

## T92 Series Two-pole 30A PCB or Panel Mount Relay

- 40A, 2 form A (NO) and 2 form C (CO) switching capability
- Designed to control compressor loads to 3.5 tons, 110LRA / 25.3FLA
- Meets requirements of UL 508 and UL 873 spacings - 8mm through air, 9.5mm over surface
- Meets requirements of VDE 8mm spacing, 4kV dielectric coil-to-contact
- Meets requirements of UL Class F construction
- UL approved for 600VAC switching (1.5HP)
- New screw terminal version (consult factory for availability, ratings)

### Typical applications

HVAC, residential / commercial appliances, industrial controls.

### Approvals

UL E22575 (Recognized and Listed); CSA LR48471; VDE 40019600

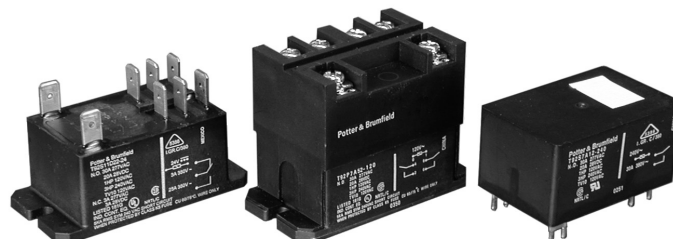
Technical data of approved types on request.

### Contact Data

|                                             |                               |
|---------------------------------------------|-------------------------------|
| Contact arrangement                         | 2 form A (NO), 2 form C (CO)  |
| Rated voltage                               | 277VAC                        |
| Max. switching voltage                      | 600VAC                        |
| Rated current                               | 30A NO; 3A NC                 |
| Limiting continuous current                 | 40A NO; 3A NC                 |
| Limiting making current                     | 40A NO; 3A NC                 |
| Limiting breaking current                   | 40A NO; 3A NC                 |
| Contact material                            | AgSnOInO, AgCdO               |
| Min. recommended contact load               | 500ma (NO)/ 100ma (NC), 12VAC |
| Frequency of operation, with load           | 360hr                         |
| Operate/release time max., including bounce | 25/25ms                       |
| Initial contact resistance                  | < 100 mΩ at 6VDC 1A           |

