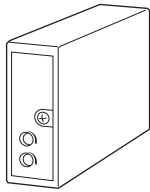


Dual Output Super-mini Signal Conditioners Pico-M Series

THERMOCOUPLE CONVERTER

Functions & Features

- Accepting direct input from a thermocouple and providing two isolated process signals
- Linearization
- Burnout protection
- High-accuracy cold junction compensation
- Space-saving, easy-to-maintain, multi-channel installation base



MODEL: M8TS-[1][2]-R[3]

ORDERING INFORMATION

- Code number: M8TS-[1][2]-R[3]
- Specify a code from below for each of [1] through [3].
(e.g. M8TS-26A-R/BL/Q)
- Special Temperature range (e.g. 0 - 800°C)
 - Specify the specification for option code /Q
(e.g. /C01 /V01)

[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] OUTPUT 1 / OUTPUT 2

- 6A: 1 - 5 V DC (Load resistance 2500 Ω min.)
/ 4 - 20 mA DC (Load resistance 300 Ω max.)
- 44: 0 - 10 V DC (Load Resistance 5000 Ω min.)
/ 0 - 10 V DC (Load Resistance 5000 Ω min.)
- 55: 0 - 5 V DC (Load resistance 2500 Ω min.)
/ 0 - 5 V DC (Load resistance 2500 Ω min.)

- 66: 1 - 5 V DC (Load resistance 2500 Ω min.)
/ 1 - 5 V DC (Load resistance 2500 Ω min.)
- 99: 1 - 9 V DC (Load resistance 4500 Ω min.)
/ 1 - 9 V DC (Load resistance 4500 Ω min.)

POWER INPUT

DC Power

R: 24 V DC

(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

[3] OPTIONS (multiple selections)

Burnout

blank: Upscale burnout

/BL: Downscale burnout

Mounting

blank: Multi-channel Installation Base mounting

(Order Model M8BSx Installation Base separately.)

/SK: Single Base Socket mounting

(Order Model M8BS-1-1 Single Mount Base separately.)

For Model M8BS7, choose blank code.)

Other Options

blank: none

/Q: Option other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q (multiple selections)

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

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

ADJUSTMENT

/V01: Multi-turn fine adjustment

RELATED PRODUCTS

- Installation Base or Single Mount Base Socket (model: M8BSx)

This unit must be mounted on dedicated base or socket.

GENERAL SPECIFICATIONS

Construction: Plug-in

Mounting screw: M3 screw (torque 0.3 N·m)

Housing material: Flame-resistant resin (black)

Power supply: Via the Installation Base terminals
(model: M8BSx)

Isolation: Input to output 1 to output 2 to power

Zero adjustment: -2 to +2 % (front)

Span adjustment: 98 to 102 % (front)

Burnout protection: Upscale standard; downscale optional;
selectable with a switch

At burnout: Downscale ≤ -10 %, Upscale ≥ 110 %

Linearization: Standard

Cold junction compensation: CJC sensor attached to the input terminals (B thermocouple is without CJC as standard)

INPUT SPECIFICATIONS

Minimum span: 3 mV

Offset: max. 1.5 times span

Input resistance: 1 M Ω min. (10 k Ω min. at loss of power)

Burnout sensing: 0.1 μ A

Minimum span in temperature

(PR): 370°C, 670°F

K (CA): 75°C, 140°F

E (CRC): 50°C, 90°F

J (IC): 60°C, 110°F

T (CC): 75°C, 140°F

B (RH): 780°C, 1410°F

R: 360°C, 650°F

S: 380°C, 690°F

N: 110°C, 200°F

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

INSTALLATION

Current consumption: Approx. 30 mA (50 mA for current output)

Operating temperature: 0 to 55°C (32 to 131°F)

Operating humidity: 30 to 95 %RH (non-condensing)

Mounting: Installation Base (model: M8BSx)

Weight: 70 g (2.5 oz)

PERFORMANCE in percentage of span

Accuracy: ± 0.2 % of F.S. typ.; varies according to the span (at over 400°C or 750°F for R and S; over 770°C or 1420°F for B)

Cold junction compensation error

(at 25°C ± 5 °C or 77°F ± 9 °F)

K, E, J, T, N: ± 0.3 °C or ± 0.6 °F

S, R, PR: ± 0.5 °C or ± 0.9 °F

Temp. coefficient: ± 0.02 %/°C (± 0.01 %/°F)

(at over 400°C or 750°F for R and S; over 770°C or 1420°F for B)

Response time: ≤ 0.2 sec. (0 – 90 %)

Burnout response: ≤ 10 sec.

