

# FC-3RLY4 Analog Input, 4-Relay, Limit Alarm Module

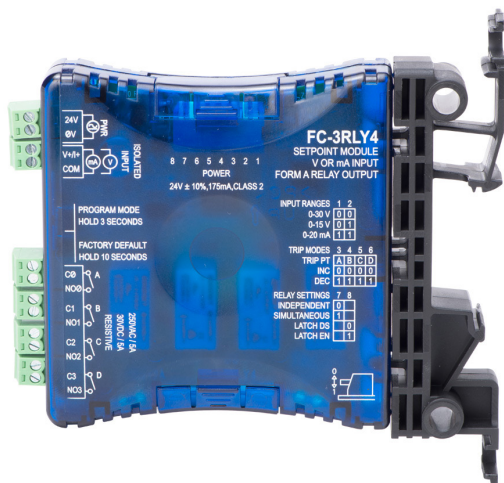
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CE cULus UL file E157382

## Overview

This is an Analog to Relay Limit Alarm module that is field configurable for a variety of alarm and control applications. The FC-3RLY4 can be powered by 24VAC or 24VDC and accept input signals of 0-15V, 0-30V, or 0-20mA. Configuration and Trip/Release Point programming is accomplished with DIP switches, and a single PGM-pushbutton. LED's provide an indication of operating status and are used during the Trip/Release Point programming. The module can be 35mm DIN rail or side mounted.



## Specifications

### Input Specifications

<b>Number of Inputs and Type</b>	(1) Single Ended, (1) Common
<b>Input Ranges</b>	0-15VDC, 0-30VDC, 0-20mA (DIP Switch Selectable)
<b>Input Impedance</b>	100K $\Omega$ voltage input / 250 Ohms current input
<b>External DC Power Required</b>	24VAC or 24VDC @ 100mA $\pm$ 10%
<b>Low-pass Filtering</b>	-3dB at 100Hz, (-6dB per octave)
<b>Set/Release Point Voltage Repeatability</b>	0.05% of full scale Voltage range (Constant temperature)
<b>Set/Release Point Current Repeatability</b>	0.1% of full scale Current range (Constant temperature)

### Output Specifications

<b>Relay Contacts</b>	4 SPST, Form A, non-latching
<b>Current Contact Rating</b>	250VAC @ 5A, 30VDC @ 5A (Resistive Load) 380VAC Max., 30VDC Max.
<b>Relay Operation</b>	DIP Switch selectable
<b>Relay Trip Point Setting</b>	Program Mode enabled by pushbutton
<b>Relay Release Point Setting</b>	
<b>Relay Dead-band = Trip Point <math>\pm</math> Release Point</b>	0-15 VDC Range: 1.0% minimum deadband (150mV) 0-30 VDC Range: 1.0% minimum deadband (300mV) 0-20 mA Range: 3.0% minimum deadband (600 $\mu$ A)

### Terminal Block Specifications

<b>Field Wiring</b>	Removable Screw Type Terminal Blocks, (included)
<b>Number of Positions</b>	(6) Two Position (Dinkle: EC350V-02P)
<b>Wire Range</b>	28-14 AWG solid or stranded conductor; wire strip length 1/4" (6-7mm)
<b>Screw Torque</b>	1.7 inch-pounds (0.19 Nm)

### General Specifications

<b>Surrounding Air Temperature</b>	0 to 60°C (32 to 140°F) IEC 60068-2-14 (Test Nb, Thermal Shock)
<b>Storage Temperature</b>	-20 to 70°C (-4 to 158°F) IEC 60068-2-1 (Test Ab, Cold) IEC 60068-2-2 (Test Bb, Dry Heat) IEC 60068-2-14 (Test Na, Thermal Shock)
<b>Humidity</b>	5 to 95% (non-condensing) IEC 60068-2-30 (Test Db, Damp Heat)
<b>Environmental Air</b>	No corrosive gases permitted (EN61131-2 pollution degree 1)
<b>Vibration</b>	MIL STD 810C 514.2 IEC 60068-2-6 (Test Fc)
<b>Shock</b>	MIL STD 810C 516.2 IEC 60068-2-27 (Test Ea)
<b>Insulation Resistance</b>	>10M $\Omega$ @ 500VDC
<b>Noise Immunity</b>	NEMA ICS3-304 IEC 61000-4-2 (ESD) Impulse 1000 V @ 1 $\mu$ S pulse IEC 61000-4-4 (FTB) RFI, (145 MHz, 440 MHz 5W @ 15 cm) IEC 61000-4-3 (RFI)
<b>Weight</b>	0.3lbs
<b>Isolation</b>	1800VDC Power to Output 1800VDC Input to Output applied for 1 second (100% tested)
<b>Agency Approvals</b>	UL508**, File Number: E157382, CE

\* The 0V and COM terminals should be considered the same reference point. There is no isolation between the External Power and Input Terminal blocks.

