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REVISIONS

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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<sup>2</sup>/Hz 50-2000Hz

W, X & M Enclosures —

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

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 <sup>3</sup>	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


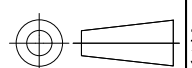
#### Available

**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.		DWN RV 24OCT2019	 TE Connectivity		
		CHK RV 24OCT2019			
DIMENSIONS: INCHES		APVD MB 24OCT2019	NAME FCA-410-SERIES		
		TOLERANCES UNLESS OTHERWISE SPECIFIED:		PRODUCT SPEC	
		0 PLC ± - 1 PLC ± - 2 PLC ± - 3 PLC ± - 4 PLC ± - ANGLES ± -		APPLICATION SPEC	
MATERIAL		FINISH		SIZE A3	CAGE CODE -
				DRAWING NO. C-FCA-410-SERIES	
				RESTRICTED TO -	
CUSTOMER DRAWING			SCALE NTS	SHEET 1 OF 2	REV A



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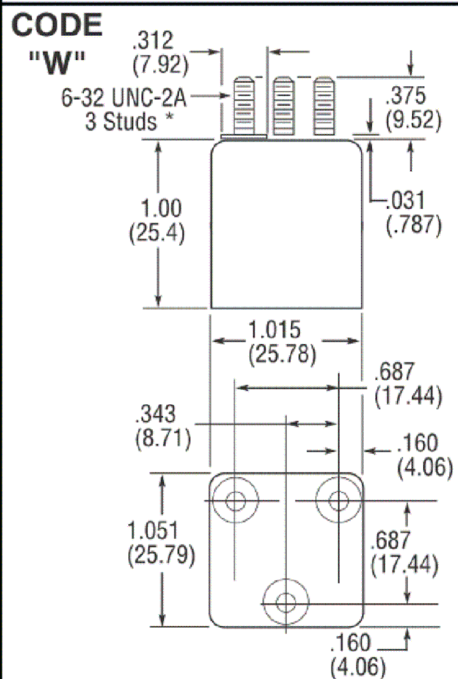
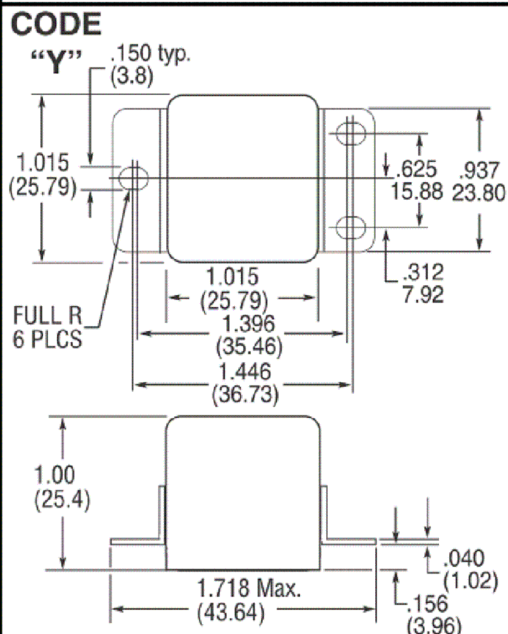
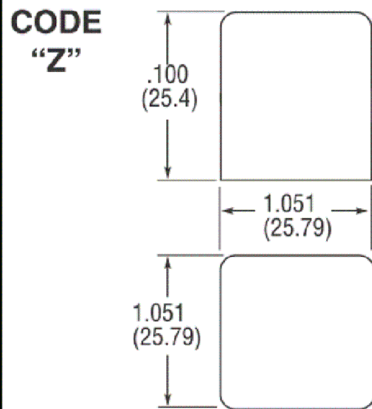
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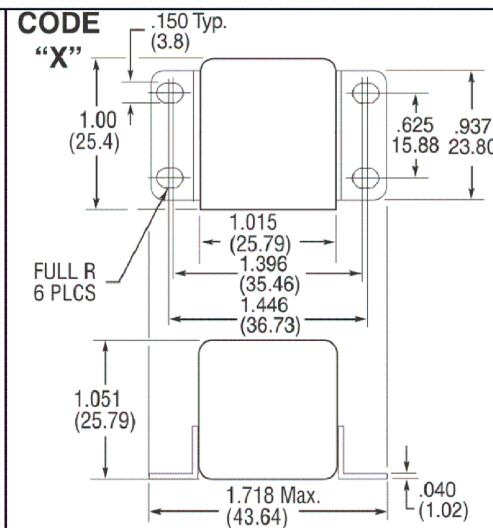
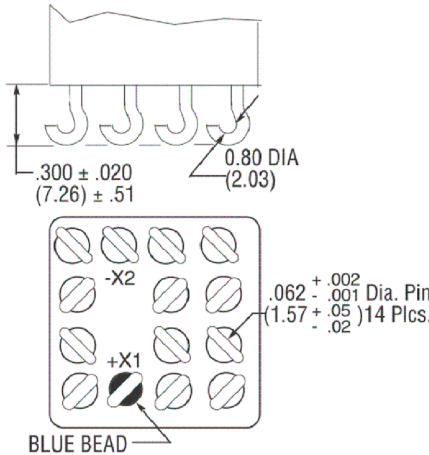
P	LTR	DESCRIPTION	DATE	DWN	APVD
-	-	SEE SHEET 1	-	-	-

