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REVISIONS

| P | LTR | DESCRIPTION | DATE | DWN | APVD |
|---|---|---|---|---|---|
| | A | INITIAL DRAWN | 24OCT2019 | RV | MB |

## 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 — 100 g for 6 mS

**Vibration, Sinusoidal*** —
Z & Y Enclosures — 0.12 DA 10 to 70Hz, 30 g 70 to 3000Hz
W, X & M Enclosures — 0.12 DA 10 to 57Hz, 20 g 57 to 3000Hz

**Vibration, Random*** —
Z & Y Enclosures — 0.4 $g^2$/Hz 50-2000Hz
W, X & M Enclosures — 0.2 $g^2$/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
At 80,000 Feet — 350 V rms

**Insulation Resistance** —
Initial (500 VDC) — 100 MΩ Min.
After Life or Environmental Tests — 50 MΩ Min.

**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

## Contact Rating — Amperes
## Ratings Are Continuous Duty

| Type of Load | Life (Min.) Cycles x $10^3$ | 28 VDC | 120VAC 400Hz | 120/200VAC | |
|---|---|---|---|---|---|
| | | | | 400Hz-3Ø | 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

## 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 | 50/400 Hz | 30 mA | 95.0 | 5.0 | 40.0 |

A. CODE 4 COILS HAVE BACK EMF SUPPRESSION TO 42 VOLTS MAX.
B. DC COIL RESISTANCE ± 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. OVER-VOLTAGE: 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.

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 6-pole versions of this relay.

**FCA-210** — 10 Amp DPDT Relay

**FCA-412** — 12 Amp 4PDT Relay

**Available**

**FCA-415** — 15 Amp 4PDT, Has the same specifications as the FCA-410 except is rated at 15 amps. (Commercial Only)

**Product Facts**

- **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 to 400Hz or 400Hz**
- **Weight 2.72 ounces max. (77 grams max.)**
- **Qualified to M83536/15, /16**

THIS DRAWING IS A CONTROLLED DOCUMENT.

DIMENSIONS: INCHES

TOLERANCES UNLESS OTHERWISE SPECIFIED:
0 PLC ± –
1 PLC ± –
2 PLC ± –
3 PLC ± –
4 PLC ± –
ANGLES ± –

MATERIAL –
FINISH –

| | | |
|---|---|---|
| DWN | RV | 24OCT2019 |
| CHK | RV | 24OCT2019 |
| APVD | MB | 24OCT2019 |
| PRODUCT SPEC | – | |
| APPLICATION SPEC | – | |
| WEIGHT | – | |

TE Connectivity

NAME: FCA–410–SERIES – –

| SIZE | CAGE CODE | DRAWING NO | RESTRICTED TO |
|---|---|---|---|
| A3 | – | C–FCA–410–SERIES | – |

CUSTOMER DRAWING | SCALE NTS | SHEET 1 OF 2 | REV A

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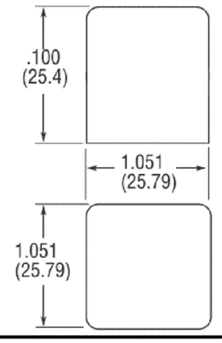
REVISIONS

