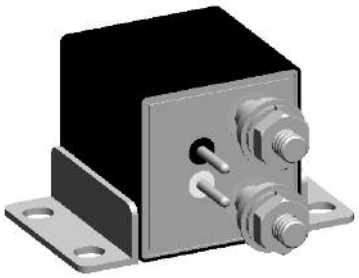
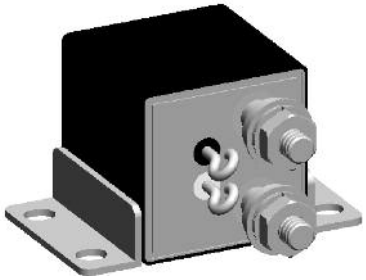
FCA-150 Series, 50 Amps, 1PST/NO (DM) Relay

Product Facts

- **Non-latching relay**
- **Balanced force design**
- **Corrosion protected metal enclosure**
- **All welded hermetically sealed enclosure occupies about 1 in³ (16.4 cm³)**
- **1 Form X (SPST-NO-DM)**
- **6, 12 and 28 Vdc coils**
- **Weight: 90 grams**
- **Designed and built in accordance to MIL-PRF-6106**





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.

1 Form X (SPST-NO-DM) configuration with main contacts rated 50 Amps.

Specifications

Contact Data				
Contact Form	1 Form X (SPST-NO-DM)			
Contact Rating in Amps (Continuous Duty)				
	Type of Load	Life (Min.) Cycles	28 Vdc	
	Resistive	50,000	50	
	Inductive (L/R=5ms)	20,000	20	
	Motor	20,000	20	
	None	100,000	–	
Overload Current (Resistive)	200 A, 50 cycles			
Max. Contact Drop at 10A	Initial 30mV; After Life 175mV			
Operate Time at Nominal Voltage	15ms			
Release Time	15ms			
Bounce Time	1ms			
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 at OTR	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 Suppressed to (Vdc) (Max)	N/A	N/A	N/A	-42
Coil Resistance ±10%	18Ω	70Ω	290Ω	290Ω

Catalog 5-1773450-5
Revised 3-13

www.te.com

Dimensions are shown for reference purposes only. Specifications subject to change.

Dimensions are in millimeters unless otherwise specified.

USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

For additional support numbers please visit www.te.com

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

Specifications

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.

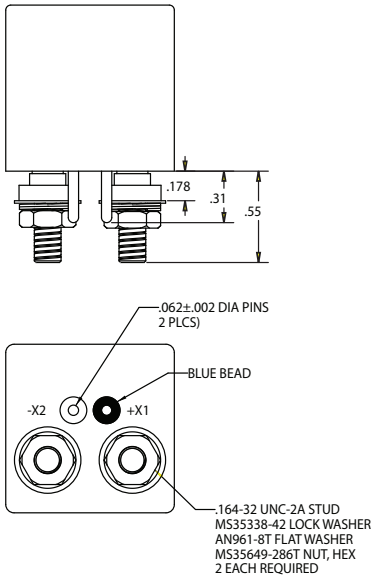
NOTES

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.

Terminals

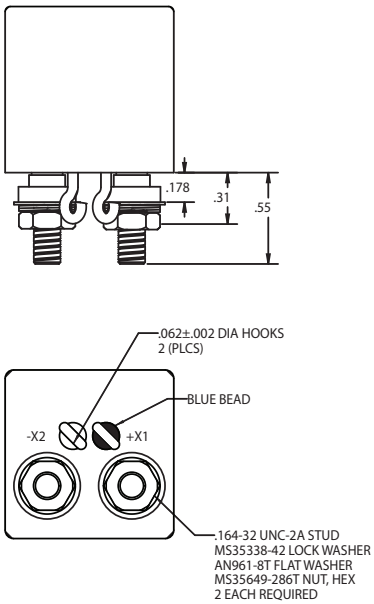
CODE "B"

