T92 series
Two-Pole, 30 Amp PC Board or Panel Mount Relay

File E22575
File LR15734
File E22575 (type 2,3,4,5)
File No. 5386 (type 1,2,3,4)

Users should thoroughly review the technical data before selecting a product part number. It is recommended that user also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

RoHS Ready

Features
- 30A DPST-NO and DPDT switching capabilities.
- Designed to control compressor loads to 3.5 tons, 25.3 FLA, 110 LRA.
- Extended life – >300,000 operations at 30A, 240VAC (DC coil).
  >100,000 operations at 30A, 240VAC (AC coil).
- Meets requirements of UL873 and UL508 spacings.
  – .315" (8mm) through air, .375" (9.5mm) over surface.
- Meets requirements of VDE 8mm spacing, 4kV dielectric coil-to-contacts.
- Meets requirements of UL Class F construction.
- UL approved for 600VAC switching (1.5HP).
- Conforms to VDE 0435, 0631, and 0700.
- New screw terminal version.

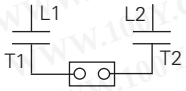
Contact Ratings @ 25°C with relay properly vented. Remove tape over vent hole after soldering and cleaning.

Arrangements: 2 Form A (DPST-NO) and 2 Form C (DPDT).
Materials: Silver cadmium oxide and silver tin indium oxide.
Max. Load Rating, Silver Cadmium Oxide Contacts:
Normally Open Contacts:
40A @ 277VAC, resistive; 6K Ops. (Flange Mount);
30A @ 120/277VAC, resistive;
10A @ 600VAC, resistive;
1 HP @ 120VAC, 3 HP @ 240VAC; 1.5 HP @ 480VAC, 1.5 HP @ 600VAC
110 LRA, 25.3 FLA, @ 240VAC with DC coil(1);
60 LRA, 14 FLA @ 240VAC with AC coil;
3A @ 240VAC pilot duty;
20A @ 28VDC;
TV10 @ 120VAC.
VDE Rating (Flange Mount): 20A @ 400VAC, 100K Ops. (30K Ops. for Form C Models).
VDE Rating (PC Mount): 30A @ 400VAC, 100K Ops. (30K Ops. for Form C Models).
Normally Closed Contacts:
3A @ 28VDC or 277VAC, 2A @ 480VAC, 1A @ 600VAC.
VDE Rating (Flange or PC Mount): 3A @ 400VAC, 30K Ops.
Max. Load Rating, Silver Tin Indium Oxide Contacts
Normally Open Contacts Only:
30A @ 120/277VAC, resistive; 200K Ops., DC Coil; 100K Ops, AC Coil
20A @ 480VAC, resistive;
1.5 HP @ 120VAC, 2 poles making/breaking (see Fig. 1)
3 HP @ 240VAC, 3 phase, DC coil only;
3 HP @ 480VAC, 3 phase, DC coil only;
2 HP @ 600VAC, 3 phase, DC coil only.
Min. Load Rating:
Normally Open Contacts: 500mA @ 12VAC/VDC.
Normally Closed Contacts: 100mA @ 6VAC/VDC.
Expected Mechanical Life: 5 million operations.
Expected Electrical Life: 100,000 operations at rated load, except as specifically noted otherwise.

Contact Ratings (continued)

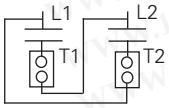
ARI 780-86 Endurance Test (section 6.6):
HVAC Definite Purpose Contactor Standard
Normally Open Contacts
Single Phase/Two Pole (Both poles together switching a single load)
110 LRA, 25.3 FLA, 200K operations (DC Coil)

Figure 1



Single Phase Per Pole (Single load per pole)
110 LRA, 18 FLA, 200K operations (DC Coil).
60 LRA, 14 FLA, 200K operations (AC Coil).

Figure 2



Notes: Vent hole tape must be removed to achieve all listed ratings.

Initial Dielectric Strength

Between Contacts and Coil: 4,000V rms, 50/60 Hz.
Between Open Contacts: 1,500V rms, 50/60 Hz.
Between Poles: 2,000V rms, 50/60 Hz.

Initial Insulation Resistance

Between Mutually Insulated Elements: 10^9 ohms, min. @ 500VDC.

Coil Data

Voltage: 12 through 110VDC and 12 through 277VAC.
Resistance: See Coil Data table.
Nom. Power: AC Coil: 4.0VA; **DC Coil:** 1.7W.
Coil Temp. Rise: 35°C/W.
Max. Coil Temp.: 155°C.
Duty Cycle: Continuous.

