



# CII FCA-150 and FCAC-150 Series Relays

Hermetically Sealed 50-Amp Relays Designed for Environmentally Demanding Aerospace and Military Applications

# FCA-150 and FCAC-150 Series Relays

Hermetically Sealed 50-Amp Relays for Aerospace and Military Applications

## DESIGNED TO PERFORM

- 50,000 cycles under resistive load
- Corrosion-protected, hermetically sealed metal enclosure
- -70° to +125°C temperature range
- Rated for altitude to 300,000 ft. in high-vibration, high-shock environments

## CAPABLE

- 1 Form X (SPST-NO-DM) contact
- Meets MIL-PRF-6106 requirements
- 50 A switching capability
- Balanced force design

## COMPACT PACKAGE

- One cubic inch in size
- <90 grams total weight
- Non-latching relay

## VERSATILE

- Available with 1 Form C (SPDT) 2 A auxiliary contact
- 6, 12 and 28 VDC coils available
- Optional transient suppression

The FCA-150 series relay from TE Connectivity (TE) 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 force in both states over that of a spring return non-polarized design. The FCAC-150 series has a 1 Form C (SPDT) auxiliary contact set rated at 2 A.

Designed and built to perform under the most demanding environmental conditions, FCA-150 series relays withstand such changing environmental factors as temperature, altitude, shock, vibration, and salt spray. Minimum mechanical life expectancy is 50,000 cycles under resistive load.

## APPLICATIONS

- Aircraft
- Missiles
- Power Distribution
- Fuel Pumps
- Avionics Main Power Feed
- Weapons Systems
- Ground Support Equipment

**FCA-150 - B Y 3**

## SERIES AND CONTACT ARRANGEMENT

- FCA-150** 1 Form X Main Contacts
- FCAC-150** 1 Form X Main Contacts and 1 Form C Auxiliary Contacts

## TERMINALS (see drawings for details)

- B** Solder Pin Coil Terminals, Stud Power Terminals
- C** Solder Hook Coil Terminals, Stud Power Terminals
- K** Terminal Block, Stud Power Terminals

## ENCLOSURE (see drawings for details)

- R** Horizontal Flange Mount, Rotated
- U** Flush Vertical Flange Mount
- X** Horizontal Flange Mount
- Y** Raised Vertical Flange Mount
- Z** No Mount

## COIL VOLTAGE (nominal)

- 1** 6 VDC
- 2** 12 VDC
- 3** 28 VDC
- 4** 28 VDC Nominal, with Back EMF Suppression

## TE Components . . . TE Technology . . . TE Know-how . . .

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem | Rochester | DEUTSCH  
SEACON Phoenix | LL ROWE | Phoenix Optix | AFP | SEACON

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**CONTACT RATING (CONTINUOUS DUTY)**

- **Current Rating (at 28 VDC and 115 VAC, 400 Hz)**
  - Resistive Load: 50 A
  - Inductive Load (L/R = 5 ms): 20 A
  - Motor Load: 20 A
- **Life Cycles Min.:**
  - Resistive Load: 50,000
  - Inductive Load (L/R = 5 ms): 20,000
  - Motor Load: 200,000
  - No Load: 100,000
- **Overload Current (Resistive):** 200 A, 50 cycles
- **Max. Contact Drop at 10 A:**
  - Initial: 30 mV
  - After Life: 175 mV
- **Operate Time at Nominal Voltage:** 15 ms
- **Release Time:** 15 ms
- **Bounce Time:** 1 ms



**ELECTRICAL**

- **Initial Insulation Resistance:** 100 MΩ, minimum, at 500 VDC, between each pin and case
- **Insulation Resistance After Life or Environmental Test:** 50 MΩ, minimum, at 500 VDC, between each pin and case
- **Dielectric Strength at Sea Level:**
  - Contacts to Ground and Between Contacts: 1250 V<sub>rms</sub>, 60 Hz
  - Coil to Ground: 1000 V<sub>rms</sub>, 60 Hz
  - Dielectric Strength at 80,000 ft (25,000 m): 500 V<sub>rms</sub>, 60 Hz (all points)



**ENVIRONMENTAL**

- **Ambient Temperature Range, Operating:** -70°C to +125°C
- **Altitude:** 300,000 ft
- **Shock Resistance:** 50 G, 11 ms
- **Vibration Resistance, Sinusoidal:** 20 G, 75-3000 Hz