Solder Pin Terminals
Tin/Lead Plated



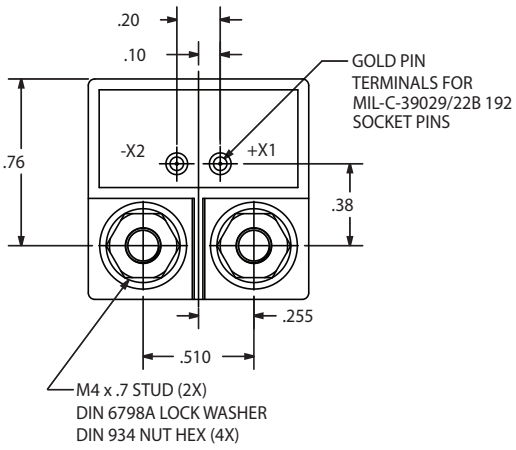
CODE "C"

Solder Hook Terminals
Tin/Lead Plated



CODE "K"

Terminal Shield



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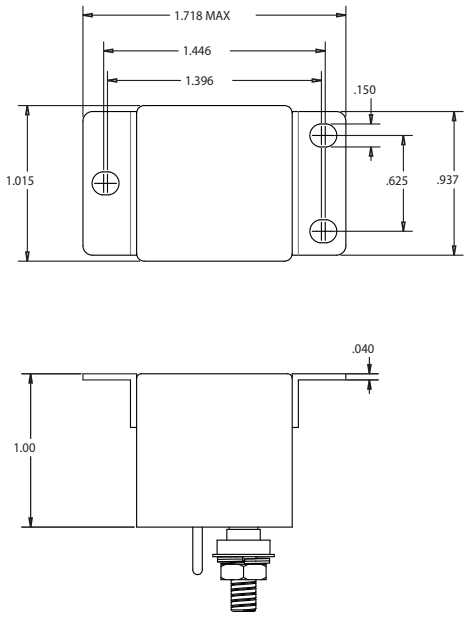
FCA-150 Series, 50 Amps, 1PST/NO (DM) Relay (Continued)

Outline Dimensions

The standard terminal types and enclosures are illustrated below with dimensions in inches ± 0.010 and (millimeters ±0.25).

Enclosures

CODE "U"



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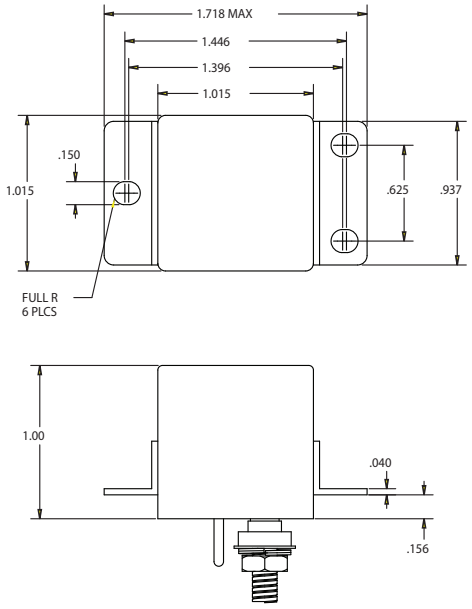

