SPECTEC
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IS4027 Bulletin
Frequency to Current Converter
Intrinsically Safe
1.42" & 2.25" Diameter

PRODUCT DESCRIPTION
SPECTEC's Intrinsically Safe frequency to current converter and preamplifier for passive magnetic VRS sensors is designed for installation in hazardous locations. The 'ELBY' housing type will fit in ELBY50 and ELBY75 explosion proof junction boxes. The 'A' housing type will fit in a GAUL-16 or similar standard explosion proof junction box.

INSTALLATION
CAUTION: This sensor MUST be installed with an FM approved barrier and following the details specified in the Installation Instruction Document #85049.

SPECIFICATIONS
Supply Voltage: 9 to 30 Vdc @ ≤ 4 mA

Input Sensitivity: 50 mVpp or 12 mVpp

Frequency Range Adjustment (Fmax): Low Freq: 75 Hz to >1100 Hz
High Freq: 1100 Hz to ~10kHz

Frequency to Output Correlation: 0 Hz input yields 4 mA signal
Fmax input yields 20 mA signal

Output Current: 0.07 mA to 24.1 mA
(Full scale, min cal, zero cal @ 4mA)

Linearity: 0.15% Typical (0.5% Max)

Output Settling: 100ms to 3 sec to reach 95% of final value from full scale change

Temp Coefficient: between 25° and 40°C, 0.13%/°C

Construction: Plastic housing
Solid Epoxy Encapsulation

TERMINAL CONNECTIONS
1 - Supply Voltage
2 - Common
3 - Signal
4 - Mag Sensor (IS only)
5 - Mag Sensor (IS only)
(see IS40 & IS41)

FEATURE SELECTION
IS4027-10 Mag Preamplifier 12mV (US & C cert.)
IS4027-50 Mag Preamplifier 50mV (US & C cert.)

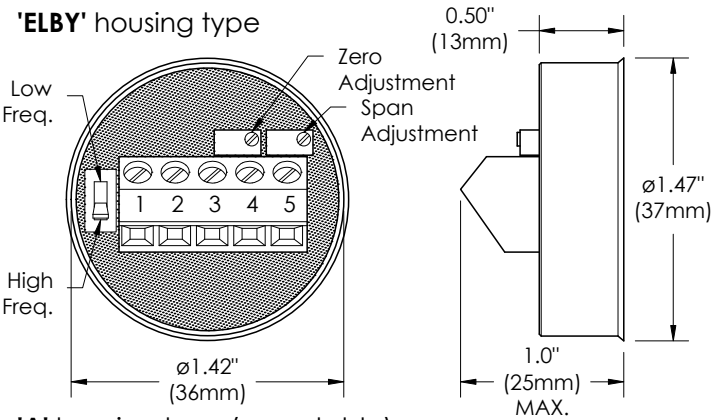
IS4027A-10 Mag Preamplifier 12mV (ATEX, UKEX, & IECEx)
IS4027A-50 Mag Preamplifier 50mV (ATEX, UKEX & IECEx)

For 'A' housing type add 'A' as a prefix to the P/N suffix: (e.g. IS4027-Axx)
Similarly for the ATEX, UKEX, & IECEx version: (e.g. IS4027A-Axx)

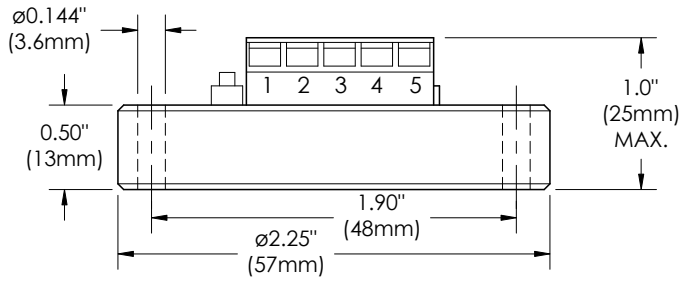
For explosion proof junction box refer to bulletin 4001.

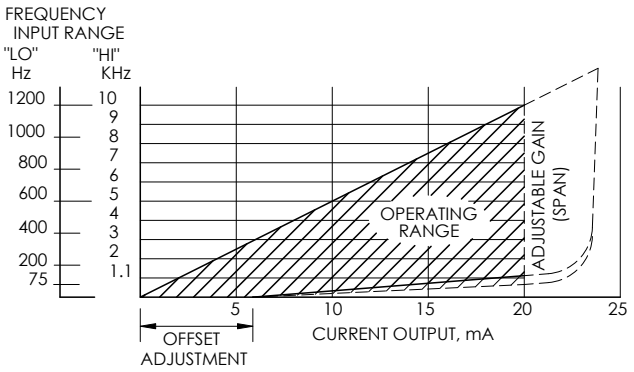
For wiring options see page 2.

