

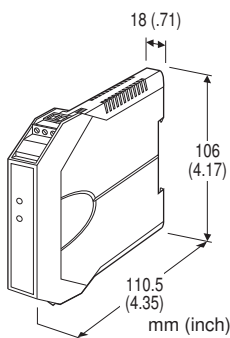
Space-saving Two-wire Signal Conditioners B3-UNIT

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 mm², 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

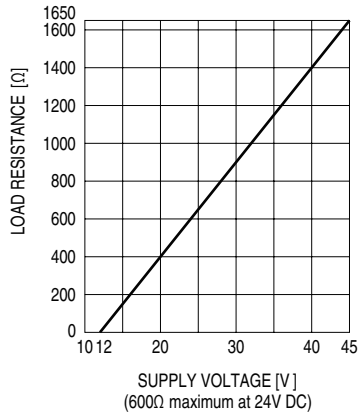
OUTPUT SPECIFICATIONS

Output: 4 - 20 mA DC

Load resistance vs. supply voltage:

Load Resistance (Ω) = (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: ± 0.2 %

Ni 120: ± 0.3 %

Temp. coefficient: ± 0.02 %/°C (± 0.01 %/°F),

± 0.03 %/°C (± 0.02 %/°F) for Cu 10

Response time: ≤ 0.5 sec. (0 - 90 %)

Burnout response: ≤ 10 sec.

Insulation resistance: ≥ 100 M Ω 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

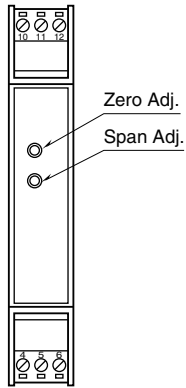
Approval:

UL/C-UL general safety requirements

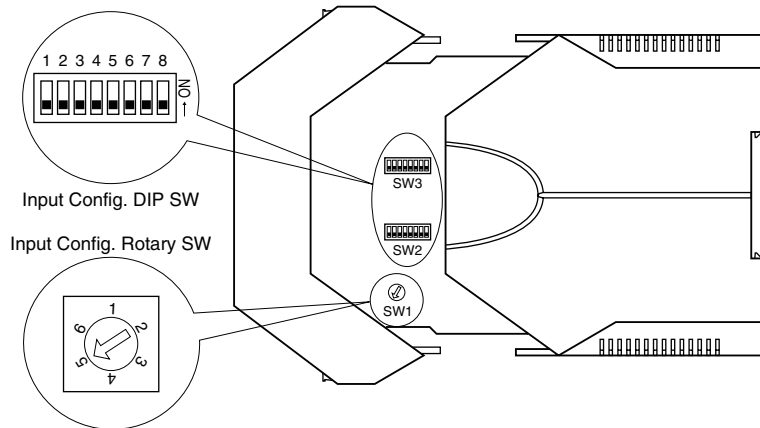
(UL 61010-1, CAN/CSA-C22.2 No.1010-1)

EXTERNAL VIEW

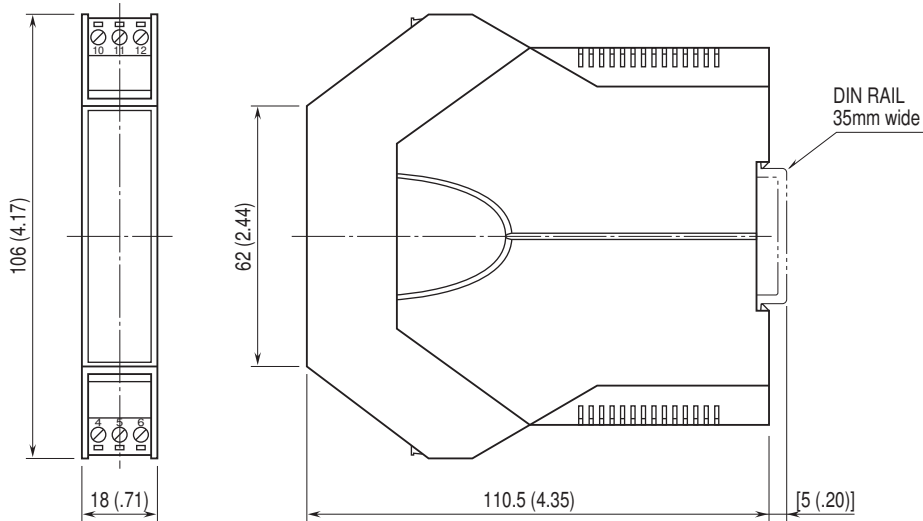
■ FRONT VIEW



■ SIDE VIEW

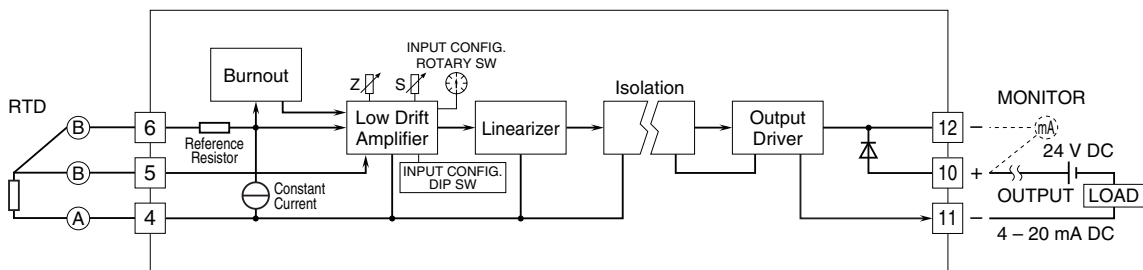


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.