

Space-saving Two-wire Signal Conditioners **B-UNIT**

**THERMOCOUPLE TRANSMITTER**  
(non-isolated)

MODEL **BT**

**MODEL & SUFFIX CODE SELECTION**

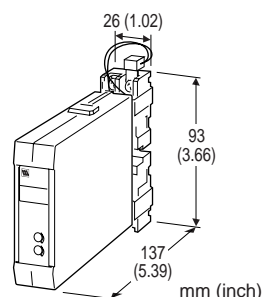
MODEL \_\_\_\_\_ BT-□□  
 INPUT THERMOCOUPLE \_\_\_\_\_  
 2 : K (CA)  
 3 : E (CRC)  
 4 : J (IC)  
 5 : T (CC)  
 7 : R  
 8 : S  
 OUTPUT \_\_\_\_\_  
 4 – 20mA DC  
 SUPPLY VOLTAGE \_\_\_\_\_  
 12 – 60V DC  
 OPTIONS \_\_\_\_\_  
 /BN: No burnout  
 /BL: Downscale burnout

**ORDERING INFORMATION**

Specify code number and variables.  
 • Code number (e.g. BT-2/BL)  
 • Temperature range (e.g. 0 – 800°C)

**GENERAL SPECIFICATIONS**

**Construction:** plug-in  
**Connection:** M3.5 screw terminals  
 (nickel-plated steel; torque ≤0.8 N·m)  
**Housing material:** flame-resistant resin (black)  
**Front adjustments:** zero and span; ±5%  
**Burnout protection:** upscale standard; downscale or no burnout optional  
**Cold junction compensation:** CJC sensor attached to the input terminals



**Functions & Features**

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

**Typical Applications**

- High-accuracy cold junction compensation benefits narrow span measurements

**INPUT & OUTPUT**

■INPUT: thermocouples  
**Minimum span:** 3mV  
**Zero suppression/elevation:** max. 1.5 times span  
**Input resistance:** 50kΩ minimum  
**Burnout sensing:** 0.25μA  
**Temperature range**

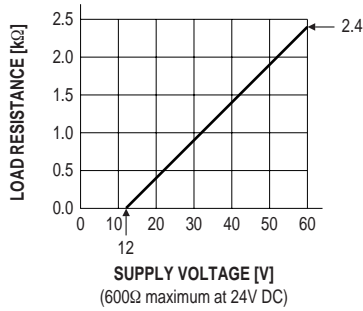
T/C	USABLE RANGE		MIN. SPAN	
	°C	°F	°C	°F
K (CA)	-270 to +1370	-450 to +2500	75	140
E (CRC)	-270 to +1000	-450 to +1830	50	100
J (IC)	-210 to +1200	-350 to +2190	60	110
T (CC)	-270 to +400	-450 to +750	75	140
R	-50 to +1760	-50 to +3200	360	680
S	-50 to +1760	-50 to +3200	380	700

**OUTPUT: 4 – 20mA DC**

**Load resistance vs. supply voltage:**

$$\text{Load Resistance } (\Omega) = \frac{\text{Supply Voltage (V)} - 12 \text{ (V)}}{0.02 \text{ (A)}}$$

(including leadwire resistance)



**INSTALLATION**

**Supply voltage:** 12 – 60V DC

**Operating temperature:** -5 to +60°C (23 to 140°F)

**Operating humidity:** 30 to 90% RH (non-condensing)

**Mounting:** surface or DIN rail; Standard Rack Mounting Frame BX-16H available

**Dimensions:** W26×H107×D137 mm (1.02"×4.21"×5.39")  
See General Spec. Sheet Figure A.

**Weight:** 150 g (0.33 lbs)

**Terminal assignment:** See General Spec. Sheet Figure B-3.

**PERFORMANCE in percentage of span**

**Accuracy:** ±0.1% (at over 400°C or 750°F for R and S)

**Cold junction compensation error** (at 20°C or 68°F)

**K, E, J & T:** ±0.5°C or ±0.9°F maximum

**S & R:** ±1°C or ±1.8°F maximum

**Temp. coefficient:** ±0.05%/°C (±0.03%/°F)

(at over 400°C or 750°F for R and S)

**Response time:** ≤0.5 seconds (0 – 90%)

**Burnout response:** ≤10 seconds

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**