'ELBY' housing type



'A' housing type (mountable)





CERTIFICATIONS for IS4027
USA: **Intrinsically Safe**
Class I, II, III, Division 1
GROUP ABCDEFG T6...T4
Class I, Zone 0, AEx ia IIC T6...T4

Canada: **Intrinsically Safe**
Class I, Division 1, GROUP ABCD T6...T4
Class I, Zone 0, Ex ia IIC T6...T4

T4 @ -40°C ≤ T_{amb} ≤ +85°C
T5 @ -40°C ≤ T_{amb} ≤ +80°C
T6 @ -40°C ≤ T_{amb} ≤ +60°C

CERTIFICATIONS for IS4027A
ATEX & UKEX: **II 1 G Ex ia IIC T6...T4 Ga**
FM08ATEX0068X
FM22UKEX0110X

CE: **Compliance with**
EN55011, EN50082-1

IECEx: **Ex ia IIC T6...T4 Ga**
IECEx FMG 16.0003X

T4 @ -40°C ≤ T_{amb} ≤ +85°C
T5 @ -40°C ≤ T_{amb} ≤ +80°C
T6 @ -40°C ≤ T_{amb} ≤ +60°C

11/18/2022 Rev: 3 Approved Feb 17th, 2023

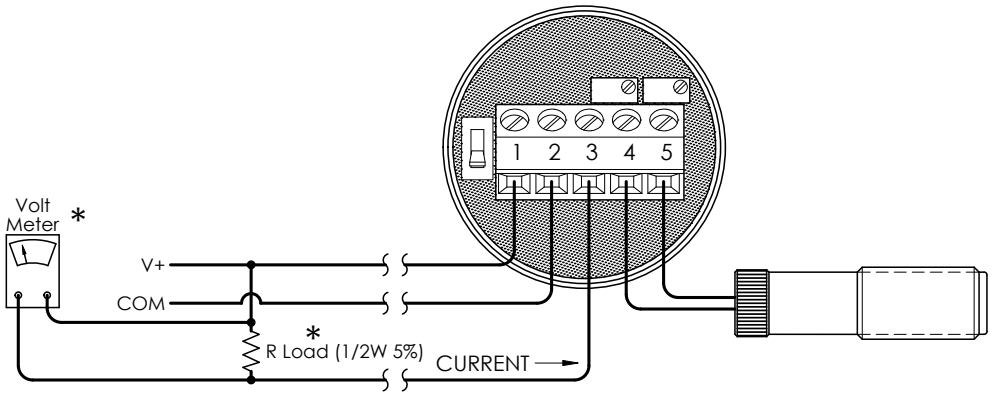
IS4027 & IS4027A FTC Converter
Wiring Options

Voltage Mode (3 wire)

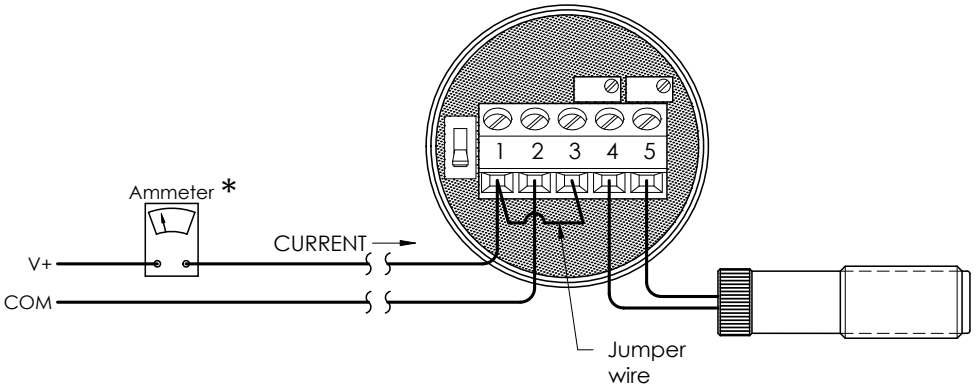
For use with long wire runs
Resistant to line losses & EMI

$$R\ Load \leq \frac{Vs-9\ V}{0.02\ A}$$

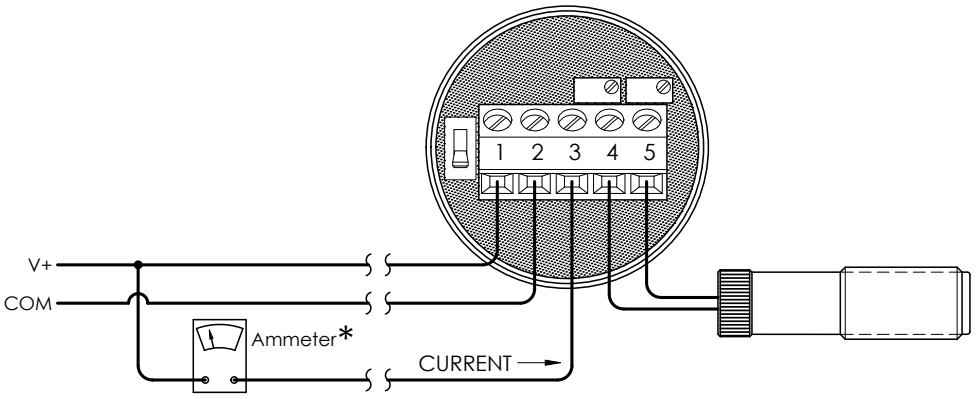
Vs	R Load
12 V	≤150 Ω
24 V	≤750 Ω



Current Mode 1 (2 wire)



Current Mode 2 (3 wire)



***** Note:

1. Load resistor to be installed outside the hazardous area.
2. Conduct measurements outside the hazardous area.

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