\*\* In order to comply with UL508, the supplied power must be less than 26VDC and fused at a maximum of 3 amps.

# FC-3RLY4 Modes of Operation

## Independent and Simultaneous Relay Control Modes

### Independent Relay Control Mode

- Relays A, B, C and D are controlled with independent Trip Points and Release Points for each relay. All relays can be independently set to operate in Increasing or Decreasing mode (see next section). This mode can be used to control multiple loads in sequence, or monitor for multilevel alarm conditions.

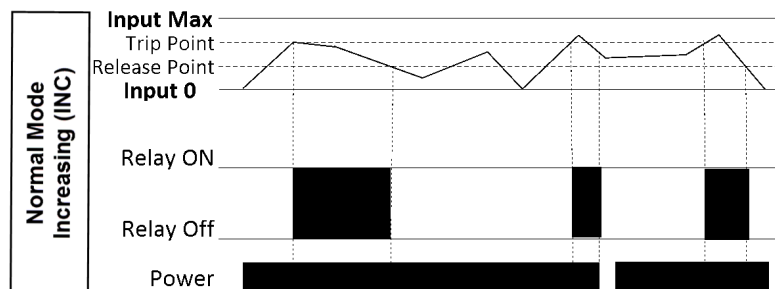
### Simultaneous Relay Control Mode

- Relays A and B operate simultaneously, both controlled by Trip Point A and Release Point A settings. Both relays operate in Increasing or Decreasing mode (see next section).
- Relays C and D operate simultaneously, both controlled by Trip Point B and Release Point B settings. Both relays operate in Increasing or Decreasing mode (see next section).
- This mode can be used where it is desired to have two relays controlled by common Trip and Release Points such as using one relay for local alarm indication with a horn or strobe and the other relay for remote alarm monitoring by a PLC.

## Relay Trip Point / Release Point Control Modes

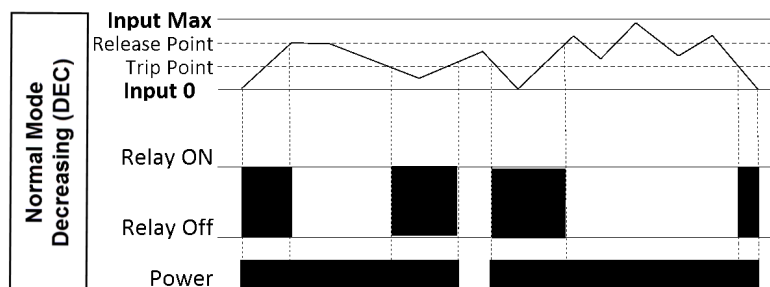
### Increasing (INC) Mode

The relay will turn ON when the input signal increases to the programmed Trip Point. The relay will remain ON until the input signal decreases below the Release Point. In INC mode, the Trip Point must always be greater than the Release Point ( $TP > RP$ ).



### Decreasing (DEC) Mode

The relay will turn on when the input signal decreases below the programmed trip point. The relay will remain on until the input signal increases above the release point. In DEC mode, the Trip Point must always be less than the release point ( $TP < RP$ ).

