

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

8: S (Usable range -50 to +1760°C, -58 to +3200°F)  
0: Specify

### THERMOCOUPLE TRANSMITTER

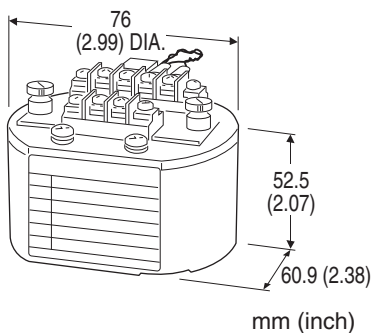
(field-configurable; non-linearization)

#### Functions & Features

- Accepting direct input from a thermocouple and providing a standard 4 – 20 mA DC signal
- Field selectable temperature range
- Burnout protection
- High-accuracy cold junction compensation
- Rugged enclosure

#### Typical Applications

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



## MODEL: 6TS1-[1][2]

### ORDERING INFORMATION

- Code number: 6TS1-[1][2]
- Specify a code from below for each of [1] and [2].  
(e.g. 6TS1-2/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)

### [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:** -3 – +15 % (behind the access cover)

**Span adjustment:** 90 to 110 % (behind the access cover)

**DIP/rotary switches:** For input calibration

(Refer to the instruction manual)

**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 k $\Omega$  minimum

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

**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

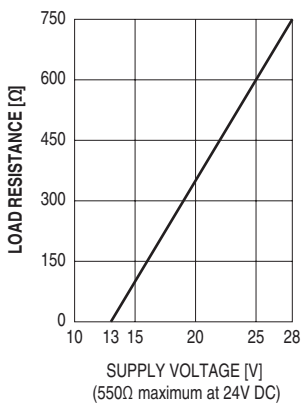
Note: For the temperatures that range below 0°C, the transmitter may partially not satisfy the described accuracy. Consult factory.

- 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)

## 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)



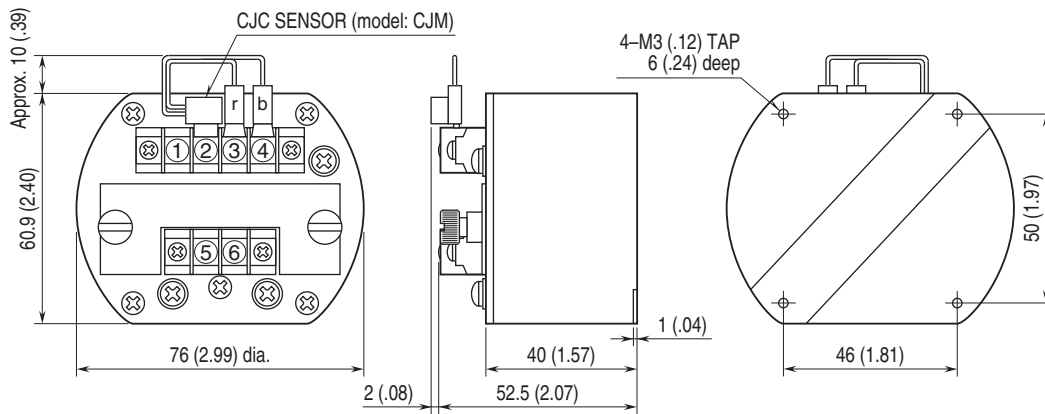
## INSTALLATION

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

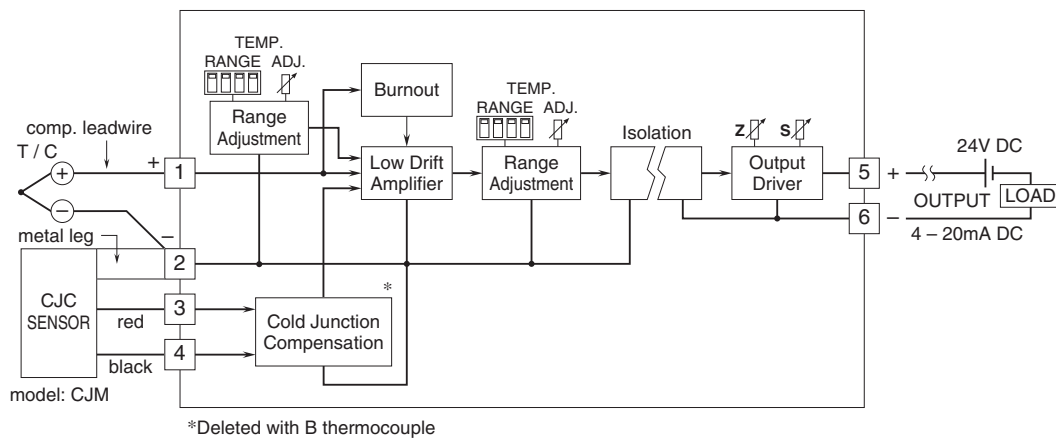
## PERFORMANCE in percentage of span

- Accuracy:** ±0.1 %
- 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)  
 ±0.02 %/°C (±0.01 %/°F) at spans ≤ 10 mV
- Response time:** ≤ 0.5 sec. (0 - 90 %)

## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.