



KHAU

# KHA series

## General Purpose Dry Circuit to 5A Multicontact AC or DC Relay

File E22575

File LR15734

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users 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.

### Features

- Miniature size from 2 pole to 4 pole.
- KHAU is produced on an automated line, while KHU is produced manually. Form, fit and function of the two versions are identical.
- Various applications include process control, photocopier, and data processing.
- Push-to-test and indicator options available.
- Various contact materials available for specific load requirements.

### Contact Data @ 25°C

**Arrangements:** 2 Form C (DPDT), 4 Form C (4PDT).  
**Expected Life:** 10 million operations, mechanical; 100,000 operations min. at rated loads. Ratings are based on tests of relays with ungrounded frames.  
**Initial Breakdown Voltage:** 500V rms, 60 Hz., between open contacts.  
 1240V rms, 60 Hz., between all other elements.

### Contact Ratings

Contact Code	Material	Resistive Rating	
		Minimum	Maximum
1	Silver	100mA @ 12VAC/12VDC	3A @ 120VAC/28VDC
2*	Silver-cadmium oxide	500mA @ 12VAC/12VDC	5A @ 120VAC/28VDC
3	Gold-silver-nickel	10mA @ 12VAC/12VDC	2A @ 120VAC/28VDC
6	Bifurcated cross bar, gold overlay silver	Dry circuit	1A @ 120VAC/28VDC
8	Gold diffused silver	50mA @ 12VAC/12VDC	3A @ 120VAC/28VDC

Note: Relays should only carry a maximum of 15 amps continuously for all poles combined.

### Coil Data @ 25°C

**Voltage:** From 6 to 120VDC, and 6 to 240VAC, 50/60 Hz.  
**Nom. Power: DC coils** - 0.9 watt; 0.5 watt minimum operate @ 25°C.  
**AC coils** - 1.2 VA; 0.55 VA minimum operate @ 25°C.  
**Max. Power: DC coils** - 2.0 watts @ 25°C.  
**Duty Cycle:** Continuous.  
**Initial Breakdown Voltage:** 500V rms, 60 Hz.

### Coil Data

Nominal Voltage	DC Coils		AC Coils	
	Resistance in Ohms ±10% @ 25°C	Nominal Inductance in Henrys	Resistance in Ohms ±15%	Nominal AC Current in mA
5	32	.072	—	—
6	40	.08	10.5	200
12	160	.28	43	100
24	650	1.0	160	52
48	2,600	4.5	668	25
110 *	11,000	17.0	—	—
120 *	—	—	3,900	11.0
240	—	—	12,000	6.0

\*Note: For 220 and 240VDC, use series dropping 5W resistor of 11,000Ω.

### Operate Data @ 25°C

**Must-Operate Voltage: DC:** 75% of nominal voltage.  
**AC:** 85% of nominal voltage.  
**Operate Time:** 13 milliseconds typical @ nominal voltage (excluding bounce).  
**Release Time:** 6 milliseconds typical @ nominal voltage (excluding bounce).

### Environmental Data

**Temperature Range:** -45°C to +70°C operate.  
 -60°C to +130°C storage.

### Mechanical Data

**Mountings:** #3-48 stud, sockets with printed circuit or solder terminals, or bracket plate with #6-32 threaded stud.  
**Termination:** Printed circuit or solder/socket terminals.  
**Enclosures:** See Ordering Information table.  
**Weight:** 1.6 oz. approx. (45g).

**Ordering Information**

Typical Part No. ►

**KHA**

**U**

**-17**

**A**

**1**

**1**

**B**

**-24**

**1. Basic Series: (See Note 1)**

**2. Type:**

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).

**3. Contact Arrangement:**

11 = 2 Form C (DPDT)      17 = 4 Form C (4PDT)

**4. Operating Coil:**

A = AC      D = DC

**5. Mounting and Termination:**

1 = Socket mount, solder terminals on U types; printed circuit terminals on E types.

**6. Contact Material:**

Relay Type	E	U
Available Codes	1, 2, 3, 6, 8	1, 2, 6, 8

\*UL Rated 1/10 HP, 3A, 120VAC when used with mounting & termination 1.

1 = Silver.      3 = Gold-silver-nickel.      8 = Gold diffused silver.  
2 = Silver-cadmium oxide.      6 = Bifurcated crossbar, gold overlay silver.

**7. Options Available:**

Relay Type	E	U
Available Codes	B (DPDT only)	N B H L M

B = Push to test button.  
N = Neon indicator. Only available with 120VAC or 110VDC coils. Not available with mounting & termination 4 or 8.  
H = Neon indicator and push to test button. Only available with 120VAC or DC coils. Not available with mounting & termination 4 or 8.  
L = LED indicator. Only available with 6-48VAC or DC coils.  
M = LED indicator and push-to-test button. Only available with 6-48VAC or DC coils.

