

CII FCA-150 and FCAC-150 Series Relays

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

Downloaded from Arrow.com.

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

Get your product to market faster with a smarter, better solution.

Downloaded from Arrow.com.

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_{rms}, 60 Hz
  - Coil to Ground: 1000 V_{rms}, 60 Hz
  - Dielectric Strength at 80,000 ft (25,000 m): 500 V_{rms}, 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 Supression	N/A	N/A	N/A	to -42 VDC
Coil Resistance (Ω)	18	70	290	290

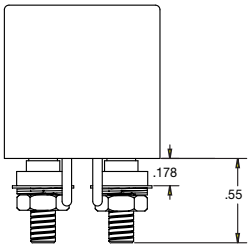
Downloaded from Arrow.com.

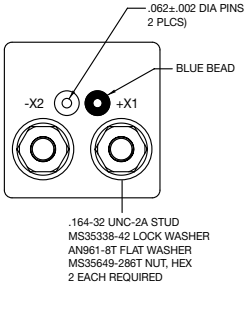
Terminals

CODE "B"

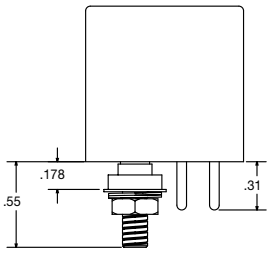
Solder Pin Terminals — Tin/Lead Plated

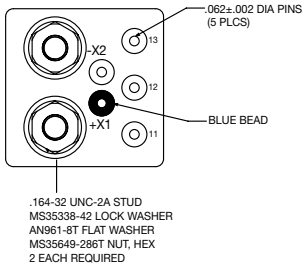
FCA-150





FCAC-150

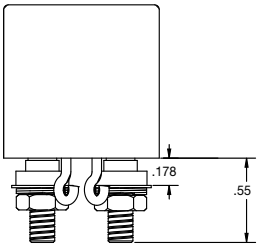


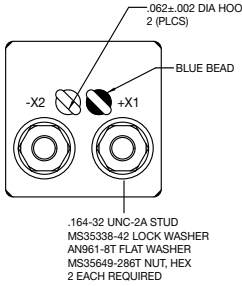


CODE "C"

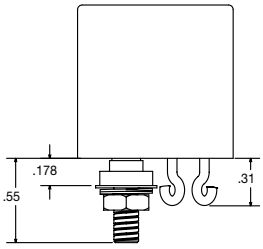
Solder Hook Terminals — Tin/Lead Plated

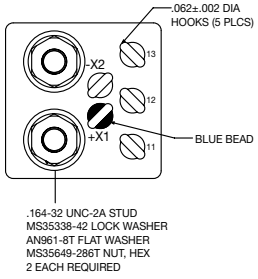
FCA-150





FCAC-150

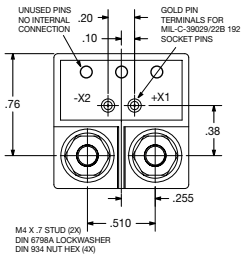




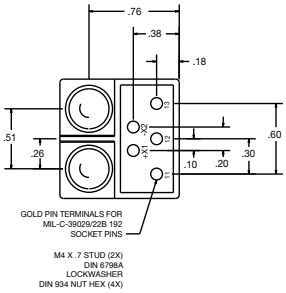
CODE "K"

Terminal Shield

FCA-150

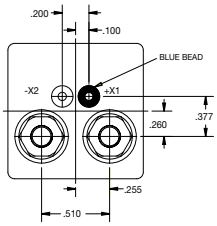


FCAC-150

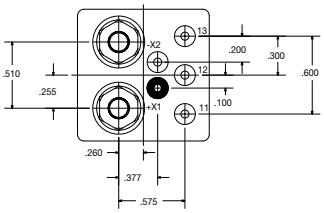


Terminal View

FCA-150



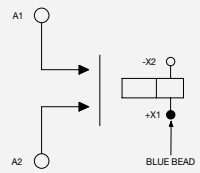
FCAC-150



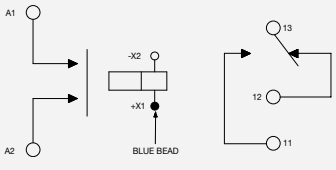
Terminal Wiring

DC Coils

FCA-150

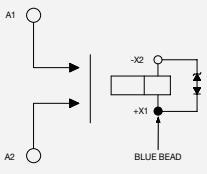


FCAC-150

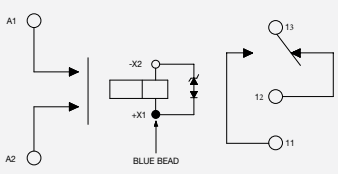


DC Coils with Transient Suppression

FCA-150



FCAC-150

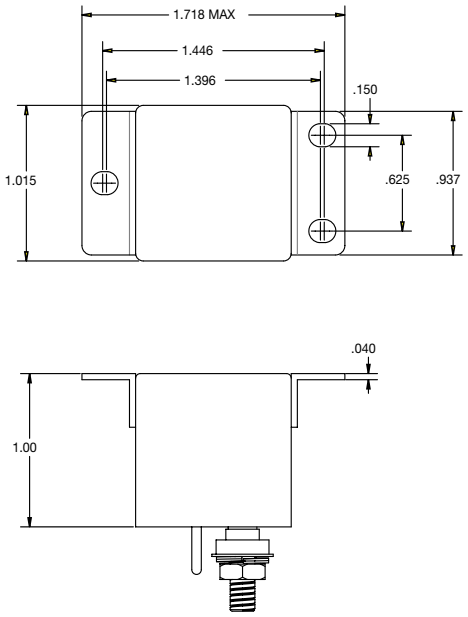


Downloaded from Arrow.com.

