

**Rack-mounted DCS Signal Conditioners 18-RACK**

**THERMOCOUPLE CONVERTER**

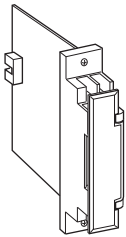
(fast response)

**Functions & Features**

- Accepting direct input from a thermocouple and providing two standard process signals
- 5-segment linearization
- Burnout protection
- High-accuracy cold junction compensation
- Second channel output available at the front terminals and at the Standard Rack connector
- Fast response type

**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)
- No burnout type can connect to a single T/C in parallel with a recorder



**MODEL: 18TK-[1]6[2]-R[3]**

**ORDERING INFORMATION**

- Code number: 18TK-[1]6[2]-R[3]
- Specify a code from below for each of [1] through [3].  
(e.g. 18TK-266-R/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

**OUTPUT 1**

Voltage  
6: 1 - 5 V DC (Load resistance 2000  $\Omega$  min.)

**[2] OUTPUT 2**

Current  
A: 4 - 20 mA DC (Load resistance 600  $\Omega$  max.)  
Voltage  
6: 1 - 5 V DC (Load resistance 2000  $\Omega$  min.)

**POWER INPUT**

DC Power  
R: 24 V DC  
(Operational voltage range 24 V  $\pm$ 10 %, ripple 10 %p-p max.)

**[3] OPTIONS**

Burnout  
blank: Upscale burnout  
/BL: Downscale burnout  
/BN: No burnout

**GENERAL SPECIFICATIONS**

**Construction:** Rack-mounted; terminal access via screw terminals on the front and connector on the rear; terminal cover provided

**Connection**

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

**Output 1:** Connector

**Output 2:** M3.5 screw terminals (torque 0.8 N·m) and connector

**Power input:** Supplied from connector

**Screw terminal:** Nickel-plated steel

**Isolation:** Input to output 1 to output 2 to power

**Overrange output:** Approx. -10 to +120 % at 1 - 5 V

**Zero adjustment:** -5 to +5 % (front)

**Span adjustment:** 95 to 105 % (front)

**Linearization:** Standard

**Cold junction compensation:** CJC sensor attached to the input terminals

**INPUT SPECIFICATIONS****Input resistance:** 20 k $\Omega$  minimum**Burnout sensing:** 0.1  $\mu$ A**Minimum span:** 3 mV**Offset:** Max. 1.5 times span**Minimum span (in °C)**

(PR): 370°C

K (CA): 75°C

E (CRC): 50°C

J (IC): 60°C

T (CC): 75°C

B (RH): 780°C

R: 360°C

S: 380°C

N: 110°C

**Minimum span (in °F)**

(PR): 670°F

K (CA): 140°F

E (CRC): 90°F

J (IC): 110°F

T (CC): 140°F

B (RH): 1410°F

R: 650°F

S: 690°F

N: 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. 35 mA with voltage output

Approx. 65 mA with current output

**Operating temperature:** -5 to +55°C (23 to 131°F)**Operating humidity:** 30 to 90 %RH (non-condensing)**Mounting:** Standard Rack 18BXx or 18KBXx**Weight:** 150 g (0.33 lb)**PERFORMANCE in percentage of span****Accuracy:**  $\pm 0.4$  % (at over 400°C or 750°F for R, S and PR; over 770°C or 1420°F for B)**Cold junction compensation error**(at 20°C  $\pm 10$ °C or 68°F  $\pm 18$ °F)K, E, J, T, N:  $\pm 0.5$ °C or  $\pm 0.9$ °FS, R, PR:  $\pm 1$ °C or  $\pm 1.8$ °F**Temp. coefficient:**  $\pm 0.015$  %/°C ( $\pm 0.008$  %/°F)

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

**Response time:** Approx. 25 msec. (0 - 90 %)**Burnout response:**  $\leq 10$  sec.**Line voltage effect:**  $\pm 0.1$  % over voltage range**Insulation resistance:**  $\geq 100$  M $\Omega$  with 500 V DC**Dielectric strength:** 1500 V AC @ 1 minute

