

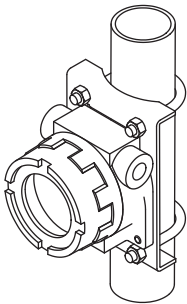
## Field-mounted Two-wire Signal Conditioners 6B-UNIT

### THERMOCOUPLE TRANSMITTER

(field-configurable; non-linearization)

#### Functions & Features

- Accepts direct input from a thermocouple and providing a standard 4 – 20 mA DC signal
- Field selectable temperature range
- Burnout protection
- Cold junction compensation
- Rugged outdoor enclosure: stainless steel selectable



**MODEL: 6BTS1-0[1][2][3][4][5]**

#### ORDERING INFORMATION

- Code number: 6BTS1-0[1][2][3][4][5]

Specify a code from below for each of [1] through [5].

(e.g. 6BTS1-020A1/BL)

- Temperature range (e.g. 0 – 800°C)

#### SAFETY APPROVAL

0: None

#### [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] WIRING CONDUIT

- 0: G 1/2  
 1: 1/2 NPT  
 2: M20 × 1.5

3: PG 13.5

#### [3] ENCLOSURE MATERIAL

A: Diecast aluminum

S: Stainless steel casting

#### [4] MOUNTING BRACKET

0: Without

1: With

#### [5] OPTIONS

Burnout

blank: Upscale burnout

/BL: Downscale burnout

#### PACKAGE INCLUDES...

- **Mounting screws**  
 Bolt (M8 x 15): 4  
 Spring washer for M8: 4  
**Material:** Stainless steel 304
- **Mounting bracket assembly (option):**  
 Mounting bracket: 1  
 M10 U-bolt: 2  
 Nut for M10: 4  
 Spring washer for M10: 4  
**Material:** Stainless steel 304  
**Applicable pipe:** 1 1/2" min.; 2" max.

#### GENERAL SPECIFICATIONS

**Degree of protection:** NEMA 4X, IP66/IP67

**Wiring conduit:** See 'Ordering information.'

**Electrical connection:** M3 screw terminals

(torque 0.6 N·m)

#### Materials

- **Transmitter housing:** Diecast aluminum  
**Screw terminals:** Nickel-plated steel
- **Enclosure:** Diecast aluminum or stainless steel casting (equivalent to type 316); silver color, epoxy resin coated
- Isolation:** Input to output to outdoor enclosure
- Output limit:** Approx. 120 %
- Zero adjustment:** -3 – +15 % (behind the access cover)
- Span adjustment:** 90 to 110 % (behind the access cover)
- 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:** 20 kΩ minimum

**Burnout sensing:** 0.1  $\mu$ A

Approx. 0.78 kg (1.72 lb)

**Minimum temperature span (in  $^{\circ}$ C)**

- (PR): min. span 370 $^{\circ}$ C
- K (CA): min. span 75 $^{\circ}$ C
- E (CRC): min. span 50 $^{\circ}$ C
- J (IC): min. span 60 $^{\circ}$ C
- T (CC): min. span 75 $^{\circ}$ C
- B (RH): min. span 780 $^{\circ}$ C
- R: min. span 360 $^{\circ}$ C
- S: min. span 380 $^{\circ}$ C

**Minimum temperature span (in  $^{\circ}$ F)**

- (PR): min. span 670 $^{\circ}$ F
- K (CA): min. span 140 $^{\circ}$ F
- E (CRC): min. span 90 $^{\circ}$ F
- J (IC): min. span 110 $^{\circ}$ F
- T (CC): min. span 140 $^{\circ}$ F
- B (RH): min. span 1410 $^{\circ}$ F
- R: min. span 650 $^{\circ}$ F
- S: min. span 690 $^{\circ}$ F

Note: For the temperatures that range below 0 $^{\circ}$ C, the transmitter may partially not satisfy the described accuracy. Consult factory.

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.1$  %

**Cold junction compensation error**

(at 25 $^{\circ}$ C  $\pm 10^{\circ}$ C or 77 $^{\circ}$ F  $\pm 18^{\circ}$ F)

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

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

**Temp. coefficient:**  $\pm 0.015$  %/ $^{\circ}$ C ( $\pm 0.008$  %/ $^{\circ}$ F)

$\pm 0.02$  %/ $^{\circ}$ C ( $\pm 0.01$  %/ $^{\circ}$ F) at spans  $\leq 10$  mV

**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:** 500 V AC @ 1 minute

(input to output)

1500 V AC @ 1 minute (input or output to outdoor enclosure)

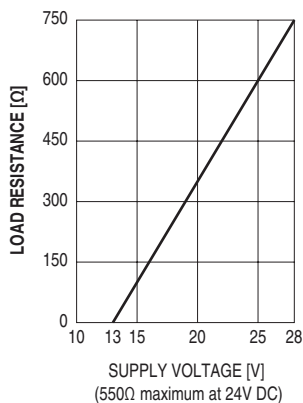
## OUTPUT SPECIFICATIONS

**Output:** 4 - 20 mA DC

**Load resistance vs. supply voltage:** Load Resistance ( $\Omega$ ) =

(Supply Voltage (V) - 13 (V))  $\div$  0.02 (A)

(including leadwire resistance)



