

## 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
. $315^{\prime \prime}$ ( 8 mm ) through air, .375" (9.5mm) over surface.
- Meets requirements of VDE 8 mm spacing, 4 kV 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 @ $25^{\circ} \mathrm{C}$ 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, SilverTin 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.

# T92 series <br> Two-Pole, 30 Amp PC Board or Panel Mount Relay 

吅 File E22575
(1L) File E22575 (type 2,3,4,5)
File LR15734 ®ㅏ․ File No. 5386 (type 1,2,3,4)


#### Abstract

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.


## 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: $4,000 \mathrm{~V}$ rms, $50 / 60 \mathrm{~Hz}$.
Between Open Contacts: $1,500 \mathrm{~V}$ rms, $50 / 60 \mathrm{~Hz}$.
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: $35^{\circ} \mathrm{C} / \mathrm{W}$.
Max. Coil Temp.: $155^{\circ} \mathrm{C}$.
Duty Cycle: Continuous.
Coil Data (@ $\mathbf{2 5}^{\circ} \mathrm{C}$ CoilTemperature)

| DC Coils (1.7W) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Nom. Voltage (VDC) | DC Resist. <br> $\pm 10 \%$ (Ohms) |  | Nom. Voltage (VDC) | DC Resist. <br> $\pm 10 \%$ (Ohms) |  |
| 12 |  | 86 | 48 |  | 1,390 |
| 24 |  | 350 | 110 |  | 7,255 |
| AC Coils (4.0VA) |  |  |  |  |  |
| Nom. Voltage (VAC) | Freq. | DC Resist. <br> $\pm 10 \%$ (Ohms) | Nom. Voltage (VAC) | Freq. | DC Resist. <br> $\pm 10 \%$ (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 $=35^{\circ} \mathrm{C}$ per Watt (DC only.)
2. Still air.
3. Nominal coil resistance
4. Max. mean coil temperature $=155^{\circ} \mathrm{C}$ (change of resistance method).
5. Coil temperature rise due to load $=6.3^{\circ} \mathrm{C} @ 30 \mathrm{amps}$.
6. Curves are based on 1.7 W at $25^{\circ} \mathrm{C}$ (DC only.)

## Environmental Data

## Temperature Range:

Storage: $-55^{\circ} \mathrm{C}$ to $+155^{\circ} \mathrm{C}$.
Operating: AC Coil: $-40^{\circ} \mathrm{C}$ to $+65^{\circ} \mathrm{C}$
DC Coil: Silver cadmum oxide contacts: $-40^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$. Silver tin indium oxide contacts: $-40^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$.
Vibration: $0.065^{\prime \prime}(1.65 \mathrm{~mm})$ double amplitude for $10-55 \mathrm{~Hz}$., functional.
Shock, Operational: 10 g for $11 \mathrm{~ms}, 1 / 2$ sine wave pulse with no contact opening $>100 \mu \mathrm{~s}$.

## Mechanical Data

Termination: Printed circuit terminals; .250" ( 6.35 mm ) quick connects for coil and contacts; . 187 " ( 4.75 mm ) quick connects for coil and $.250^{\prime \prime}$ ( 6.35 mm ) 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 . ( 86 g ) approximately.

## Conditions

All parametric, environmental and life tests are performed according to EIA Standard RS-407-A at standard test conditions $\left(25^{\circ} \mathrm{C}\right.$ ambient, $20-50 \%$ RH, $29.5 \pm 1^{\prime \prime} \mathrm{Hg}$.) 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 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Basic Series: <br> T92 = Printed circuit board / panel m | unt power relay. |  |  |  |  |  |  |  |  |
| 2. | Enclosure: <br> $\mathrm{P}=$ Dust protected plastic case. <br> S = Wash-tight, tape sealed, plastic case <br> Top sealed, not wash-tight, not ta | e (Mounting \& Termi sealed on bottom | Type 1). ting \& Termina | yypes 2, | $\text { , } 3 \text { \& 4). }$ |  |  |  |  |  |
|  | Contact Arrangement: $7=2$ form A (DPST-NO). | $11=2$ form C (DPD |  |  |  |  |  |  |  |  |
| 4. | Coil Input: <br> A = AC voltage, 60 Hz . or $50 / 60 \mathrm{~Hz}$. | See Coil DataTable) | $D=D C$ voltage |  |  |  |  |  |  |  |
| 5. | Mounting \& Termination: <br> 1 = Printed circuit board mount; printed circuit board terminals. <br> $2=$ Panel mount via flanged cover; . $250^{\prime \prime}(6.35 \mathrm{~mm}) \times .032^{\prime \prime}(.81 \mathrm{~mm})$ quick connect terminals. <br> 3 = Panel mount via flanged cover; $.187^{\prime \prime}(4.75 \mathrm{~mm}) \times .032^{\prime \prime}(.81 \mathrm{~mm})$ quick connect terminals for coil and $.250 \prime \prime(6.35 \mathrm{~mm})$ for contacts. <br> 4 = Panel mount via flanged cover, $.187^{\prime \prime}(4.75 \mathrm{~mm}) \times .020^{\prime \prime}(.51 \mathrm{~mm})$ quick connect terminals for coil and .250 " ( 6.35 mm ) for contacts. <br> 5 = Panel mount via flanged cover, M4 screw terminals w/ captive pressure plates. Requires Enclosure P and Contact Arrangement 7. |  |  |  |  |  |  |  |  |  |
| 6. | Contact Material: <br> 2 = Silver cadmium oxide. | $4=$ Silver tin indium oxide. |  |  |  |  |  |  |  |  |
| 7. | Coil Voltage: (See Coil Data Table) <br> (DC) <br> $(60 \mathrm{~Hz}$. $) \quad 12=12 \mathrm{VDC}$ <br> ( $50 / 60 \mathrm{~Hz}$.) $\quad 110=100 / 110 \mathrm{VAC}$ | $\begin{aligned} & 24=24 \mathrm{VDC} \\ & 24=24 \mathrm{VAC} \\ & 120=110 / 120 \mathrm{VAC} \end{aligned}$ | $\begin{aligned} 48 & =48 \mathrm{VDC} \\ 208 & =200 / 20\end{aligned}$ |  | $110=110$ $240=2202$ |  | 277 = | 77VAC |  |  |

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 |


|  | Dimensions are shown for refer- | Dimensions are in inches over |
| :--- | :--- | :--- |
| ence purposes only. | (millimeters) unless otherwise <br> specified. | specifications and availability <br> subject to change. |

## 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 $.076 \pm .003(1.93 \pm .076)$ 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.


