

## Space-saving Plug-in Signal Conditioners F-UNIT

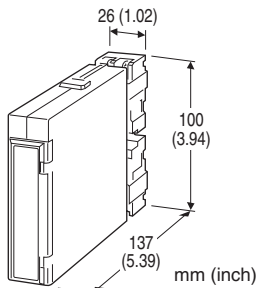
### INPUT LOOP POWERED ISOLATOR

#### Functions & Features

- Loop-powered design eliminates output loop power supply
- 500 V DC input-to-output isolation
- 2 isolators housed in one enclosure
- 350  $\Omega$  output drive with 4 - 20 mA
- High-density mounting

#### Typical Applications

- Isolation between control room and field instrumentation, between telemetering system and input device
- Eliminates ground problems in existing systems thanks to easiness of application without requiring additional power wiring



## MODEL: FSN-[1]

### ORDERING INFORMATION

- Code number: FSN-[1]
- Specify a code from below for [1]  
(e.g. FSN-2)

### [1] INPUT / OUTPUT

#### Single-channel

- 1: 4 - 20 mA DC / 1 - 5 V DC
- 1H6: 10 - 50 mA DC / 1 - 5 V DC
- 1AA: 4 - 20 mA DC / 4 - 20 mA DC
- 1HA: 10 - 50 mA DC / 4 - 20 mA DC

#### Dual-channel

- 2: 4 - 20 mA DC / 1 - 5 V DC
- 2H6: 10 - 50 mA DC / 1 - 5 V DC
- 2AA: 4 - 20 mA DC / 4 - 20 mA DC
- 2HA: 10 - 50 mA DC / 4 - 20 mA DC

### GENERAL SPECIFICATIONS

- Construction: Plug-in
- Connection: M3.5 screw terminals (torque 0.8 N·m)
- Screw terminal: Nickel-plated steel

Housing material: Flame-resistant resin (black)

Isolation: Input to output; between channels

Zero adjustment (front)

Voltage output: -5 to +5 %

Current output: -0.5 to +0.5 %

Span adjustment (front)

Voltage output: 95 to 105 %

Current output: 98.5 to 101.5 %

### INPUT & OUTPUT

#### ■ Input 4 - 20 mA DC / Output 1 - 5 V DC

Equivalent input impedance: Approx. 250  $\Omega$  with 20 mA input

Operational range: 3 - 22 mA DC

(Accuracy is assured within 4 - 22 mA)

Load resistance:  $\geq 50$  k $\Omega$

#### ■ Input 10 - 50 mA DC / Output 1 - 5 V DC

Equivalent input impedance: Approx. 100  $\Omega$  with 50 mA input

Operational range: 7 - 55 mA DC

(Accuracy is assured within 8 - 55 mA)

Load resistance:  $\geq 50$  k $\Omega$

#### ■ Input 4 - 20 mA DC / Output 4 - 20 mA DC

Equivalent input impedance: 230  $\Omega$  plus load resistance with 20 mA input

Operational range: 3 - 22 mA DC

(Accuracy is assured within 4 - 22 mA)

Load resistance: 50 - 350  $\Omega$  (min. 50  $\Omega$  required for adequate operation)

#### ■ Input 10 - 50 mA DC / Output 4 - 20 mA DC

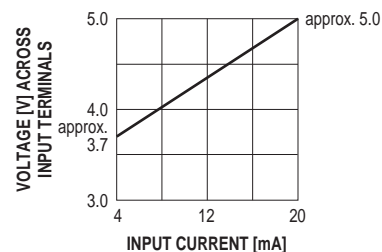
Equivalent input impedance: 90  $\Omega$  + [load resistance  $\times$  0.16] with 50 mA input

Operational range: 7 - 55 mA DC

(Accuracy is assured within 8 - 55 mA)

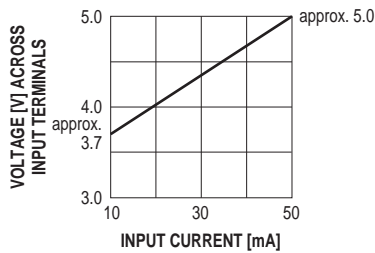
Load resistance: 50 - 600  $\Omega$  (min. 50  $\Omega$  required for adequate operation)

#### • INPUT 4 - 20 mA DC / OUTPUT 1 - 5 V DC

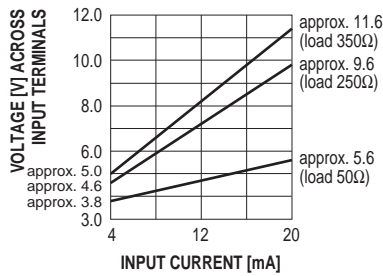


**•INPUT 10 - 50 mA DC / OUTPUT 1 - 5 V DC**

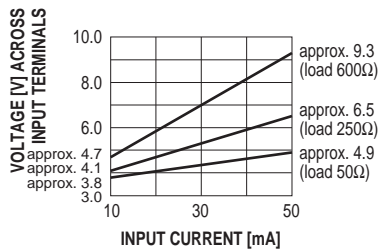
1500 V AC @1 minute (between channels)  
1500 V AC @1 minute (input or output to ground)



