

## KUP Series Panel Plug-in Relay

- AC coils: 5-240VAC, 50/60 Hz.; DC coils 6-110VDC
- Contact arrangements of 1 form X, 1-3 form A and 1-4 form C
- Wide selection of termination and mounting styles
- PC terminals available
- Push-to-test button and indicator lamp options
- Sockets available for panel, DIN rail or PCB mounting
- Class B coil insulation

### Typical applications

Vending, commercial sewing, tool/die equipment, robotics, timers, welding, HVAC, medical, power generators



### Approvals

UL E22575; CSA LR15734

Technical data of approved types on request

### Contact Data

|                               |                                                    |              |              |
|-------------------------------|----------------------------------------------------|--------------|--------------|
| Contact arrangement           | 1 Form X (NO-DM); 1-3 Form A (NO); 1-4 Form C (CO) |              |              |
| Rated voltage                 | 240VAC                                             |              |              |
| Rated current                 | 10A                                                |              |              |
| Contact material              | Ag                                                 | AgCdO        | AgSnInO      |
| Min. recommended contact load | 100mA, 12VDC                                       | 300mA, 12VDC | 300mA, 12VDC |
| Frequency of operation        | 360 ops./hr                                        | 360 ops./hr  | 360 ops./hr  |
| Operate/releases time max.    | 15/10ms                                            |              |              |
| Bounce time max.              | 17ms                                               |              |              |

### Contact ratings

| Type                   | Load                   | Cycles             |
|------------------------|------------------------|--------------------|
| <b>UL 508</b>          |                        |                    |
| Ag, 1, 2 and 3 pole    |                        |                    |
|                        | 5A, 240VAC             |                    |
|                        | 5A, 28VDC              |                    |
|                        | 1/6HP, 120VAC          |                    |
|                        | 2.5A, 120VAC, tungsten |                    |
|                        | 1/3HP, 240VAC          |                    |
|                        | 0.5A, 120VDC           |                    |
|                        | 5FLA, 15LRA, 250VAC    |                    |
| Ag, 4 pole             |                        |                    |
|                        | 5A, 240VAC             |                    |
|                        | 2.5A, 120VAC, tungsten |                    |
|                        | 0.5A, 120VDC           |                    |
|                        | 1/6HP, 120VAC          |                    |
|                        | 1/3HP, 240VAC          |                    |
| AgCdO, 1, 2 and 3 pole |                        |                    |
|                        | 10A, 240VAC            |                    |
|                        | 10A, 32VDC             |                    |
|                        | 5FLA, 15LRA, 250VAC    |                    |
|                        | 1/3HP, 120VAC          |                    |
|                        | 5A, 120VAC, tungsten   |                    |
|                        | 1/2HP, 250VAC          |                    |
|                        | 0.5A, 125VDC           |                    |
|                        | 10FLA, 40LRA, 125VAC   |                    |
|                        | 3A, 600VAC             |                    |
|                        | 1/2HP, 480VAC          |                    |
|                        | 1/2HP, 600VAC          |                    |
|                        | 1HP, 480 VAC, 3 phase  |                    |
| AgCdO, 4 pole          |                        |                    |
|                        | 10A, 240VAC            |                    |
|                        | 5A, 120VAC, tungsten   |                    |
|                        | 0.5A, 120VDC           |                    |
|                        | 10A, 28VDC, resistive  |                    |
|                        | 10FLA, 30LRA, 125VAC   |                    |
|                        | 5FLA, 15LRA, 250 VAC   | 30x10 <sup>3</sup> |
|                        | 125VA, 250 VAC         |                    |

AgCdO, 4 pole (continued)

1/3HP, 120VAC

1/2HP, 250VAC

Total load not to exceed 30 A, 28 VDC, 120 VAC and 20 A, 250 VAC

AgSnInO

10A, 277VAC, pf = 0.8

100x10<sup>3</sup>

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

### Coil Data

|                    |             |
|--------------------|-------------|
| Coil voltage range | 5 to 110VDC |
|                    | 6 to 240VAC |

