

## KHA Series Panel Plug-in Relay

- Compact package
- Two and four pole form C contact arrangements
- Polycarbonate or nylon dust cover
- Various mounting configurations
- Indicator lamp and push-to-reset options available
- Various contact materials available for specific load requirements



### Typical applications

Industrial sewing/stitching machines, fitness, elevators, pumps, robotics, solar panels



### Approvals

UL E22575; CSA LR15734

Technical data of approved types on request

### Contact Data

|                                        |                                                      |
|----------------------------------------|------------------------------------------------------|
| Contact arrangement                    | 2 form C (2CO), 4 form C (4CO)                       |
| Rated voltage                          | 240VAC                                               |
| Rated current                          | 1-5A                                                 |
| Contact material                       | Ag, AgCdO, Au-AgNi,<br>Au overlay Ag, Au diffused Ag |
| Contact style                          | Single contact or bifurcated crossbar                |
| Min. recommended contact load          |                                                      |
| Ag (single contact)                    | 100mA, 12VDC                                         |
| AgCdO (single contact)                 | 300mA, 12VDC                                         |
| Au-AgNi (single contact)               | 10mA, 12VDC                                          |
| Au overlay Ag (bifurcated crossbar)    | Dry circuit                                          |
| Au diffused Ag (single contact)        | 50mA, 12VDC                                          |
| Initial contact resistance             |                                                      |
| Ag, AgCdO                              | 100mΩ                                                |
| Au-AgNi, Au overlay Ag, Au diffused Ag | 200mΩ                                                |
| Frequency of operation                 | 360 ops./hour                                        |
| Operate/release time max.              | 13/6ms                                               |

### Contact ratings

| Type           | Load                                                                                                                                       | Cycles |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>UL 508</b>  |                                                                                                                                            |        |
| Ag             | 5A, 120VAC, general purpose<br>2.5A, 240VAC, general purpose<br>1/10HP, 120/240VAC<br>180VA, 250VAC, pilot duty<br>42VA, 28VDC, pilot duty |        |
| AgCdO          | 5A, 240VAC, general purpose<br>5A, 28VDC, resistive<br>1/10HP, 120/240VAC<br>180VA, 250VAC, pilot duty<br>42VA, 28VDC, pilot duty          |        |
| Au-AgNi        | 2A, 120VAC, resistive                                                                                                                      |        |
| Au overlay Ag  | 1A, 120VAC<br>1A, 30VDC                                                                                                                    |        |
| Au diffused Ag | 5A, 120VAC, general purpose<br>2.5A, 240VAC, general purpose<br>1/10HP, 120/240VAC<br>180VA, 250VAC, pilot duty<br>42VA, 28VDC, pilot duty |        |

Note: The relay should only carry ≤15A continuously (all poles combined).

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

### Coil Data

|                                     |                            |
|-------------------------------------|----------------------------|
| Coil voltage range                  | 5 to 240VDC<br>6 to 240VAC |
| Coil insulation system according UL | Class B                    |

### Coil versions, DC coil

| Coil code | Rated voltage VDC | Operate voltage VDC | ReleaseCoil resistance Ω±10%                            | Rated coil power mW |
|-----------|-------------------|---------------------|---------------------------------------------------------|---------------------|
| 5         | 5                 | 3.75                | 32                                                      | 800                 |
| 6         | 6                 | 4.5                 | 40                                                      | 900                 |
| 12        | 12                | 9.0                 | 160                                                     | 900                 |
| 24        | 24                | 18.0                | 650                                                     | 850                 |
| 48        | 48                | 36.0                | 2600                                                    | 900                 |
| 110       | 110               | 82.5                | 11000                                                   | 1100                |
|           | 220/240           |                     | Use 110V relay with series dropping 5W resistor of 11KΩ |                     |

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 Ω±15% | Rated coil power VA |
|-----------|-------------------|---------------------|-----------------------|---------------------|
| 6         | 6                 | 5.1                 | 10.5                  | 1.2                 |
| 12        | 12                | 10.2                | 43                    | 1.2                 |
| 24        | 24                | 20.4                | 160                   | 1.25                |
| 48        | 48                | 40.8                | 668                   | 1.2                 |
| 120       | 120               | 102.0               | 3900                  | 1.35                |
| 240       | 240               | 204.0               | 12000                 | 1.5                 |