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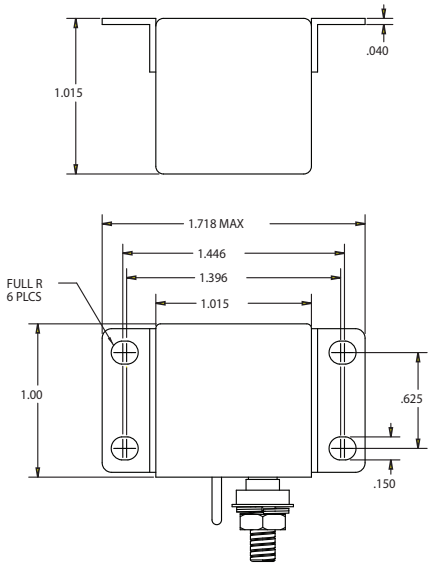
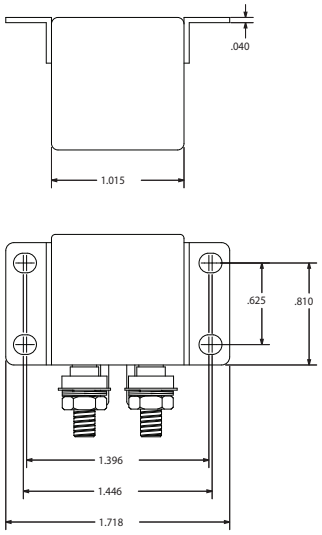
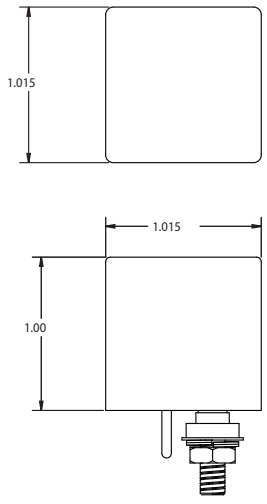


CODE "R"



CODE "Z"



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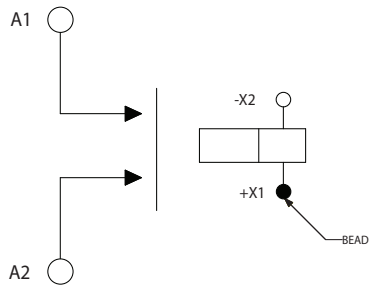
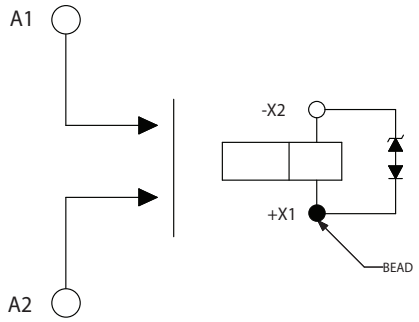
FCA-150 Series, 50 Amps, 1PST/NO (DM) Relay (Continued)

Terminal Wiring

DC Coils



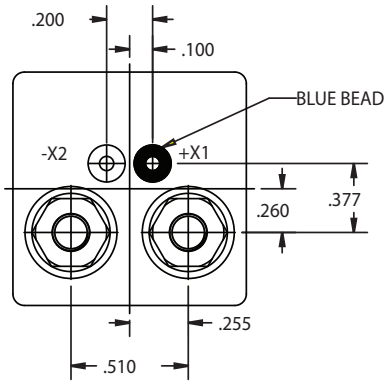
DC Coils with Transient Suppression



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.



TERMINAL VIEW

How to Order

Typical Part Number	FCA-150	-A	Y	3

Series and Contact Arrangement:
FCA-150 = Relay with 1 Form X Main 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
Y = Raised Vertical Flange Mount
U = Flush Vertical Flange Mount
Z = No Mount
X = Horizontal Flange Mount

Coil:
1 = 6Vdc nominal
2 = 12Vdc nominal
3 = 28Vdc nominal
4 = 28Vdc nominal, with back EMF suppression

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Revised 3-13

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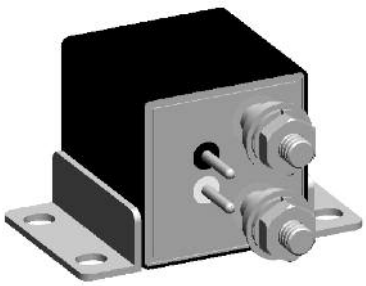
UK: +44 800 267 666

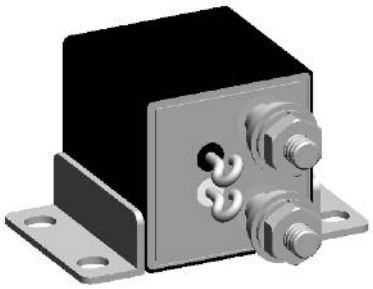
For additional support numbers please visit www.te.com

