

### **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



**A** 

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,                   |
|                                     | 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, AdCdO                           | 100mΩ                                 |
| Au-AgNi, Au overlay Ag, Au diffused | d Ag 200mΩ                            |
| Frequency of operation              | 360 ops./hour                         |
|                                     |                                       |

| Operate/re | Operate/release time max. 13/6ms |  |        |
|------------|----------------------------------|--|--------|
| Contact r  | ratings                          |  |        |
| Type       | Load                             |  | Cycles |

**UL 508** 5A, 120VAC, general purpose Ag 2.5A, 240VAC, general purpose 1/10HP, 120/240VAC 180VA, 250VAC, pilot duty 42VA, 28VDC, pilot duty 5A, 240VAC, general purpose AgCdO 5A, 28VDC, resistive 1/10HP, 120/240VAC 180VA, 250VAC, pilot duty 42VA, 28VDC, pilot duty Au-AgNi 2A, 120VAC, resistive Au overlay Ag 1A, 120VAC 1A, 30VDC 5A, 120VAC, general purpose Au diffused Ag 2.5A, 240VAC, general purpose 1/10HP, 120/240VAC

Note: The relay should only carry  $\leq$ 15A continuously (all poles combined). Mechanical endurance 10x10 $^6$  ops.

180VA, 250VAC, pilot duty

42VA, 28VDC, pilot duty

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

| Coil ver | sions, DC coil      |                                     |             |            |  |
|----------|---------------------|-------------------------------------|-------------|------------|--|
| Coil     | Rated               | Operate                             | ReleaseCoil | Rated coil |  |
| code     | voltage             | voltagevoltage                      | resistance  | power      |  |
|          | VDC                 | VDC                                 | Ω±10%       | 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 | Rated   | Operate | Coil       | Rated coil |
|------|---------|---------|------------|------------|
| code | voltage | voltage | resistance | power      |
|      | VAC     | VAC     | Ω±15%      | 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

| -45°C to 70°C        |
|----------------------|
|                      |
| RTI - dust protected |
|                      |



# KHA Series Panel Plug-in Relay (Continued)

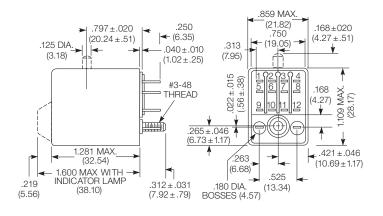
| Other Data (continued) |                                |
|------------------------|--------------------------------|
| Terminal type          | solder/plug-in .105" (2.67mm), |
|                        | pcb-tht .112" (2.84mm)         |
| Weight                 | 45g                            |
|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

| Accessories               | 3                 |                                     |
|---------------------------|-------------------|-------------------------------------|
| For details see datasheet |                   | Sockets and Accessories, KHA Relays |
|                           |                   |                                     |
| Product Code              | Description       |                                     |
| 27E894                    | DIN socket (use 2 | 0C426 clip)                         |
| 27E166                    | Panel/track moun  | t socket (use 20C297 clip)          |
| 27E006                    | Solder/grounding  | socket (use 20C217 clip)            |
| 27E007                    | PCB/grounding so  | ocket (use 20C217 clip)             |

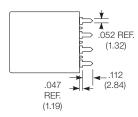
NOTE: Relays with contact current <50mA are not recommended for use in sockets.

#### **Dimensions**

KHAU and KHAX types



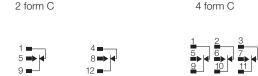
PCB terminals KHAE and KHAF types



Printed circuit terminal thickness .022 (.558)

#### Terminal assignment

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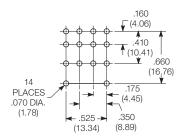


Polarity shown for LED indicator

#### **PCB** layout

Bottom view on solder pins

4 pole version





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

Product code structure **KHA** U -17 Α 1 В -120 Typical product code

General purpose multi-contact relay **KHA** 

Note: Some KHA models available in KH construction. Specify KH instead of KHA.

Version

Printed circuit terminals, nylon dust cover, contacts rated opposite polarity (UL & CSA) F

U

Solder terminals, clear polycarbonate dust cover, contacts rated same polarity (UL & CSA) Printed circuit terminals, nylon dust cover, contacts rated same polarity (UL & CSA) Solder terminals, clear polycarbonate dust cover, contacts rated opposite polarity (UL & CSA) Χ

Contact arrangement 11 2 form C (2CO)

17 4 form C (4CO)

Coil input

D Α DC

Mounting and termination

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** 

Ag AgCdO

Au-AgNi (Note 2) 6 Bifurcated crossbar, Au overlay Ag

Au diffusèd Ag

Note 2: contact material code 3 is not available with relay version E

Push to test button. (not available on version E relays with 4 form C contacts)

N H

Neon indicator. Only available with version U, 120VAC or 110VDC coils.

Neon indicator and push to test button. Only available with version U, 120VAC or 110VDC coils.

LED indicator. Only available with version U, 6-48VAC or VDC coils.

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

| <b>Product Code</b> | 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 |

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