



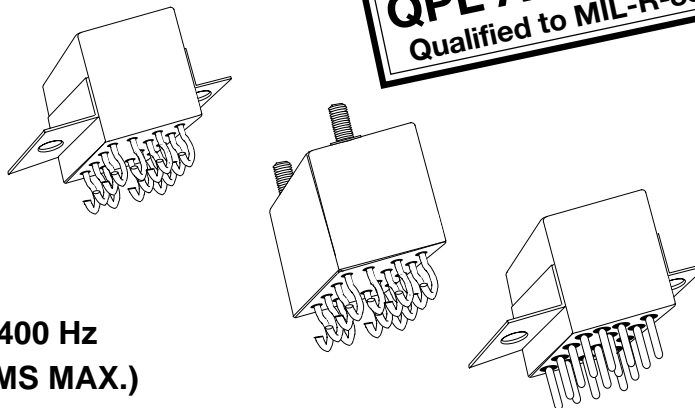
SERIES
FCA-410

Tyco Electronics Mid-Range Military/Aerospace Relays

10 AMPERES, 4PDT



- HERMETICALLY SEALED
- ALL WELDED CONSTRUCTION
- BALANCED FORCE
- PERMANENT MAGNET DRIVE
- 4PDT SWITCHING IN ONE INCH CUBE
- CONTACTS: SILVER CADMIUM
OXIDE WITH GOLD PLATING
- COILS FOR DC AND AC 50-400 Hz OR 400 Hz
- WEIGHT 2.72 OUNCES MAX. (77 GRAMS MAX.)



The Series FCA-410 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 2-pole and 4-pole versions of this relay.

FCA-210: 10 AMP DPDT RELAY

FCA-610: 10 AMP 6PDT RELAY

AVAILABLE

FCA-415: 15 AMP 4PDT, HAS THE SAME SPECIFICATIONS AS THE FCA-410
EXCEPT IS RATED AT 15 AMPS.

CONTACT RATING-AMPERES

Ratings Are Continuous Duty

TYPE OF LOAD	LIFE (MIN.) CYCLES X 10 ³	28 VDC	120VAC 400HZ	120/200VAC 400Hz-3Ø	120/200VAC 60Hz-3Ø *
Resistive	100	10	10	10	2.5
Inductive	20	8	8	8	2.5
Motor	100	4	4	4	2.0
Lamp	100	2	2	2	1.0
* 60 Hz LOADS RATED FOR 10,000 OPERATIONS					

OVERLOAD CURRENT 40 AMPS DC, 60 AMPS 400HZ

RUPTURE CURRENT 50 AMPS DC, 80 AMPS 400HZ

CONTACT MAKE BOUNCE 1 MILLISECOND AT NOMINAL VOLTAGE

MAX. CONTACT DROP AT 10 AMPS: INITIAL 0.100 VOLTS.

END OF LIFE 0.125 VOLTS



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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	18 Ω	4.5	0.3	2.5
2	12	DC	70 Ω	9.0	0.75	4.5
3	28	DC	290 Ω	18.0	1.5	7.0
4 (A)	28	DC	290 Ω	18.0	1.5	7.0
5	48	DC	865 Ω	32.0	2.5	14.0
6	28	400HZ	225 mA	22.0	1.25	10.0
7	28	50/400Hz	120 mA	22.0	1.25	10.0
8	115	400 Hz	40 mA	90.0	5.0	40.0
9	115	50/400Hz	40 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 COIL 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 ENCLOSURES 200 G FOR 6 mS W, X & M ENCLOSURES 100G FOR 6 mS
VIBRATION, SINUSOIDAL:*	Z & Y ENCLOSURES 0.12 DA 10 TO 70Hz 30G 70 TO 3000 Hz W, X & M ENCLOSURES 0.12 DA 10 TO 57 Hz 20G 57 TO 3000 Hz
VIBRATION, RANDOM *	Z, & Y ENCLOSURES 0.4G ² /Hz 50-2000Hz W, X & M ENCLOSURES 0.2G ² /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 M Ω MINIMUM AFTER LIFE OR ENVIRONMENTAL TESTS 50 M Ω MINIMUM
OPERATE TIME AT NOMINAL VOLTAGE:	DC RELAYS 15 mS OR LESS AC RELAYS 20 mS OR LESS
RELEASE TIME AT NOMINAL VOLTAGE:	DC RELAYS 15 mS OR LESS AC RELAYS 50 mS OR LESS

* Max. contact opening under vibration or shock 10 microseconds



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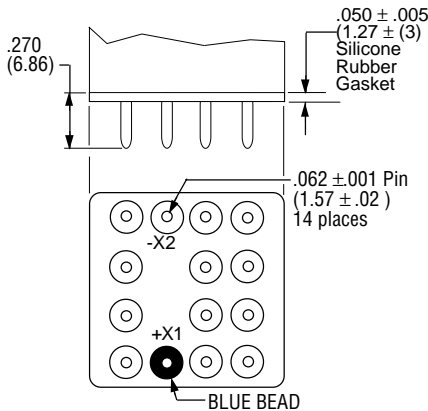
Below are shown the standard terminal types and the enclosures available. Note that the pin configuration for coil connections is determined by the coil supply voltage. Specify the assembly as indicated under How To Order. Dimensions are shown in inches $\pm .010$ and (Millimeters $\pm .25$) except as noted.

