

KU series

KUP Enclosed Relay
KUIP 8mm Coil to Contacts
KUGP 3mm Contact Gap, 8mm Coil to Contacts
KUEP 10 Amp 150VDC Load Switching
KUMP 15 Amp 277VAC

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

- AC coils: 6-240VAC, 50/60 Hz. DC: 6-110VDC.
- Contact arrangement up to 4PDT.
- Wide selection of termination and mounting styles.
- PC terminals available.
- Push to test button and indicator lamps.
- KUEP incorporates a blow out magnet for high voltage DC switching.
- KUIP offers 8mm contact-to-coil spacing for a higher degree of isolation.
- KUGP provides 3mm contact gap and 8mm contact-to-coil spacing.
- Complete line of sockets and DIN rail.
- Class B coil insulation.

Contact Data @ 25°C

Arrangements: See respective ordering information table.
Materials: Fine silver (5 amp) silver-cadmium oxide (10 amp).
 Gold flash available as standard.
 Gold diffused and gold alloy on special order.

Expected Mechanical Life:

Contact Ratings

| Material | Arrangement | UL/CSA Ratings | Expected Life |
|----------------------|---|--|---------------|
| Fine Silver | All | 5 amps @ 28VDC or 240VAC 80% PF, 2.5 amp tungsten @ 120VAC, 1/2 amp @ 120VDC. | 100,000 |
| | | 1/6 HP @ 120VAC, 1/3 HP @ 240VAC, 5 FLA, 15 LRA @ 250VAC (FLA covered by 30,000 operations). | |
| Silver-Cadmium Oxide | 1-2 Pole KUP KUIP KUGP KUEP All KUMP | 10 amps @ 28VDC or 240VAC, 80% PF, 5 amp tungsten @ 120VAC, 3A 600VAC, 1/2 amp @ 120VDC. | 100,000 |
| | | 1/3 HP @ 120VAC, 1/2 HP @ 240, 480, and 600VAC, 10 FLA 30 LRA @ 120VAC, 5 FLA, 15 LRA @ 250VAC. (FLA ratings covered by 30,000 operations) | |
| | KUMP | 15 amp @ 277VAC, 80% PF KUM KUMP | 100,000 |
| | 3 Pole KUP KUIP | 10 amp @ 28VDC or 120VAC, 80% PF, 6 2/3 amp @ 240VAC, 80% PF | 100,000 |
| | 4 Pole | 10 amp per pole not to exceed 30 amp total @ 28VDC, 120VAC, 80% PF, 6 2/3 amp @ 240VAC, 80% PF | 100,000 |
| | KUEP SPST-NO KUEP 2PST-NO KUEP 2PDT | 10 amp @ 150VDC | |
| | | 5 amp @ 150VDC | |
| | | 3 amp @ 150VDC | 100,000 |

(All other AC ratings apply KUEP)

Initial Dielectric Strength

Between Open Contacts: 1,200V rms; KUGP, 3,500V rms.
Between Adjacent Contacts: 2,200V rms.
Between Contacts and Coil: 2,200V rms; KUGP, KUIP, 3,750V rms.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Coil Data @ 25°C

Voltage: 6 to 110VDC and 6 to 240VAC.

Nominal Coil Power:

DC Coils: 1.2 Watts - KUP, KUIP, KUMP, 1 - 3 pole; KUEP, 1 pole.

DC Coils: 1.8 Watts - KUP, 4 pole; KUEP, 2 pole; KUGP.

AC Coils: 2.0VA - KUP, KUIP, 1 - 2 pole; KUEP, 1 pole.

AC Coils: 2.7VA - KUP, KUIP, 3 pole; KUEP, 2 pole; KUGP, KUMP.