**8. Coil Voltage:**

6, 12, 24, 48, 120, 240VAC  
6, 12, 24, 48, 110VDC

**Note 1:** Some KHA models available in KH construction. Specify KH instead of KHA.

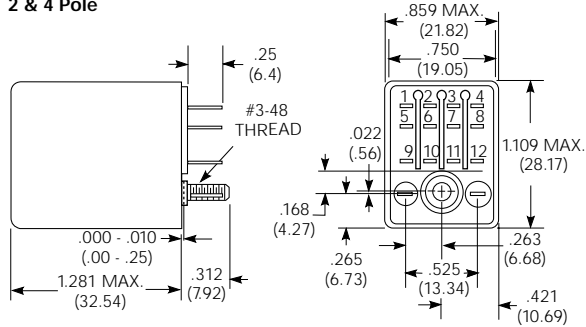
**Stock Items – Our authorized distributors are likely to stock the following items.**

KHAE-17D12-24	KHAU-17A16-24	KHAU-17D12-24
KHAU-11A11-120	KHAU-17A16-120	KHAU-17D12-48
KHAU-11D11-24	KHAU-17A18-120	KHAU-17D12-110
KHAU-17A11-12	KHAU-17D11-6	KHAU-17D16-12
KHAU-17A11-24	KHAU-17D11-12	KHAU-17D16-24
KHAU-17A11-120	KHAU-17D11-24	
KHAU-17A11N-120	KHAU-17D11-48	
KHAU-17A12-120	KHAU-17D11-110	
KHAU-17A13-120	KHAU-17D12-12	

Outline Dimensions

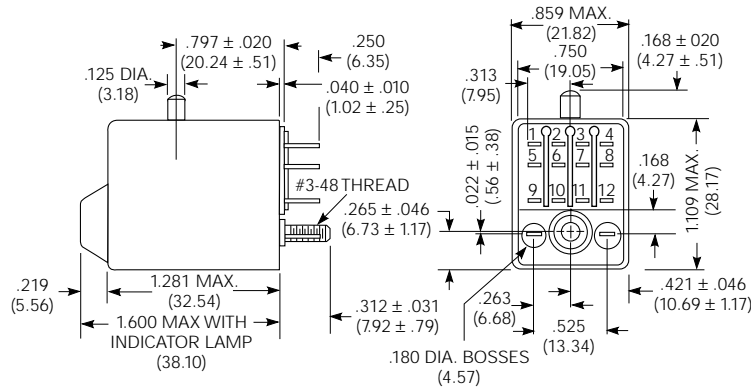
Mounting Code 1 - KHAU only.

2 & 4 Pole

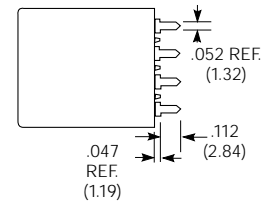


PC terminal models have rivet, not stud.  
Max. seated height in 27E006 socket is 1.37" (34.8mm).

Mounting Code 1 - Neon Indicator, Push-To-Test.



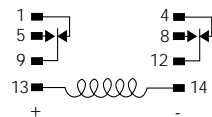
Printed Circuit Terminals



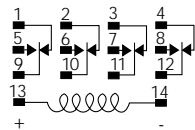
Printed circuit terminal thickness .022 (.558)

Wiring Diagrams (Bottom Views)

2 Pole

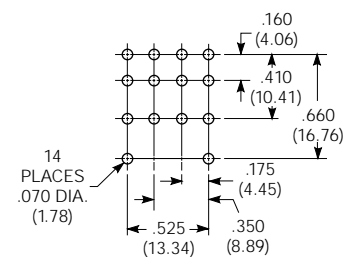


4 Pole



+ = Polarity for LED indicator.

PC Board Layout (Bottom View)



For KHAE Relays with PC terminals and sockets with PC terminals

Sockets For KHA Series

Boldface sockets are normally maintained in stock for immediate delivery.

For KHAU, KHU Relays.

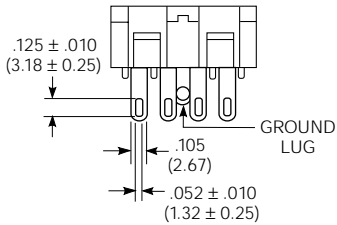
Relays with solder terminals are required for use with sockets.