Coil insulation system according UL Class B

### Coil versions, DC coil

| Coil code       | Rated voltage VDC | Operate voltage VDC | Coil resistance $\Omega \pm 10\%$ | Rated coil power W |
|-----------------|-------------------|---------------------|-----------------------------------|--------------------|
| 1, 2 and 3 pole |                   |                     |                                   |                    |
| 5               | 5                 | 3.75                | 21                                | 1.2                |
| 6               | 6                 | 4.5                 | 32.1                              | 1.125              |
| 12              | 12                | 9.0                 | 120                               | 1.2                |
| 24              | 24                | 18.0                | 472                               | 1.25               |
| 48              | 48                | 36.0                | 1800                              | 1.3                |
| 110             | 110               | 82.5                | 10000                             | 1.25               |
| 4 pole          |                   |                     |                                   |                    |
| 5               | 5                 | 3.75                | 14                                | 1.8                |
| 6               | 6                 | 4.5                 | 20                                | 1.8                |
| 12              | 12                | 9.0                 | 80                                | 1.8                |
| 24              | 24                | 18.0                | 320                               | 1.8                |
| 48              | 48                | 36.0                | 1250                              | 1.85               |
| 110             | 110               | 82.5                | 6720                              | 1.8                |

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

### Coil versions, AC coil

| Coil code    | Rated voltage VAC | Operate voltage VAC | Coil resistance $\Omega \pm 15\%$ | Rated coil power VA |
|--------------|-------------------|---------------------|-----------------------------------|---------------------|
| 1 and 2 pole |                   |                     |                                   |                     |
| 6            | 6                 | 5.1                 | 6                                 | 2.0                 |
| 12           | 12                | 10.2                | 24                                | 2.0                 |
| 24           | 24                | 20.4                | 85                                | 2.0                 |
| 120          | 120               | 102.0               | 2250                              | 2.1                 |
| 240          | 240               | 204.0               | 9110                              | 2.1                 |
| 3 and 4 pole |                   |                     |                                   |                     |
| 6            | 6                 | 5.1                 | 4.2                               | 2.8                 |
| 12           | 12                | 10.2                | 18                                | 2.8                 |
| 24           | 24                | 20.4                | 72                                | 2.8                 |
| 120          | 120               | 102.0               | 1700                              | 2.9                 |
| 240          | 240               | 204.0               | 7200                              | 2.9                 |

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

**KUP Series Panel Plug-in Relay (Continued)**

**Insulation Data**

|                               |                      |
|-------------------------------|----------------------|
| Initial dielectric strength   |                      |
| between open contacts         | 1200V <sub>rms</sub> |
| between contact and coil      | 2200V <sub>rms</sub> |
| between adjacent contacts     | 2200V <sub>rms</sub> |
| Initial insulation resistance |                      |
| between insulated elements    | 100MΩ, 500VDC        |

**Other Data**

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

**Ambient temperature**

|         |                                               |
|---------|-----------------------------------------------|
| DC coil | Enclosed relays, 4 pole: -45°C to 50°C        |
|         | Enclosed relays, 1-3 pole: -45°C to 70°C      |
|         | Open relays: 15°C higher maximum              |
| AC coil | Enclosed relays, 3 and 4 pole: -45°C to +45°C |
|         | Enclosed relays, 1 and 2 pole: -45°C to +55°C |
|         | Open relays: 15°C higher maximum              |

**Maximum allowable ambient temperature vs voltage (KUP enclosed)**



**Dimensions**

**KU bracket type**

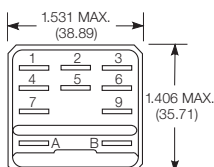


**KU stud type**

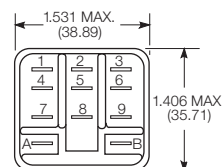


**Relay front diagrams**

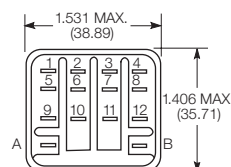
**Models with 6.35mm (.250) QC terminals**