FCA-150NC Series, 50 Amps, 1PST/NC (DB) Relay

Product Facts

- **Non latching hermetically sealed relay**
- **Balanced force design**
- **Hermetically sealed, corrosion protected metal can**
- **All welded construction**
- **6, 12 and 28Vdc coils available.**
- **Weight 90 grams**
- **Designed and built in accordance to MIL-PRF-6106**





Specifications

General Characteristics				
Temperature range			-70° C to +125° C	
Altitude			300,000 feet	
Dielectric strength at sea level - Contacts to ground and between contacts - Coil to ground			 1250 Vrms / 60 Hz 1000 Vrms / 60 Hz	
Dielectric strength at altitude 25000 m (80,000 ft) (all points)			500 Vrms / 60 Hz	
Initial insulation resistance at 500 Vdc			100 MΩ min.	
Initial insulation after life or environmental test			50 MΩ min.	
Sinusoidal vibration			20g / 75 to 3000 Hz	
Shock			50g / 11 ms	
Operate time at nominal voltage			15 ms max.	
Release time			15 ms max.	
Bounce time			1 ms max.	
Contact voltage drop at nominal current -initial value -after life			 150 mV max. 175 mV max.	
Coil Data				
Coil Code	1	2	3	4(A)
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 at OTR	0.3 – 2.5	0.75 – 4.5	1.5 – 7.0	1.5 – 7.0
Maximum Coil Current at +25°C (mA)	.50	.26	.15	.15
Back EMF Suppressed to (Vdc)	N/A	N/A	N/A	-42
Coil Resistance	18Ω	70Ω	290Ω	290Ω

For other coil voltages, consult factory.

Catalog 5-1773450-5
Revised 3-13

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FCA-150NC Series, 50 Amps, 1PST/NC (DB) Relay (Continued)

Contact Electrical Characteristics

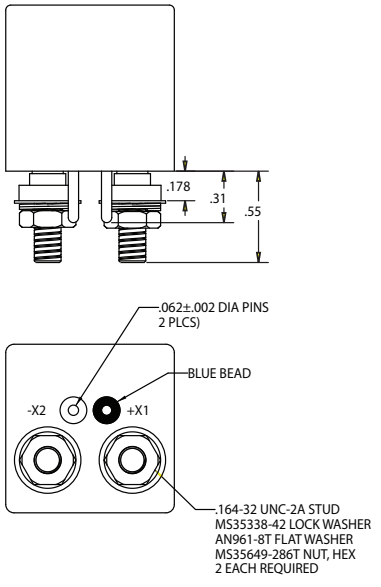
Contact Type	Rated Current	Rated Voltage
Main Contact	50A	28Vdc
Minimum Operating cycles	**Contact rating per pole and load type MAIN Contact**	**Load Currents in Amps**
50,000 cycles	Resistive load	50
20,000 cycles	Inductive load (L/R=5ms)	20
20,000 cycles	Motor load	20
50 cycles	Resistive overload	200
100,000 cycles	No Load	

All endurance ratings are subject to validation - consult factory

Terminals

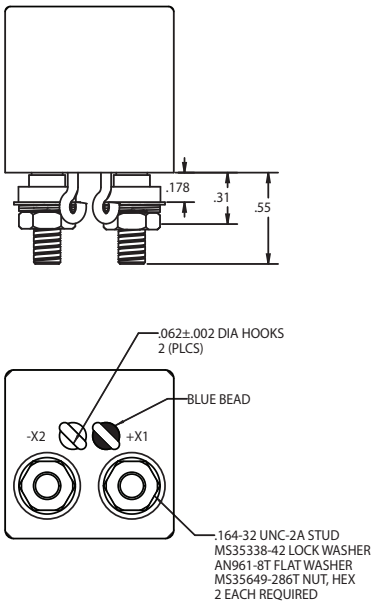
CODE "B"