TERMINALS

Terminals on 0.200 centers.
Coil terminals: X1-X2; See Page 26.
Socket Pins are Gold Plated.
Circuit Board Pins are Tin/Lead Plated.

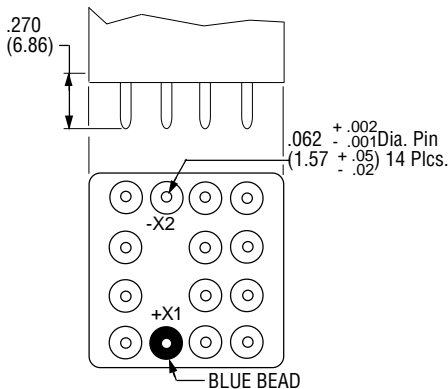
CODE "A"

Socket Pins-All DC Coils



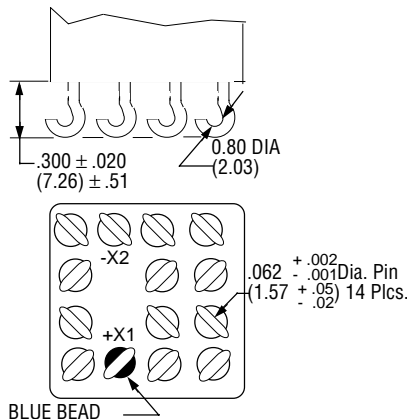
CODE "B"

Circuit Board Pins-All DC Coils



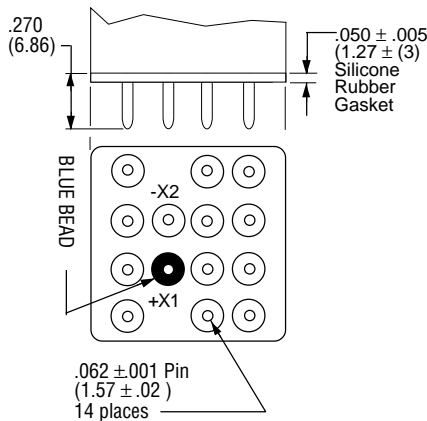
CODE "C"

Solder Hooks-AC or DC Coils



CODE "D"

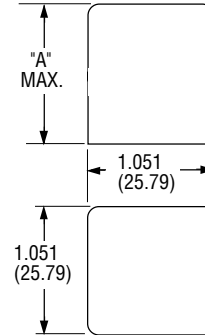
Socket Pins-115 VAC Coils



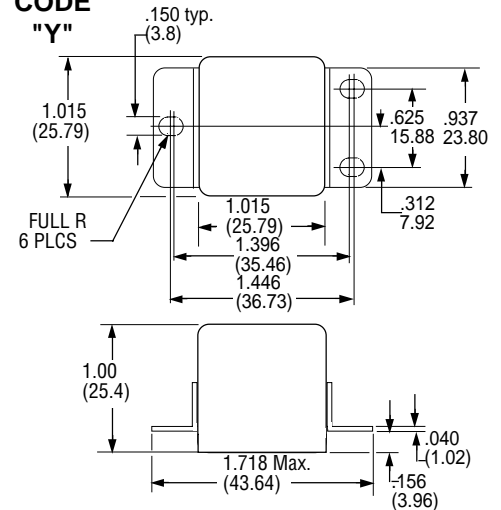
ENCLOSURES

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

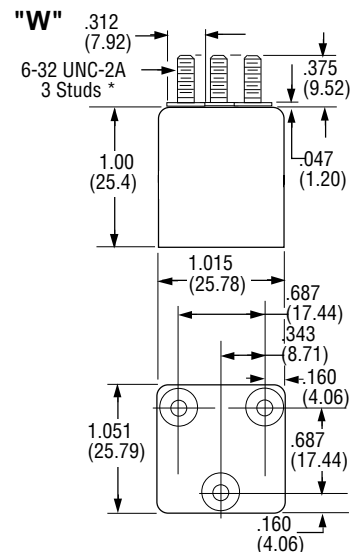
CODE "Z"



CODE "Y"



CODE "W"