**COIL DATA**

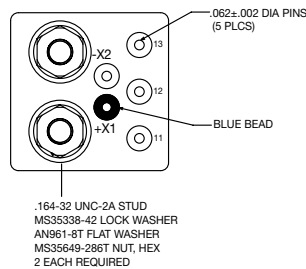
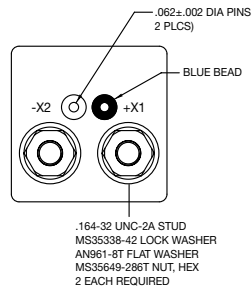
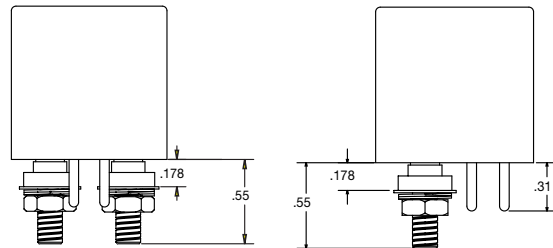
Coil Code	1	2	3	4
Nominal Operating Voltage (VDC)	6	12	28	28
Maximum Operating Voltage (VDC)	7.3	14.5	29	29
Maximum Pick-Up Voltage at +125°C	4.5	9	18	18
Maximum Pick-Up Voltage at +125°C, Continuous Current Test (VDC)	5.7	11.25	22.5	22.5
Drop-Out Voltage over Temperature Range (V)	0.3 - 2.5	0.75 - 4.5	1.5 - 7.0	1.5 - 7.0
Maximum Coil Current at +25°C (A)	.50	.26	.15	.15
Back EMF Suppression	N/A	N/A	N/A	to -42 VDC
Coil Resistance (Ω)	18	70	290	290



**Terminals**

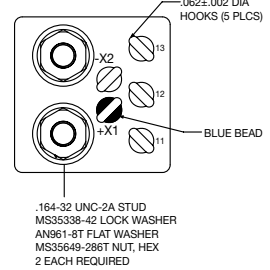
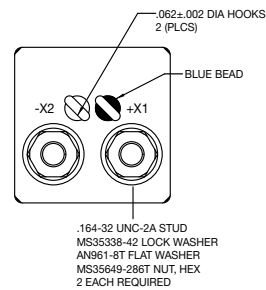
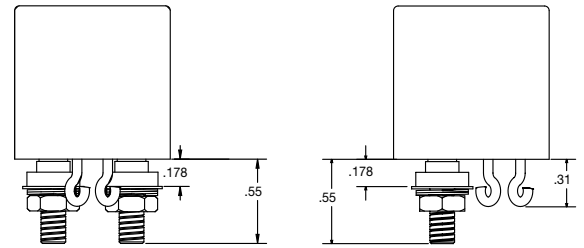
**CODE "B"**

**Solder Pin Terminals – Tin/Lead Plated**  
FCA-150 FCAC-150



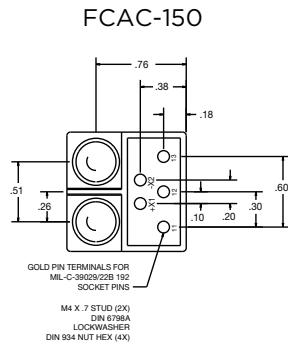
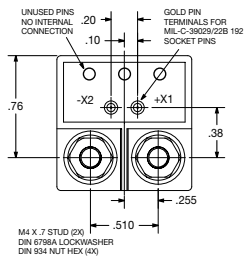
**CODE "C"**

**Solder Hook Terminals – Tin/Lead Plated**  
FCA-150 FCAC-150

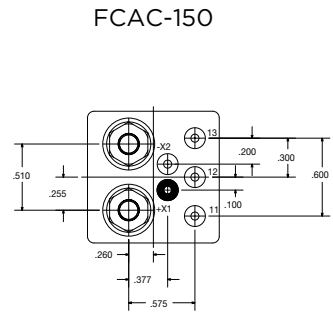
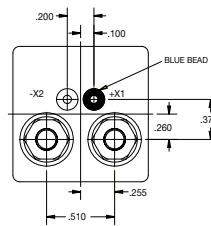


**CODE "K"**

**Terminal Shield**  
FCA-150 FCAC-150

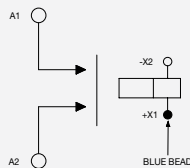


**Terminal View**  
FCA-150 FCAC-150

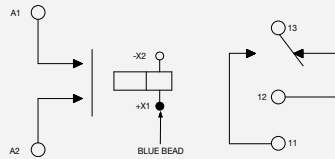


**Terminal Wiring**

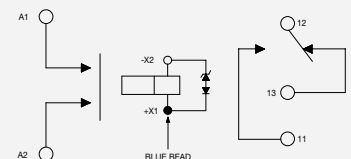
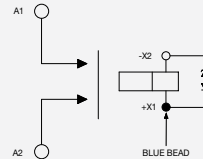
**DC Coils**  
FCA-150