| P | LTR | DESCRIPTION | DATE | DWN | APVD |
|---|---|---|---|---|---|
| | – | SEE SHEET 1 | – | — | — |

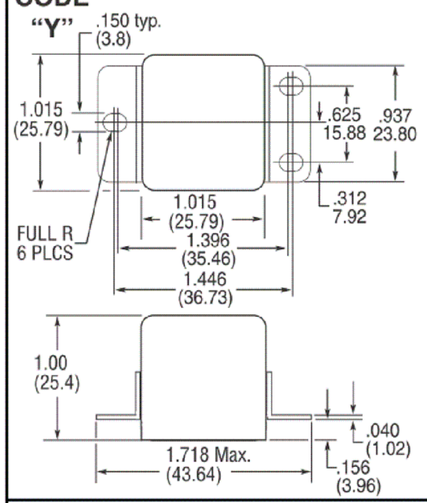
## Enclosures

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

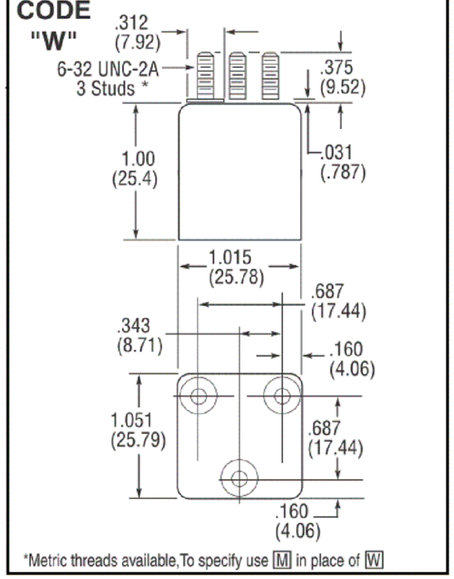
**CODE "Z"**




**CODE "Y"**

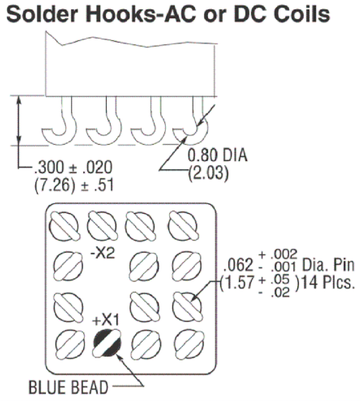



**CODE "W"**

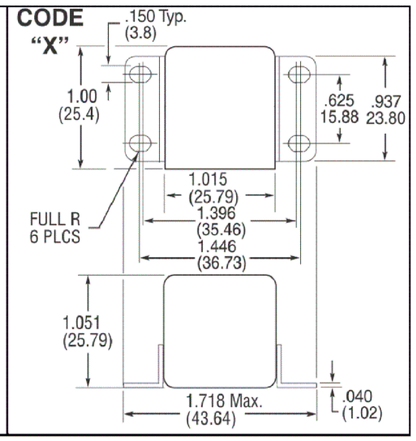



*Metric threads available,To specify use M in place of W

**CODE "C" Solder Hooks-AC or DC Coils**



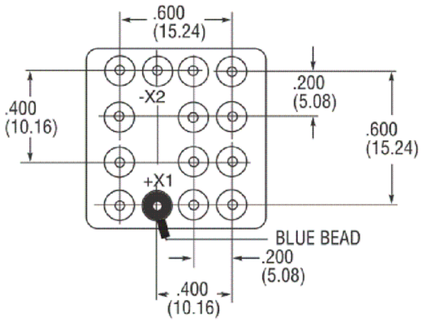

**CODE "X"**




**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 VIEW

## HOW TO ORDER

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

**RELAY TYPE**

**SOLDER HOOK**

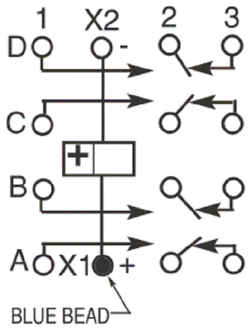
**ENCLOSURE** (With Flanges)

**COIL** (28 VDC With Transient Suppression).
**NOTE: Only DC coil models are QPL Approved**

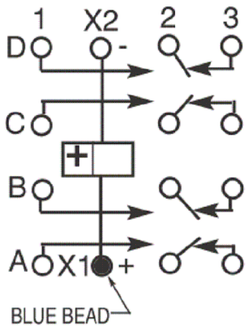
* The part number example shown on this page is for catalog items. For a list of specific QPL part numbers, please see the index in Section 15.

## Terminal Wiring

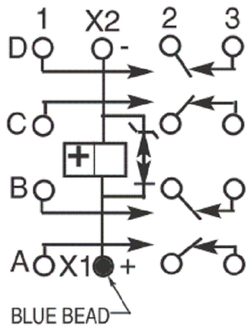
**A & B Pin Terminal All DC Coils**



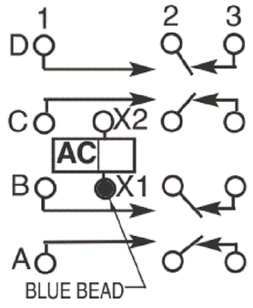

**C Hook Terminal All AC & DC Coils**



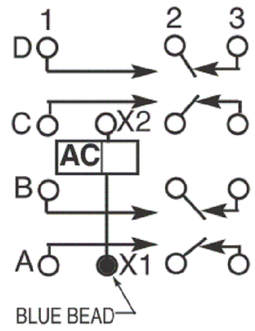

**Transient Suppression Cir.**




**D & F Pin Terminal 115 VAC Coils**




**E & G Pin Terminal 28 VAC Coils**




ALL DIMENSIONS ARE IN INCHES(MM)

THIS DRAWING IS A CONTROLLED DOCUMENT.

DIMENSIONS: INCHES

TOLERANCES UNLESS OTHERWISE SPECIFIED:
0 PLC ± –
1 PLC ± –
2 PLC ± –
3 PLC ± –
4 PLC ± –
ANGLES ± –

MATERIAL –

FINISH –

| | | |
|---|---|---|
| DWN | RV | 18OCT2019 |
| CHK | RV | 18OCT2019 |
| APVD | MB | 18OCT2019 |
| PRODUCT SPEC | — | |
| APPLICATION SPEC | — | |
| WEIGHT | – | |

TE Connectivity

NAME FCA–410–SERIES – –

| SIZE | CAGE CODE | DRAWING NO | RESTRICTED TO |
|---|---|---|---|
| A3 | – | C–FCA–410–SERIES | — |

CUSTOMER DRAWING | SCALE NTS | SHEET 2 OF 2 | REV A

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