Coil Data

| DC Volts Nominal | 1.2 Watt | | 1.8 Watt | |
|---------------------|-------------------|-----------|-------------------|-----------|
| | DC Ohms \pm 10% | Nom. I ma | DC Ohms \pm 10% | Nom. I ma |
| 5 | 21 | 238 | 14 | 360 |
| 6 | 32.1 | 187 | 20 | 300 |
| 12 | 120 | 100 | 80 | 150 |
| 24 | 472 | 51 | 320 | 75 |
| 48 | 1,800 | 26.7 | 1,260 | 38 |
| 110 | 10,000 | 11 | 6,720 | 16 |
| AC Volts Nominal | 2VA | | 2.7VA | |
| | DC Ohms \pm 15% | Nom. I ma | DC Ohms \pm 15% | Nom. I ma |
| 6 | 6 | 335 | 4.2 | 460 |
| 12 | 24 | 168 | 18 | 230 |
| 24 | 85 | 84 | 72 | 115 |
| 120 | 2,250 | 17.5 | 1,700 | 24 |
| 240 | 9,110 | 8.75 | 7,200 | 12 |

Operate Data @ 25°C

Must Operate Voltage:

DC Coils: 75% of nominal voltage or less.

AC Coils: 85% of nominal voltage or less.

Operating Time (Excluding Bounce):

15 milliseconds, typical, at nominal voltage.

Release Time (Excluding Bounce):

10 milliseconds, typical, at nominal voltage.

Environmental Data

Temperature Range:

Operating: Enclosed Relays: -45°C to maximum listed in table below.

Open Relays: Add 15°C to maximum listed.

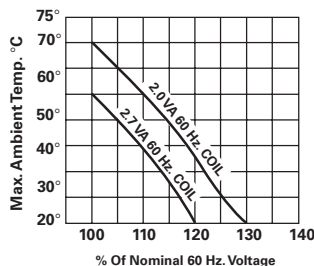
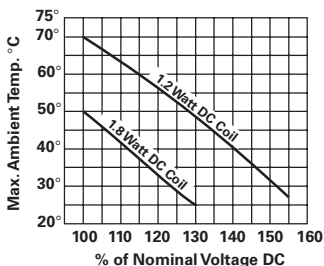
| Max C° | +45°C | +50°C | +55°C | +70°C | +75°C | +80°C | +95°C |
|--------|----------------|--------------|----------------|----------------|--------------|----------------|----------------|
| KUP | AC 3-4 pole | DC 4 pole | AC 1-2 pole | DC 1-3 pole | | | |
| KUIP | | | | AC 3 pole | | AC 1-2 pole | DC 1-3 pole |
| KUGP | | | | AC 2 pole | DC 2 pole | | |
| KUEP | AC 2 pole | DC 2 pole | AC 1 pole | DC 1 pole | | | |
| KUMP | AC 3 pole | | AC 1-2 pole | DC 1-3 pole | | | |

Specifications and availability subject to change.

www.tycoelectronics.com
 Technical support:
 Refer to inside back cover.

Environmental Data (Continued)

Maximum Allowable Ambient Temperature vs. Voltage (KUP enclosed)



Mechanical Data

Termination: Quick connect, solder and PC board.**Enclosure:** Clear polycarbonate dust cover.**Weight:** 3.0 oz. (85g) approximately.

Ordering Information

Typical Part No. ►

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

1. Basic Series & Type:

KU = Basic open relay.

KUP = Basic enclosed relay.

2. Contact Arrangement:

1 = 1A (SPST-NO)

14 = 3C (3PDT)

5 = 1C (SPDT)

17 = 4C (4PDT)

11 = 2C (DPDT)

3. Coil Input:

A = AC 50/60 Hz.

D = DC

4. Mountings:

| Type | KU | KUP (through 3 poles) | KUP (4 pole models) |
|--|-------|--|---------------------|
| Codes Available | 1,3,4 | 1,2,3,4,5, A,E,T | 1,3,5,A,E |
| OPEN STYLE 1 = #6-32 stud, .218" (5.54mm) locating tab. 3 = #6-32 tapped core, .125" (3.18mm) locating tab. 4 = #6-32 tapped core, .218" (5.54mm) locating tab. | | 1 = PLAIN CASE; 2 = with test button. 3 = with indicator lamp.* 4 = with test button & indicator lamp.* 5 = BRACKET MOUNT CASE. A = PLAIN CASE, #6-32 stud, locating tab. E = PLAIN CASE, tapped core, locating tab. T = TOP FLANGE CASE. | |
| * Indicator lamps are available on models with the following coils: 6-24VAC and DC, 110VDC and 120-240VAC. Only models with 120-240VAC coils are UL recognized. | | | |

5. Terminal & Contact Material:

| Type | 1 & 2 Pole Models | 3 Pole Models | 4 Pole Models |
|-----------------|-------------------|---------------|----------------|
| Codes Available | 1, 5, 7, K | 1, 5, 7 | 1**, 5**, 7, 9 |

1 = .187" (4.75mm) quick-connect/solder; silver, 5 amps.