Solder Pin Terminals
Tin/Lead Plated



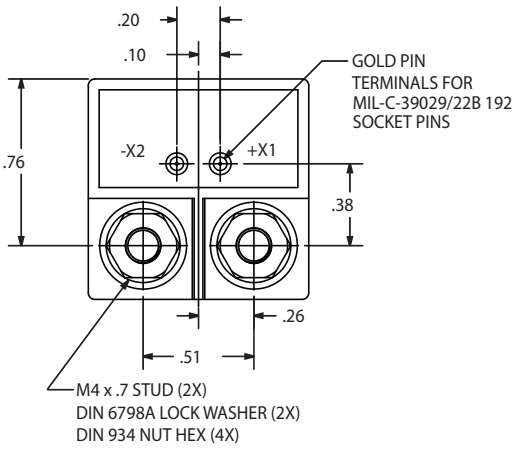
CODE "C"

Solder Hook Terminals
Tin/Lead Plated



CODE "K"

Terminal Shield



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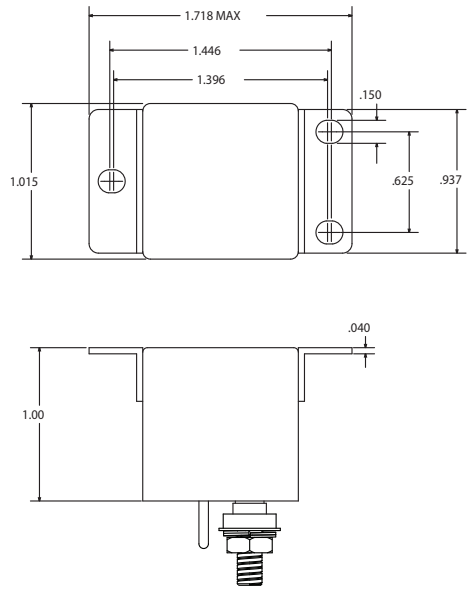
FCA-150NC Series, 50 Amps, 1PST/NC (DB) Relay (Continued)

Outline Dimensions

The standard terminal types and enclosures are illustrated below with dimensions in inches ± 0.010 and (millimeters ±0.25).

Enclosures

CODE "U"



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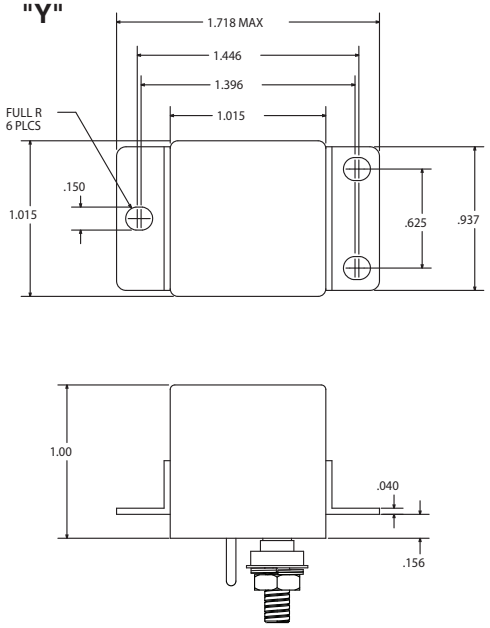

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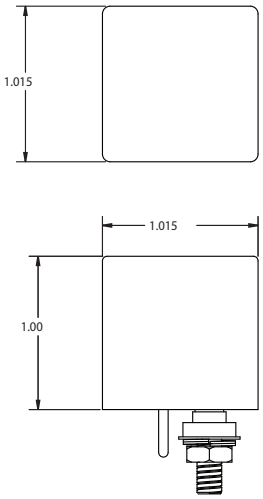

