Field-mounted Two-wire Signal Conditioners 6-UNIT

THERMOCOUPLE TRANSMITTER

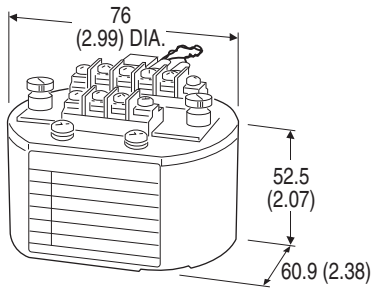
(linearization)

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
• Rugged enclosure

Typical Applications

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



mm (inch)

MODEL: 6TS–[1][2]

ORDERING INFORMATION

• Code number: 6TS-[1][2]
Specify a code from below for each of [1] and [2].
(e.g. 6TS-2/BL)
• Temperature range (e.g. 0 – 800°C)
• Mounting adapter (e.g. surface mounting adapter plate, model: A-01)
Note: When a mounting adapter is required, specify mounting adapter. Not included without specifying.

[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

Burnout
blank: Upscale burnout
/BL: Downscale burnout

RELATED PRODUCTS

• Outdoor enclosure (model: 6BX-E)

PACKAGE INCLUDES...

• Mounting adapter
surface mounting adapter plate (model: A-01)
Spring clip (model: A-02)
DIN rail mounting plate (model: A-31)

Note: When a mounting adapter is required, specify mounting adapter. Not included without specifying.
When using in combination with outdoor enclosure (model: 6BX-E), use a spring clip (model: A-02).

GENERAL SPECIFICATIONS

Connection: M3 screw terminals (torque 0.6 N·m)
Screw terminal: Nickel-plated steel
Housing material: Diecast aluminum
Isolation: Input to output
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

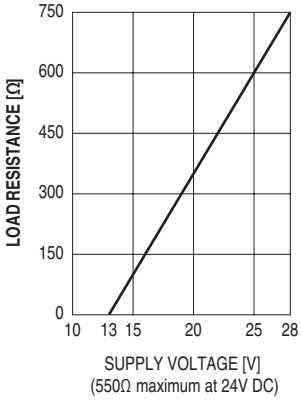
Minimum span: 3 mV
Offset: Max. 1.5 times span
Input resistance: 20 kΩ minimum
Burnout sensing: 0.1 µA
Minimum temperature span (in °C)
(PR): min. span 370°C
K (CA): min. span 75°C
E (CRC): min. span 50°C
J (IC): min. span 60°C
T (CC): min. span 75°C
B (RH): min. span 780°C
R: min. span 360°C
S: min. 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) = (Supply Voltage (V) – 13 (V)) ÷ 0.02 (A)
(including leadwire resistance)



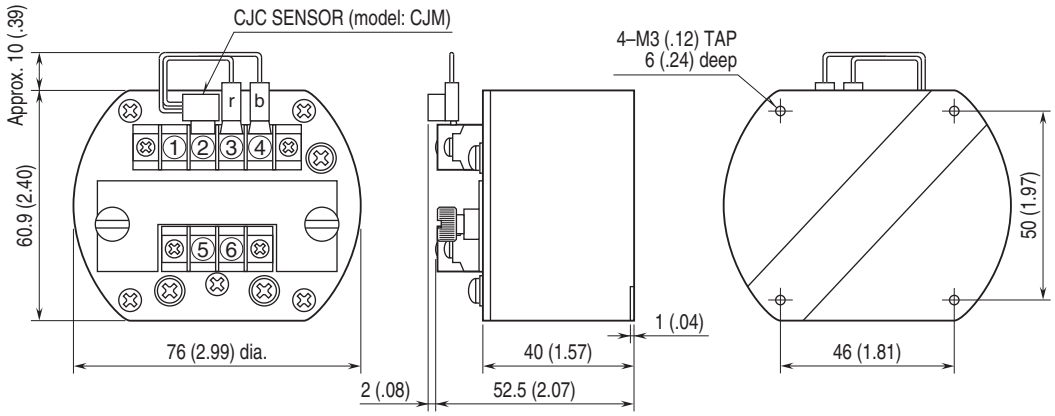
INSTALLATION

Supply voltage: 13 – 28 V DC
Operating temperature: -5 to +70°C (23 to 158°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: DIN rail with mounting plate A-31; surface mounting with adapter plate A-01; spring clip A-02 for 3-inch hub
Weight: 220 g (0.49 lb)

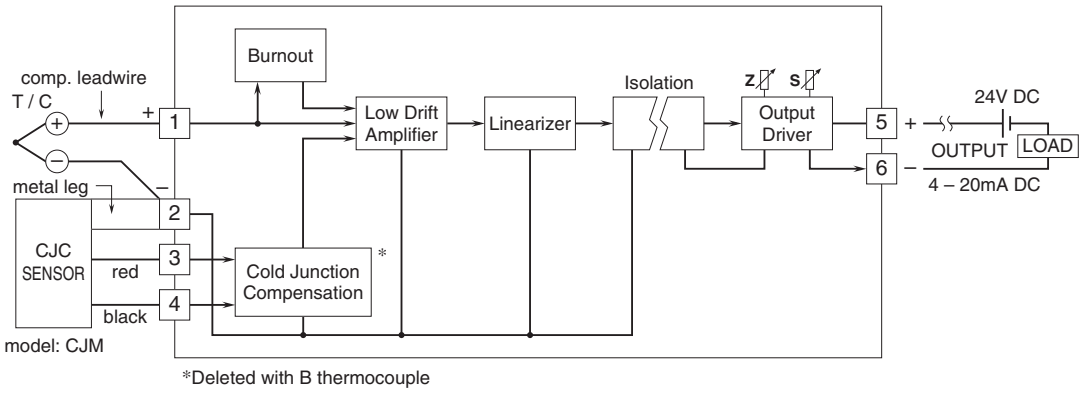
PERFORMANCE in percentage of span

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 MΩ 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 & TERMINAL ASSIGNMENTS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*Deleted with B thermocouple

⚠ Specifications are subject to change without notice.