

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

### SIGNAL TRANSMITTER

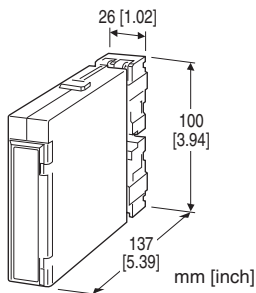
(high speed response; isolated)

#### Functions & Features

- Converting a DC input into a standard process signal
- Isolation between input and output
- 180-microsecond response
- High-density mounting

#### Typical Applications

- Isolation for a vibration analyzing system



### MODEL: FVF-[1][2]-[3][4]

#### ORDERING INFORMATION

- Code number: FVF-[1][2]-[3][4]

Specify a code from below for each of [1] through [4].

- (e.g. FVF-6A-K/Q)
- Special input and output ranges (For codes Z & O)
- Specify the specification for option code /Q (e.g. /C01/S01)

#### [1] INPUT

Current

- A:** 4 - 20 mA DC (Input resistance 250 Ω)
- B:** 2 - 10 mA DC (Input resistance 500 Ω)
- C:** 1 - 5 mA DC (Input resistance 1000 Ω)
- D:** 0 - 20 mA DC (Input resistance 50 Ω)
- E:** 0 - 16 mA DC (Input resistance 62.5 Ω)
- F:** 0 - 10 mA DC (Input resistance 100 Ω)
- G:** 0 - 1 mA DC (Input resistance 1000 Ω)
- H:** 10 - 50 mA DC (Input resistance 100 Ω)
- GW:** -1 - +1 mA DC (Input resistance 1000 Ω)
- FW:** -10 - +10 mA DC (Input resistance 100 Ω)
- Z:** Specify current (See INPUT SPECIFICATIONS)

Voltage

- 3:** 0 - 1 V DC (Input resistance 1 MΩ min.)
- 4:** 0 - 10 V DC (Input resistance 1 MΩ min.)
- 5:** 0 - 5 V DC (Input resistance 1 MΩ min.)

**6:** 1 - 5 V DC (Input resistance 1 MΩ min.)

**4W:** -10 - +10 V DC (Input resistance 1 MΩ min.)

**5W:** -5 - +5 V DC (Input resistance 1 MΩ min.)

**0:** Specify voltage (See INPUT SPECIFICATIONS)

#### [2] OUTPUT

Current

- A:** 4 - 20 mA DC (Load resistance 750 Ω max.)
- B:** 2 - 10 mA DC (Load resistance 1500 Ω max.)
- C:** 1 - 5 mA DC (Load resistance 3000 Ω max.)
- D:** 0 - 20 mA DC (Load resistance 750 Ω max.)
- E:** 0 - 16 mA DC (Load resistance 900 Ω max.)
- F:** 0 - 10 mA DC (Load resistance 1500 Ω max.)
- G:** 0 - 1 mA DC (Load resistance 15 kΩ max.)
- Z:** Specify current (See OUTPUT SPECIFICATIONS)

Voltage

- 1:** 0 - 10 mV DC (Load resistance 10 kΩ min.)
- 2:** 0 - 100 mV DC (Load resistance 100 kΩ min.)
- 3:** 0 - 1 V DC (Load resistance 1000 Ω min.)
- 4:** 0 - 10 V DC (Load resistance 10 kΩ min.)
- 5:** 0 - 5 V DC (Load resistance 5000 Ω min.)
- 6:** 1 - 5 V DC (Load resistance 5000 Ω min.)
- 4W:** -10 - +10 V DC (Load resistance 10 kΩ min.)
- 5W:** -5 - +5 V DC (Load resistance 5000 Ω min.)
- 0:** Specify voltage (See OUTPUT SPECIFICATIONS)

#### [3] POWER INPUT

AC Power

**K:** 85 - 132 V AC  
(Operational voltage range 85 - 132 V, 47 - 66 Hz)

**L:** 170 - 264 V AC  
(Operational voltage range 170 - 264 V, 47 - 66 Hz)

DC Power

**R:** 24 V DC  
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

**P:** 110 V DC  
(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

#### [4] OPTIONS

**blank:** none

**/Q:** With options (specify the specification)

#### SPECIFICATIONS OF OPTION: Q (multiple selections)

**COATING** (For the detail, refer to our web site.)

**/C01:** Silicone coating

**/C02:** Polyurethane coating

**/C03:** Rubber coating

**TERMINAL SCREW MATERIAL**

**/S01:** Stainless steel

## GENERAL SPECIFICATIONS

**Construction:** Plug-in  
**Connection:** M3.5 screw terminals (torque 0.8 N·m)  
**Screw terminal:** Nickel-plated steel (standard) or stainless steel  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input to output to power  
**Overrange output:** Approx. -10 to +120 % at 1 - 5 V  
**Zero adjustment:** -5 to +5 % (front)  
**Span adjustment:** 95 to 105 % (front)

2000 V AC @ 1 minute (input or output or power to ground)  
 500 V AC @ 1 minute (I/O to power)

### Power input code K, L, P:

1000 V AC @ 1 minute (input to output)  
 2000 V AC @ 1 minute (input or output or power to ground)  
 1500 V AC @ 1 minute (I/O to power)

## INPUT SPECIFICATIONS

### ■ DC Current:

Shunt resistor attached to the input terminals (0.5 W)  
 Specify input resistance value for code Z.