### Contact ratings <sup>1)</sup>

| Type                       | Load                                           | Cycles              |
|----------------------------|------------------------------------------------|---------------------|
| <b>UL508</b>               |                                                |                     |
| AgCdO                      |                                                |                     |
| NO                         | 40A, 277VAC, resistive                         | 6x10 <sup>3</sup>   |
| NO                         | 30A, 120/277VAC, resistive                     | 100x10 <sup>3</sup> |
| NO                         | 10A, 600VAC, general purpose                   | 100x10 <sup>3</sup> |
| NO                         | 1HP, 120VAC                                    | 100x10 <sup>3</sup> |
| NO                         | 3HP, 240VAC                                    | 1x10 <sup>3</sup>   |
| NO                         | 1.5HP, 480 or 600VAC                           | 100x10 <sup>3</sup> |
| NO                         | 110LRA/25.3FLA, 240VAC (DC coil only)          | 100x10 <sup>3</sup> |
| NO                         | 60LRA/14FLA, 240VAC (AC coil only)             | 100x10 <sup>3</sup> |
| NO                         | 3A, 240VAC, pilot duty                         | 100x10 <sup>3</sup> |
| NO                         | 20A, 28VDC, resistive                          | 100x10 <sup>3</sup> |
| NO                         | TV10, 120VAC                                   | 100x10 <sup>3</sup> |
| NC                         | 3A, 277VAC                                     | 100x10 <sup>3</sup> |
| NC                         | 2A, 480VAC                                     | 100x10 <sup>3</sup> |
| NC                         | 1A, 600VAC                                     | 100x10 <sup>3</sup> |
| AgSnOInO                   |                                                |                     |
| NO                         | 40A, 240VAC, resistive 85°C                    | 50x10 <sup>3</sup>  |
| NO                         | 30A, 120/277VAC, resistive (DC coil only)      | 200x10 <sup>3</sup> |
| NO                         | 30A, 120/277VAC, resistive (AC coil only)      | 100x10 <sup>3</sup> |
| NO                         | 20A, 480VAC, resistive                         | 100x10 <sup>3</sup> |
| NO                         | 1.5HP, 120VAC, 2 pole making/breaking (Fig. 1) | 100x10 <sup>3</sup> |
| NO                         | 3HP, 240VAC, 3 phase (DC coil only)            | 100x10 <sup>3</sup> |
| NO                         | 3HP, 480VAC, 3 phase (DC coil only)            | 100x10 <sup>3</sup> |
| NO                         | 2HP, 600VAC, 3 phase (DC coil only)            | 100x10 <sup>3</sup> |
| <b>VDE</b>                 |                                                |                     |
| AgCdO, flange mount relays |                                                |                     |
| NO                         | 20A, 400VAC                                    | 100x10 <sup>3</sup> |
| NC                         | 3A, 400VAC                                     | 30x10 <sup>3</sup>  |
| CO                         | 20A NO / 3A NC, 400VAC                         | 30x10 <sup>3</sup>  |
| AgCdO, PC mount relays     |                                                |                     |
| NO                         | 30A, 400VAC                                    | 100x10 <sup>3</sup> |
| NC                         | 3A, 400VAC                                     | 30x10 <sup>3</sup>  |
| CO                         | 30A NO / 3A NC, 400VAC                         | 30x10 <sup>3</sup>  |



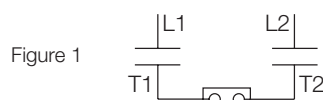
### Contact ratings <sup>1)</sup> (continued)

ARI 780-86 Endurance Test (section 6.6):

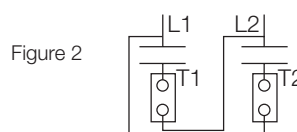
HVAC Definite Purpose Contactor Standard

Normally Open Contacts

Single Phase/Two Pole (Both poles together switching a single load)  
110 LRA, 25.3 FLA, 200K operations (DC Coil)



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



<sup>1)</sup> Contact ratings at 25°C (unless otherwise noted) with relay properly vented.  
FLA, LRA ratings are compatible with 3.5 ton compressor applications.

|                      |                         |
|----------------------|-------------------------|
| Mechanical endurance | 10x10 <sup>6</sup> ops. |
|----------------------|-------------------------|

### Coil Data

|                                     |                           |
|-------------------------------------|---------------------------|
| Coil voltage range                  | 5 to 110VDC; 12 to 240VAC |
| Max. coil power                     | 1.7W; 4.0VA               |
| Max. coil temperature               | 155°C                     |
| Coil insulation system according UL | Class F                   |

### Coil versions, DC coil (D type)

| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance Ω±10% | Rated coil power W |
|-----------|-------------------|---------------------|---------------------|-----------------------|--------------------|
| 5         | 5                 | 3.75                | 0.6                 | 14.9                  | 1.7                |
| 6         | 6                 | 4.5                 | 0.6                 | 22                    | 1.7                |
| 9         | 9                 | 6.75                | 0.9                 | 48                    | 1.7                |
| 12        | 12                | 9                   | 1.2                 | 86                    | 1.7                |
| 18        | 18                | 13.5                | 1.8                 | 197                   | 1.7                |
| 22        | 22                | 16.5                | 2.2                 | 294                   | 1.7                |
| 24        | 24                | 18                  | 2.4                 | 350                   | 1.7                |
| 36        | 36                | 27                  | 3.6                 | 767                   | 1.7                |
| 48        | 48                | 36                  | 4.8                 | 1390                  | 1.7                |
| 110       | 110               | 82.5                | 11                  | 7255                  | 1.7                |
| 120       | 120               | 90                  | 12                  | 8514                  | 1.7                |