Socket Description

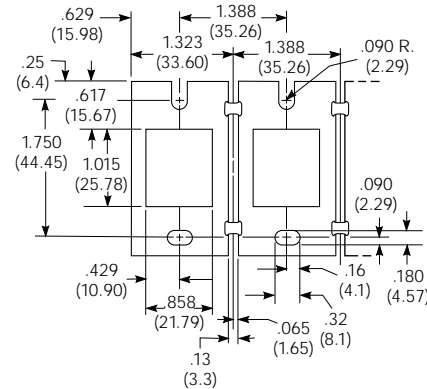
Industrial Part No.	No. of Poles	Terminal and Length	Grounding Provision	Socket Material
<b>27E006*</b>	4	Solder .375" (9.53mm)	Yes	Nylon
<b>27E007*</b>	4	P.C. .218" (5.54mm)	Yes	Nylon
<b>27E023*</b>	4	P.C. .218" (5.54mm)	No	Nylon
<b>27E220*</b>	2	P.C. .218" (5.54mm)	No	Nylon
<b>27E166**</b>	4	Screw	Yes	Glass-filled Polyester
<b>27E894**</b>	4	Screw	No	Glass-filled Polyester
<b>20C217</b>		Relay Hold Down Spring		
<b>20C297</b>		Relay Hold Down Spring - use with 27E166		
<b>20C426</b>		Relay Hold Down Spring - use with 27E894		

\* UL Recognized, file E22575  
\*\* UL Recognized, file E59244

Pierced Solder Terminals



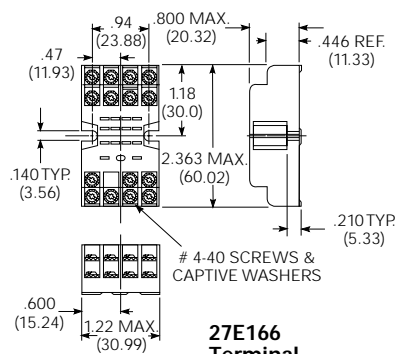
Mounting Strip 37D633



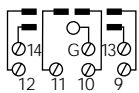
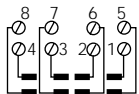
37D633 will mount eight solder terminal sockets in one length of aluminum strip measuring 10.97" x 2.25" x .062 (278.6 x 57.15 x 1.57)

Screw Terminal Socket 27E166

Relays with solder terminals are required for use with screw terminal sockets.



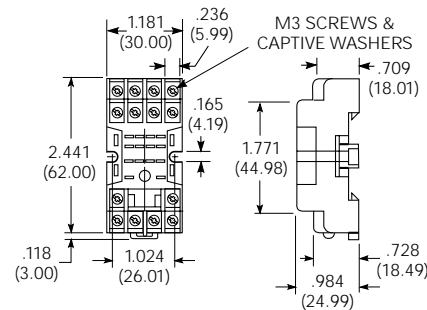
27E166 Terminal Location



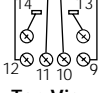
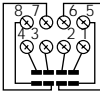
Top View

Screw Terminal DIN Rail, Snap-Mount Socket 27E894

(Use with mounting track 24A110)

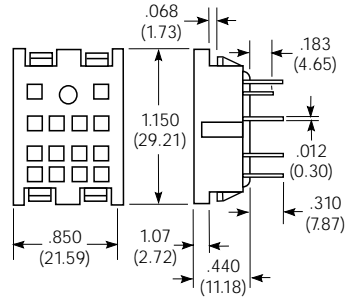


27E894 Terminal Location

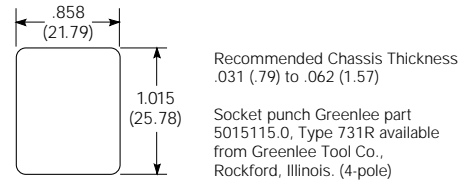


Top View

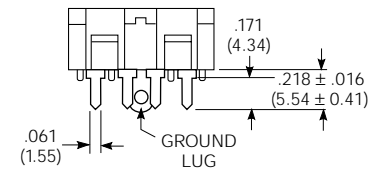
4-Pole Socket



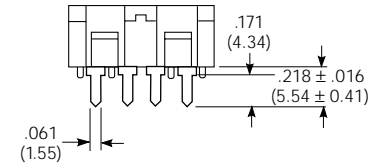
Recommended Chassis Cutouts For Mounting Sockets



Printed Circuit Terminals With Grounding Lug



Without Grounding Lug



**Caution:** Printed circuit sockets are manufactured with "floating" (Loose) terminals. This permits them to align with holes in the circuit board and with the relay terminals. During the mounting and soldering of the socket, vertical float should be eliminated and the terminals seated on the board. (This may be accomplished by inserting a dummy relay in the socket.) Failure to eliminate float may cause fracture of the solder joint or separation of the copper conductor from the printed circuit board when a relay is inserted in the socket after soldering.

Hold Down Spring 20C217