## INSTALLATION

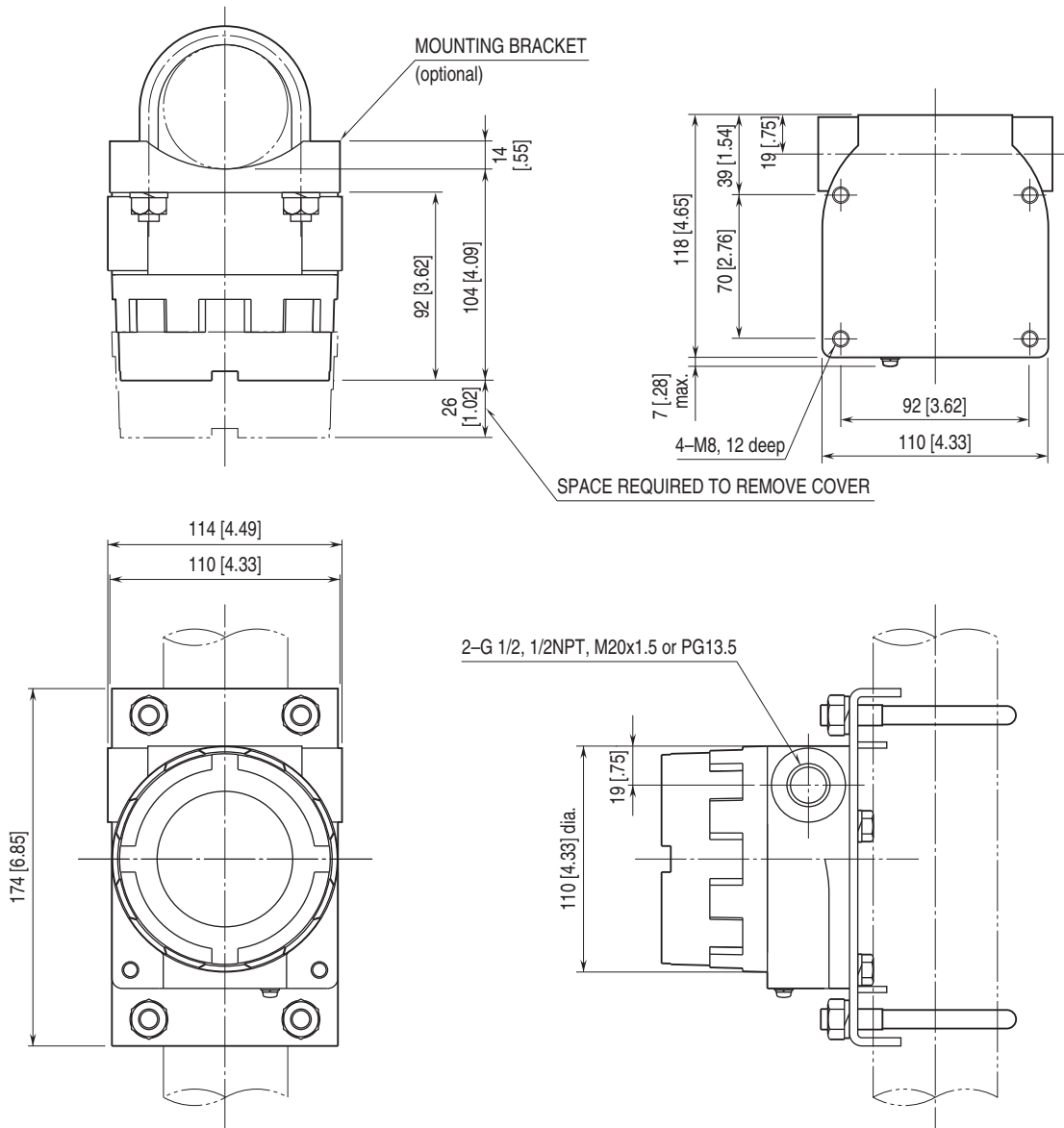
**Supply voltage:** 13 - 28 V DC

**Operating temperature:** -5 to +70 $^{\circ}$ C (23 to 158 $^{\circ}$ F)

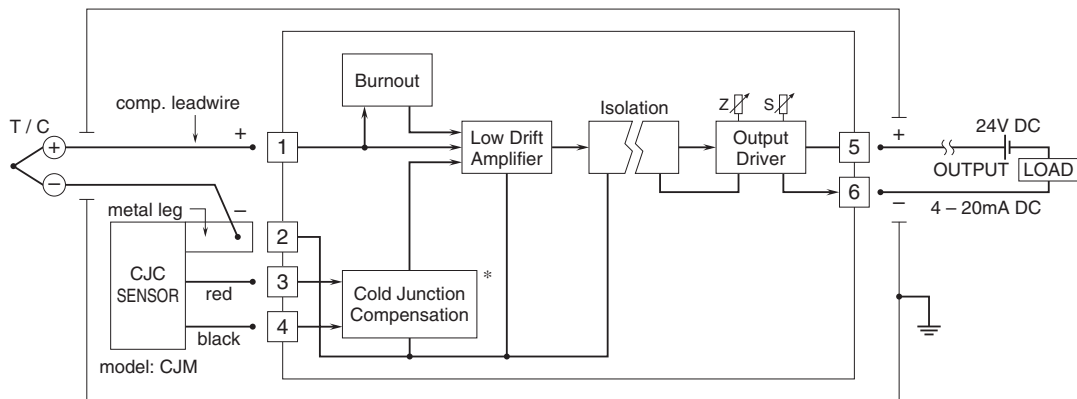
**Weight:**

- Unit
  - Approx. 1.5 kg (2.9 lb), aluminium
  - Approx. 4.2 kg (8.8 lb), stainless steel
- Mounting bracket assembly (option)

## EXTERNAL DIMENSIONS unit: mm [inch]



## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



\*Deleted with B thermocouple



Specifications are subject to change without notice.