(input to output 1 or output 2 or power)

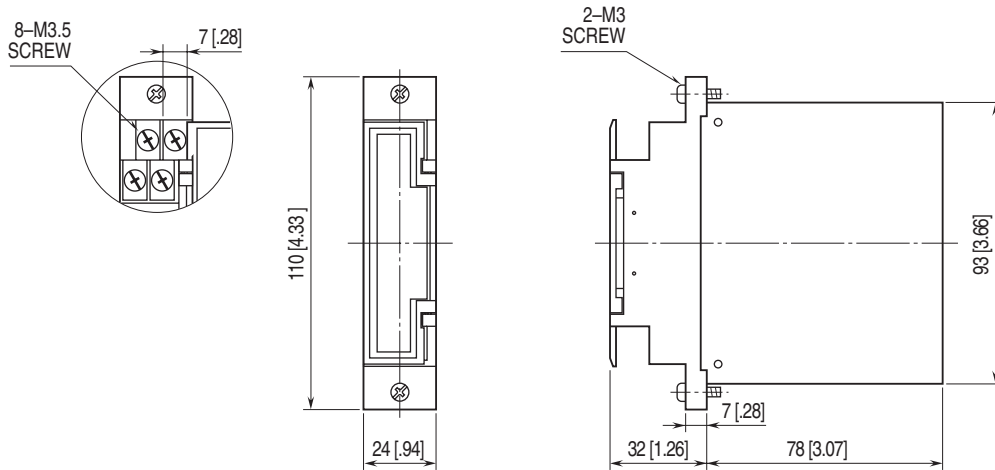
500 V AC @ 1 minute

(output 1 to output 2 to power)

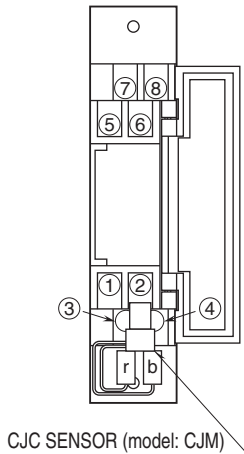
1500 V AC @ 1 minute

(input or output or power to ground)

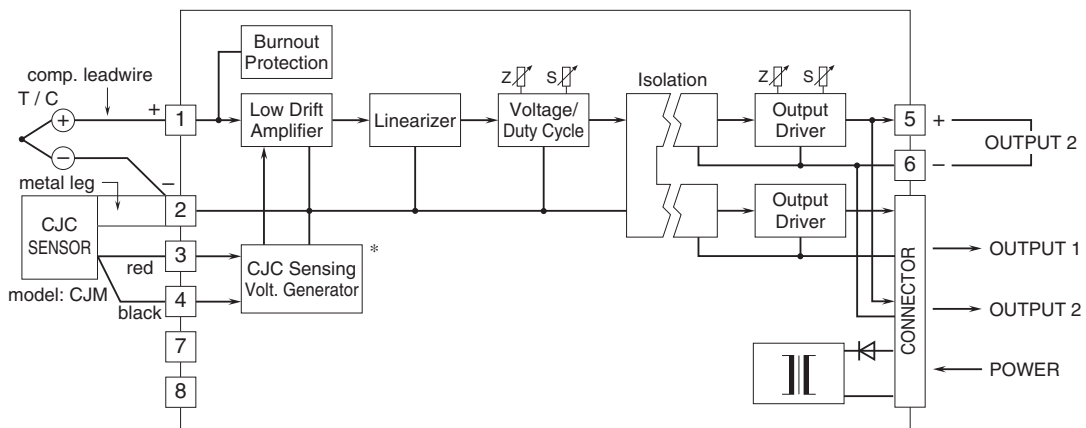
**EXTERNAL DIMENSIONS unit: mm [inch]**



**TERMINAL ASSIGNMENTS**



**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



\*Deleted with B thermocouple  
 For OUTPUT 2 with current output, use either of terminals on the front or connector on the rear.



Specifications are subject to change without notice.