5 = .187" (4.75mm) quick connect/solder; silver-cadmium oxide, 10 amps.

7 = .047" (1.19mm) printed circuit; silver-cadmium oxide, 10 amps.

9 = 4 pole KU, KUP: .110" (2.79mm) quick connect/solder; silver-cadmium oxide, 10 amps.

K = .250" (6.35mm) quick connect; silver-cadmium oxide, 10 amps.

**4 pole KUP with .187" (4.75mm) quick connect/solder terminals will not plug into sockets. Must use .110" (2.79 mm) quick connect solder terminals for socket mounting.

5A. Gold Flashed Contact Option:

F = Optional gold flashing for silver and silver-cadmium oxide contacts.

6. Coil Voltage:

To 240VAC, 50/60 Hz. or 110VDC.

Our authorized distributors are more likely to stock

| | | | | | |
|---------------|---------------|---------------|---------------|---------------|---------------|
| KUP-5A15-24 | KUP-11A15-12 | KUP-11D15-5 | KUP-11D55-110 | KUP-14A55-24 | KUP-14D25-24 |
| KUP-5A15-120 | KUP-11A15-24 | KUP-11D15-12 | KUP-14A11-120 | KUP-14A55-120 | KUP-14D35-24 |
| KUP-5A15-240 | KUP-11A15-120 | KUP-11D15-24 | KUP-14A15-12 | KUP-14A55-240 | KUP-14D55-12 |
| KUP-5A55-120 | KUP-11A15-240 | KUP-11D15-110 | KUP-14A15-24 | KUP-14D11-24 | KUP-14D55-24 |
| KUP-5D15-12 | KUP-11A35-120 | KUP-11D35-24 | KUP-14A15-120 | KUP-14D15-6 | KUP-17A19-120 |
| KUP-5D15-24 | KUP-11A55-24 | KUP-11D55-6 | KUP-14A15-240 | KUP-14D15-12 | KUP-17A55-24 |
| KUP-5D55-12 | KUP-11A55-120 | KUP-11D55-12 | KUP-14A25-120 | KUP-14D15-24 | KUP-17D19-24 |
| KUP-5D55-24 | KUP-11AT5-120 | KUP-11D55-24 | KUP-14A35-120 | KUP-14D15-48 | KUP-17D55-24 |
| KUP-11A11-120 | KUP-11D11-24 | KUP-11D55-48 | KUP-14A45-120 | KUP-14D15-110 | |

Ordering Information

High Isolation Design

| Typical Part No. ► | | KUIP KUGP | -5 | A | 5 | 5 | -120 |
|---|--|--|----|---|---|---|------|
| 1. Basic Series & Type: KUIP = Enclosed relay with 8mm contact to coil spacing. KUGP = Enclosed relay with 3mm open contact spacing and 8mm contact to coil spacing. (Form A and Form X arrangements only) | | | | | | | |
| 2. Contact Arrangement: 5 = 1 Form C (SPDT)* 7 = 2 Form A (DPST-NO) * Not offered on KUGP model. | | 11 = 2 Form C (DPDT)* 14 = 3 Form C (3PDT)* | | | | | |
| 3. Coil Input: A = AC, 50/60 Hz. D = DC | | | | | | | |
| 4. Mountings: 1 = PLAIN CASE, SOCKET MOUNT. 5 = BRACKET MOUNT CASE. | | T = TOP FLANGE CASE. | | | | | |
| 5. Terminal & Contact Material: 3 = .047" (1.19mm) printed circuit board; silver. | | 5 = .187" (4.75mm) quick connect/solder; silver-cadmium oxide. | | | | | |
| 6. Coil Voltage: To 240VAC, 50/60 Hz. or 110VDC. (For 277VAC, consult factory.) | | See coil data tables. | | | | | |

Our authorized distributors are more likely to stock the following items for immediate delivery.