**1-3 pole models with all other terminals**



**4 pole models**



**Other Data (continued)**

|                                      |                                                  |                                        |
|--------------------------------------|--------------------------------------------------|----------------------------------------|
| Category of environmental protection | IEC 61810                                        | RT0 - open relay; RTI - dust protected |
| Terminal type                        | Quick connects (QC), .187, .205 or .250; PCB-THT |                                        |
| Terminal retention, push force       | QC .205                                          | 17 lbs for 3s                          |
|                                      | QC .187, QC .250, PCB                            | 25 lbs for 3s                          |
| Weight                               |                                                  | 85g                                    |
| Packaging/unit                       |                                                  | tray/25 pcs., box/150pcs.              |

**Accessories**

|                           |                                     |
|---------------------------|-------------------------------------|
| For details see datasheet | Sockets and Accessories, KUP Relays |
|---------------------------|-------------------------------------|

| Product Code | Description                                          |
|--------------|------------------------------------------------------|
| 27E893       | DIN socket (use 20C318 clip)                         |
| 27E121       | Track mount socket (use 20C314 clips)                |
| 27E043       | Chassis mount/solder eyelet socket (use 20C254 clip) |
| 27E046       | Chassis mount/PCB socket (use 20C254 clip)           |
| 27E067       | Chassis mount/quick connect socket (use 20C254 clip) |
| 27E396       | Snap-in/quick connect socket (use 20C254 clip)       |

**Seated Heights For KU (open) Relays**

1.391" (35.33mm) for #6-32 stud with .218" (5.54mm) locating tab.

1.52" (38.6mm) for bracket with 2-#6 32 tapped holes.

1.282" (32.56mm) for #6-32 tapped core with .125" (3.18mm) or .218" (5.54mm) locating tab.

2.046" (51.97mm) for relay with printed circuit terminals.

STUD TYPE also available with .125" (3.18mm) tab, as well as without stud and locating tab. Models without stud have core tapped #6-32 THREAD, .25" (6.4mm) minimum depth.

\*Dimensions with .250" (6.35mm) terminals.  
\*\* Dimensions with .110" (2.79mm) or .205" (5.21mm) terminals.  
\*\*\* Dimensions with .187" (4.75mm) terminals.

## KUP Series Panel Plug-in Relay (Continued)

### Dimensions (continued)

#### KUP plain case



X Is For Terminal Dimensions.  
See Terminal Drawings.

#### KUP core / stud mount case



#### KUP top flange case



† Dimensions with .250" (6.35mm) terminals.  
‡ Dimensions with .187" (4.75mm) and .205" (5.21mm) terminals.

\* Dimensions with .250" (6.35mm) terminals.  
\*\* Dimensions with .110" (2.79mm) or .205" (5.21mm) terminals.  
\*\*\* Dimensions with .187" (4.75mm) terminals.

#### KUP bracket mount case



#### KUP stud on end case



### Terminal dimensions

#### 4.75mm (.187) quick connect



#### 5.21mm (.205) quick connect



#### 1.19mm (.047) printed circuit



#### 6.35mm (.250) quick connect



### Terminal assignment

#### 1 Form X



#### 1 Form C 1 Form A (delete 2)



#### 2 Form C 2 Form A (delete 1 & 3)



#### 3 Form C 3 Form A (delete 1, 2 & 3)



#### 4 Form C



**KUP Series Panel Plug-in Relay** (Continued)

**PCB layout**

Bottom view on solder pins

1 form X version



3 pole version  
(Omit unnecessary holes for form A and 2 pole types)



4 pole version



**Product code structure**

Typical product code

**KUP -14 A 1 5 -120**

**Type**

**KU** Open style relay

**KUP** Enclosed relay

**Contact arrangement**

- |                           |                             |                           |
|---------------------------|-----------------------------|---------------------------|
| <b>1</b> 1 form A (1 NO)  | <b>3</b> 1 form X (1 NO-DM) | <b>5</b> 1 form C (1 CO)  |
| <b>7</b> 2 form A (2 NO)  | <b>11</b> 2 form C (2 CO)   | <b>12</b> 3 form A (3 NO) |
| <b>14</b> 3 form C (3 CO) | <b>17</b> 4 form C (4 CO)   |                           |