Line voltage effect: ± 0.1 % over voltage range

Insulation resistance: ≥ 100 M Ω with 500 V DC

Dielectric strength:

1500 V AC @1 minute (input to output 1 or output 2 or power to ground)

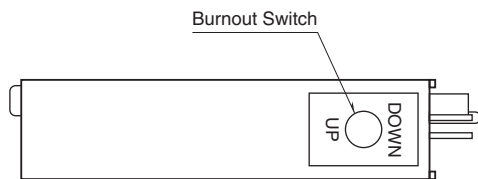
500 V AC @1 minute (output 1 to output 2 to power)

SWC test: ANSI/IEEE-C37.90.1-1989

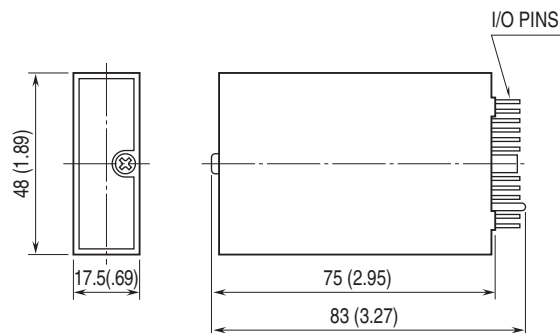
BOTTOM VIEW

• Burnout Switch

Turn the switch in UP direction for upscale burnout,
DOWN for downscale burnout.



EXTERNAL DIMENSIONS unit: mm (inch)

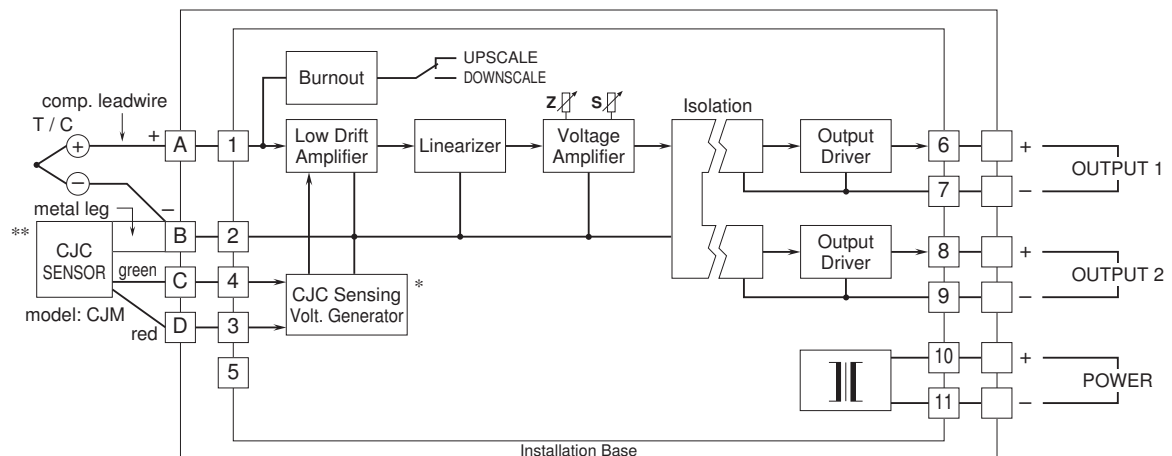


SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

• Mounting on the Single Mount Base (model: M8BS-1-1)

Refer to the data sheet and the instruction manual for the M8BS-1-1.

• Mounting on the Installation Base (model: M8BSx)



*Deleted with B thermocouple input.

** The CJC Sensor for the single mount base is not compatible with the one for the multiple mount base.
Leadwires for the multiple mount type are replaced with metal legs with the single mount type.



Specifications are subject to change without notice.