

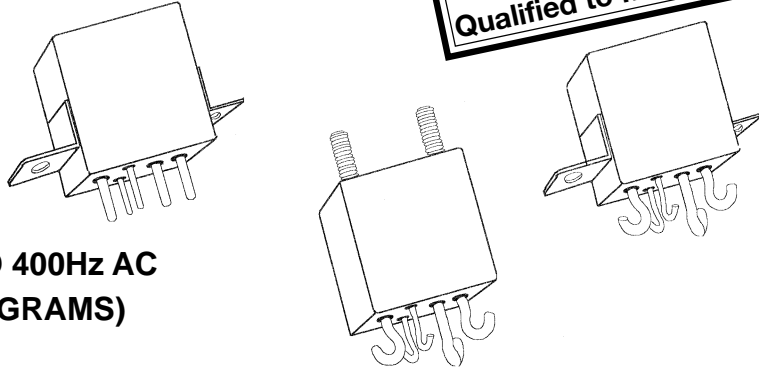


# Tyco Electronics Mid-Range Military/Aerospace Relays

**25 AMPERES, SPDT**



- HERMETICALLY SEALED
- ALL WELDED CONSTRUCTION
- BALANCED FORCE
- PERMANENT MAGNET DRIVE
- CONTACTS: SILVER CADMIUM OXIDE WITH GOLD PLATING
- COILS FOR DC, 50 TO 400Hz AND 400Hz AC
- WEIGHT 1.6 OUNCES MAX. (45.4 GRAMS)



\* Meets new spec MIL-PRF-83536/36 and MIL-PRF-83536/37

The Series FCA-125 relay is a polarized single-side stable design, where the flux from a permanent magnet provides the armature holding force in the deactivated state, and its flux path is switched and combined with the coil flux in the operated state. This results in appreciably increased contact pressure in both states over that of a spring return nonpolar design. We also manufacture other versions of this relay:

**FCA-325:** 25 AMPERE 3PDT RELAY

**FCAC-325:** 25 AMPERE 3PST RELAY WITH 2 AMPERE, SPDT AUXILIARY CONTACTS

## CONTACT RATING-AMPERES

Ratings Are Continuous Duty

| TYPE OF LOAD                              | LIFE (MIN.) CYCLES X 10 <sup>3</sup> | 28 VDC | 115VAC 400Hz | 115VAC 60Hz * |
|---|--------------------------------------|--------|--------------|---------------|
| Resistive                                 | 50                                   | 25     | 25           | 10            |
| Inductive                                 | 10                                   | 12     | –            | 10            |
| Inductive                                 | 20                                   | –      | 15           | –             |
| Motor                                     | 50                                   | 10     | 10           | 8             |
| Lamp                                      | 50                                   | 5      | 5            | –             |
| * 60 Hz LOADS RATED FOR 10,000 OPERATIONS |                                      |        |              |               |

OVERLOAD CURRENT 50 AMPS DC, 80AMPS 400Hz  
 RUPTURE CURRENT 60 AMPS DC, 100 AMPS 400Hz  
 CONTACT MAKE BOUNCE 1 MILLISECOND AT NOMINAL VOLTAGE  
 MAX. CONTACT DROP AT 25 AMPS: INITIAL 0.150 VOLTS.  
 END OF LIFE 0.175 VOLTS



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## 25 AMPERES, SPDT

### COIL DATA

| COIL CODE | NOMINAL VOLTAGES | FREQ. Hz | DC RES. AC AMPS (B) | OVER TEMPERATURE RANGE |                        |                       |
|-----------|------------------|----------|---------------------|------------------------|------------------------|-----------------------|
|           |                  |          |                     | PICKUP OR BELOW VOLTS  | DROPOUT OR ABOVE VOLTS | MUST HOLD VOLTAGE (C) |
| 1         | 6                | DC       | 20 Ω                | 4.5                    | 0.3                    | 2.5                   |
| 2         | 12               | DC       | 80 Ω                | 9.0                    | 0.75                   | 4.5                   |
| 3         | 28               | DC       | 320 Ω               | 18.0                   | 1.5                    | 7.0                   |
| 4 (A)     | 28               | DC       | 320 Ω               | 18.0                   | 1.5                    | 7.0                   |
| 5         | 48               | DC       | 920 Ω               | 32.0                   | 2.5                    | 14.0                  |
| 6         | 28               | 400Hz    | 180 mA              | 22.0                   | 1.25                   | 10.0                  |
| 7         | 28               | 50/400Hz | 100 mA              | 22.0                   | 1.25                   | 10.0                  |
| 8         | 115              | 400 Hz   | 40 mA               | 90.0                   | 5.0                    | 40.0                  |
| 9         | 115              | 50/400Hz | 30 mA               | 95.0                   | 5.0                    | 40.0                  |