KUGP-7D55-24 KUIP-14A15-120
 KUIP-5A55-120 KUIP-14D15-12
 KUIP-11D55-12 KUIP-14D15-24
 KUIP-11D55-24

Ordering Information

High Voltage DC Switching

| Typical Part No. ► | | KUEP | -3 | A | 1 | 5 | -120 |
|--|--|--|----|---|---|---|------|
| 1. Basic Series & Type: KUEP = Enclosed relay with magnetic blow-outs. | | | | | | | |
| 2. Contact Arrangement: 3 = 1X (SPST-NO-DM) 7 = 2A (DPST-NO) 11 = 2C (DPDT) | | | | | | | |
| 3. Coil Input: A = AC 50/60 Hz. D = DC | | | | | | | |
| 4. Mountings: 1 = PLAIN CASE; 3 = with indicator lamp.* 5 = BRACKET MOUNT CASE T = TOP FLANGE CASE. | | *Indicator lamps are available on models with the following coils: 6-24VAC and DC, 110VDC and 120-240VAC. Only models with 120-240VAC coils are UL recognized. | | | | | |
| 5. Terminal & Contact Material: 5 = .187" (4.75mm) quick connect/solder; silver-cadmium-oxide. | | 7 = .047" (1.19mm) printed circuit; silver-cadmium-oxide. | | | | | |
| 6. Coil Voltage: To 240VAC, 50/60 Hz. or 110VDC. (For 277VAC, consult factory.) | | | | | | | |

Our authorized distributors are more likely to stock the following items for immediate delivery.

KUEP-3A15-120 KUEP-3D15-110 KUEP-11D15-12
 KUEP-3D15-12 KUEP-7D15-24 KUEP-11D15-24
 KUEP-3D15-24 KUEP-11A15-120

Ordering Information

15 Amp Switching

Typical Part No. ►

**KUM
KUMP****-14****A****1****8****-120****1. Basic Series & Type:**KUM = 15 amp open relay
KUMP = 15 amp enclosed relay**2. Contact Arrangement:**1 = 1A (SPST-NO)
2 = 1B (SPST-NC)
3 = 1X (SPST-NO-DM)
4 = 1Y (SPST-NC-DB)
5 = 1C (SPDT)
6 = 1Z (SPDT-NC-NO [DB-DM])
7 = 2A (DPST-NO)
8 = 2B (DPST-NC)
11 = 2C (DPDT)
12 = 3A (3PST-NO)
13 = 3B (3PST-NC)
14 = 3C (3PDT)**3. Coil Input:**

A = AC, 50/60 Hz. D = DC

4. Mountings:

| Type | KUM | KUMP |
|---|---|---|
| OPEN STYLE | | |
| 1 = #6-32 stud, .218" (5.54mm) locating tab. | 1 = PLAIN CASE; 2 = with test button. 3 = with indicator lamp.* 4 = with test button & indicator lamp.* | A = PLAIN CASE, #6-32 STUD LOCATING TAB; B = with test button. C = with indicator lamp.* D = with test button & indicator lamp.* |
| 2 = 2-hole bracket, #6-32 tapped. | 5 = BRACKET MOUNT CASE; 6 = with test button. | E = PLAIN CASE, TAPPED CORE, LOCATING TAB; F = with test button. |
| 3 = #6-32 tapped core, .125" (3.18mm) locating tab. | 7 = with indicator lamp.* 8 = with test button & indicator lamp.* | G = with indicator lamp.* H = with test button & indicator lamp.* |
| 4 = #6-32 tapped core, .218" (5.54mm) locating tab. | 9 = STUD ON END OF PLAIN CASE. | T = TOP FLANGE CASE. |
| 5 = #6-32 tapped core, no locating tab. | *Indicator lamps are available on models with the following coils: 6-24VAC and DC, 110VDC and 120-240VAC. Only models with 120-240VAC coils are UL recognized. | |

5. Terminal & Contact Material:

| Type | 1 & 2 Pole Models | 3 Pole Models |
|-----------------|-------------------|---------------|
| Codes Available | 6,8,9,G | 6,8,9 |

6 = .205" (5.21mm) quick connect/solder; silver-cadmium-oxide.
8 = .187" (4.75mm) quick connect/solder; silver-cadmium-oxide.
9 = .047" (1.19mm) printed circuit; silver-cadmium-oxide.
G = .250" (6.35mm) quick connect; silver-cadmium-oxide. (Not available on 3 pole models.)**6. Coil Voltage:**

To 240VAC, 50/60 Hz. or 110VDC (For 277VAC, consult factory.)