Coil Data (@ 25°C Coil Temperature)

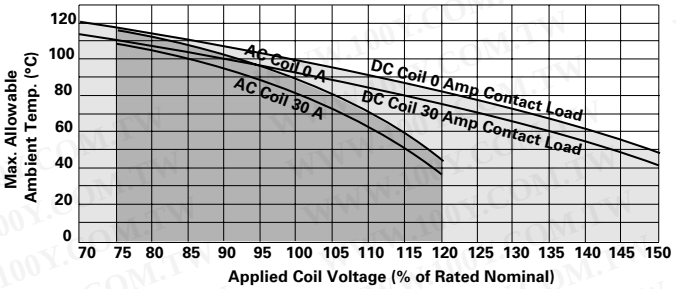
DC Coils (1.7W)			
Nom. Voltage (VDC)	DC Resist. ±10% (Ohms)	Nom. Voltage (VDC)	DC Resist. ±10% (Ohms)
12	86	48	1,390
24	350	110	7,255

AC Coils (4.0VA)					
Nom. Voltage (VAC)	Freq.	DC Resist. ±10% (Ohms)	Nom. Voltage (VAC)	Freq.	DC Resist. ±10% (Ohms)
12	60	9.1	110/120	50/60	950
24	60	36.6	200/208	50/60	2,841
			220/240	50/60	3,800
			250/277	50/60	5,485

Notes

(1) FLA, LRA ratings are compatible with 3.5 ton compressor applications.
(2) Nominal voltage, no coil suppression, excluding bounce.

Ambient Temperature vs. Coil Voltage



Assumptions:

1. Thermal resistance = 35°C per Watt (DC only.)
2. Still air.
3. Nominal coil resistance.
4. Max. mean coil temperature = 155°C (change of resistance method).
5. Coil temperature rise due to load = 6.3°C @ 30 amps.
6. Curves are based on 1.7W at 25°C (DC only.)

Operate Data

Must Operate Voltage: **AC Coil:** 80% of nominal voltage or less.
DC Coil: 75% of nominal voltage or less.
Must Release Voltage: 10% of nominal voltage or more.
Initial Operate Time(2): 15 ms typical, (25 ms max. w/bounce).
Initial Release Time(2): 10 ms typical, (25 ms max. w/bounce).
Max Operating Frequency: 14 operations per minute.

Environmental Data

Temperature Range:
Storage: -55°C to +155°C.
Operating: **AC Coil:** -40°C to +65°C.
DC Coil: Silver cadmum oxide contacts: -40°C to +85°C.
Silver tin indium oxide contacts: -40°C to +70°C.
Vibration: 0.065" (1.65mm) double amplitude for 10-55 Hz., functional.
Shock, Operational: 10g for 11 ms, 1/2 sine wave pulse with no contact opening > 100µs.

Mechanical Data

Termination: Printed circuit terminals; .250" (6.35mm) quick connects for coil and contacts; .187" (4.75mm) quick connects for coil and .250" (6.35mm) quick connects for contacts; or M4 screws with captive pressure plates for coil and contacts.
Enclosure: Dust protected plastic case or wash-tight, tape sealed, (washable) plastic case.
Weight: 3 oz. (86g) approximately.

Conditions

All parametric, environmental and life tests are performed according to EIA Standard RS-407-A at standard test conditions (25°C ambient, 20-50% RH, 29.5 ± 1" Hg.) unless otherwise noted.

Notes

(1) FLA, LRA ratings are compatible with 3.5 ton compressor applications.
(2) Nominal voltage, no coil suppression, excluding bounce.

Ordering Information

Typical Part Number ▶	T92	S	11	D	2	2	-24

1. Basic Series:
T92 = Printed circuit board / panel mount power relay.

2. Enclosure:
P = Dust protected plastic case.
S = Wash-tight, tape sealed, plastic case (Mounting & Termination Type 1).
Top sealed, not wash-tight, not tape sealed on bottom (Mounting & Termination Types 2, 3 & 4).

3. Contact Arrangement:
7 = 2 form A (DPST-NO). 11 = 2 form C (DPDT).

4. Coil Input:
A = AC voltage, 60 Hz. or 50/60 Hz. (See Coil Data Table) D = DC voltage.

5. Mounting & Termination:
1 = Printed circuit board mount; printed circuit board terminals.
2 = Panel mount via flanged cover; .250" (6.35mm) x .032" (.81mm) quick connect terminals.
3 = Panel mount via flanged cover; .187" (4.75mm) x .032" (.81mm) quick connect terminals for coil and .250" (6.35mm) for contacts.
4 = Panel mount via flanged cover, .187" (4.75mm) x .020" (.51mm) quick connect terminals for coil and .250" (6.35mm) for contacts.
5 = Panel mount via flanged cover, M4 screw terminals w/ captive pressure plates. Requires Enclosure P and Contact Arrangement 7.

