

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

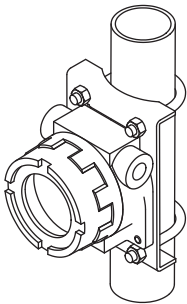
3: PG 13.5

THERMOCOUPLE TRANSMITTER

(linearization)

Functions & Features

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



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

ORDERING INFORMATION

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

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

- (e.g. 6BTS-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] 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:** Approx. -0.5 - +5 % (behind the access cover)
- Span adjustment:** Approx. 95 to 105 % (behind the access cover)
- 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 kΩ minimum
Burnout sensing: 0.1 μA
Minimum temperature span (in °C)
 (PR): min. span 370°C
 K (CA): min. span 75°C
 E (CRC): min. span 50°C
 J (IC): min. span 60°C
 T (CC): min. span 75°C
 B (RH): min. span 780°C
 R: min. span 360°C
 S: min. span 380°C

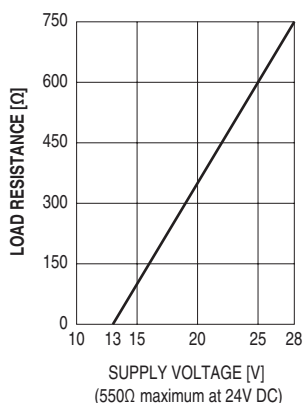
Minimum temperature span (in °F)

(PR): min. span 670°F
 K (CA): min. span 140°F
 E (CRC): min. span 90°F
 J (IC): min. span 110°F
 T (CC): min. span 140°F
 B (RH): min. span 1410°F
 R: min. span 650°F
 S: min. span 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) =
 $(\text{Supply Voltage (V)} - 13 \text{ (V)}) \div 0.02 \text{ (A)}$
 (including leadwire resistance)



INSTALLATION

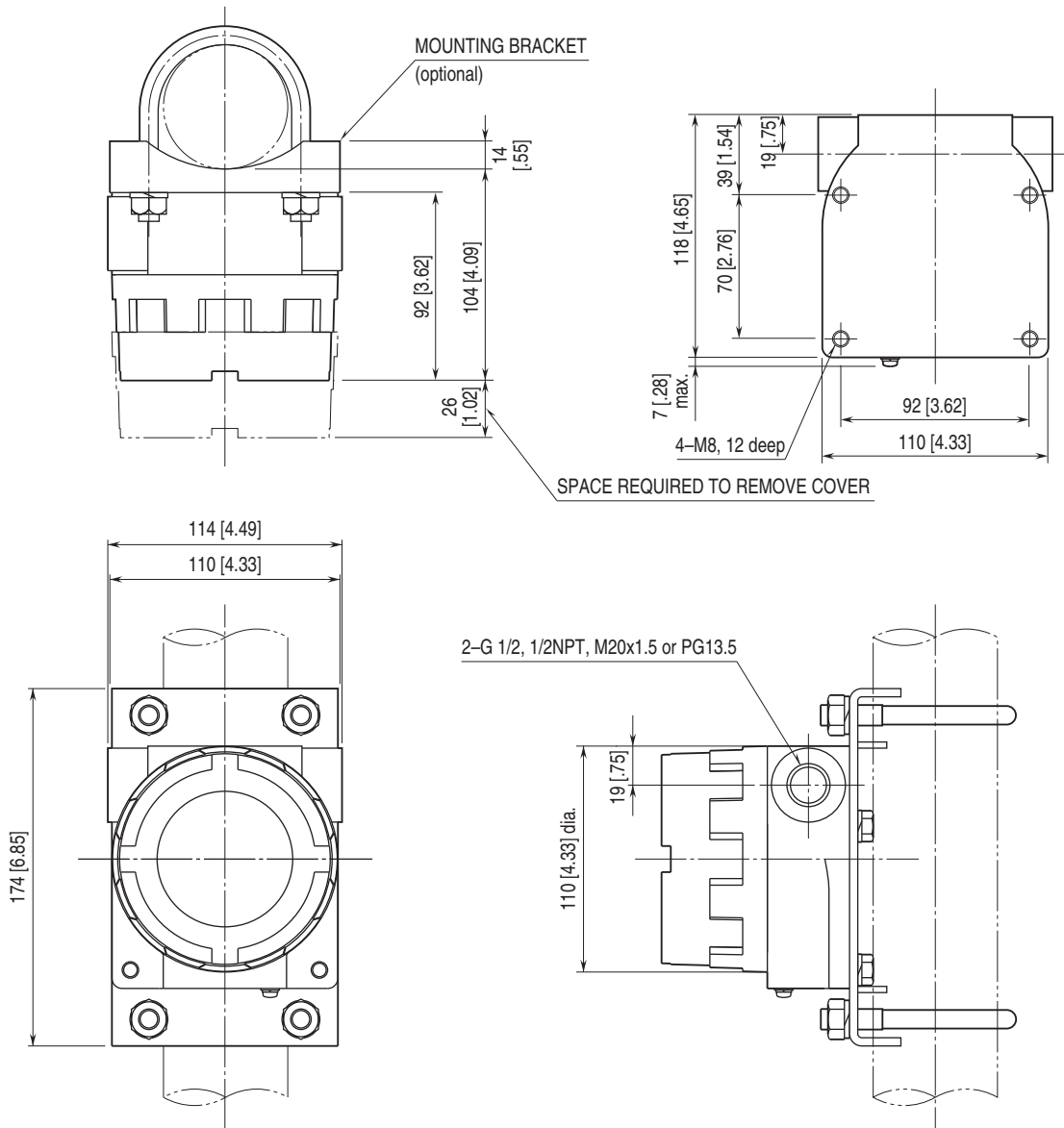
Supply voltage: 13 - 28 V DC
Operating temperature: -5 to +70°C (23 to 158°F)
Weight:

- Unit
 Approx. 1.5 kg (2.9 lb), aluminium
 Approx. 4.2 kg (8.8 lb), stainless steel
- Mounting bracket assembly (option)
 Approx. 0.78 kg (1.72 lb)

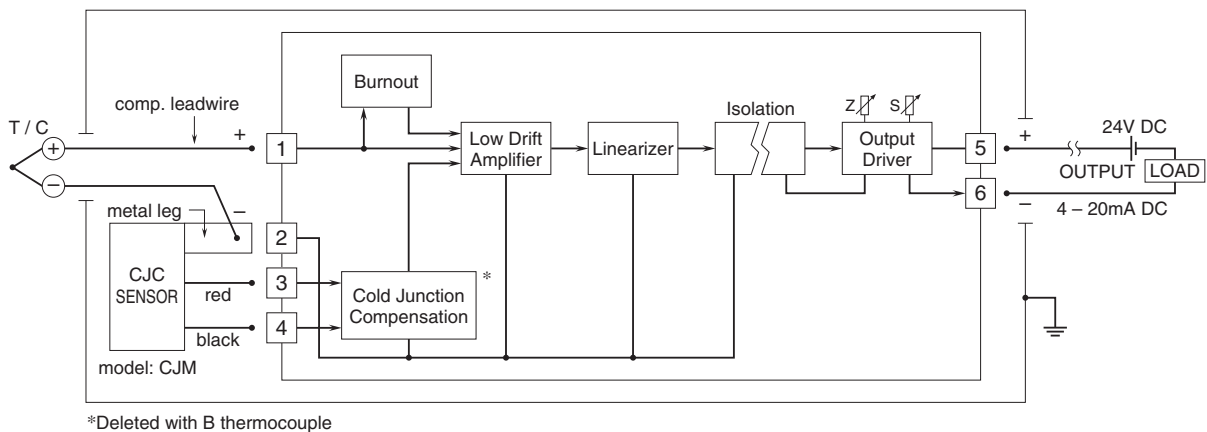
PERFORMANCE in percentage of span

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)
Burnout response: ≤ 10 sec.
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 500 V AC @ 1 minute
 (input to output)
 1500 V AC @ 1 minute (input or output to enclosure)

EXTERNAL DIMENSIONS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM





Specifications are subject to change without notice.