

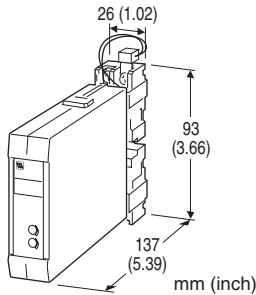
## Space-saving Two-wire Signal Conditioners B-UNIT

### THERMOCOUPLE TRANSMITTER

(non-isolated)

#### Functions & Features

- Accepting direct input from a thermocouple and providing a standard 4 – 20 mA DC signal
- Burnout protection
- High-accuracy cold junction compensation
- High-density mounting



### MODEL: BT-[1][2]

#### ORDERING INFORMATION

- Code number: BT-[1][2]
- Specify a code from below for each of [1] and [2].  
(e.g. BT-2/BL/Q)
- Temperature range (e.g. 0 – 800°C)
  - Specify the specification for option code /Q  
(e.g. /C01/S01)

#### [1] INPUT THERMOCOUPLE

- 2: K (CA) (Usable range -270 to +1370°C, -454 to +2498°F)
- 3: E (CRC) (Usable range -270 to +1000°C, -454 to +1832°F)
- 4: J (IC) (Usable range -210 to +1200°C, -346 to +2192°F)
- 5: T (CC) (Usable range -270 to +400°C, -454 to +752°F)
- 7: R (Usable range -50 to +1760°C, -58 to +3200°F)
- 8: S (Usable range -50 to +1760°C, -58 to +3200°F)

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

Burnout

- blank:** Upscale burnout
  - /BL:** Downscale burnout
  - /BN:** No burnout
- Other Options
- blank:** none
  - /Q:** Option other than the above (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)
- Zero adjustment:** -5 to +5 % (front)
- Span adjustment:** 95 to 105 % (front)
- Linearization:** Not provided
- Cold junction compensation:** CJC sensor attached to the input terminals

#### INPUT SPECIFICATIONS

- Minimum span:** 3 mV
- Offset:** Max. 1.5 times span
- Input resistance:** 50 kΩ minimum
- Burnout sensing:** 0.25 μA
- Minimum span (in °C)**
- K (CA):** 75°C
- E (CRC):** 50°C
- J (IC):** 60°C
- T (CC):** 75°C
- R:** 360°C
- S:** 380°C

#### Minimum span (in °F)

- K (CA):** 140°F
- E (CRC):** 90°F
- J (IC):** 110°F
- T (CC):** 140°F
- R:** 650°F
- S:** 690°F

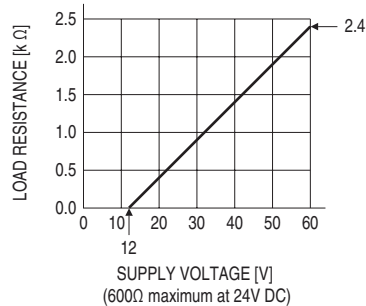
## OUTPUT SPECIFICATIONS

**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 - 60 V DC

**Operating temperature:** -5 to +60°C (23 to 140°F)

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Mounting:** Surface or DIN rail; Standard Rack Mounting

Frame BX-16H available

**Weight:** 150 g (0.33 lb)

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.1\%$  (at over 400°C or 750°F for R and S)

**Cold junction compensation error** (at 20°C or 68°F)

**K, E, J & T:**  $\pm 0.5^\circ\text{C}$  or  $\pm 0.9^\circ\text{F}$

**S & R:**  $\pm 1^\circ\text{C}$  or  $\pm 1.8^\circ\text{F}$

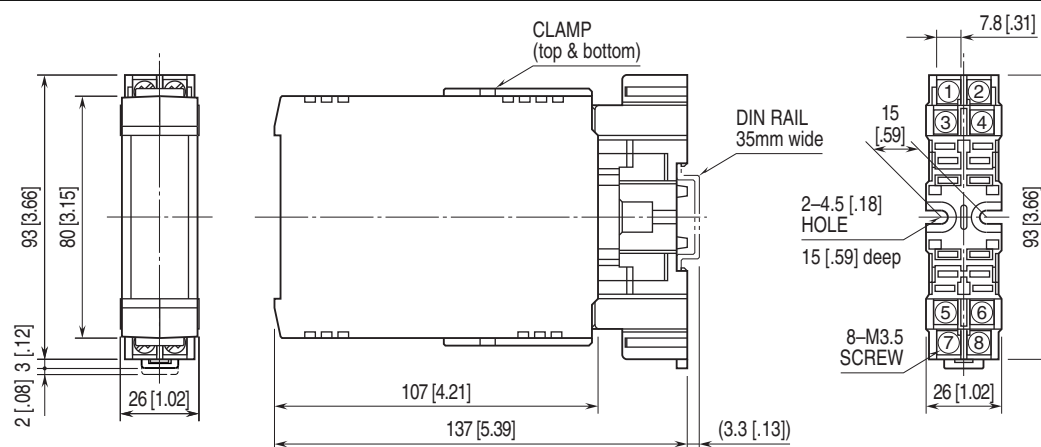
**Temp. coefficient:**  $\pm 0.05\%$ / $^\circ\text{C}$  ( $\pm 0.03\%$ / $^\circ\text{F}$ )

(at over 400°C or 750°F for R and S)

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

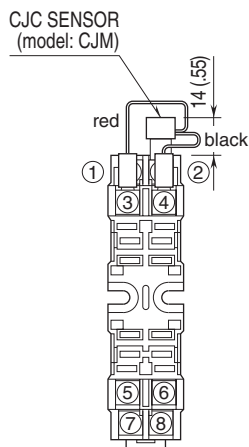
**Burnout response:**  $\leq 10$  sec.

## EXTERNAL DIMENSIONS unit: mm [inch]

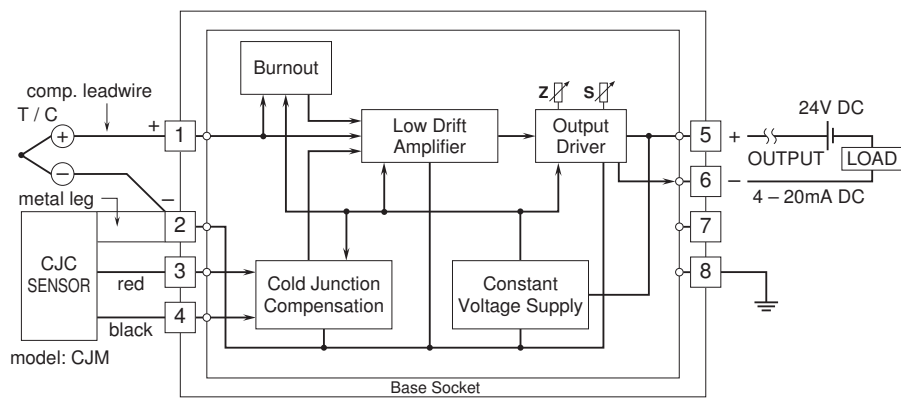



•When mounting, no extra space is needed between units.

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



**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



 Specifications are subject to change without notice.