- A. CODE 4 COILS HAVE BACK EMF SUPPRESSION TO 42 VOLTS MAX.
- B. DC COIL RESISTANCE  $\pm 10\%$  AT 25°C; AC COIL MAX. CURRENT AT NOMINAL VOLTAGE.
- C. RELAY WILL STAY IN PICKED-UP STATE DOWN TO MUST HOLD VOLTAGES SHOWN.
- D. MAX. OVERVOLTAGE: 6 & 12 VDC COILS 120% OF NOMINAL; ALL OTHERS 110% OF NOMINAL.
- E. COILS AVAILABLE FOR OTHER VOLTAGES AND FOR AC 50/60HZ.
- NOTE: Only DC Coil Models are QPL Approved.

### GENERAL SPECIFICATIONS

|                                     |  |                                  |
|-------------------------------------|--|----------------------------------|
| TEMPERATURE RATING:                 |  | -70°C TO + 125°C                 |
| ALTITUDE:                           |  | 300,000 FEET                     |
| SHOCK:*                             | Z, Y, & X ENCLOSURES                           | 200 g FOR 6 mS                   |
|                                     | W & M ENCLOSURES (STUD MTG.)                   | 100 g FOR 6 mS                   |
| VIBRATION, SINUSOIDAL:*             | Z, Y, & X ENCLOSURES                           | 30 g 33-3000Hz                   |
|                                     | W & M ENCLOSURES (STUD MTG.)                   | 20 g 33-3000Hz                   |
| VIBRATION, RANDOM: *                | Z, Y, & X ENCLOSURES                           | 0.4 g <sup>2</sup> /Hz 50-2000Hz |
|                                     | W & M ENCLOSURES (STUD MTG.)                   | 0.2 g <sup>2</sup> /Hz 50-2000Hz |
| DIELECTRIC STRENGTH AT SEA LEVEL:   | ALL CIRCUITS TO GROUND AND CIRCUIT TO CIRCUIT. | 1250 V rms                       |
|                                     | COIL TO GROUND                                 | 1000 V rms                       |
| DIELECTRIC STRENGTH AT 80,000 FEET: |  | 350 V rms                        |
| INSULATION RESISTANCE:              | INITIAL (500 VDC)                              | 100 MΩ MINIMUM                   |
|                                     | AFTER LIFE OR ENVIRONMENTAL TESTS              | 50 MΩ MINIMUM                    |
| OPERATE TIME AT NOMINAL VOLTAGE:    | DC RELAYS                                      | 10 ms OR LESS                    |
|                                     | AC RELAYS                                      | 15 ms OR LESS                    |
| RELEASE TIME AT NOMINAL VOLTAGE:    | DC RELAYS                                      | 10 ms OR LESS                    |
|                                     | AC RELAYS                                      | 50 ms OR LESS                    |

\* Max. contact opening under vibration or shock 10 microseconds



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## 25 AMPERES, SPDT

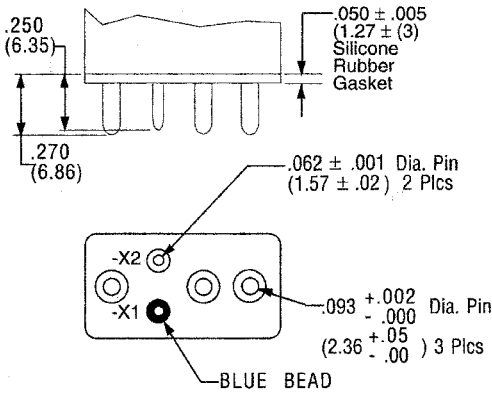
Below are shown the standard terminal types and the enclosures available. Specify the assembly as indicated under How To Order. Dimensions are shown in inches  $\pm .010$  and (Millimeters  $\pm .25$ ).