**T92 Series Two-pole 30A PCB or Panel Mount Relay (Continued)**

**Coil versions, AC coil (A type) (continued)**

| Coil code | Rated voltage VAC | Frequency Hz | Operate voltage VAC, 60Hz | Release voltage VAC, 60Hz | Coil resistance $\Omega \pm 10\%$ | Rated coil power VA |
|-----------|-------------------|--------------|---------------------------|---------------------------|-----------------------------------|---------------------|
| 12        | 12                | 60           | 9.6                       | 1.2                       | 9.1                               | 4                   |
| 24        | 24                | 60           | 19.2                      | 2.4                       | 36.6                              | 4                   |
| 110       | 110               | 60           | 88                        | 11                        | 793                               | 4                   |
| 120       | 110/120           | 50/60        | 96                        | 12                        | 950                               | 4                   |
| 208       | 208               | 60           | 166.4                     | 20.8                      | 2841                              | 4                   |
| 240       | 220/240           | 50/60        | 192                       | 24                        | 3800                              | 4                   |
| 277       | 250/277           | 50/60        | 221.6                     | 27.7                      | 5485                              | 4                   |

**Coil versions, AC coil (F type)**

| Coil code | Rated voltage VAC | Frequency Hz | Operate voltage VAC, 60Hz | Release voltage VAC, 60Hz | Coil resistance $\Omega \pm 10\%$ | Rated coil power VA |
|-----------|-------------------|--------------|---------------------------|---------------------------|-----------------------------------|---------------------|
| 12        | 12                | 50           | 9.6                       | 1.2                       | 11.2                              | 3.5                 |
| 24        | 24                | 50           | 19.2                      | 2.4                       | 44.4                              | 3.5                 |
| 48        | 48                | 50           | 38.4                      | 4.8                       | 179.2                             | 3.5                 |
| 240       | 240               | 50           | 192                       | 24                        | 4355                              | 3.5                 |

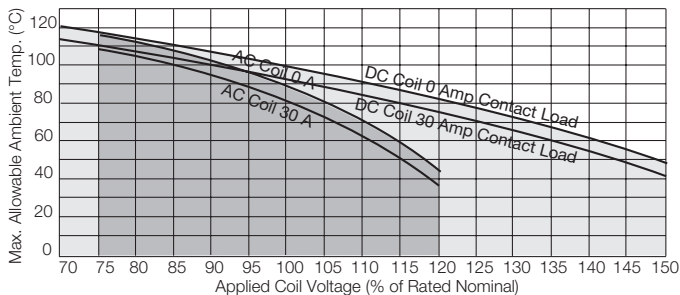
All figures are given for coil without preenergization, at ambient temperature +23°C

**Coil Data (continued)**

**Ambient temperature vs. coil voltage**

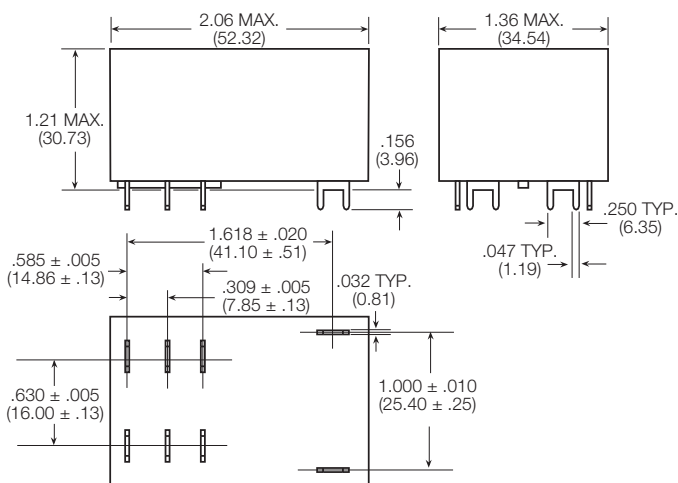
Assumptions:

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.)



