

Super-mini Signal Conditioners F2 Series

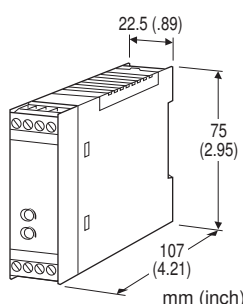
SIGNAL TRANSMITTER

Functions & Features

- Converts DC input from a sensor into a standard process signal
- Fast response type available

Typical Applications

- Isolation between control room and field instrumentation



MODEL: F2VS-[1][2]-R[3]

ORDERING INFORMATION

- Code number: F2VS-[1][2]-R[3]

Specify a code from below for each of [1] through [3].

- (e.g. F2VS-6A-R/K)
- Special input and output ranges (For codes Z & O)
- Specify the specification for option code /Q (e.g. /C01)

[1] INPUT

Current

- A: 4 – 20 mA DC (Input resistance 250 Ω)
- A1: 4 – 20 mA DC (Input resistance 50 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)
- J: 0 – 10 μ A DC (Input resistance 1000 Ω)
- K: 0 – 100 μ A DC (Input resistance 1000 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

- 1: 0 – 10 mV DC (Input resistance 10 k Ω min.)
- 15: 0 – 50 mV DC (Input resistance 10 k Ω min.)

- 16: 0 – 60 mV DC (Input resistance 10 k Ω min.)
- 2: 0 – 100 mV DC (Input resistance 100 k Ω min.)
- 3: 0 – 1 V DC (Input resistance 1 M Ω min.)
- 4: 0 – 10 V DC (Input resistance 1 M Ω min.)
- 5: 0 – 5 V DC (Input resistance 1 M Ω min.)
- 6: 1 – 5 V DC (Input resistance 1 M Ω min.)
- 4W: -10 – +10 V DC (Input resistance 1 M Ω min.)
- 5W: -5 – +5 V DC (Input resistance 1 M Ω 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 k Ω max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage

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

POWER INPUT

DC Power

R: 24 V DC

(Operational voltage range 24 V $\pm$ 10 %, ripple 10 %p-p max.)

[3] OPTIONS (multiple selections)

Response Time (0 – 90 %)

blank: Standard ($\leq$ 0.5 sec.)

/K: Fast Response (Approx. 25 msec.)

Other Options

blank: none

/Q: Option other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to M-System's web site.)

/C01: Silicone coating

/C02: Polyurethane coating

GENERAL SPECIFICATIONS

Construction: Stand-alone; terminal access at the front
Connection: Euro type connector terminal
 (applicable wire size: 0.2 to 2.5 mm², stripped length 7 mm)
Housing material: Flame-resistant resin (black)
Isolation: Input to output to power
Zero adjustment: -5 to +5 % (front)
Span adjustment: 95 to 105 % (front)

INPUT SPECIFICATIONS

■ **DC Current:** Input resistor incorporated
 Specify input resistance value for code Z.
 ($R \leq 0.5 \text{ W} \div [\text{F.S. Current}]^2$)
 ■ **DC Voltage:** -30 - +30 V DC
Span: Min. 3 mV, max. 30 V
Offset: Max. 1.5 times span
Input resistance
 Span 3 - 10 mV : $\geq 10 \text{ k}\Omega$
 Span 10 - 100 mV : $\geq 10 \text{ k}\Omega$
 Span 0.1 - 1 V : $\geq 100 \text{ k}\Omega$
 Span $\geq 1 \text{ V}$: $\geq 1 \text{ M}\Omega$

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

Current consumption
 •DC: Approx. 80 mA
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: DIN rail
Weight: 150 g (0.33 lb)

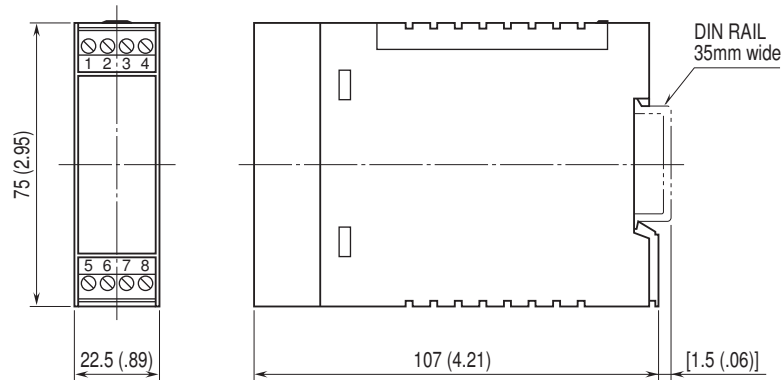
PERFORMANCE in percentage of span

Accuracy: $\pm 0.1 \%$
Temp. coefficient: $\pm 0.015 \%/^{\circ}\text{C}$ ($\pm 0.008 \%/^{\circ}\text{F}$)
Line voltage effect: $\pm 0.1 \%$ over voltage range
Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC
Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

STANDARDS & APPROVALS

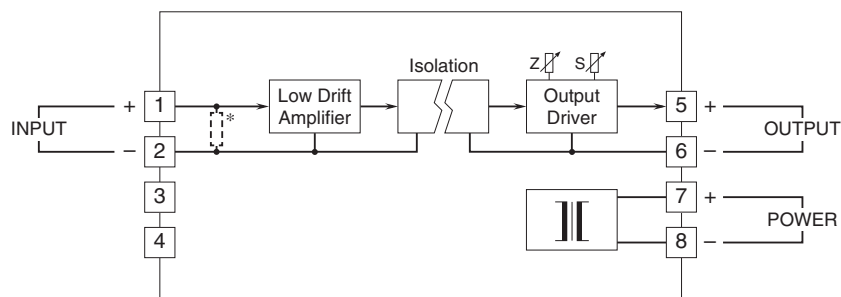
EU conformity:
 EMC Directive
 EMI EN 61000-6-4
 EMS EN 61000-6-2
 RoHS Directive
 EN 50581
Approval:
 UL/C-UL general safety requirements
 (UL 3111-1, CAN/CSA-C22.2 No.1010-1)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*Input shunt resistor incorporated for current input.



Specifications are subject to change without notice.