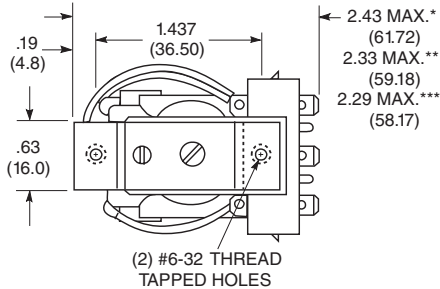
Our authorized distributors are more likely to stock the following items for immediate delivery.

| | | | |
|----------------|----------------|----------------|---------------|
| KUMP-11A18-24 | KUMP-11D18-12 | KUMP-14A18-24 | KUMP-14D18-24 |
| KUMP-11A18-120 | KUMP-11D18-24 | KUMP-14A18-120 | |
| KUMP-11A18-240 | KUMP-11D18-110 | KUMP-14D18-12 | |

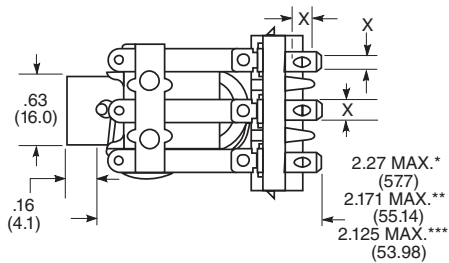
Outline Dimensions

Open Relays

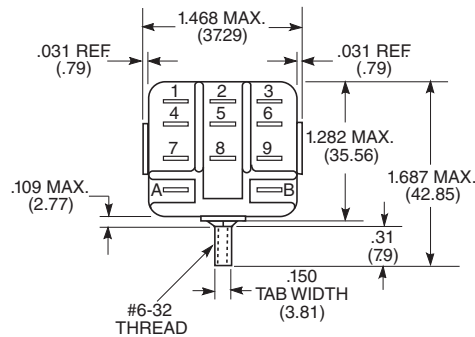
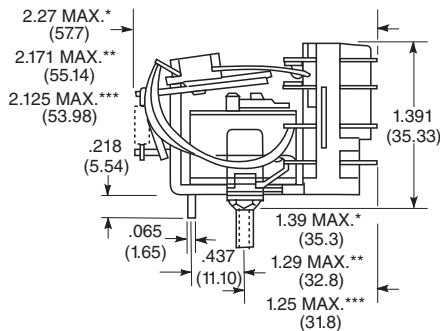
Bracket Type



X Is For Terminal Dimensions.
See Terminal Drawings.



Stud Type



Seated Heights For 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.

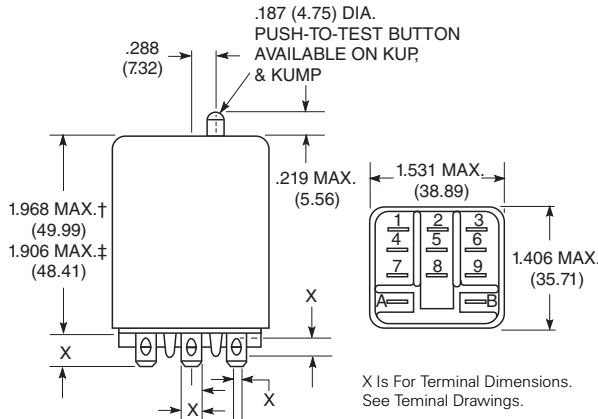
*Dimensions with .250" (6.35mm) terminals.