### ■ DC Voltage: -300 - +300 V DC

**Minimum span:** 1 V

**Offset:** Max. 1.5 times span

**Input resistance:**  $\geq 1 \text{ M}\Omega$

## OUTPUT SPECIFICATIONS

### ■ DC Current: 0 - 20 mA DC

**Minimum span:** 1 mA

**Offset:** Max. 1.5 times span

**Load resistance:** Output drive 15 V max.

### ■ DC Voltage: -10 - +12 V DC

**Minimum span:** 5 mV

**Offset:** Max. 1.5 times span

**Load resistance:** Output drive 1 mA max.; at  $\geq 0.5 \text{ V}$

## INSTALLATION

### Power input

- AC: Approx. 4.5 VA
- DC: 24 V approx. 70 mA  
110 V approx. 20 mA

**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:** 180 g (0.40 lb)

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.1 \%$

**Temp. coefficient:**  $\pm 0.015 \%/^{\circ}\text{C}$  ( $\pm 0.008 \%/^{\circ}\text{F}$ )

**Response time:** Approx. 180  $\mu\text{sec}$ . (0 - 90 %)

**Line voltage effect:**  $\pm 0.1 \%$  over voltage range

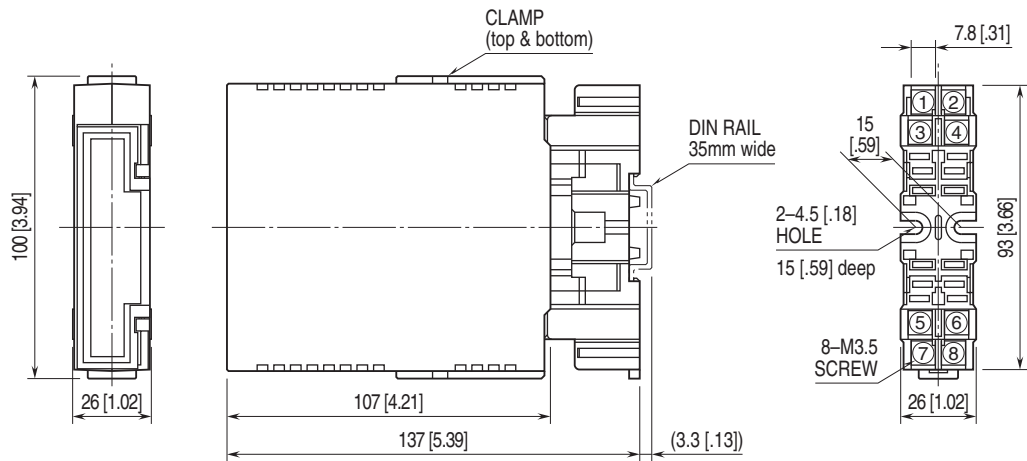
**Insulation resistance:**  $\geq 100 \text{ M}\Omega$  with 500 V DC

**Dielectric strength**

**Power input code R:**

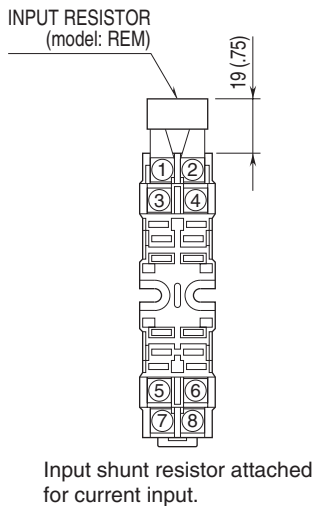
1000 V AC @ 1 minute (input to output)

**EXTERNAL DIMENSIONS unit: mm [inch]**



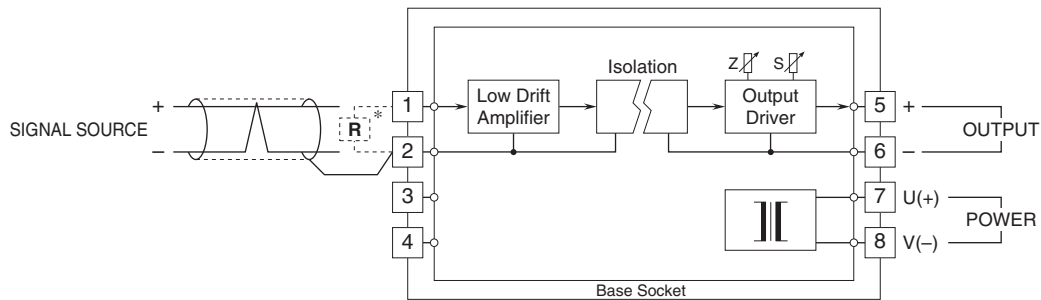
•When mounting, no extra space is needed between units.

**TERMINAL ASSIGNMENTS unit: mm [inch]**



**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**

Due to its fast-response design, does not eliminate noises included in the input signal. Use shielded twisted-pair cable for preventing them.





Specifications are subject to change without notice.