**Coil Input**

- |                      |             |
|----------------------|-------------|
| <b>A</b> AC, 50/60Hz | <b>D</b> DC |
|----------------------|-------------|

**Mounting and options**

**KU**

- 1** #6-32 mounting stud, 5.54mm (.218in) locating tab
- 3** #6-32 tapped core, 3.18mm (.125in) locating tab
- 4** #6-32 tapped core, 5.54mm (.218in) locating tab
- 5** #6-32 tapped core, no locating tab

**KUP**

- 1** Socket mount (plain) case
  - 2** Socket mount (plain) case with push-to-test button 1)
  - 3** Socket mount (plain) case with indicator lamp 2)
  - 4** Socket mount (plain) case with indicator lamp and push-to-test button 1) 2)
  - 5** Bracket mount case
  - A** Plain case with #6-32 stud and locating tab
  - E** Plain case with #6-32 tapped core and locating tab
  - T** Top flange case 1)
- 1) Not available with four pole models (Contact arrangement 17).  
2) Indicator lamps are available on models with the following coils: 6-24VAC and VDC, 110VDC and 120-240VAC.  
Only models with 120-240VAC coils are UL recognized.

**Terminal and contact material**

**1 and 2 pole models**

- |                                                             |                                                           |
|-------------------------------------------------------------|-----------------------------------------------------------|
| <b>1</b> 4.75mm (.187in) quick connect/solder; Ag, 5A       | <b>3</b> 1.19mm (.047in) PCB; Ag, 5A                      |
| <b>5</b> 4.75mm (.187in) quick connect/solder; AgCdO, 10A   | <b>7</b> 1.19mm (.047in) PCB; AgCdO, 10A                  |
| <b>J</b> 6.35mm (.250in) quick connect/solder; Ag, 5A       | <b>K</b> 6.35mm (.250in) quick connect/solder; AgCdO, 10A |
| <b>P</b> 4.75mm (.187in) quick connect/solder; AgSnInO, 10A | <b>S</b> 1.19mm (.047in) PCB, AgSnInO; 10A                |
| <b>W</b> 6.35mm (.250in) quick connect/solder; AgSnInO, 10A |                                                           |

**3 pole models**

- |                                                             |                                            |
|-------------------------------------------------------------|--------------------------------------------|
| <b>1</b> 4.75mm (.187in) quick connect/solder; Ag, 5A       | <b>3</b> 1.19mm (.047in) PCB; Ag, 5A       |
| <b>5</b> 4.75mm (.187in) quick connect/solder; AgCdO, 10A   | <b>7</b> 1.19mm (.047in) PCB; AgCdO, 10A   |
| <b>P</b> 4.75mm (.187in) quick connect/solder; AgSnInO, 10A | <b>S</b> 1.19mm (.047in) PCB, AgSnInO; 10A |

**4 pole models**

- |                                                                |                                                              |
|----------------------------------------------------------------|--------------------------------------------------------------|
| <b>1</b> 4.75mm (.187in) quick connect/solder; Ag, 5A 3)       | <b>3</b> 1.19mm (.047in) PCB; Ag, 5A                         |
| <b>4</b> 2.79mm (.110in) quick connect/solder; Ag, 5A          | <b>5</b> 4.75mm (.187in) quick connect/solder; AgCdO, 10A 3) |
| <b>7</b> 1.19mm (.047in) PCB; AgCdO, 10A                       | <b>9</b> 2.79mm (.110in) quick connect/solder; AgCdO, 10A    |
| <b>P</b> 4.75mm (.187in) quick connect/solder; AgSnInO, 10A 3) | <b>S</b> 1.19mm (.047in) PCB, AgSnInO; 10A                   |
| <b>U</b> 2.79mm (.110in) quick connect/solder; AgSnInO, 10A 2) |                                                              |
- 3) 4 pole KUP with 4.75mm (.187in) terminals will not plug into sockets. Must use 2.79mm (.110) terminals for socket mounting.