**Dimensions with .110" (2.79mm) or .205" (5.21mm) terminals.

***Dimensions with .187" (4.75mm) terminals.

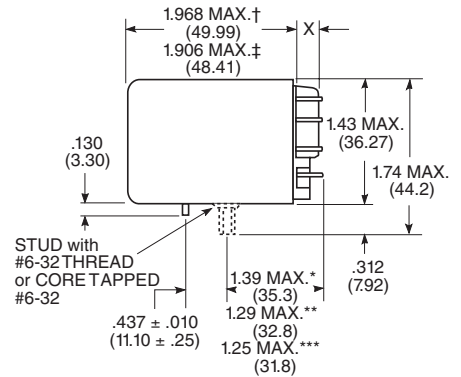
Enclosed Relays

Plain Case



X Is For Terminal Dimensions.
See Terminal Drawings.

Core and Stud Mount Cases



†Dimensions with .250" (6.35mm) terminals.

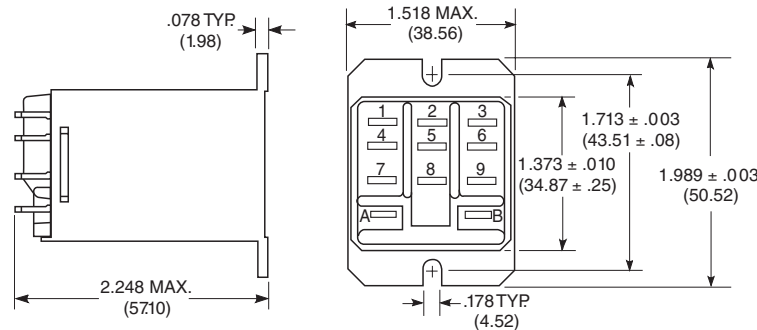
‡Dimensions with .110" (2.79mm), .187" (4.75mm) and .205" (5.21mm) terminals.

*Dimensions with .250" (6.35mm) terminals.

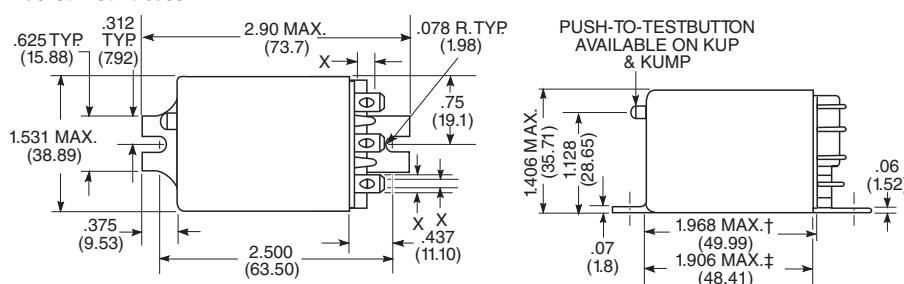
**Dimensions with .110" (2.79mm) or .205" (5.21mm) terminals

***Dimensions with .187" (4.75mm) terminals.

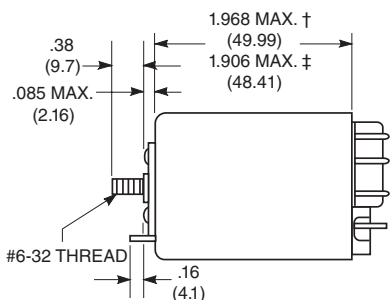
Top Flange Case



Bracket Mount Case



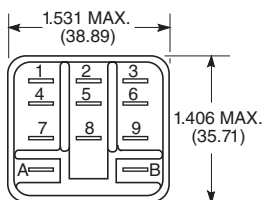
Stud on End Case



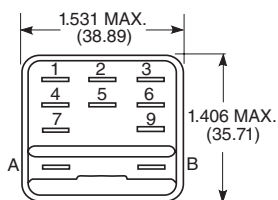
Outline Dimensions (Continued)

Relay Front Diagrams

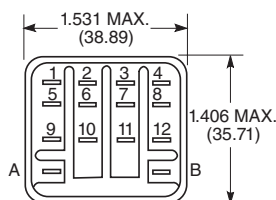
1-3 Pole Relays



Relays With .250" (6.35mm) Terminals



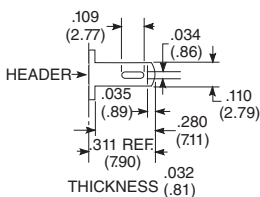
4 Pole Relays



Terminal Dimensions

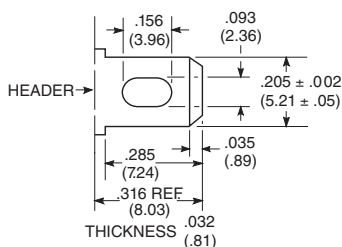
.110" (2.79mm)