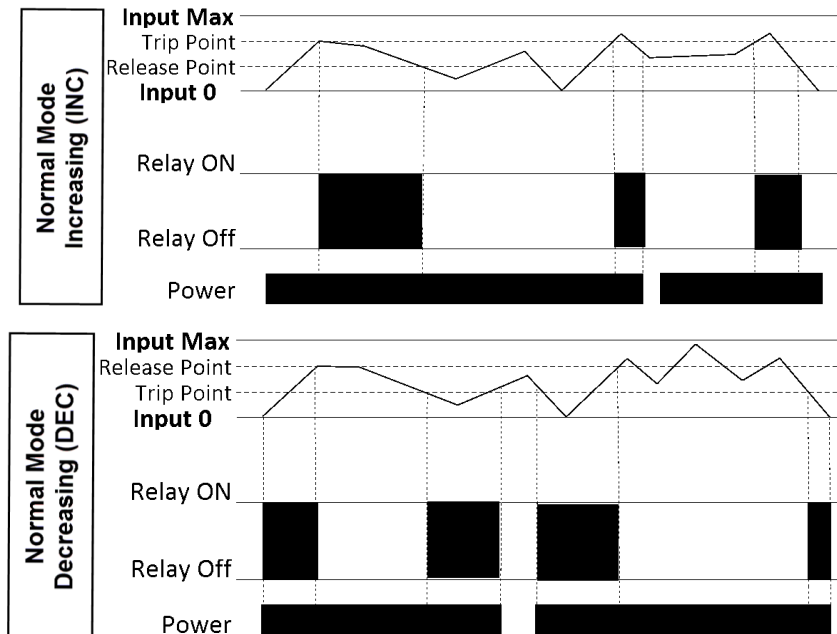


# FC-3RLY4 Modes of Operation (continued)

## Non-Latching and Latching Relay Control Modes

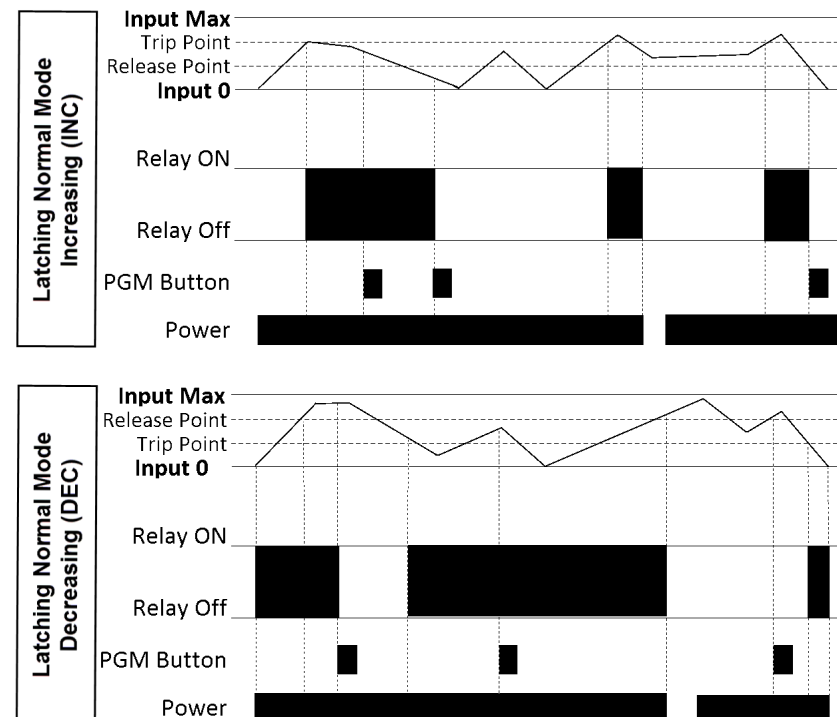
### Non-Latching Relay Control Mode

All relays operate automatically at the Trip and Release Point settings.



### Latching Relay Control Mode

All relays operate automatically at the Latch Trip Point settings and remain electrically latched until the input signal reaches the Manual Release Point, at which time the FC-3RLY4 relays can be manually reset by pressing the PGM-pushbutton as shown in the following diagrams.

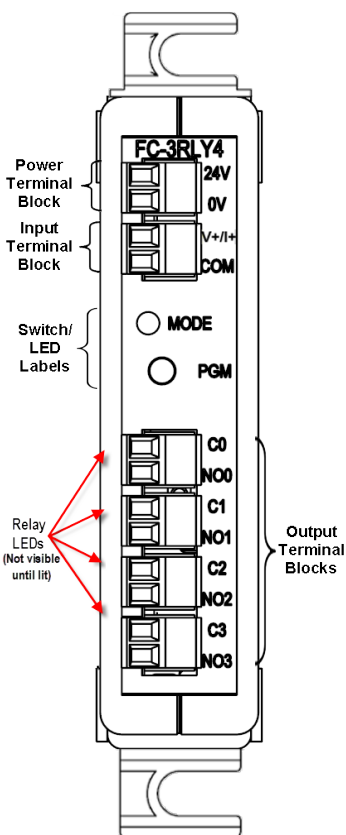


# FC-3RLY4 Dimensions

## Wiring Connections

Power Terminal Block	
Faceplate Label	Description
24V	24VAC/VDC $\pm 10\%$ (Class 2)
0V	0V

Input Terminal Block	
Faceplate Label	Description
V+ / I+	Voltage + / Current In
COM	Input Common