**•INPUT 4 - 20mA DC / OUTPUT 4 - 20 mA DC**



**•INPUT 10 - 50 mA DC / OUTPUT 4 - 20 mA DC**



## INSTALLATION

**Operating temperature:** -5 to +55°C (23 to 131°F)  
**Operating humidity:** 30 to 90 %RH (non-condensing)  
**Mounting:** Surface or DIN rail; Standard Rack Mounting  
Frame BX-16H available  
**Weight:** 200 g (0.44 lbs)

## PERFORMANCE in percentage of span

**Accuracy:** ±0.1 %

**Temp. coefficient**

**Voltage output:** ±0.015 %/°C (±0.008 %/°F)

**Current output:** ±0.02 %/°C (±0.01 %/°F)

**Response time**

**Voltage output:** ≤ 0.5 sec. (0 - 90 %)

**Current output:** Approx. 15 msec. (0 - 90 %)

**Load effect (current output)**

**4 - 20 mA input:** 0.015 %/Ω (50 - 150 Ω)

0.003 %/Ω (150 - 350 Ω)

**10 - 50 mA input:** 0.015 %/Ω (50 - 100 Ω)

0.003 %/Ω (100 - 600 Ω)

(The unit is calibrated with 250 Ω load at the factory.)

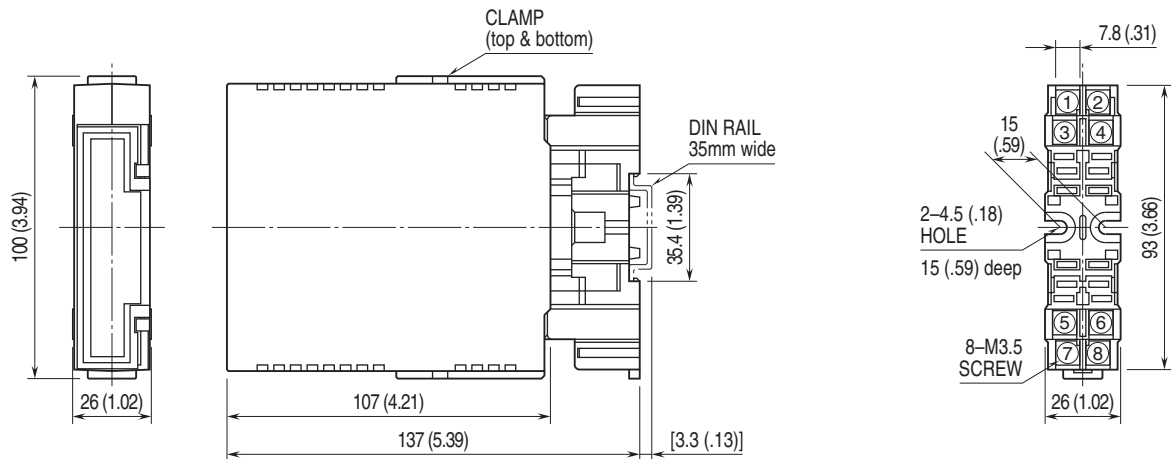
**Insulation resistance:** ≥ 100 MΩ with 500 V DC

**Dielectric strength:**

500 V AC @1 minute (input to output)



## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

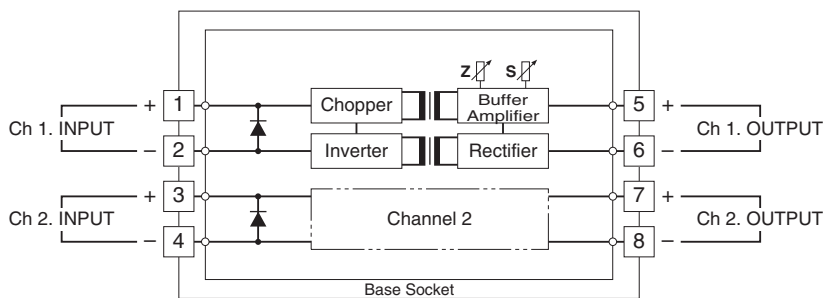


•When mounting, no extra space is needed between units.

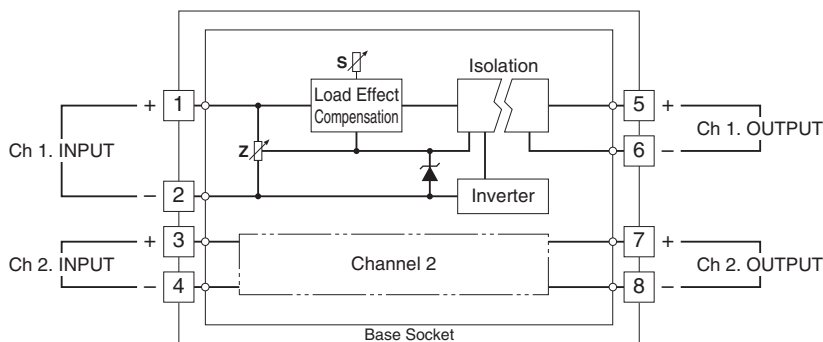
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

Remark: For the single-channel model, the terminals 3 - 4 and 7 - 8 are used.

### ■ VOLTAGE OUTPUT



### ■ CURRENT OUTPUT



Specifications are subject to change without notice.