

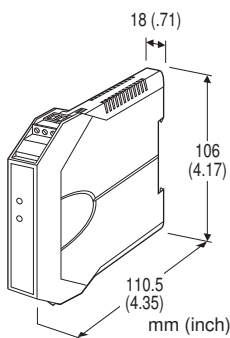
## Space-saving Two-wire Signal Conditioners B3-UNIT

### RTD TRANSMITTER

(field-configurable)

#### Functions & Features

- Converts a RTD input into an isolated, linearized 4 – 20 mA DC signal
- DIP switch configurable input range
- Linearization and burnout
- Monitor terminals
- High-density mounting



### MODEL: B3FR[1]

#### ORDERING INFORMATION

- Code number: B3FR[1]

Specify a code from below for [1].

(e.g. B3FR/UL/Q)

- Temperature range (e.g. Pt 100 0 – 200°C)
- If you need the transmitter to be calibrated to a specific range, please specify when ordering.

Non-specified orders will be shipped at default factory setting (Pt 100 0 – 100°C).

- Specify the specification for option code /Q (e.g. /C01)

#### INPUT RTD (2- or 3-wire)

Pt 100 (JIS '97, IEC)

Ni 120

Cu 10 @ 25°C

Note: Consult M-System for 2-wire RTD

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

##### Standards & Approvals

blank: CE marking

/UL: UL approval, 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 M-System's web site.)**

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating (UL not available)

#### GENERAL SPECIFICATIONS

**Construction:** Small-sized front terminal structure

**Connection:** Euro type connector terminal

(applicable wire size: 0.2 to 2.5 mm<sup>2</sup>, stripped length 8 mm)

**Housing material:** Flame-resistant resin (gray)

**Isolation:** Input to output

**Burnout:** Upscale (default), downscale or no burnout selectable

**Linearization:** Standard

**Configuration:** DIP and rotary switches

Setting:

- Input Type
- Input Range
- Burnout
- Others

Refer to the instruction manual for details.

#### INPUT SPECIFICATIONS

**Maximum leadwire resistance:** 20 Ω per wire (3-wire)

**Sensing current:** 1 mA

RTD	USABLE RANGE		MIN. SPAN	
	°C	°F	°C	°F
Pt 100 (JIS '97, IEC)	-50 to +750°C	-58 to +1382°F	300°C	540°F
	-50 to +350°C	-58 to +662°F	100°C	180°F
	-50 to +150°C	-58 to +302°F	50°C	90°F
Ni 120	-50 to +200°C	-58 to +392°F	100°C	180°F
	-50 to +100°C	-58 to +212°F	50°C	90°F
Cu 10 @ 25°C	-50 to +250°C	-58 to +482°F	100°C	180°F

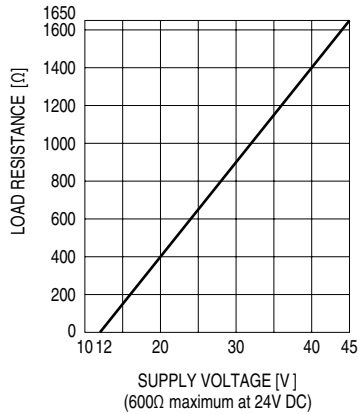
**OUTPUT SPECIFICATIONS**

**Output:** 4 - 20 mA DC

**Load resistance vs. supply voltage:**

Load Resistance ( $\Omega$ ) = (Supply Voltage (V) - 12 (V))  $\div$  0.02

(A) (including leadwire resistance)

**INSTALLATION**

**Supply voltage:** 12 - 45 V DC

**Operating temperature:**

-40 to +85°C (-40 to +185°F)

Max. 55°C (131°F) for UL approval

**Operating humidity:** 0 to 95 %RH (non-condensing)

**Mounting:** DIN rail

**Weight:** 80 g (2.8 oz)

**PERFORMANCE in percentage of span**

**Accuracy**

Pt 100, Cu 10:  $\pm 0.2$  %

Ni 120:  $\pm 0.3$  %

**Temp. coefficient:**  $\pm 0.02$  %/ $^{\circ}$ C ( $\pm 0.01$  %/ $^{\circ}$ F),

$\pm 0.03$  %/ $^{\circ}$ C ( $\pm 0.02$  %/ $^{\circ}$ F) for Cu 10

**Response time:**  $\leq 0.5$  sec. (0 - 90 %)

**Burnout response:**  $\leq 10$  sec.

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

**Dielectric strength:** 2000 V AC @1 minute

(input to output to ground)