**Dimensions**

T92 – Mounting and termination code 1



**Insulation Data**

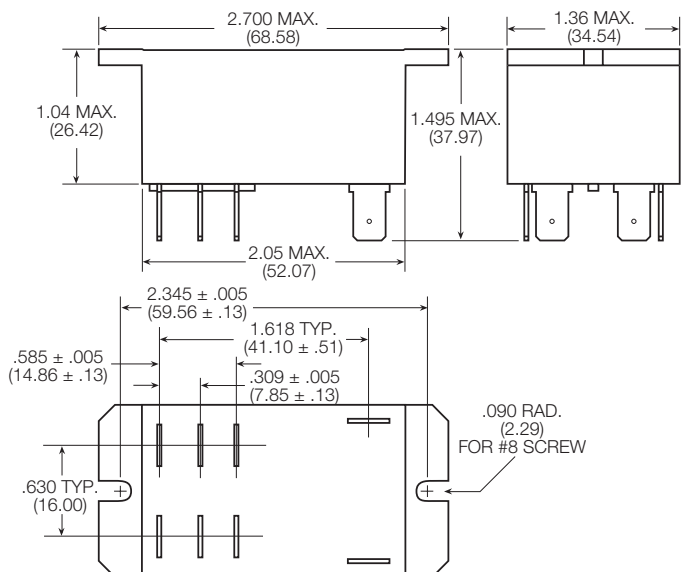
|                                 |                              |
|---------------------------------|------------------------------|
| Initial dielectric strength     |                              |
| between open contacts           | 1500V <sub>rms</sub>         |
| between contact and coil        | 4000V <sub>rms</sub>         |
| between adjacent contact        | 2000V <sub>rms</sub>         |
| Initial surge withstand voltage |                              |
| between contact and coil        | 8kV                          |
| Initial insulation resistance   |                              |
| between insulated elements      | 1x10 <sup>9</sup> Ω          |
| Clearance/creepage              |                              |
| between contact and coil        | 8mm clearance/9.5mm creepage |

**Other Data**

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at [www.te.com/customer-support/rohssupportcenter](http://www.te.com/customer-support/rohssupportcenter)

|                                      |                                                             |
|--------------------------------------|-------------------------------------------------------------|
| Ambient temperature                  |                                                             |
| DC coil                              | -55°C to 85°C                                               |
| AC coil                              | -55°C to 65°C                                               |
| Category of environmental protection |                                                             |
| IEC 61810                            | RTI - dust protected, RTII - flux proof, RTIII - wash tight |
| Vibration resistance (functional)    | 1.65mm max excursions, 10-55 Hz                             |
| Shock resistance (functional)        | 10g for 11msec                                              |
| Shock resistance (destructive)       | 100g                                                        |
| Terminal type                        | PCB-tht or quick connect                                    |
| Weight                               | 86g                                                         |
| Resistance to soldering heat THT     |                                                             |
| IEC 60068-2-20                       | 260°C                                                       |
| Packaging/unit                       | tray/30 pcs., box/120 pcs.                                  |

