

Space-saving Two-wire Signal Conditioners B-UNIT

THERMOCOUPLE TRANSMITTER

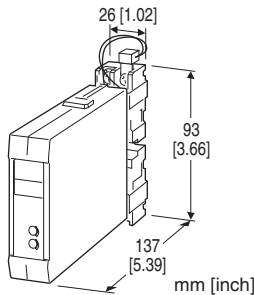
(isolated)

Functions & Features

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

Typical Applications

- High-accuracy cold junction compensation benefits narrow span measurements
- 0.1 μ A burnout sensing enables long distance transmission with minimum offset drifts
- Electric furnace (isolation)



MODEL: BTS-[1][2]

ORDERING INFORMATION

- Code number: BTS-[1][2]

Specify a code from below for each of [1] and [2].

- (e.g. BTS-2/BL/Q)
- Temperature range (e.g. 0 – 800°C)
- Specify the specification for option code /Q (e.g. /C01/S01)

[1] INPUT THERMOCOUPLE

- 1: (PR) (Usable Range 0 to 1760°C, 32 to 3200°F)
- 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)
- 6: B (RH) (Usable range 0 to 1820°C, 32 to 3308°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)
- 0: Specify

[2] OPTIONS (multiple selections)

Burnout

blank: Upscale burnout

/BL: Downscale 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)

Isolation: Input to output

Zero adjustment: -1.5 to +10 % (front)

Span adjustment: 95 to 105 % (front)

Linearization: Standard

Cold junction compensation: CJC sensor attached to the input terminals

INPUT SPECIFICATIONS

Minimum span: 3 mV

Offset: Max. 1.5 times span

Input resistance: 20 k Ω minimum

Burnout sensing: 0.1 μ A

Minimum span (in °C)

(PR): 370°C

K (CA): 75°C

E (CRC): 50°C

J (IC): 60°C

T (CC): 75°C

B (RH): 780°C

R: 360°C

S: 380°C

Minimum span (in °F)

(PR): 670°F

K (CA): 140°F

E (CRC): 90°F

J (IC): 110°F

T (CC): 140°F

B (RH): 1410°F

R: 650°F

S: 690°F

Note: For the temperatures that range below 0°C, the transmitter may partially not satisfy the described accuracy. Consult factory.

OUTPUT SPECIFICATIONS

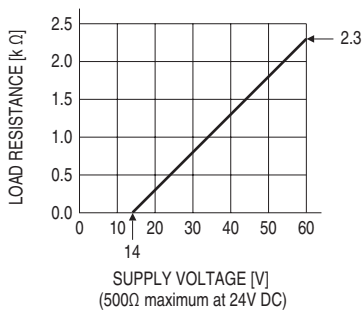
Output: 4 – 20 mA DC

Load resistance vs. supply voltage:

Load Resistance (Ω) = (Supply Voltage (V) – 14 (V)) \div 0.02

(A)

(including leadwire resistance)



INSTALLATION

Supply voltage: 14 – 60 V DC

Operating temperature: -5 to +55°C (23 to 131°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: ± 0.4 % (at over 400°C or 750°F for R, S and PR; over 770°C or 1420°F for B)

Cold junction compensation error

(at 25°C ± 10 °C or 77°F ± 18 °F)

K, E, J & T: ± 0.5 °C or ± 0.9 °F

S, R & PR: ± 1 °C or ± 1.8 °F

Temp. coefficient: ± 0.015 %/°C (± 0.008 %/°F)

(at over 400°C or 750°F for R, S and PR; over 770°C or 1420°F for B)

Response time: ≤ 0.5 sec. (0 – 90 %)

Burnout response: ≤ 10 sec.

Insulation resistance: ≥ 100 M Ω with 500 V DC

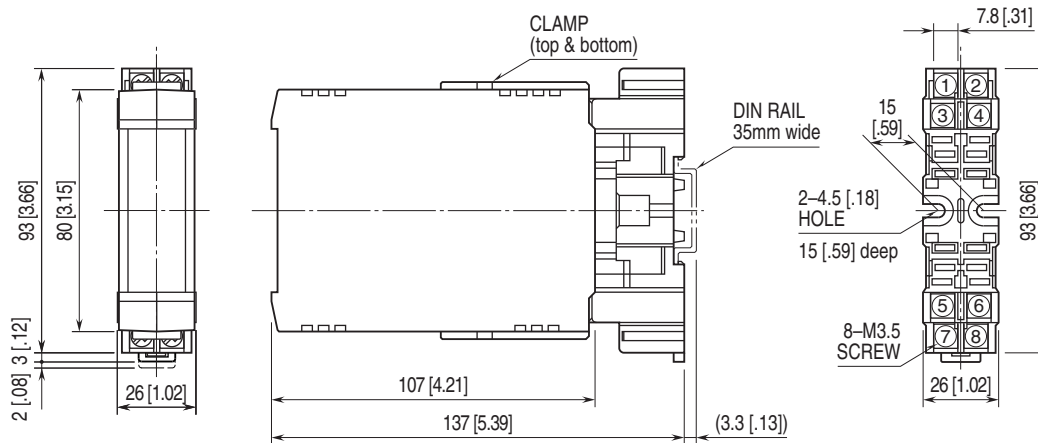
Dielectric strength: 500 V AC @ 1 minute

(input to output)

1500 V AC @ 1 minute

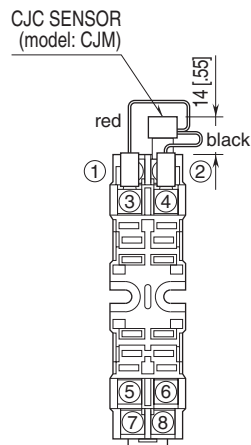
(input or output to ground)

EXTERNAL DIMENSIONS unit: mm [inch]

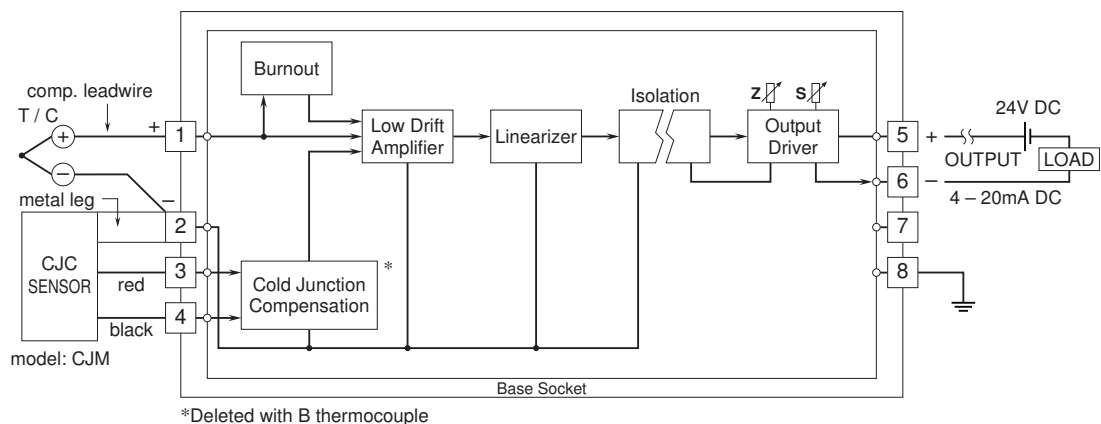


•When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.