**STANDARDS & APPROVALS**

**EU conformity:**

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

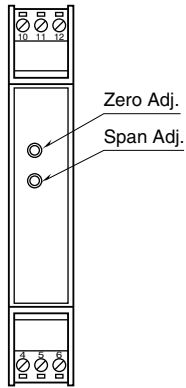
**Approval:**

UL/C-UL general safety requirements

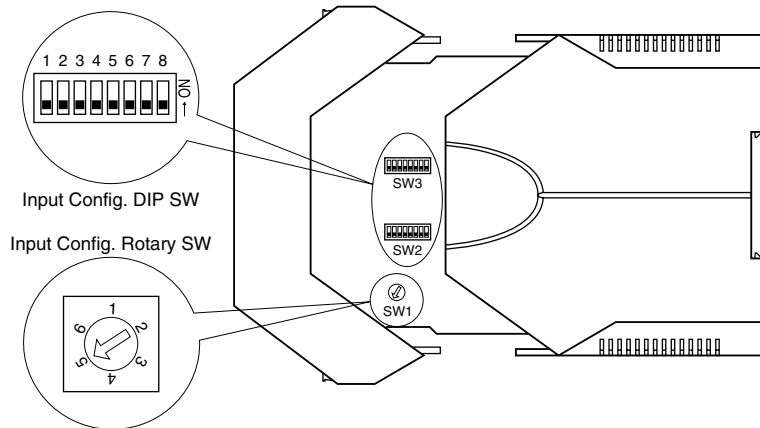
(UL 61010-1, CAN/CSA-C22.2 No.1010-1)

**EXTERNAL VIEW**

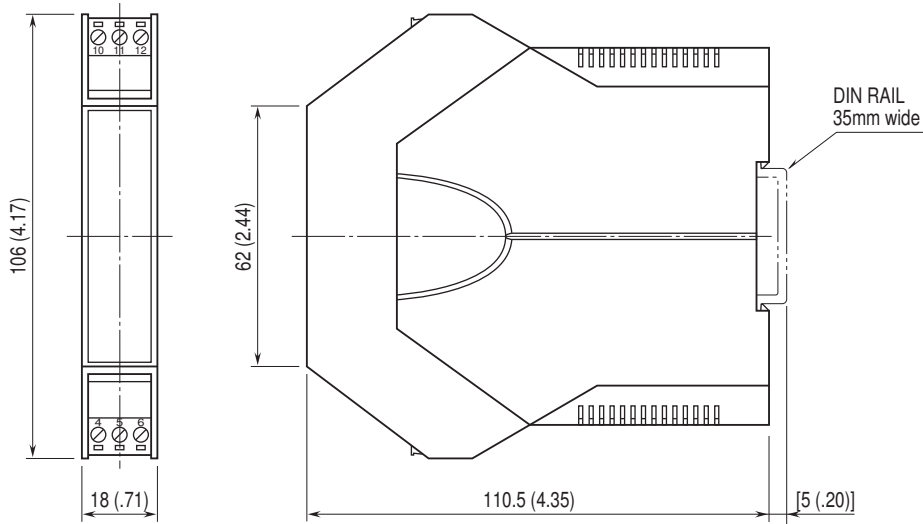
■ FRONT VIEW



■ SIDE VIEW

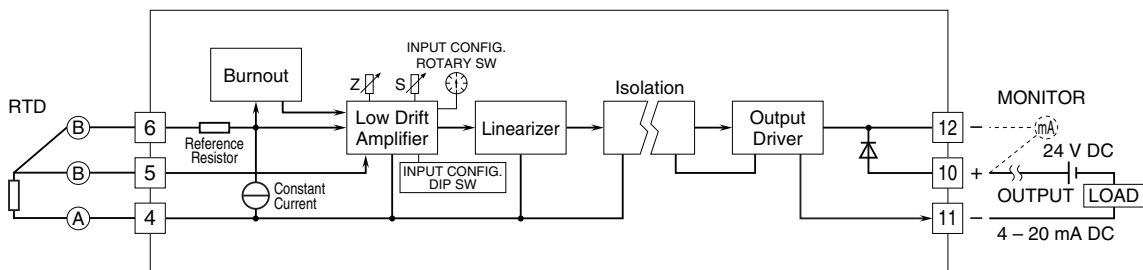


**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]**



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

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



Specifications are subject to change without notice.