**Au flashed contact option**

- Leave Blank** No Au flashing on contacts
- F** Optional Au flashing on contacts

**Coil voltage**

Coil code: please refer to coil versions table

**KUP Series Panel Plug-in Relay** (Continued)

| Product Code   | Arrangement    | Material    | Coil              | Terminals          | Mounting                            | Part Number                                 |                          |             |
|----------------|----------------|-------------|-------------------|--------------------|-------------------------------------|---------------------------------------------|--------------------------|-------------|
| KUP-5A15-24    | 1 form C, 1 CO | AgCdO       | 24VAC             | 4.75mm (.187in) QC | Socket mount, plain case            | 6-1393118-0                                 |                          |             |
| KUP-5A15-120   |                |             | 120VAC            |                    |                                     | 5-1393119-9                                 |                          |             |
| KUP-5A15-240   |                |             | 240VAC            |                    |                                     | 6-1393118-1                                 |                          |             |
| KUP-5A55-120   |                |             | 120VAC            |                    | Bracket mount case                  | 6-1393118-3                                 |                          |             |
| KUP-5D15-12    |                |             | 12VDC             |                    |                                     | 6-1393118-6                                 |                          |             |
| KUP-5D15-24    |                |             | 24VDC             |                    |                                     | 6-1393118-7                                 |                          |             |
| KUP-5D55-12    |                |             | 12VDC             |                    | Bracket mount case                  | 7-1393118-0                                 |                          |             |
| KUP-5D55-24    |                |             | 24VDC             |                    |                                     | 7-1393118-1                                 |                          |             |
| KUP-11A11-120  |                |             | 120VAC            |                    | Socket mount, plain case            | 1-1393117-7                                 |                          |             |
| KUP-11A15-12   |                |             | 12VDC             |                    |                                     | 1-1393117-8                                 |                          |             |
| KUP-11A15-24   |                |             | 24VAC             |                    |                                     | 2-1393117-1                                 |                          |             |
| KUP-11A15-120  |                |             | 120VAC            |                    | Socket mount case w/ indicator lamp | 1-1393117-9                                 |                          |             |
| KUP-11A15-240  |                |             | 240VAC            |                    |                                     | 2-1393117-2                                 |                          |             |
| KUP-11A35-120  |                |             | 120VAC            |                    |                                     | 2-1393117-5                                 |                          |             |
| KUP-11A55-24   |                |             | 24VAC             |                    | Bracket mount case                  | 3-1393117-0                                 |                          |             |
| KUP-11A55-120  |                |             | 120VAC            |                    |                                     | 2-1393117-9                                 |                          |             |
| KUP-11AT5-120  |                |             |                   |                    |                                     |                                             |                          |             |
| KUP-11D11-24   |                |             | Ag                |                    | 24VDC                               | Top flange case                             | 1-1393117-4              |             |
| KUP-11D15-5    |                |             | AgCdO             |                    | 5VDC                                |                                             | Socket mount, plain case | 4-1393117-2 |
| KUP-11D15-12   |                |             |                   |                    | 12VDC                               |                                             |                          | 4-1393117-8 |
| KUP-11D15-24   | 12VDC          | 4-1393117-4 |                   |                    |                                     |                                             |                          |             |
| KUP-11D15-36   | 36VDC          | 4-1393117-5 |                   |                    |                                     |                                             |                          |             |
| KUP-11D15-110  | 110VDC         | 4-1393117-6 |                   |                    |                                     |                                             |                          |             |
| KUP-11D35-24   | 24VDC          | 4-1393117-3 |                   |                    |                                     |                                             |                          |             |
| KUP-11D55-6    |                |             | 6VDC              |                    | Socket mount case w/ indicator lamp | 5-1393117-3                                 |                          |             |
| KUP-11D55-12   |                |             | 12VDC             |                    |                                     | 6-1393117-0                                 |                          |             |
| KUP-11D55-24   |                |             | 24VDC             |                    |                                     | 5-1393117-6                                 |                          |             |
| KUP-11D55-48   |                |             | 48VDC             |                    | 5-1393117-8                         |                                             |                          |             |
| KUP-11D55-110  |                |             | 110VDC            |                    | 5-1393117-9                         |                                             |                          |             |
