

Super-mini Two-wire Terminal Block Signal Conditioners B5-UNIT

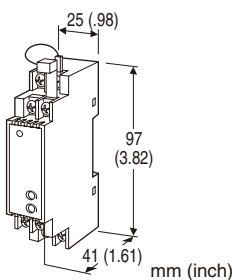
/BL: Downscale burnout

/BN: No burnout

THERMOCOUPLE TRANSMITTER

Functions & Features

- Accepts direct input from a thermocouple and provides an isolated 4 - 20 mA DC signal
- Linearization and burnout
- Cold junction compensation
- Monitor terminals
- High-density mounting
- Power LED
- CE marking



MODEL: B5TS-[1][2]

ORDERING INFORMATION

- Code number: B5TS-[1][2]

Specify a code from below for each [1] and [2].

- Code number (e.g. B5TS-1/K/BL)
- Temperature range (e.g. 0 - 800°C)

[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)
- N: N (Usable range -270 to +1300°C, -454 to +2372°F)
- 0: Specify

[2] OPTIONS (multiple selections)

Response Time (0 - 90 %)

blank: Standard (≤ 0.5 sec.)

/K: Fast Response (Approx. 25 msec.)

Burnout

blank: Upscale burnout

GENERAL SPECIFICATIONS

Construction: Terminal block

Connection: M3.5 screw terminals (torque 0.8 N·m)

Screw terminal: Nickel-plated steel

Housing material: Flame-resistant resin (black)

Isolation: Input to output

Zero adjustment: -1 to +1 % (front)

Span adjustment: 98 to 102 % (front)

Burnout: Upscale standard; downscale or no burnout optional

Linearization: Standard

Cold junction compensation: CJC sensor attached to the input terminals

Power LED: Orange light turns on when the power is supplied.

INPUT SPECIFICATIONS

Minimum span: 3 mV

Input resistance: 20 k Ω min.

Burnout sensing: 0.1 μ A

Lower temperature range & span (in °C)

(PR): Lower range 0 to 880°C; min. span 370°C

K (CA): Lower range -270 to +1200°C; min. span 75°C

E (CRC): Lower range -270 to +750°C; min. span 50°C

J (IC): Lower range -210 to +800°C; min. span 60°C

T (CC): Lower range -270 to +325°C; min. span 75°C

B (RH): Lower range 0 to 750°C; min. span 780°C

R: Lower range -50 to +550°C; min. span 360°C

S: Lower range -50 to +550°C; min. span 380°C

N: Lower range -270 to +1100°C; min. span 110°C

Lower temperature range & span (in °F)

(PR): Lower range 32 to 1616°F; min. span 670°F

K (CA): Lower range -454 to +2192°F; min. span 140°F

E (CRC): Lower range -454 to +1382°F; min. span 90°F

J (IC): Lower range -346 to +1472°F; min. span 110°F

T (CC): Lower range -454 to +617°F; min. span 140°F

B (RH): Lower range 32 to 1382°F; min. span 1450°F

R: Lower range -58 to +1022°F; min. span 680°F

S: Lower range -58 to +1022°F; min. span 700°F

N: Lower range -454 to +2012°F; min. span 200°F

Note: The described accuracy may be partially not satisfied when the temperature ranges below 0°C. Consult M-System.

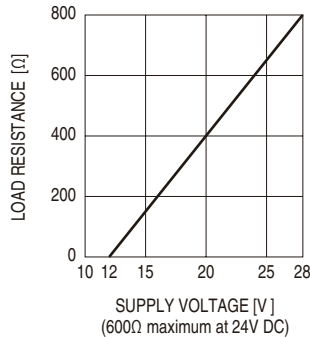
OUTPUT SPECIFICATIONS

■ **OUTPUT:** 4 – 20 mA DC

Load resistance vs. supply voltage:

Load Resistance (Ω) = (Supply Voltage (V) - 12 (V)) \div (0.02 (A))

(including leadwire resistance)

**INSTALLATION**

Supply voltage: 12 – 28 V DC

Operating temperature: -40 to +80°C (-40 to +176°F)

Operating humidity: 0 to 90 %RH (non-condensing)

Mounting: DIN rail

Weight: 60 g (2.1 oz)

PERFORMANCE in percentage of span

Accuracy (whichever is greater)

K, E, J: ± 0.1 % of FS or ± 0.2 °C

T, N: ± 0.2 % of FS or ± 0.2 °C

PR, B, R, S: ± 0.3 % of FS

(at over 400°C for R, S and PR; over 770°C for B)