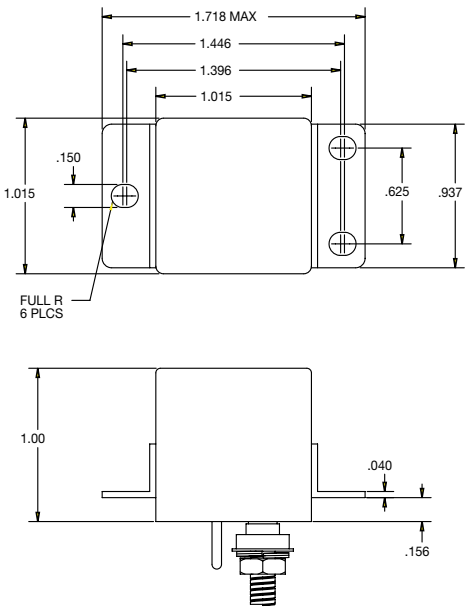
Product Outline Dimensions

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

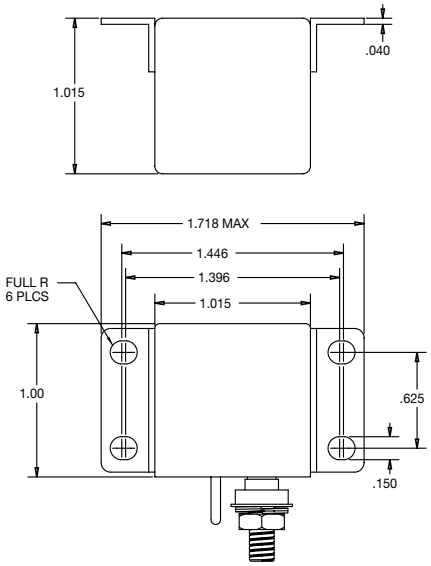
CODE "U"



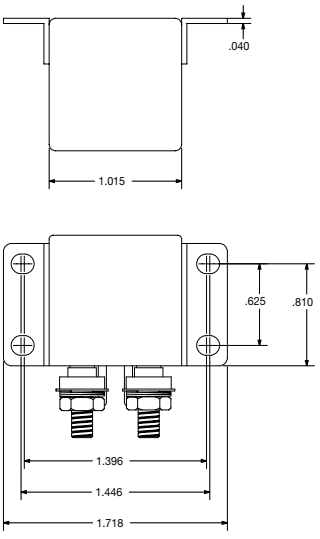
CODE "Y"



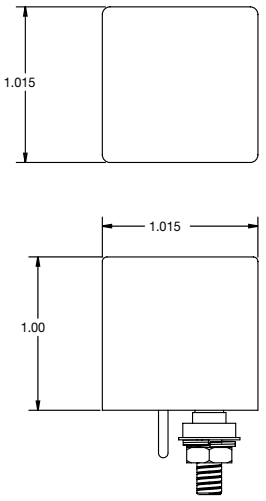
CODE "X"



CODE "R"



CODE "Z"



Downloaded from Arrow.com.

LET'S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need. Just call your local support number or visit www.te.com/industrial to chat with a Product Information Specialist.

Technical Support

te.com/support-center

North America	+1 800 522 6752	Asia Pacific	+86 400 820 6015
North America (Toll)	+1 717 986 7777	Japan	+81 044 844 8180
EMEA/South Africa	+800 0440 5100	Australia	+61 2 9554 2695
EMEA (Toll)	+31 73 624 6999	New Zealand	+64 (0) 9 634 4580
India (Toll-Free)	+800 440 5100		

te.com/ADM/Relays

AMP, AGASTAT, CII, DEUTSCH, HARTMAN, KILOVAC, LL ROWE, MICRODOT, NANONICS, POLAMCO, Raychem, SEACON, TE, TE Connectivity and the TE connectivity (logo) are trademarks of the TE Connectivity Ltd. family of companies. Other products, logos, and company names mentioned herein may be trademarks of their respective owners.

While TE Connectivity (TE) has made every reasonable effort to ensure the accuracy of the information herein, nothing herein constitutes any guarantee that such information is error-free, or any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. The TE entity issuing this publication reserves the right to make any adjustments to the information contained herein at any time without notice. All implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose are expressly disclaimed. The dimensions herein are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice.

Consult TE for the latest dimensions and design specifications.

© 2016 TE Connectivity Ltd. family of companies All Rights Reserved.

5-1773453-6 12/16

Downloaded from Arrow.com.