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 g²/Hz 50-2000Hz
W, X & M Enclosures —
0.2 g²/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 10³	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.

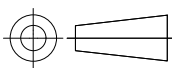**FCA-210** — 10 Amp DPDT Relay

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

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"

.100 (25.4)

1.051 (25.79)

1.051 (25.79)

CODE "Y"

.150 typ. (3.8)

1.015 (25.79)
.625 15.88 .937 23.80

FULL R 6 PLCS

1.015 (25.79)
1.396 (35.46)
1.446 (36.73)
.312 7.92

1.00 (25.4)

1.718 Max. (43.64)
.040 (1.02)
.156 (3.96)

CODE "W"

.312 (7.92)
6-32 UNC-2A 3 Studs *
.375 (9.52)

1.00 (25.4)
.031 (.787)

1.015 (25.78)
.687 (17.44)

.343 (8.71)
.160 (4.06)

1.051 (25.79)
.687 (17.44)

.160 (4.06)

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

CODE "C" Solder Hooks-AC or DC Coils

.300 ± .020 (7.26) ± .51
0.80 DIA (2.03)

-X2
.062 +.002 -.001 Dia. Pin (1.57 +.05 -.02) 14 Plcs.

+X1

BLUE BEAD

CODE "X"

.150 Typ. (3.8)

1.00 (25.4)
.625 15.88 .937 23.80

FULL R 6 PLCS

1.015 (25.79)
1.396 (35.46)
1.446 (36.73)

1.051 (25.79)

1.718 Max. (43.64)
.040 (1.02)

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.

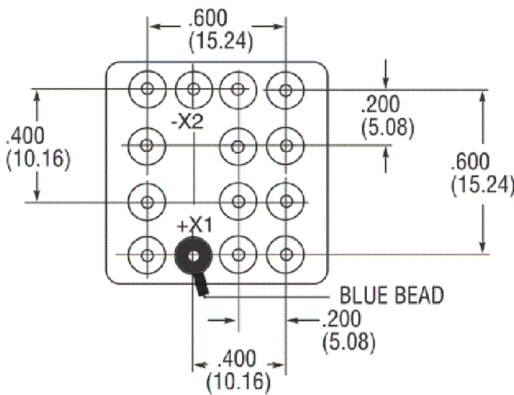Terminal designations are for reference only and do not appear on the header.

HOW TO ORDER

.600 (15.24)
.200 (5.08)
.400 (10.16)
-X2
.600 (15.24)
+X1
BLUE BEAD
.200 (5.08)
.400 (10.16)

TERMINAL VIEW

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.
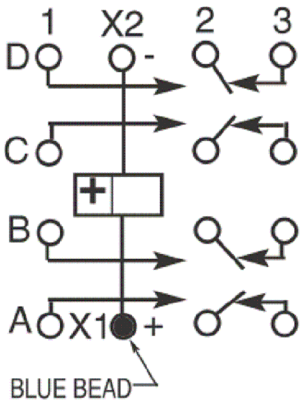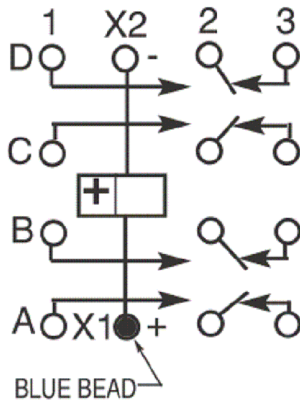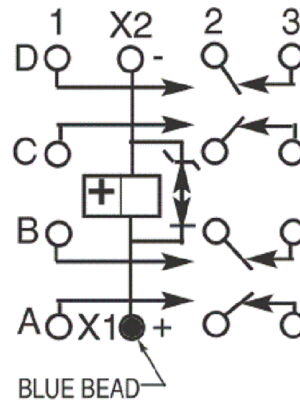
Terminal Wiring

A & B Pin Terminal All DC Coils

1 X2 2 3
D
C +
B
A X1 +
BLUE BEAD

C Hook Terminal All AC & DC Coils

1 X2 2 3
D
C +
B
A X1
BLUE BEAD

Transient Suppression Cir.

1 X2 2 3
D
C +
B
A X1 +
BLUE BEAD

D & F Pin Terminal 115 VAC Coils

1 2 3
D
C AC X2
B X1
A
BLUE BEAD
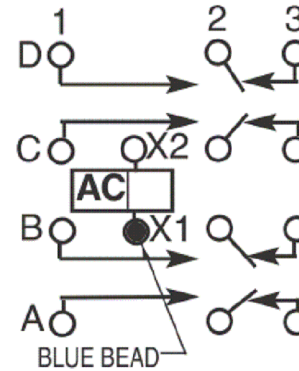
E & G Pin Terminal 28 VAC Coils

1 2 3
D
C AC X2
B
A X1
BLUE BEAD
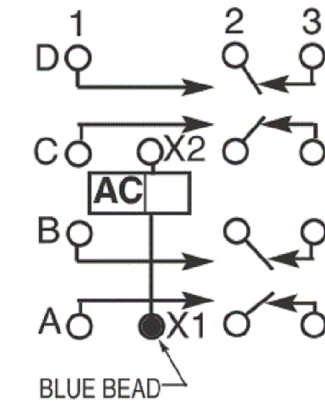
ALL DIMENSIONS ARE IN INCHES(MM)

THIS DRAWING IS A CONTROLLED DOCUMENT.

DWN	RV	18OCT2019
CHK	RV	18OCT2019
APVD	MB	18OCT2019

DIMENSIONS: INCHES

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

MATERIAL —
FINISH —

PRODUCT SPEC —
APPLICATION SPEC —
WEIGHT —

TE TE Connectivity

NAME FCA-410-SERIES
—
—

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

CUSTOMER DRAWING

SCALE NTS | SHEET 2 OF 2 | REV A

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