Quick ConnectQuick Connect

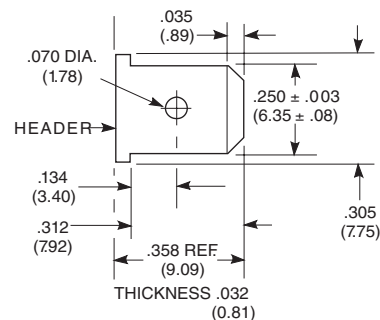


.205" (5.21mm)

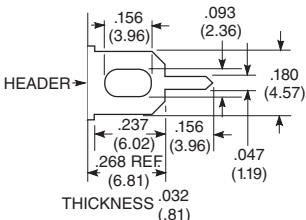
Quick Connect



.250" (6.35mm)

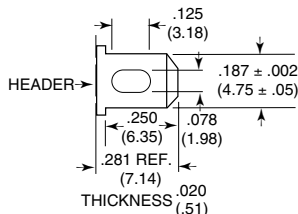


Printed Circuit



.187" (4.75mm)

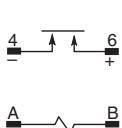
Quick Connect



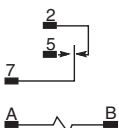
Note: All drawings shown oversize.

Wiring Diagrams

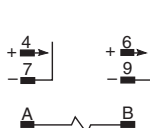
*1 Form X



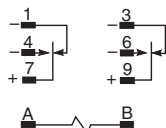
1 Form C



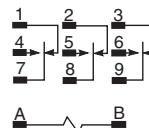
*2 Form A



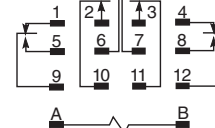
*2 Form C



3 Form C



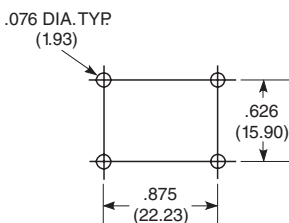
4 Form C



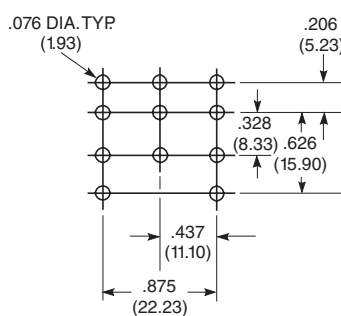
*Recommended Load Polarity for Optimum Arc Suppression.

PC Board Layouts (Bottom Views)

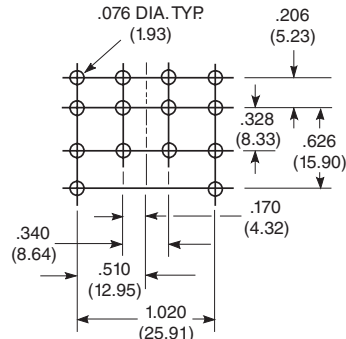
1 Form X



3 Pole Models



4 Pole Models



Sockets For KU Series Relays Through 3 Poles

Socket Selection Table

Stock items are boldfaced.

For KUP, KUEP, KUGP, KUIP, and KUMP relays, through 3 poles, with .187" (4.75mm) quick connect termination.

| Socket | Socket Termination | Hold-Down Spring |
|---------------|------------------------------------|--------------------------------|
| 27E043 | Solder eyelet | 20C228 or 20C254* |
| 27E046 | PC board, .144" (3.66mm) terminals | 20C228 or 20C254 |
| 27E067 | .187" (4.75mm) quick connect | 20C228 or 20C254 |
| 27E121 | Screw terminals | 20C314 (2 per socket required) |
| 27E305 | PC board, .184" (4.67mm) terminals | 20C228 or 20C254 |
| 27E396 | .187" (4.75mm) quick connect* | 20C254 |
| 27E893 | Screw terminals† | 20C318 |

* 20C228 held in place by socket hold-down screw where as 20C254 snaps onto socket.