### Enclosures

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



### CODE "C" Solder Hooks-AC or DC 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.

### HOW TO ORDER

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

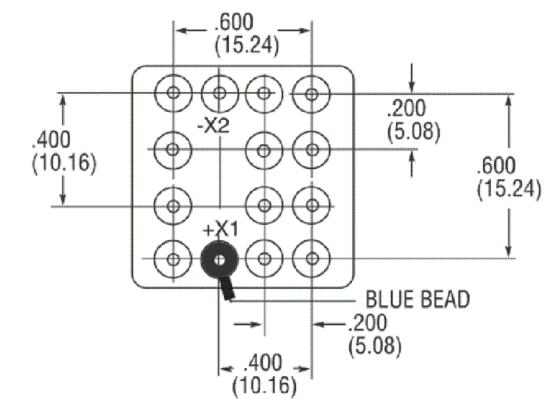
**SOLDER HOOK** \_\_\_\_\_

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

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

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

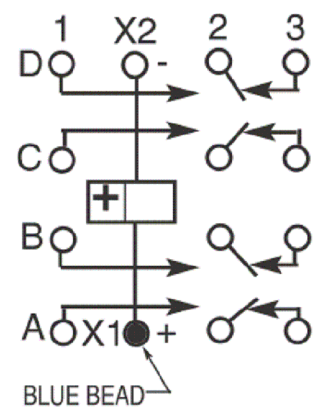
\* The part number example shown on this page is for catalog items. For a list of specific QPL part numbers, please see the index in Section 15.



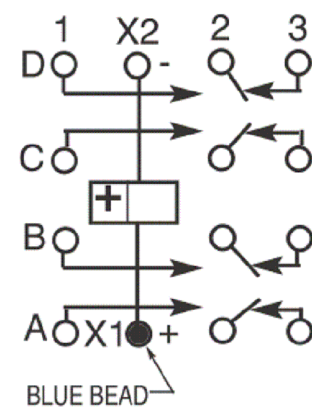
**TERMINAL VIEW**  
**FCA-415-**  
**FCA-410 A Y 4**

### Terminal Wiring

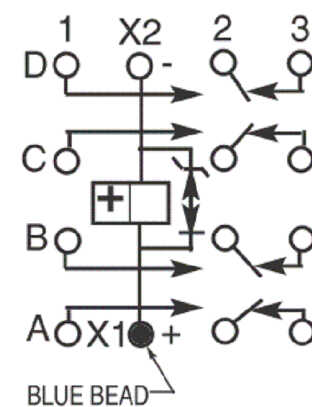
#### A & B Pin Terminal All DC Coils



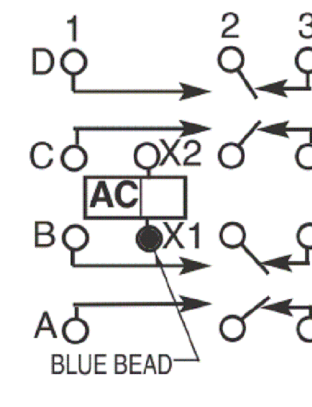
#### C Hook Terminal All AC & DC Coils



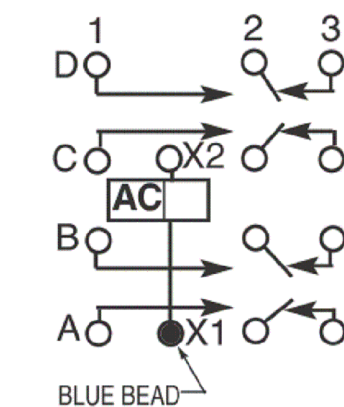
#### Transient Suppression Cir.



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



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



ALL DIMENSIONS ARE IN INCHES(MM)

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DIMENSIONS: INCHES		CHK RV 180CT2019				
TOLERANCES UNLESS OTHERWISE SPECIFIED:		APVD MB 180CT2019	NAME			
		PRODUCT SPEC	FCA-410-SERIES			
MATERIAL		APPLICATION SPEC	SIZE	CAGE CODE	DRAWING NO	RESTRICTED TO
FINISH		WEIGHT	A3	-	FCA-410-SERIES	-
-		CUSTOMER DRAWING	SCALE	SHEET	REV	
			NTS	2 OF 2	A	

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