### TERMINALS

**CODE**

**"A"**

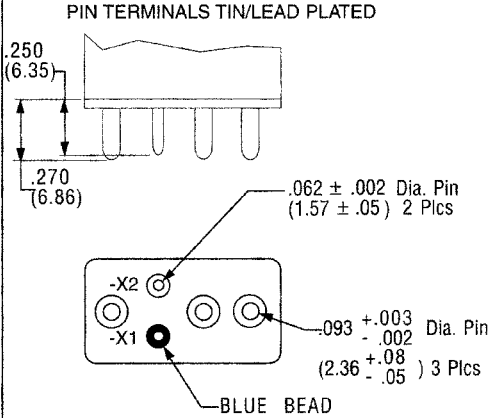
**Socket Pins - All DC Coils**  
PIN TERMINALS ARE GOLD PLATED



**CODE**

**"B"**

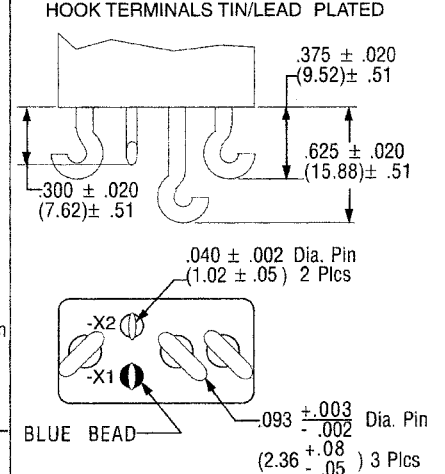
**Solder Pin Terminals**  
PIN TERMINALS TIN/LEAD PLATED



**CODE**

**"C"**

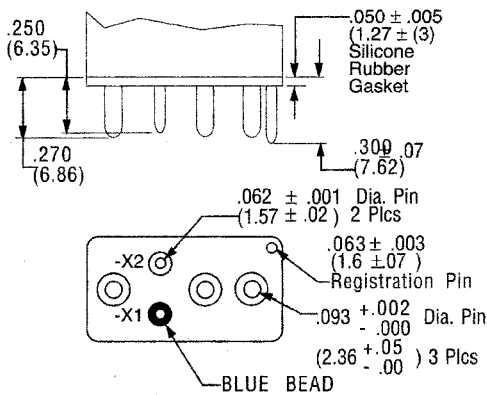
**Solder Hook Terminals**  
HOOK TERMINALS TIN/LEAD PLATED



**CODE**

**"D"**

**Socket Pins - All AC Coils**  
PIN TERMINALS ARE GOLD PLATED



### ENCLOSURES

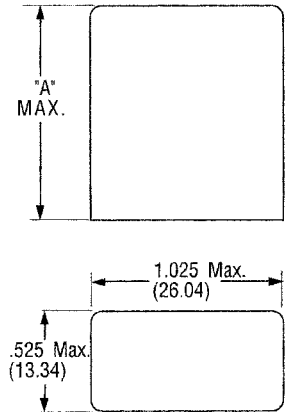
All Enclosures have cupro-Nickel cans bright acid tin/lead plated after assembly to terminal headers.

Dimensions: Inches  $\pm .010$  (mm  $\pm .25$ )

"A" - AC Coils 1.125 in. (31.91) Max  
DC Coils 1.010 in. (28.65) Max..

