

SC-FI Series

Frequency to Current Signal Conditioner

Features

- Magnetic Pickup or Contact Closure Input
- Optically Isolated Input
- 10 kHz Maximum Input Frequency
- Standard, 2-Wire, 4-20 mA Output
- Two Year Warranty
- Loop Powered
- Various Mounting Styles
- LED Indicator

Description:

The SC-FI is a two wire frequency to analog converter that converts a pulse rate input into a 4-20 mA output signal proportional to frequency or rate.

The input pulse rate is amplified and filtered by the input signal conditioning circuitry. Two forms of input signal conditioning are provided, one for magnetic pickups or contact closure inputs and the other is an isolated pulse input (depending on order code).

The amplified frequency signal is then converted to an analog signal using a precision frequency to analog converter.

The output stage derives its power from the output current loop. The output stage converts the analog input signal into the desired output range. Multi-turn potentiometers provide for the necessary trimming of span and zero.

Specifications:

Operating Temperature

32° F (0°C) to 158°F (70°C)

High Level Pulse Input

Type: Opto-Isolated
Input Impedance: 3.3 k
Logic 1: 4-30 VDC
Logic 0: 0-1 VDC
Frequency Range: 0-10 kHz
Fault Protection: Reverse Polarity Protection
Over Voltage Protection
Isolation Voltage: 500 V
Fast Transient Immunity: 500 V
Maximum Rise Time: No Limit
Maximum Fall Time: No Limit

Magnetic Pickup Input

Differential Input
Input Impedance: 10 k
Frequency Response: 0-3500 Hz
Trigger Sensitivity: 30 mV p-p
Over Voltage Protection: ± 30 VDC

Contact Closure Input

Sensor Compatibility- Requires an isolated, contact closure
Maximum Contact Voltage- 5 V
Maximum Contact Current- 0.12 mA
Nominal Pullup Resistance - 47 Kohm to 5 Vdc Frequency
Range - 0-100 Hz



Frequency to Current Conversion

Range Selection: DIP Switch Selectable

Available Ranges:

Standard

150 Hz, 300 Hz, 600 Hz, 1200 Hz,
2500 Hz, 5000 Hz, 10,000 Hz

Factory Default:

1000 Hz

Contact Closure Option

30 Hz, 60 Hz, 120 Hz, 240 Hz,
480 Hz, 960 Hz, 1920 Hz

Factory Default:

100 Hz

Analog Output

Accuracy: $\pm 0.1\%$ Span (@ 20° C)
Output Type: Two Wire, Loop Powered
Range: 4-20 mA
Compliance Voltage: 10 to 40 VDC
Loop Burden: < 10 VDC
Trim Controls: Zero & Span, non-interacting
Span (20 mA) Trim Range: 50% to 100% of full scale
Linearity: $< \pm 0.1\%$ Span
Output Voltage Effect: $< \pm 0.002\%$ Span/Volt
Temperature Effect: < 200 PPM/C°
Reverse Polarity Protected
Noise Content: $< 0.2\%$ Span
Response Time: 0.1 second (1 sec. jumper selectable)
Overcurrent Limiting: 35 mA
Output Loop Indicator: LED illuminates when output loop is powered by proper polarity and blinks proportionally to the input frequency.