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

### Insulation Data

|                               |                      |
|-------------------------------|----------------------|
| Initial dielectric strength   |                      |
| between open contacts         | 1000V <sub>rms</sub> |
| between contact and coil      | 1500V <sub>rms</sub> |
| between adjacent contacts     | 1500V <sub>rms</sub> |
| between coil and frame        | 1500V <sub>rms</sub> |
| Initial insulation resistance |                      |
| between insulated elements    | 100MΩ at 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 -45°C to 70°C

Category of environmental protection

IEC 61810 RT1 - dust protected

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

### Other Data (continued)

|                |                                                          |
|----------------|----------------------------------------------------------|
| Terminal type  | solder/plug-in .105" (2.67mm),<br>pcb-tht .112" (2.84mm) |
| Weight         | 45g                                                      |
| Packaging/unit | tray/50 pcs., box/250pcs.                                |

## Accessories

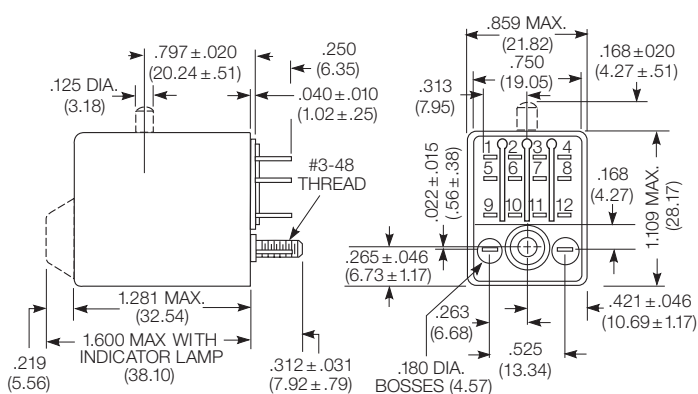
|                           |                                     |
|---------------------------|-------------------------------------|
| For details see datasheet | Sockets and Accessories, KHA Relays |
|---------------------------|-------------------------------------|

| Product Code | Description                                |
|--------------|--------------------------------------------|
| 27E894       | DIN socket (use 20C426 clip)               |
| 27E166       | Panel/track mount socket (use 20C297 clip) |
| 27E006       | Solder/grounding socket (use 20C217 clip)  |
| 27E007       | PCB/grounding socket (use 20C217 clip)     |

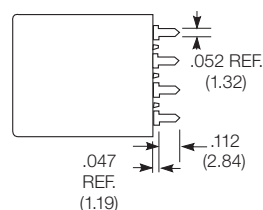
**NOTE:** Relays with contact current <50mA are not recommended for use in sockets.

### Dimensions

### KHAU and KHAX types



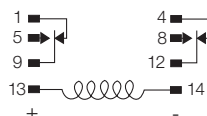
PCB terminals  
KHAE and KHAF types



Printed circuit terminal thickness .022 (.558)

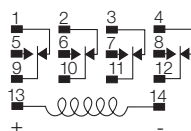
## Terminal assignment

2 form C



Polarity shown for LED indicator

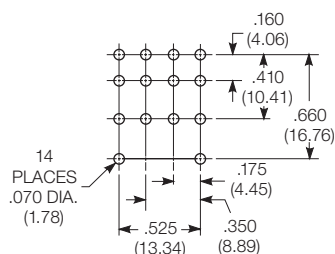
4 form C



## PCB layout

Bottom view on solder pins

4 pole version



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

### Product code structure

Typical product code

**KHA U -17 A 1 1 B -120**

#### Type

**KHA** General purpose multi-contact relay  
Note: Some KHA models available in KH construction. Specify KH instead of KHA.