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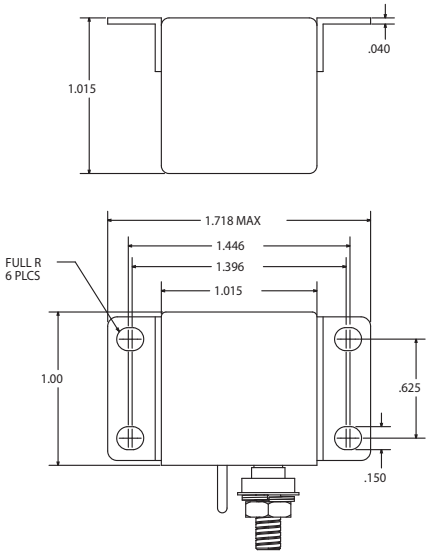

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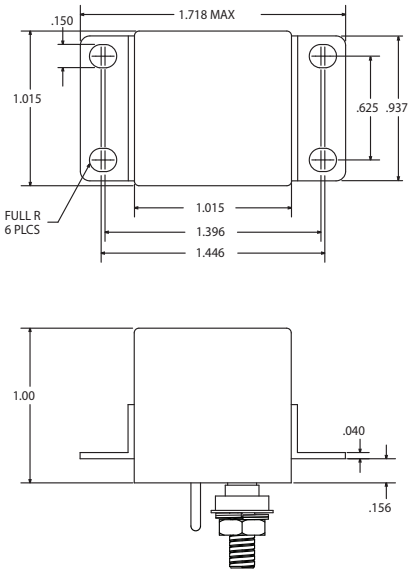

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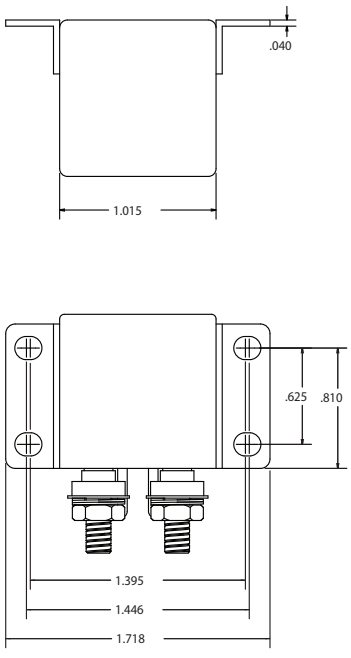

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Revised 3-13

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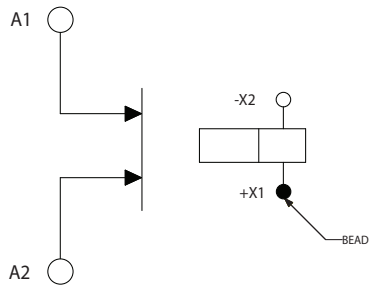
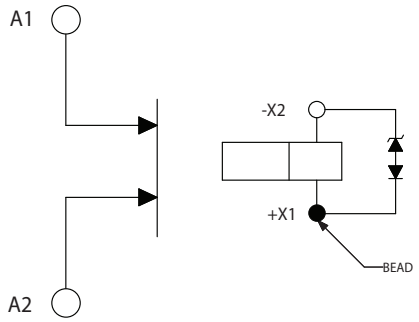
FCA-150NC Series, 50 Amps, 1PST/NC (DB) Relay (Continued)

Terminal Wiring

DC Coils



DC Coils with Transient Suppression



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.

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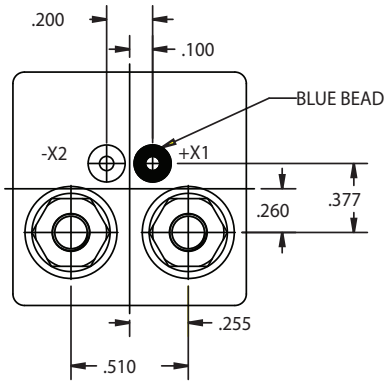

TERMINAL VIEW

PART NUMBERING SYSTEM

FCA - 150NC	B	Y	4

RELAY TYPE

TERMINALS

ENCLOSURE

COIL

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