**FCAC-150**



**DC Coils with Transient Suppression**  
FCA-150 FCAC-150



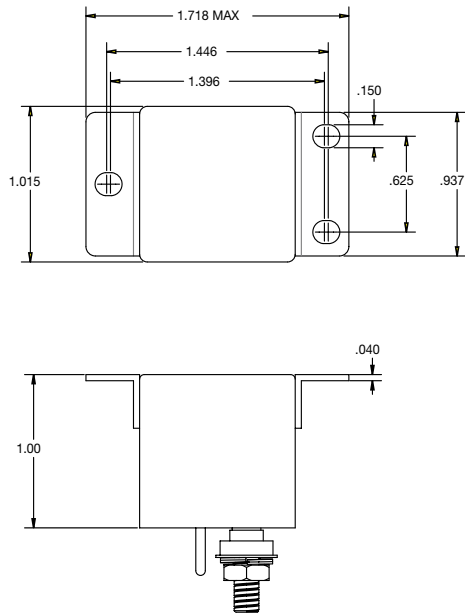


**Product Outline Dimensions**

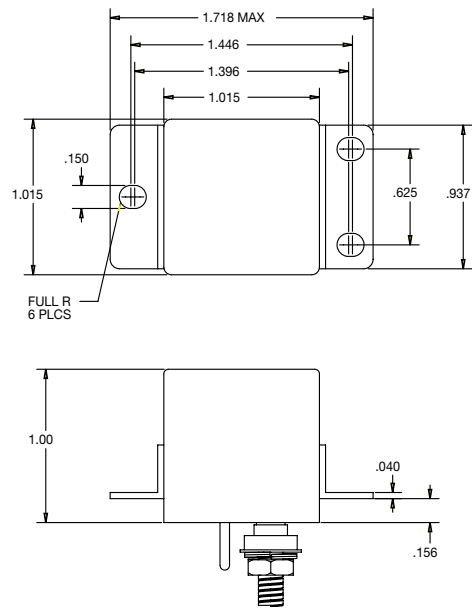
The standard terminal types and enclosures are illustrated below with dimensions in inches ( $\pm 0.010$ ).

**FCA-150 representative drawings are shown below.**

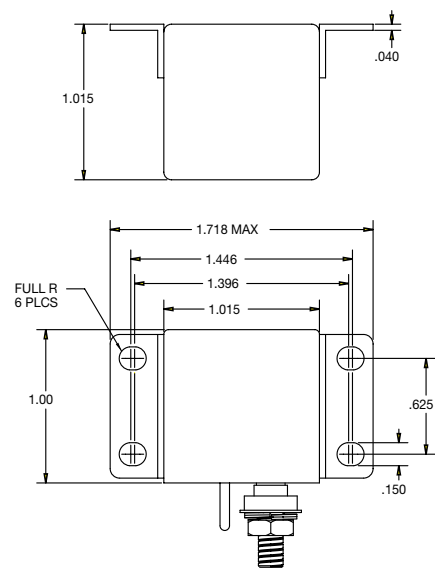
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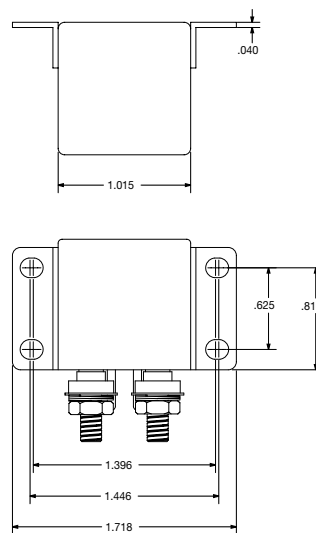
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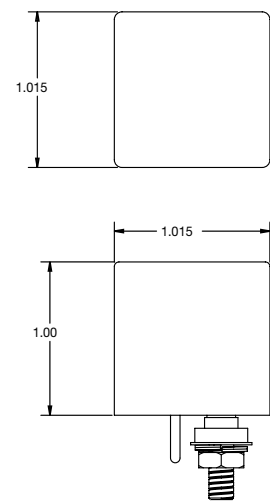
**CODE "X"**



**CODE "R"**



**CODE "Z"**



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Consult TE for the latest dimensions and design specifications.

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5-1773453-6 12/16