#### Version

**E** Printed circuit terminals, nylon dust cover, contacts rated opposite polarity (UL & CSA)  
**U** Solder terminals, clear polycarbonate dust cover, contacts rated same polarity (UL & CSA)  
**F** Printed circuit terminals, nylon dust cover, contacts rated same polarity (UL & CSA)  
**X** Solder terminals, clear polycarbonate dust cover, contacts rated opposite polarity (UL & CSA)

#### Contact arrangement

**11** 2 form C (2CO) **17** 4 form C (4CO)

#### Coil input

**A** AC **D** DC

#### Mounting and termination

**1** Socket mount, solder terminals on U versions; printed circuit terminals on E versions  
**T** Top flange mount, solder terminals on U versions; printed circuit terminals on E versions  
Note 1: Mounting options with solder terminals and stud on narrow, broad and end side on request

#### Contact material

**1** Ag **2** AgCdO  
**3** Au-AgNi (Note 2) **6** Bifurcated crossbar, Au overlay Ag  
**8** Au diffused Ag  
Note 2: contact material code 3 is not available with relay version E

#### Options

**B** Push to test button. (not available on version E relays with 4 form C contacts)  
**N** Neon indicator. Only available with version U, 120VAC or 110VDC coils.  
**H** Neon indicator and push to test button. Only available with version U, 120VAC or 110VDC coils  
**L** LED indicator. Only available with version U, 6-48VAC or VDC coils.  
**M** LED indicator and push to test button. Only available with version U, 6-46VAC or VDC coils.

#### Coil voltage

Coil code: please refer to coil versions table

| Product Code    | Arrangement    | Contact Material          | Coil   | Terminals      | Options               | Part Number |
|-----------------|----------------|---------------------------|--------|----------------|-----------------------|-------------|
| KHAU-11A11-120  | 2 form C, 2 CO | Ag                        | 120VAC | Solder/Plug-in | None                  | 1-1393122-0 |
| KHAU-11D11-24   |                |                           | 24VDC  |                |                       | 1-1393122-5 |
| KHAE-17D12-24   | 4 form C, 4 CO | AgCdO                     |        | PCB            |                       | 1393122-1   |
| KHAU-17A11-12   |                | Ag                        | 12VAC  | Solder/Plug-in |                       | 1-1393122-9 |
| KHAU-17A11-24   |                |                           | 24VAC  | Solder         |                       | 2-1393122-1 |
| KHAU-17A11-120  |                |                           | 120VAC |                |                       | 2-1393122-0 |
| KHAU-17A11N-120 |                |                           |        |                | Indicator             | 2-1393122-6 |
| KHAU-17A12-120  |                | AgCdO                     |        |                | None                  | 2-1393122-8 |
| KHAU-17A13-120  |                | Au-Ag-Ni                  |        |                |                       | 3-1393122-6 |
| KHAU-17A16-24   |                | Bifurcated, Au overlay Ag | 24VAC  |                |                       | 3-1393122-8 |
| KHAU-17A16-120  |                | Ag                        | 120VAC |                |                       | 3-1393122-7 |
| KHAU-17A18-120  |                | Au diffused Ag            |        |                |                       | 3-1393122-9 |
| KHAU-17D11-6    |                | Ag                        | 6VDC   |                |                       | 4-1393122-7 |
| KHAU-17D11-12   |                |                           | 12VDC  |                |                       | 4-1393122-3 |
| KHAU-17D11-24   |                |                           | 24VDC  |                |                       | 4-1393122-4 |
| KHAU-17D11-48   |                |                           | 48VDC  |                |                       | 4-1393122-5 |
| KHAU-17D11-110  |                |                           | 110VDC |                |                       | 4-1393122-2 |
| KHAU-17D12-12   |                | AgCdO                     | 12VDC  |                |                       | 5-1393122-5 |
| KHAU-17D12-24   |                |                           | 24VDC  |                |                       | 5-1393122-7 |
| KHAU-17D12-48   |                |                           | 48VDC  |                |                       | 5-1393122-8 |
| KHAU-17D12-110  |                |                           | 110VDC |                |                       | 5-1393122-4 |
| KHAU-17D16-12   |                | Bifurcated, Au overlay Ag | 12VDC  |                |                       | 7-1393122-0 |
| KHAU-17D16-24   |                |                           | 24VDC  |                |                       | 7-1393122-1 |
| KHU-17A11N-120  |                | Ag                        | 120VAC |                | Indicator, Old Const. | 2-1393123-8 |
| KHU-17D11-12    |                |                           | 12VDC  |                | Old Construction      | 4-1393123-0 |
| KHU-17D12-24    |                | AgCdO                     | 24VDC  |                |                       | 4-1393123-8 |