and that controlled equipment operates as intended. When the T terminal is deenergized (24 Vac removed), the indoor air blower should continue to operate until the delay period ends.