Cold junction compensation error

K: ± 1 °C max. at 0 – 80°C

0.2°C @25°C + 0.035°C/°C at -40 – 0°C

J: ± 2 °C max. at 0 – 80°C

0.2°C @25°C + 0.06°C/°C at -40 – 0°C

E, T, N: ± 3 °C max. at 0 – 80°C

0.2°C @25°C + 0.14°C/°C at -40 – 0°C

PR, R, S: ± 4 °C max. at 0 – 80°C

0.2°C @25°C + 0.25°C/°C at -40 – 0°C

Temp. coefficient: ± 0.015 %/°C (± 0.008 %/°F)

Burnout response: ≤ 10 sec.

Insulation resistance: ≥ 100 M Ω with 500 V DC

Dielectric strength: 2000 V AC @1 minute

(input to output to ground)

STANDARDS & APPROVALS

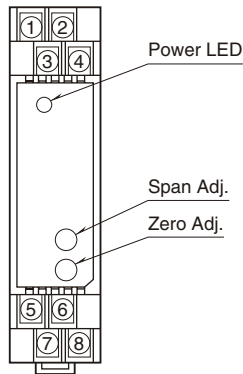
CE conformity:

EMC Directive (2004/108/EC)

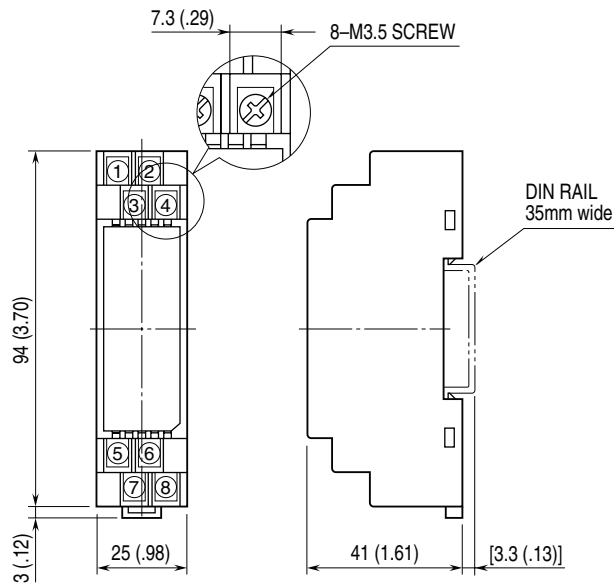
EMI EN 61000-6-4: 2007

EMS EN 61000-6-2: 2005

EXTERNAL VIEW

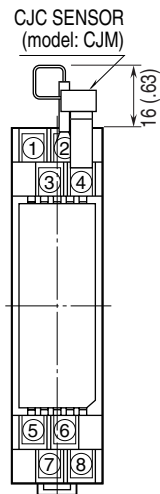


DIMENSIONS unit: mm (inch)

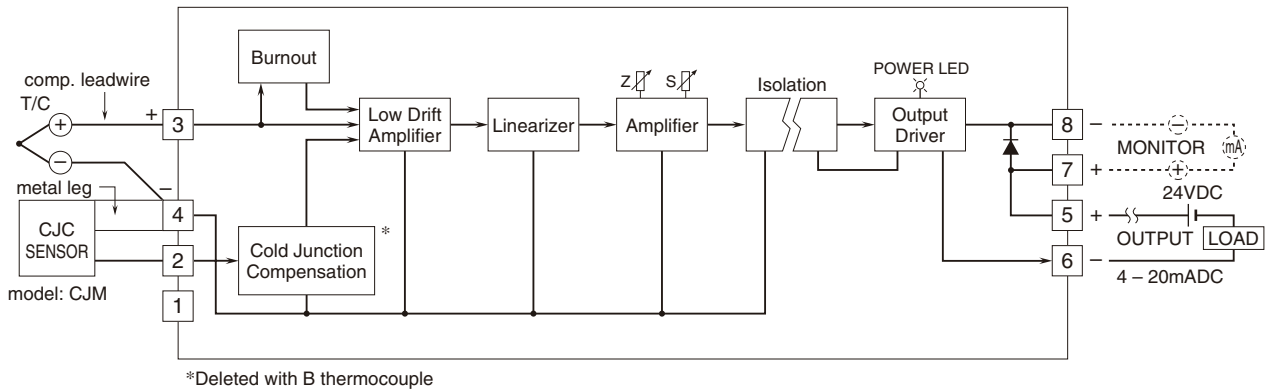


• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.