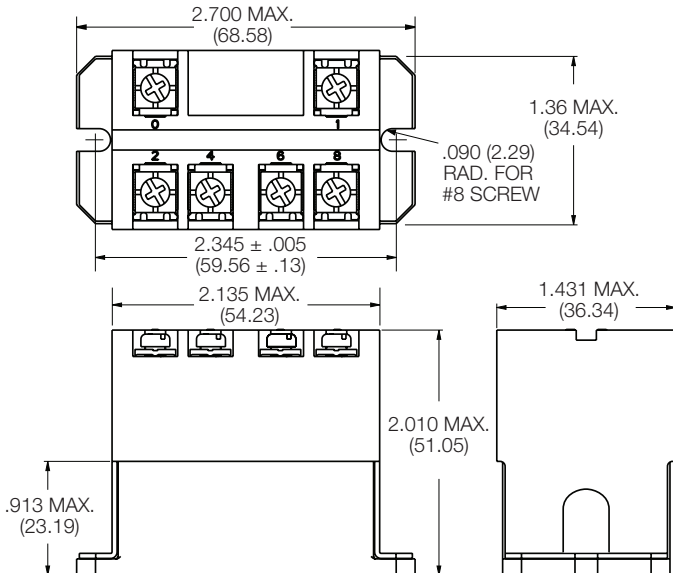
T92 – Mounting and termination code 2, 3 and 4



**T92 Series Two-pole 30A PCB or Panel Mount Relay** (Continued)

**Dimensions**

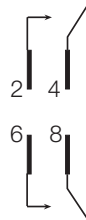
T92 – Mounting and termination code 5



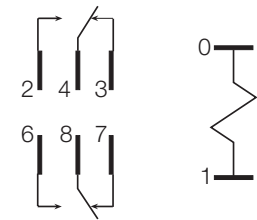
**Terminal assignment**

Bottom view on pins

2 form A



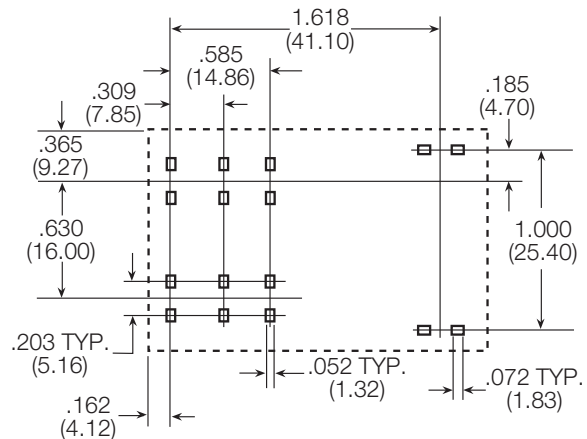
2 form C



**PCB layout**

Bottom view on pins

T92 - Mounting and termination code 1



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.

Only necessary terminals are present on single throw models. Consequently, some holes will be unnecessary for single throw models.

**Product code structure**

Typical product code

**T92 S 11 D 2 2 -24**

**Type**

**T92** Printed circuit board / panel mount power relay T92

**Enclosure**

**P** Dust protected plastic case  
**S** Wash-tight, tape sealed, plastic case (Mounting and termination code 1)  
Top sealed, not wash-tight, not tape sealed on bottom (Mounting and termination codes 2, 3 & 4)

**Contact arrangement**

**7** 2 form A (2 NO) **11** 2 form C (2 CO)

**Coil Input**

**A** AC voltage, 60Hz or 50/60 Hz (consult coil versions table) **D** DC voltage **F** AC voltage, 50Hz

**Mounting and termination**

**1** Printed circuit board mount; printed circuit board terminals.  
**2** Panel mount via flanged cover; .250" (6.35mm) x .032" (.81mm) QC terminal  
**3** Panel mount via flanged cover; .187" (4.75mm) x .032" (.81mm) QC terminals for coil and .250" (6.35mm) for contacts  
**4** Panel mount via flanged cover; .187" (4.75mm) x .020" (.51mm) QC terminals for coil and .250" (6.35mm) for contacts.  
**5** Panel mount via flanged cover, M4 screws w/ captive pressure plates. Requires Enclosure P and Contact arrangement 7.