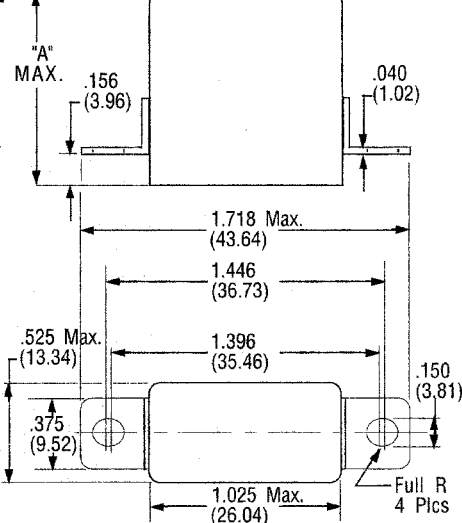
**CODE**

**"Z"**



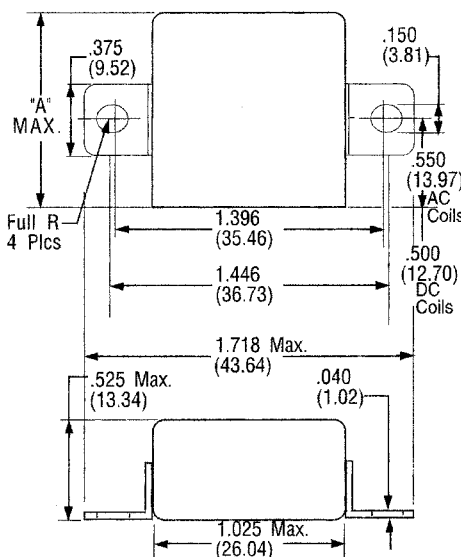
**CODE**

**"Y"**



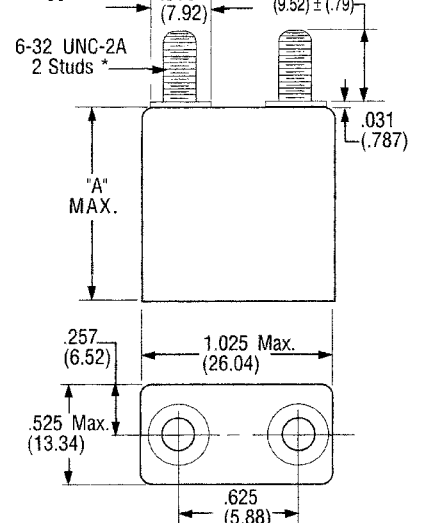
**CODE**

**"X"**



**CODE**

**"W"**



\*Metric threads available.  
To specify use  $\square$  in place of  $\square$

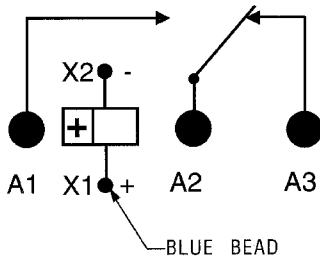


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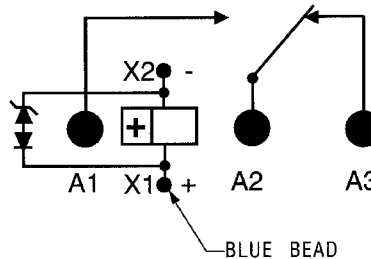
## 25 AMPERES, SPDT

### TERMINAL WIRING

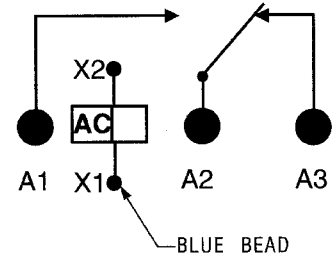
DC COILS



DC COILS WITH  
TRANSIENT SUPPRESSION



AC COILS

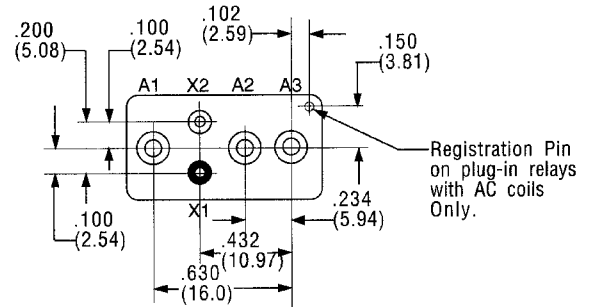


**NOTE:** Polarity must be observed with DC coil supply. Relay is polarized with a permanent magnet and will not operate or be damaged by reverse polarity.

Diodes used in transient suppression and in AC rectifier circuits have peak inverse voltage rating of 600 VDC minimum. Zener diodes have a minimum rating of 1 watt.

Terminal designations are for reference only and do not appear on the header.

### TERMINAL LAYOUT



### HOW TO ORDER

(EXAMPLE) \_\_\_\_\_ **FCA-125-A Y 4**

RELAY TYPE \_\_\_\_\_

TERMINALS (Socket Pins, DC Coil) \_\_\_\_\_

ENCLOSURE (With Flanges) \_\_\_\_\_

COIL (28 VDC With Transient Suppression) \_\_\_\_\_

**NOTE: Only DC coil models are QPL Approved**

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[LC](#) [DJT16E21-11AA](#) [MS27467T21B11JA](#) [DJT16E21-11JA](#) [MS27467T21B11JA-LC](#)