

## Super-mini Signal Conditioners F2 Series

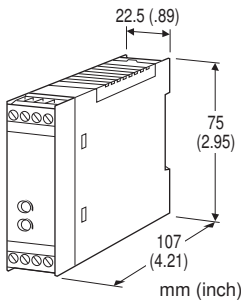
### RTD TRANSMITTER

#### Functions & Features

- Accepting direct input from an RTD and providing a standard process signals
- Linearization
- Burnout protection
- "Active bridge" circuit containing two constant current sources allows large leadwire resistances up to 200 Ω
- Fast response type available
- High-density mounting

#### Typical Applications

- Long distance transmission between the RTD and the transmitter
- Combination with intrinsic safety barriers



### MODEL: F2RS-[1][2]-R[3]

#### ORDERING INFORMATION

- Code number: F2RS-[1][2]-R[3]
- Specify a code from below for each of [1] through [3].  
(e.g. F2RS-4A-R/BL/CE/Q)
- Temperature range (e.g. 0 – 500°C)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q  
(e.g. /C01)

#### [1] INPUT RTD (2- or 3-wire)

- 1:** JPt 100 (JIS'89)  
(Usable range: -200 to +500°C, -328 to +932°F; min.span: 50°C, 90°F)
- 3:** Pt 100 (JIS'89)  
(Usable range: -200 to +650°C, -328 to +1202°F; min.span: 50°C, 90°F)
- 4:** Pt 100 (JIS'97, IEC)  
(Usable range: -200 to +650°C, -328 to +1202°F; min.span: 50°C, 90°F)
- 5:** Pt 50 Ω (JIS'81)  
(Usable range: -200 to +500°C, -328 to +932°F; min.span: 100°C, 180°F)
- 6:** Ni 508.4 Ω  
(Usable range: -50 to +200°C, -58 to +392°F; min.span: 30°C, 54°F)

0: Specify

Note: Consult us for 2-wire RTD

#### [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.)
- 0:** Specify voltage (See OUTPUT SPECIFICATIONS)

#### POWER INPUT

DC Power

**R:** 24 V DC

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

#### [3] OPTIONS (multiple selections)

Response Time (0 – 90 %)

**blank:** Standard (≤ 0.5 sec.)

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

Burnout

**blank:** Upscale burnout

**/BL:** Downscale burnout

Standards & Approvals (must be specified)

**/N:** Without CE

**/CE:** CE marking

Other Options

**blank:** none

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

#### SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to our 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 mm<sup>2</sup>, 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)  
**Linearization:** Standard

**INPUT SPECIFICATIONS**

**Maximum leadwire resistance:** 200 Ω per wire (3-wire)  
**Sensing current:** 2 mA (Pt); 1 mA (Ni 508.4 Ω)

**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 ≥ 0.5 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)

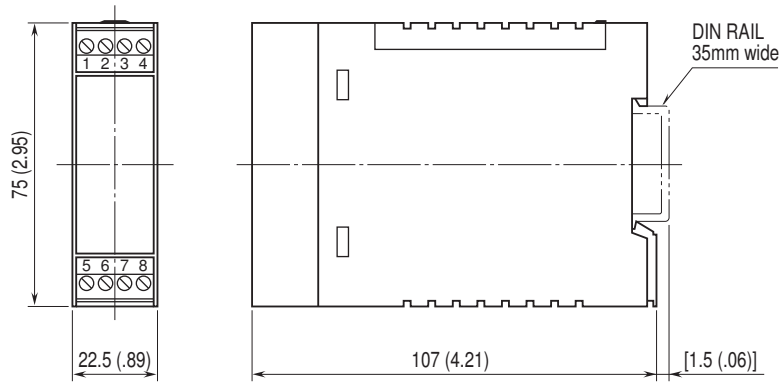
**PERFORMANCE in percentage of span**

**Accuracy:** ±0.2 %  
**Temp. coefficient:** ±0.015 %/°C (±0.008 %/°F)  
**Burnout response:** ≤ 10 sec.  
**Line voltage effect:** ±0.1 % over voltage range  
**Insulation resistance:** ≥ 100 MΩ with 500 V DC  
**Dielectric strength:** 2000 V AC @1 minute (input to output to power to ground)

**STANDARDS & APPROVALS**

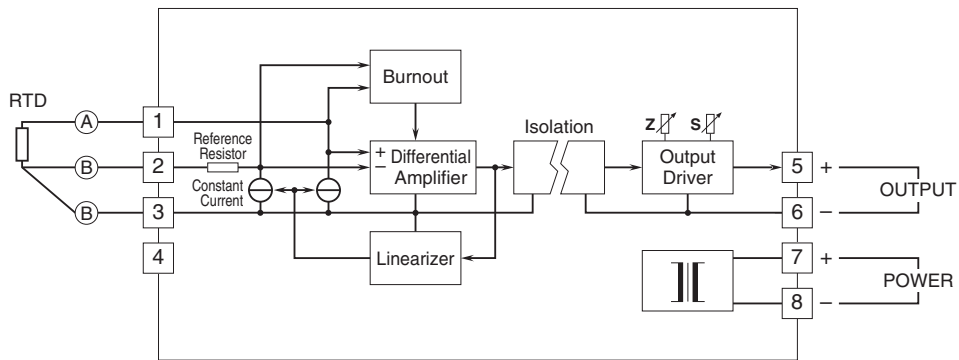
**EU conformity:**  
EMC Directive  
EMI EN 61000-6-4  
EMS EN 61000-6-2  
RoHS Directive

**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS** unit: mm [inch]



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

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



Specifications are subject to change without notice.