**Contact material**

**2** AgCdO **4** AgSnOInO

**Coil voltage**

Coil code: please refer to coil versions table

**T92 Series Two-pole 30A PCB or Panel Mount Relay** (Continued)

| Product Code  | Enclosure          | Contacts       | Coil | Mounting                      | Contact Material            | Coil                        | Part Number                 |             |
|---------------|--------------------|----------------|------|-------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|
| T92P7A22-24   | Plastic dust cover | 2 form A, 2 NO | AC   | Panel mount + quick connect   | AgCdO                       | 24 VAC                      | 6-1393211-0                 |             |
| T92P7A22-120  |                    |                |      |                               |                             | 120 VAC                     | 5-1393211-7                 |             |
| T92P7A22-240  |                    |                |      |                               |                             | 240 VAC                     | 6-1393211-2                 |             |
| T92P7A22-277  |                    |                |      |                               |                             | 277 VAC                     | 6-1393211-3                 |             |
| T92P7A24-240  |                    |                |      |                               | AgSnOInO                    | 240 VAC                     | 3-1423008-3                 |             |
| T92P7A52-120  |                    |                |      | Panel mount + screw terminals | AgCdO                       | 120 VAC                     | 1423008-8                   |             |
| T92P7A52-240  |                    |                |      |                               |                             | 240 VAC                     | 1-1423008-2                 |             |
| T92P7D12-12   |                    |                | DC   | PCB terminals                 |                             | 12 VDC                      | 6-1393211-5                 |             |
| T92P7D12-24   |                    |                |      |                               |                             |                             | 24 VDC                      | 6-1393211-6 |
| T92P7D22-12   |                    |                |      | Panel mount + quick connect   |                             | 12VDC                       | 6-1393211-9                 |             |
| T92P7D22-24   |                    |                |      |                               |                             |                             | 24 VDC                      | 7-1393211-1 |
| T92P7D22-48   |                    |                |      |                               | 48 VDC                      | 7-1393211-2                 |                             |             |
| T92P7D24-12   |                    |                |      |                               | AgSnOInO                    | 12VDC                       | 2-1423008-2                 |             |
| T92P7D24-24   |                    |                |      |                               |                             | 24 VDC                      | 1423008-9                   |             |
| T92P7D42-24   |                    |                |      |                               | AgCdO                       |                             | 7-1393211-5                 |             |
| T92P7D52-12   |                    |                |      | Panel mount + screw terminals |                             | 12 VDC                      | 1-1423008-0                 |             |
| T92P7D52-24   |                    |                |      |                               |                             | 24 VDC                      | 1423967-1                   |             |
| T92P11A12-120 |                    | 2 form C, 2 CO | AC   | PCB terminals                 |                             | 120 VAC                     | 3-1393211-8                 |             |
| T92P11A22-12  |                    |                |      |                               | Panel mount + quick connect |                             | 12 VAC                      | 3-1393211-9 |
| T92P11A22-24  |                    |                |      |                               |                             |                             | 24 VAC                      | 4-1393211-3 |
| T92P11A22-120 |                    |                |      |                               |                             |                             | 120 VAC                     | 4-1393211-0 |
| T92P11A22-240 |                    |                |      |                               |                             | 240 VAC                     | 4-1393211-4                 |             |
| T92P11A22-277 |                    |                |      |                               |                             | 277 VAC                     | 4-1393211-6                 |             |
| T92P11A24-240 |                    |                |      |                               | AgSnOInO                    | 240 VAC                     | 3-1423008-7                 |             |
| T92P11A42-120 |                    |                |      |                               |                             | AgCdO                       | 120VAC                      | 4-1393211-8 |
| T92P11D12-12  |                    |                | DC   | PCB terminals                 |                             | 12 VDC                      | 5-1393211-0                 |             |
| T92P11D22-12  |                    |                |      |                               | Panel mount + quick connect |                             |                             | 5-1393211-3 |
| T92P11D22-24  |                    |                |      |                               |                             |                             | 24 VDC                      | 5-1393211-4 |
| T92P11D24-12  |                    |                |      |                               |                             | AgSnOInO                    | 12 VDC                      | 3-1423008-5 |