| KUP-11D55-110  |                |             | 110VDC            |                    | 5-1393117-5                         |                                             |                          |             |
| KUP-14A11-120  | 3 form C, 3 CO | Ag          | 120VAC            |                    | Socket mount, plain case            | 7-1393117-3                                 |                          |             |
| KUP-14A15-12   |                | AgCdO       | 12VAC             |                    |                                     | 7-1393117-7                                 |                          |             |
| KUP-14A15-24   |                | 24VAC       | 7-1393117-9       |                    |                                     |                                             |                          |             |
| KUP-14A15-120  |                | 120VAC      | 7-1393117-8       |                    |                                     |                                             |                          |             |
| KUP-14A15-240  |                | 240VAC      | 8-1393117-0       |                    |                                     |                                             |                          |             |
| KUP-14A25-120  |                | 120VAC      | 8-1393117-3       |                    |                                     |                                             |                          |             |
| KUP-14A35-120  |                |             |                   |                    | Socket mount w/ test button         | 8-1393117-3                                 |                          |             |
| KUP-14A35-120  |                |             |                   |                    |                                     | 8-1393117-7                                 |                          |             |
| KUP-14A35-240  |                |             | 240VAC            |                    |                                     | 8-1393117-9                                 |                          |             |
| KUP-14A35F-120 |                |             | AgCdO w/ Au flash |                    | 120VAC                              | 9-1393117-0                                 |                          |             |
| KUP-14A45-120  |                |             | AgCdO             |                    |                                     | Socket mount w/ test button, indicator lamp | 9-1393117-4              |             |
| KUP-14A55-24   |                |             | 24VAC             |                    | 1393118-2                           |                                             |                          |             |
| KUP-14A55-120  | 120VAC         | 9-1393117-9 |                   |                    |                                     |                                             |                          |             |
| KUP-14A55-240  |                |             | 240VAC            |                    | Bracket mount case                  | 1393118-3                                   |                          |             |
| KUP-14D11-24   |                |             | Ag                |                    |                                     | 24VDC                                       | Socket mount, plain case | 1-1393118-0 |
| KUP-14D15-6    |                |             | AgCdO             |                    |                                     | 6VDC                                        | 1-1393118-8              |             |
| KUP-14D15-12   |                |             |                   |                    | 12VDC                               | 1-1393118-3                                 |                          |             |
| KUP-14D15-24   |                |             |                   |                    | 24VDC                               | 1-1393118-4                                 |                          |             |
| KUP-14D15-48   |                |             |                   |                    | 48VDC                               | 1-1393118-7                                 |                          |             |
| KUP-14D15-110  | 110VDC         | 1-1393118-2 |                   |                    |                                     |                                             |                          |             |
| KUP-14D25-24   | 24VDC          | 2-1393118-3 |                   |                    |                                     |                                             |                          |             |
| KUP-14D35-24   |                |             |                   |                    | Socket mount w/ test button         | 2-1393118-7                                 |                          |             |
| KUP-14D35-110  |                |             | 110VDC            |                    |                                     | 2-1393118-6                                 |                          |             |
| KUP-14D35F-110 |                |             | AgCdO w/ Au flash |                    |                                     |                                             | 2-1393118-9              |             |
| KUP-14D45-110  |                |             | AgCdO             |                    |                                     | Socket mount w/ test button, indicator lamp | 3-1393118-1              |             |
| KUP-14D55-12   |                |             | 12VDC             |                    | 3-1393118-7                         |                                             |                          |             |
| KUP-14D55-24   |                |             | 24VDC             |                    | 3-1393118-8                         |                                             |                          |             |
| KUP-17A19-120  | 4 form C, 4 CO |             | 120VAC            | 2.79mm (.110in) QC | Socket mount, plain case            | 4-1393118-2                                 |                          |             |
| KUP-17A55-24   |                |             | 24VAC             |                    | Bracket mount case                  | 4-1393118-6                                 |                          |             |
| KUP-17D19-24   |                |             | 24VDC             |                    | Socket mount, plain case            | 5-1393118-0                                 |                          |             |
| KUP-17D55-24   |                |             | 24VDC             |                    | Bracket mount case                  | 5-1393118-3                                 |                          |             |

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