Mounting Styles

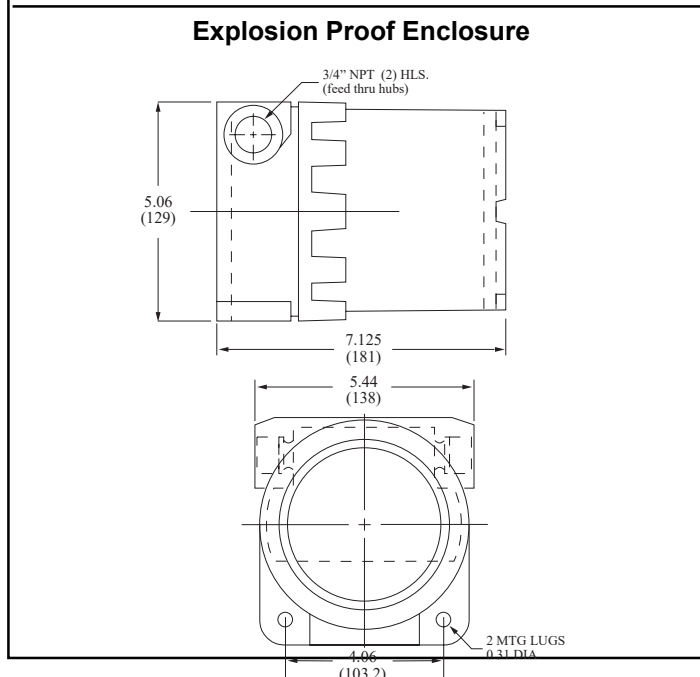
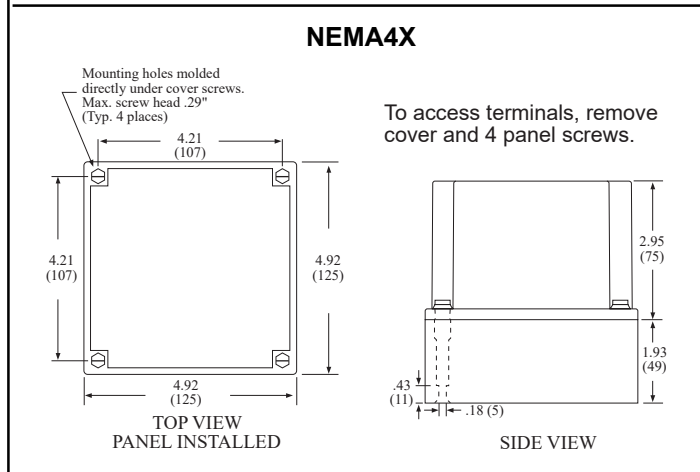
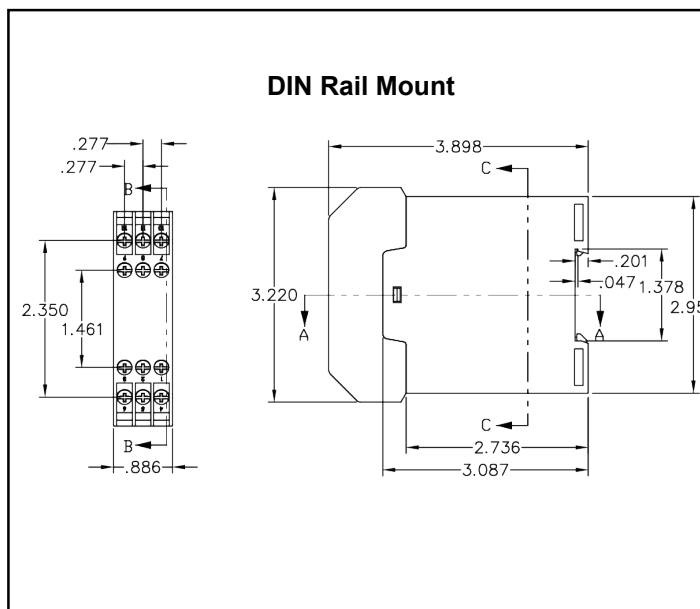
DIN Rail Mount: Plastic enclosure with a snap fastener for fitting to DIN 46 277 and DIN EN 50 022 assembly rails.

NEMA 4X: 4.92" x 4.92" NEMA 4X Enclosure for wall mounting.

Explosion Proof: Aluminum enclosure for:
Class I, Division 1, Groups B, C & D
Class II, Division I, Groups E, F & G.

Listing: CE Compliant

Dimensions



Terminal Designations

Standard

Termination

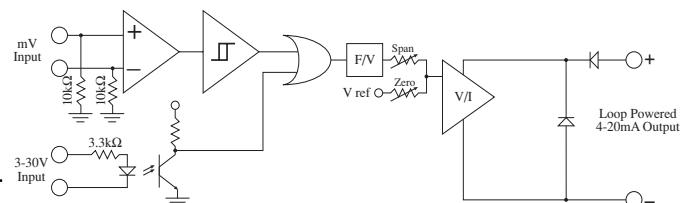
- 1• Magnetic pickup
- 2• Magnetic pickup
- 3• Shield (common)
- 4• Opto-isolator In +
- 5• Opto-isolator In -
- 6• Shield (common)
- 7• Output +
- 8• Output -
- 9• Do Not Use

SCFI-X-L (low count speed)

Termination

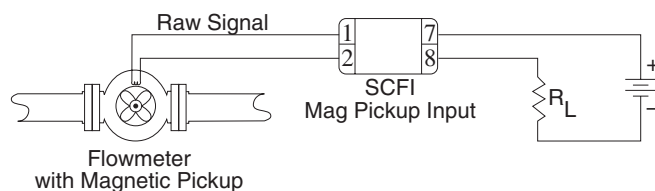
- 1• Do Not Use
- 2• Contact Closure In
- 3• Contact Closure In
- 4• Opto-isolator In +
- 5• Opto-isolator In -
- 6• Shield (common)
- 7• Output +
- 8• Output -
- 9• Do Not Use

Simplified Block Diagram



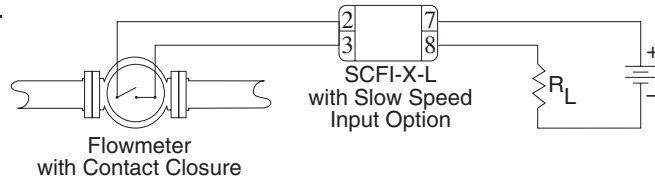
Typical Application

Magnetic Pickup Input



Typical Application

Contact Closure Input



Ordering Information

Example **SC-FI** **D** **ET**

Series

FI = Frequency to Current

Mounting:

B = Nema 4X

C = Explosion Proof

D = DIN Rail

Options:

ET = Extended Temp: -4° to 185°F (-20° to 85° C)

L = Low Count Speed for Contact Closure Inputs

T = Third 3/4" conduit entry for Explosion Proof Housing

H2 = 0.875" Hole for NEMA4 mounting style

HF2 = 0.5" Female NPT Hub fitting

H3 = 1.125" Hole for NEMA4 mounting style

HF3 = 0.75" Female NPT Hub fitting

Accessories: (add to end of part number)

DR-4 = 4" DIN Rail