| T92P11D24-24  |                    |                |      |                               | 24 VDC                      |                             | 3-1423008-6                 |             |
| T92S7A12-24   | Wash tight         | 2 form A, 2 NO | AC   | PCB terminals                 | AgCdO                       | 24 VAC                      | 9-1393211-8                 |             |
| T92S7A12-120  |                    |                |      |                               |                             | 120 VAC                     | 9-1393211-7                 |             |
| T92S7A12-240  |                    |                |      |                               |                             |                             | 240 VAC                     | 9-1393211-9 |
| T92S7A22-24   | Top sealed         |                |      |                               |                             |                             | Panel mount + quick connect | 24 VAC      |
| T92S7A22-120  |                    |                |      |                               | 120 VAC                     | 1393212-2                   |                             |             |
| T92S7A22-240  |                    |                |      |                               | 240 VAC                     | 1393212-5                   |                             |             |
| T92S7D12-12   | Wash tight         |                | DC   | PCB terminals                 |                             | 12 VDC                      | 1393212-8                   |             |
| T92S7D12-24   |                    |                |      |                               |                             |                             | 24 VDC                      | 1-1393212-0 |
| T92S7D12-48   |                    |                |      |                               |                             | 48 VDC                      | 1-1393212-1                 |             |
| T92S7D12-110  |                    |                |      |                               |                             |                             | 110 VDC                     | 1393212-7   |
| T92S7D14-24   |                    |                |      |                               |                             |                             |                             |             |
|               |                    |                |      |                               | AgSnOInO                    | 24 VDC                      | 1-1423008-8                 |             |
| T92S7D22-12   | Top sealed         |                |      | Panel mount + quick connect   | AgCdO                       | 12 VDC                      | 1-1393212-4                 |             |
| T92S7D22-18   |                    |                |      |                               |                             |                             | 18 VDC                      | 1-1393212-5 |
| T92S7D22-24   |                    |                |      | 24 VDC                        |                             | 1-1393212-7                 |                             |             |
| T92S7D22-110  |                    |                |      |                               |                             | 110 VDC                     | 1-1393212-3                 |             |
| T92S11A12-24  | Wash tight         | 2 form C, 2 CO | AC   | PCB terminals                 |                             | 24 VAC                      | 8-1393211-1                 |             |
| T92S11A12-120 |                    |                |      |                               |                             |                             |                             | 120 VAC     |
| T92S11A12-240 |                    |                |      |                               |                             | 240 VAC                     | 8-1393211-2                 |             |
| T92S11A22-12  | Top sealed         |                |      |                               |                             | Panel mount + quick connect |                             | 12 VAC      |
| T92S11A22-24  |                    |                |      |                               | 24 VAC                      |                             | 8-1393211-6                 |             |
| T92S11A22-120 |                    |                |      |                               | 120 VAC                     |                             | 8-1393211-4                 |             |
| T92S11A22-240 |                    |                |      |                               | 240 VAC                     |                             | 8-1393211-7                 |             |
| T92S11D12-12  | Wash tight         |                | DC   | PCB terminals                 |                             | 12 VDC                      | 8-1393211-9                 |             |
| T92S11D12-24  |                    |                |      |                               |                             |                             | 24 VDC                      | 9-1393211-0 |
| T92S11D12-48  |                    |                |      |                               |                             | 48 VDC                      | 9-1393211-1                 |             |
| T92S11D12-110 |                    |                |      |                               |                             |                             | 110 VDC                     | 8-1393211-8 |
| T92S11D22-12  | Top sealed         |                |      | Panel mount + quick connect   |                             | 12 VDC                      | 9-1393211-3                 |             |
| T92S11D22-24  |                    |                |      |                               |                             | 24 VDC                      | 9-1393211-4                 |             |

Note. This list represents the most common types and does not show all variants covered by this datasheet, other types on request.

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