** Snap-in mounting.

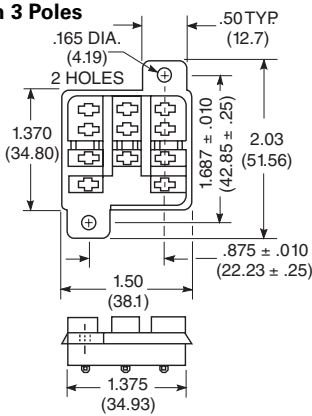
† DIN rail mounting.

Hard Mount Sockets For Relays Through 3 Poles

Nylon sockets with .187" (4.75mm) quick connect, solder or printed circuit terminals are available for KUEP, KUGP, KUIP, KUMP, and KUP relays, through 3 poles, with .187" (4.75mm) quick connect terminals. All are rated 15 amps and UL recognized, File E59244 and CSA certified File LR15734

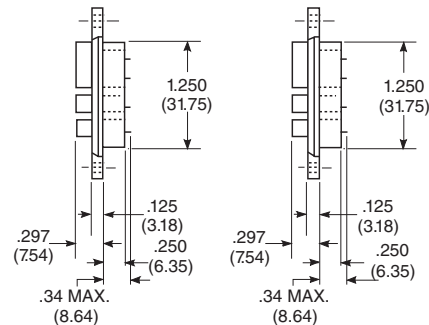
27E043—with solder eyelet terminals.

27E067—with .187" (4.75mm) quick connect terminals.



27E043

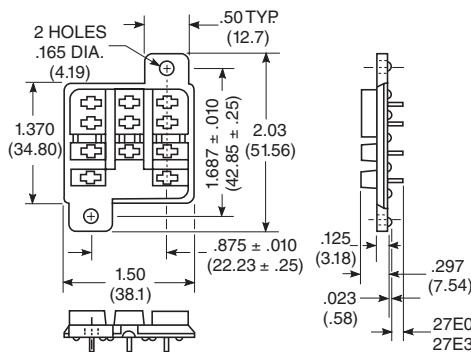
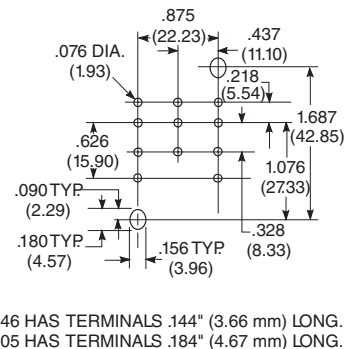
27E067



The 27E043 and 27E067 use chassis cutout shown on this page.

27E046, 27E305

Socket With Printed Circuit Terminals

Suggested Socket
PC Board Layout

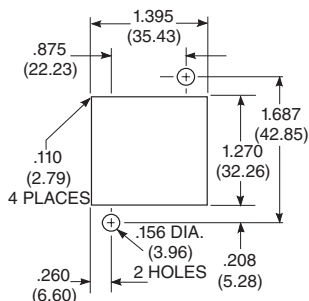
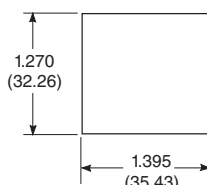
27E046 HAS TERMINALS .144" (3.66 mm) LONG.
27E305 HAS TERMINALS .184" (4.67 mm) LONG.

27E396

Snap-In Socket For Relays Through 3 Poles

Nylon snap-in socket with .187" (4.75mm) quick connect terminals is available for KUEP, KUGP, KUIP, KUMP, and KUP relays, through 3 poles, with .187" (4.75mm) quick connect terminals. Snap-in sockets reduce labor by eliminating time consuming screw or rivet mounting. Preassembled wiring harnesses may also be used as the sockets are designed to snap into the chassis from either front or back. All are rated 15 amps and UL recognized, File E59244. The 27E396 uses chassis cutout shown on this page.

27E396—with .187" (4.75mm) quick connect terminals.

Recommended Chassis Cutout
For Hard Mount SocketsRecommended Chassis Cutout
For Snap-In Sockets

Recommended chassis thickness
.031" (.79mm) to .062" (1.57mm).

