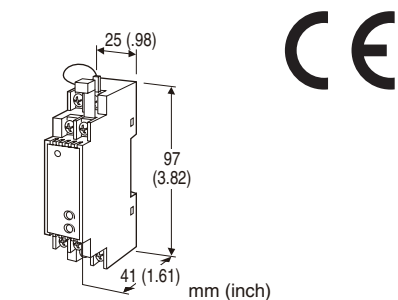


**Super-mini Two-wire Terminal Block
Signal Conditioners B5-UNIT**

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



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/Q)
 - Temperature range (e.g. 0 - 800°C)
 - Specify the specification for option code /Q (e.g. /C01)

[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
- /BL: Downscale burnout
- /BN: No burnout

Other Options

- blank: none
- /Q: Option other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to M-System's web site.)

- /C01: Silicone coating
- /C02: Polyurethane coating
- /C03: Rubber coating

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 (B thermocouple is without CJC as standard)
- Power LED:** Orange light turns on when the power is supplied.

INPUT SPECIFICATIONS

- Minimum span:** 3 mV
- Input resistance:** 20 kΩ min.
- Burnout sensing:** 0.1 μA

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.

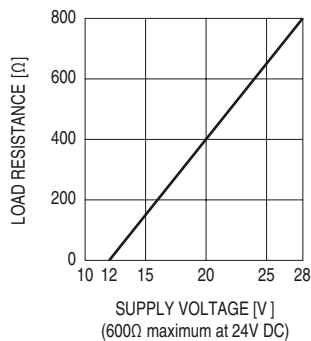
OUTPUT SPECIFICATIONS

Output: 4 - 20 mA DC

Load resistance vs. supply voltage:

Load Resistance (Ω) = (Supply Voltage (V) - 12 (V)) ÷ 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 (±0.36°F)

T, N: ±0.2 % of FS or ±0.2°C (±0.36°F)

PR, R, S: ±0.3 % of FS (over 400°C or 750°F)

B: ±0.3 % of FS (over 770°C or 1420°F)

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

(±1.8°F max. at 32 - 176°F)

0.36°F @77°F+0.035°F/°F at -40 - +32°F)

J: ±2°C max. at 0 - 80°C

0.2°C @25°C+0.06°C/°C at -40 - 0°C

(±3.6°F max. at 32 - 176°F)

0.36°F @77°F+0.06°F/°F at -40 - +32°F)

E, T, N: ±3°C max. at 0 - 80°C

0.2°C @25°C+0.14°C/°C at -40 - 0°C

(±5.4°F max. at 32 - 176°F)

0.36°F @77°F+0.14°F/°F at -40 - +32°F)

PR, R, S: ±4°C max. at 0 - 80°C

0.2°C @25°C+0.25°C/°C at -40 - 0°C

(±7.2°F max. at 32 - 176°F)

0.36°F @77°F+0.25°F/°F at -40 - +32°F)

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

Burnout response: ≤ 10 sec.

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 2000 V AC @1 minute

(input to output to ground)

STANDARDS & APPROVALS

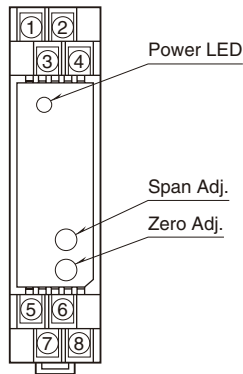
CE conformity:

EMC Directive (2004/108/EC)

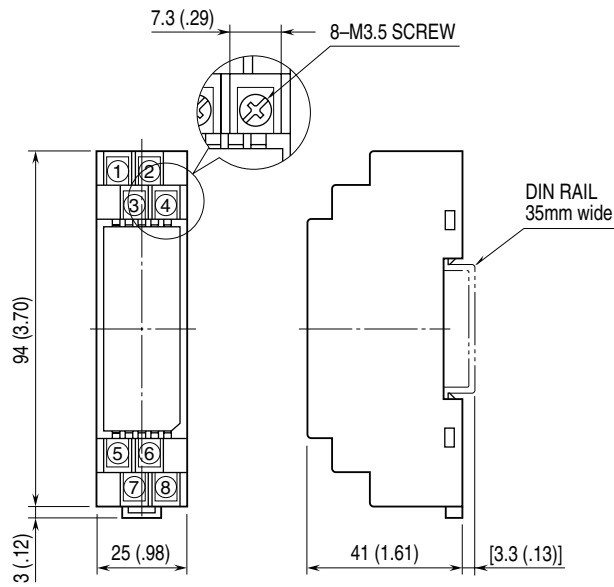
EMI EN 61000-6-4: 2007

EMS EN 61000-6-2: 2005

EXTERNAL VIEW

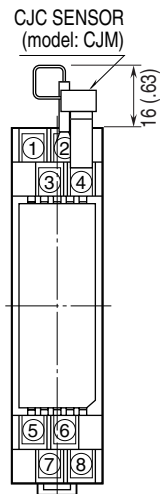


DIMENSIONS unit: mm (inch)

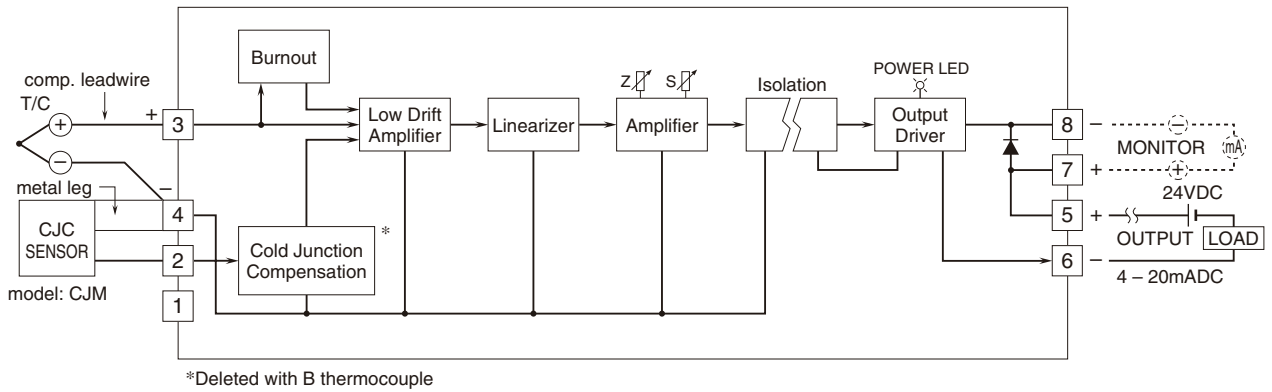


• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.