6. Contact Material:
2 = Silver cadmium oxide. 4 = Silver tin indium oxide.

7. Coil Voltage: (See Coil Data Table)

(DC)	12 = 12VDC	24 = 24VDC	48 = 48VDC	110 = 110VDC	
(60Hz.)	12 = 12VAC	24 = 24VAC			
(50/60Hz.)	110 = 100/110VAC	120 = 110/120VAC	208 = 200/208VAC	240 = 220/240VAC	277 = 250/277VAC

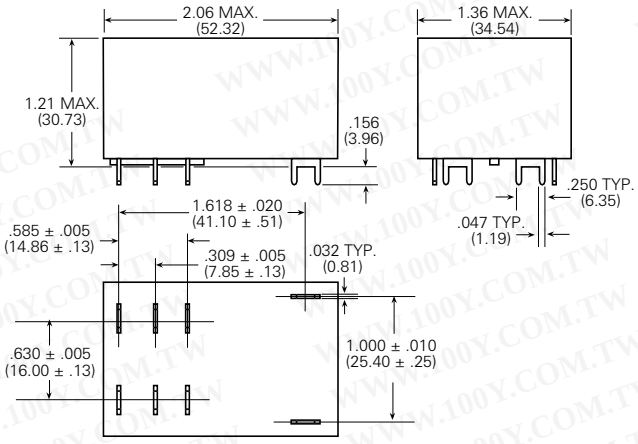
NOTE: All part numbers are RoHS compliant.

Stock Items – We recommend that our authorized distributors stock the following items for immediate delivery.

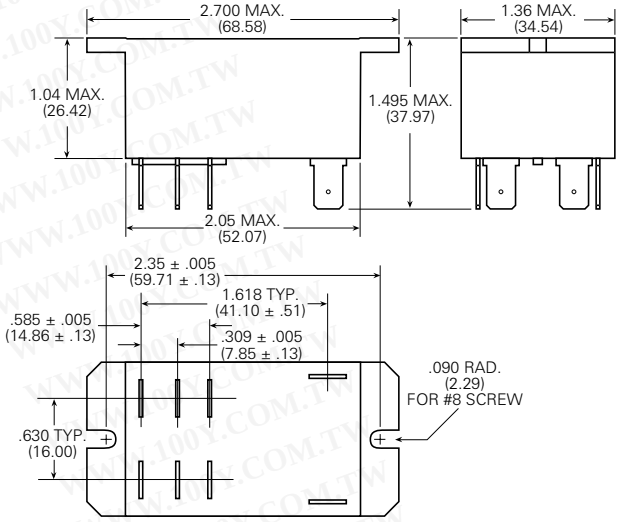
T92P7A22-24	T92P7A22-240	T92P7D12-24	T92P7D22-24	T92P11A22-120	T92P11D22-12	T92S7D12-12	T92S11D22-12
T92P7A22-120	T92P7D12-12	T92P7D22-12	T92P11A22-24	T92P11A22-240	T92P11D22-24	T92S7D12-24	T92S11D22-24

Outline Dimensions

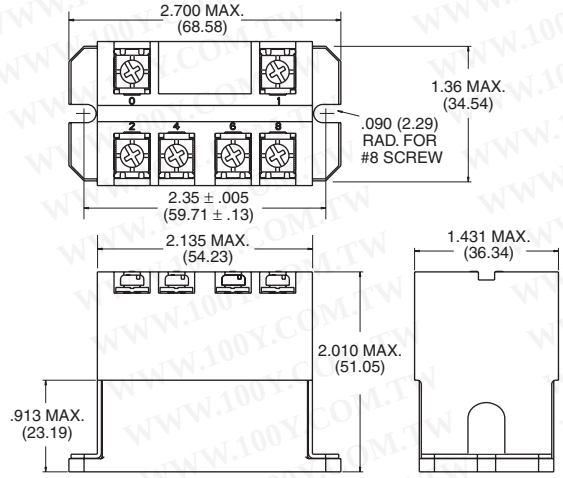
Mounting & Termination Type 1



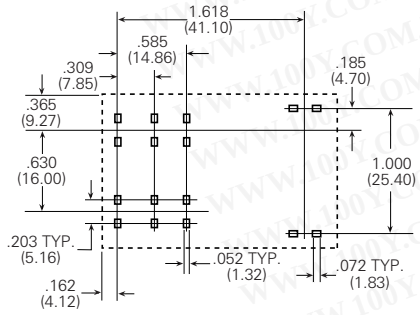
Mounting & Termination Types 2, 3 & 4



Mounting & Termination Type 5

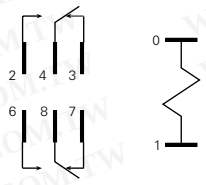


Suggested PC Board Layout (Bottom View)



Note: An alternate PC board layout utilizes .076 ± .003 (1.93 ± .076) diameter holes on the same center-to-center spacing shown above. Use of the rectangular holes is recommended for improved solderability.

Wiring Diagram



Only necessary terminals are present on single throw models.