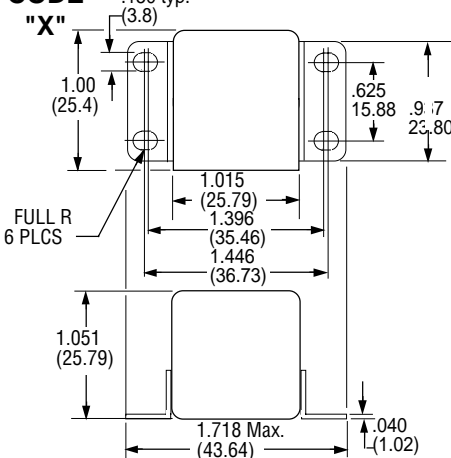
*Metric threads available, To specify use [M] in place of [W]

SEE NEXT PAGE

FOR MORE COIL

TERMINAL OPTIONS

CODE "X"



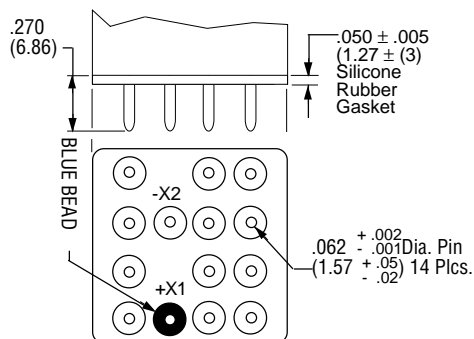


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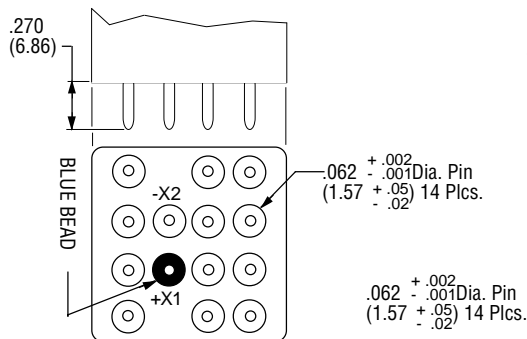
10 AMPERES, 4PDT

TERMINALS CONTINUED

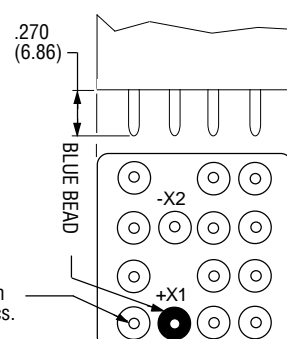
CODE "E"
Socket Pins- 28 VAC Coils



CODE "F"
Circuit Board Pins-115 VAC Coils

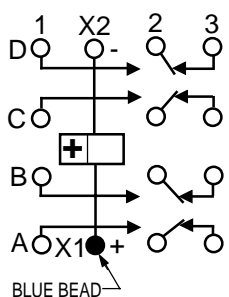


CODE "G"
Circuit Board Pins- 28 VAC Coils

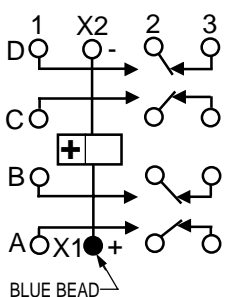


TERMINAL WIRING

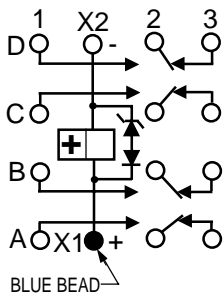
A & B PIN TERMINAL
ALL DC COILS



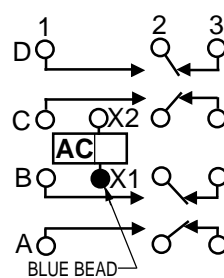
C HOOK TERMINAL
ALL AC & DC COILS



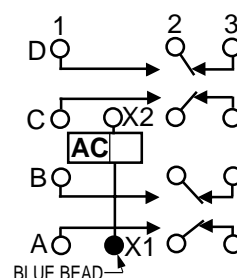
TRANSIENT
SUPPRESSION CIR.



D & F PIN TERMINAL
115 VAC COILS



E & G PIN TERMINAL
28 VAC COILS

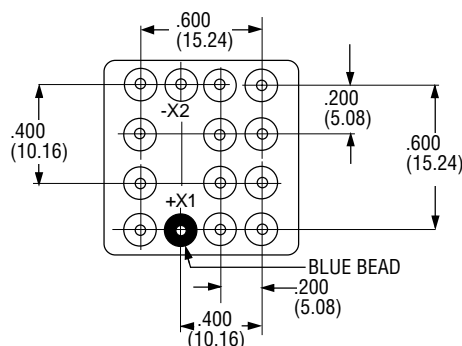


NOTE: Polarity must be observed with DC coil supply. Relay is polarized with a permanent magnet and will not operate or be damaged by reverse polarity.

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) _____

RELAY TYPE _____

TERMINALS (Socket Pins) _____

ENCLOSURE (With Flanges) _____

COIL (28 VDC With Transient Suppression) _____

FCA-415-
FCA-410 **A Y 4**

NOTE: Only DC coil models are QPL Approved