Introducing
CII FCA-150 Series Relay
50 Amps, 1PST/NO (DM)

CII FCAC-150 Series Relay
50 Amps, 1PST/NO (DM) with 1PDT Auxiliary Contacts
**DESCRIPTION**

The FCA-150 series 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 non-polar design. The FCAC-150 series has a 1 Form C (SPDT) auxiliary contact set rated at 2 Amps available.

Designed and built to perform under the most demanding environmental conditions and can withstand such changing environmental factors as temperature, altitude, shock, vibration, and salt spray.

Minimum mechanical life expectancy is 50,000 cycles under resistive load.

3 available coil voltages (6, 12 and 28 Vdc) with optional transient suppression.

**APPLICATIONS**

Used in military, aerospace, and associated ground support electrical and electronic systems. Principle areas of application include:

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

**PART NUMBERING SYSTEM**

<table>
<thead>
<tr>
<th>Typical Part Number</th>
<th>FCA-150 or FCAC-150</th>
<th>-A</th>
<th>Y</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series and Contact Arrangement:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCA-150 = Relay with 1 Form X Main Contacts</td>
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<td></td>
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<tr>
<td>FCAC-150 = Relay with 1 Form X Main Contacts and 1 Form C Auxiliary Contacts</td>
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</tr>
<tr>
<td>Terminals (see drawings for details):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B = Solder Pin Coil Terminals, Stud Power Terminals</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C = Solder Hook Coil Terminals, Stud Power Terminals</td>
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<td></td>
</tr>
<tr>
<td>K = Terminal Block, Stud Power Terminals</td>
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<tr>
<td>Enclosure (see drawings for details):</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>R = Horizontal Flange Mount, Rotated</td>
<td>U = Flush Vertical Flange Mount</td>
<td>X = Horizontal Flange Mount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y = Raised Vertical Flange Mount</td>
<td>Z = No Mount</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Coil:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = 6Vdc nominal</td>
<td>2 = 12Vdc nominal</td>
<td>3 = 28Vdc nominal</td>
<td>4 = 28Vdc nominal, with back EMF suppression</td>
<td></td>
</tr>
</tbody>
</table>

**KEY FEATURES**

- Non-latching relay
- Balanced force design
- Corrosion protected metal enclosure
- All welded hermetically sealed enclosure occupies about 1 in³

1 Form X (SPST-NO-DM)
- Auxiliary versions available with 1 Form C (SPDT) aux.

6, 12 and 28 Vdc coils available

Weight: 90 grams

Designed and built in accordance with MIL-PRF-6106

Rated for altitude up to 300,000 ft.

Available with optional terminals and mounting styles
# PERFORMANCE DATA

## Specifications

### Contact Data

<table>
<thead>
<tr>
<th>Contact Form</th>
<th>Type of Load</th>
<th>Life (Min.)</th>
<th>115 Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCA-150: 1 Form X (SPST-NO-DM)</td>
<td>Resistive</td>
<td>50,000</td>
<td>50</td>
</tr>
<tr>
<td>FCAC-150: 1 Form X (SPST-NO-DM) with 1 Form C (SPDT) Auxiliary Contacts</td>
<td>Inductive (L/R=5ms)</td>
<td>20,000</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Motor</td>
<td>20,000</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>100,000</td>
<td>–</td>
</tr>
</tbody>
</table>

### Overload Current (Resistive)

- **200 A, 50 cycles**

### Max. Contact Drop at 10A

- **Initial 150mV; After Life 175mV**

### Operate Time at Nominal Voltage

- **15ms**

### Release Time

- **15ms**

### Bounce Time

- **1ms**

## Coil Data

<table>
<thead>
<tr>
<th>Coil Code</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Operating Voltage (Vdc)</td>
<td>6</td>
<td>12</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Maximum Operating Voltage (Vdc)</td>
<td>7.3</td>
<td>14.5</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Maximum Pick-Up Voltage at +125°C</td>
<td>4.5</td>
<td>9</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Maximum Pick-Up Voltage at +125°C, continuous current test (Vdc)</td>
<td>5.7</td>
<td>11.25</td>
<td>22.5</td>
<td>22.5</td>
</tr>
<tr>
<td>Drop-Out Voltage at +125°C</td>
<td>0.3 – 2.5</td>
<td>0.75 – 4.5</td>
<td>1.5 – 7.0</td>
<td>1.5 – 7.0</td>
</tr>
<tr>
<td>Maximum Coil Current at +25°C (mA)</td>
<td>.5</td>
<td>.26</td>
<td>.15</td>
<td>.15</td>
</tr>
<tr>
<td>Back EMF Suppressed to (Vdc)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>-42</td>
</tr>
<tr>
<td>Coil Resistance</td>
<td>18Ω</td>
<td>70Ω</td>
<td>290Ω</td>
<td>290Ω</td>
</tr>
</tbody>
</table>

## Electrical Data

### Initial Insulation Resistance (note 1)

- **100 megohms, minimum, at 500Vdc, between each pin and case**

### Insulation Resistance After Life or Environmental Test (note 1)

- **50 megohms, minimum, at 500Vdc, between each pin and case**

### Dielectric Strength At Sea Level

- **Contacts to Ground and Between Contacts**: 1,250Vrms, 60 Hz.
- **Coil to Ground**: 1,000Vrms, 60 Hz.

### Dielectric Strength at 80,000 ft (25,000m), All Points (note 4)

- **500Vrms, 60 Hz**

## Environmental Data

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

## Mechanical Data

- **Approximate Weight**: 3.2 oz. (90g) Max.

## NOTES

1. All wired terminals must be connected together during this test. Dielectric withstanding voltage and insulation resistance are measured between all mutually insulated wired terminals and between all these terminals and case.
**CODE “B”**

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

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

**CODE “C”**

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

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

**Terminal Wiring**

**DC Coils**  
FCA-150  
FCAC-150

**DC Coils w/Transient Suppression**  
FCA-150  
FCAC-150
PRODUCT OUTLINE DIMENSIONS

The standard terminal types and enclosures are illustrated below with dimensions in inches ± 0.010 and (millimeters ±0.25). FCA-150 representative drawings are shown below.