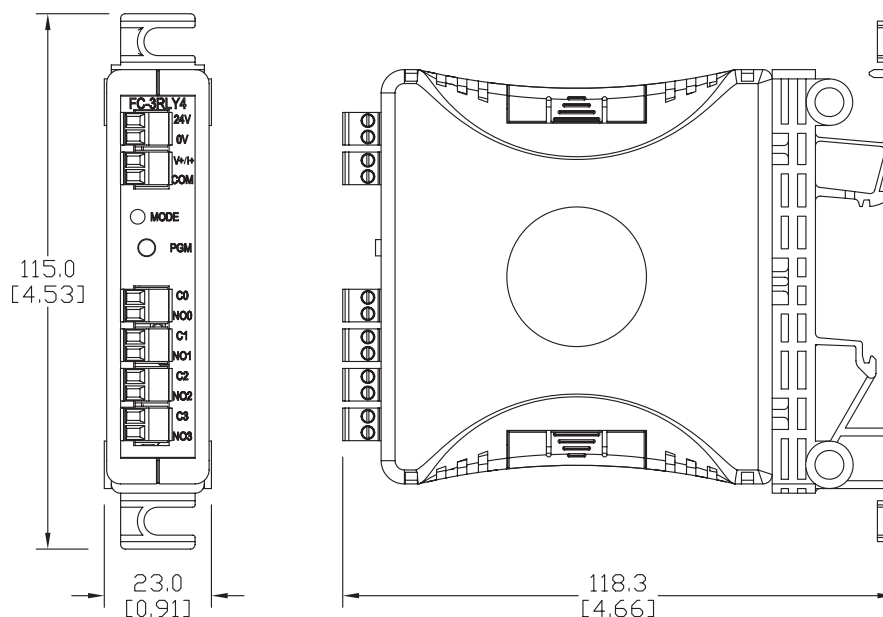


Switch/LED Labels	
Faceplate Label	Description
MODE	Diagnostic LED flashing indication
PGM	Pushbutton switch input to initiate programming, etc.

Output Terminal Block	
Faceplate Label	Description
C0/NO0	Common # / Normally Open #
C1/NO1	
C2/NO2	
C3/NO3	

## Dimensions

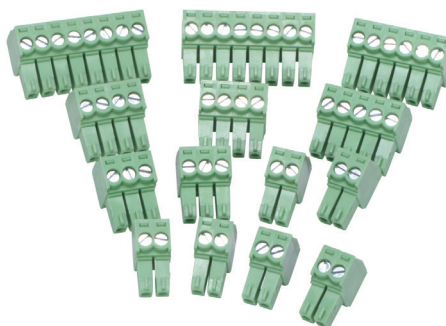
mm [inches]



# FC Series Accessories



FC-5MM



FC-35MM

## Description

Universal terminal block replacements for the FC Series signal conditioners. Each package includes enough terminal blocks to replace all the terminal blocks on any FC Series signal conditioner according to the following table:

FC Series Terminal Blocks		
FC Series Model	Terminal Block Replacement Part Number	Package Includes
<a href="#"><u>FC-11</u></a>	FC-5MM	(2) 2-pole blocks (2) 3-pole blocks (1) 4-pole blocks
<a href="#"><u>FC-33</u></a>		
<a href="#"><u>FC-R1</u></a>		
<a href="#"><u>FC-T1</u></a>		
<a href="#"><u>FC-ISO-C</u></a>	FC-35MM	(6) 2-pole blocks (2) 3-pole blocks (2) 4-pole blocks (1) 5-pole blocks (1) 6-pole blocks (2) 8-pole blocks
<a href="#"><u>FC-ISO-D</u></a>		
<a href="#"><u>FC-B34</u></a>		
<a href="#"><u>FC-35B</u></a>		
<a href="#"><u>FC-P3</u></a>		
<a href="#"><u>FC-3RLY2</u></a>		
<a href="#"><u>FC-3RLY4</u></a>		

*Note: Depending on the model, some terminal blocks in the package may be unused.*

Universal Signal Conditioners				
Part No.	Description	Rated Torque (N·m)	Weight (Lbs)	Price
<a href="#"><u>FC-5MM</u></a>	Terminal block, replacement, 5mm. Package of 5. For use with FC Series signal conditioners.	0.5	0.1	\$10hd:
<a href="#"><u>FC-35MM</u></a>	Terminal block, replacement, 3.5mm. Package of 14. For use with FC Series signal conditioners.	0.2	0.1	\$10hc: