

Rack-mounted DCS Signal Conditioners 18K-RACK

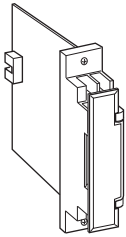
THERMOCOUPLE CONVERTER

Functions & Features

- For thermocouple inputs
- 5-segment linearization, isolation and burnout protection (outputs scale out when disconnected) included
- High-accuracy cold junction compensation
- Module can be retracted without removing wiring for an insulation test

Typical Applications

- High-accuracy cold junction compensation benefits narrow span measurements
- 0.1 μ 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: 18KTS-[1]6[2]-R[3]

ORDERING INFORMATION

- Code number: 18KTS-[1]6[2]-R[3]
- Specify a code from below for each of [1] through [3].
(e.g. 18KTS-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 Ω min.)

[2] OUTPUT 2

Current
A: 4 - 20 mA DC (Load resistance 600 Ω max.)
Voltage
6: 1 - 5 V DC (Load resistance 2000 Ω 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) and connector

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 field terminals

INPUT SPECIFICATIONS

Input resistance: 20 k Ω minimum

Burnout sensing: 0.1 μ A

Minimum span: 3 mV

Offset: Max. 1.5 times span

Minimum span (in $^{\circ}$ C)

(PR): 370 $^{\circ}$ C

K (CA): 75 $^{\circ}$ C

E (CRC): 50 $^{\circ}$ C

J (IC): 60 $^{\circ}$ C

T (CC): 75 $^{\circ}$ C

B (RH): 780 $^{\circ}$ C

R: 360 $^{\circ}$ C

S: 380 $^{\circ}$ C

N: 110 $^{\circ}$ C

Minimum span (in $^{\circ}$ F)

(PR): 670 $^{\circ}$ F

K (CA): 140 $^{\circ}$ F

E (CRC): 90 $^{\circ}$ F

J (IC): 110 $^{\circ}$ F

T (CC): 140 $^{\circ}$ F

B (RH): 1410 $^{\circ}$ F

R: 650 $^{\circ}$ F

S: 690 $^{\circ}$ F

N: 200 $^{\circ}$ F

For the temperatures that range below 0 $^{\circ}$ 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 $^{\circ}$ C (23 to 131 $^{\circ}$ F)

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

Mounting: Standard Rack 18KBXx

Weight: 150 g (0.33 lb)

PERFORMANCE in percentage of span

Accuracy: \pm 0.4 % (at over 400 $^{\circ}$ C or 750 $^{\circ}$ F for R, S and PR; over 770 $^{\circ}$ C or 1420 $^{\circ}$ F for B)

Cold junction compensation error

(at 20 $^{\circ}$ C \pm 10 $^{\circ}$ C or 68 $^{\circ}$ F \pm 18 $^{\circ}$ F)

K, E, J, T, N: \pm 0.5 $^{\circ}$ C or \pm 0.9 $^{\circ}$ F

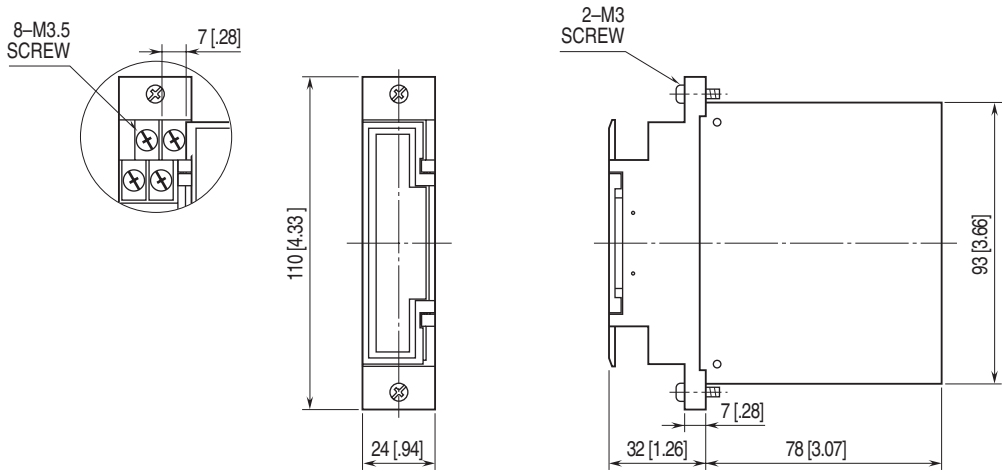
S, R, PR: \pm 1 $^{\circ}$ C or \pm 1.8 $^{\circ}$ F

Temp. coefficient: \pm 0.015 %/ $^{\circ}$ C (\pm 0.008 %/ $^{\circ}$ F)

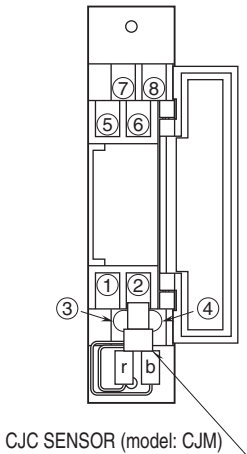
(at over 400 $^{\circ}$ C or 750 $^{\circ}$ F for R, S and PR; over 770 $^{\circ}$ C or 1420 $^{\circ}$ F for B)

Response time: \leq 0.5 sec. (0 - 90 %)

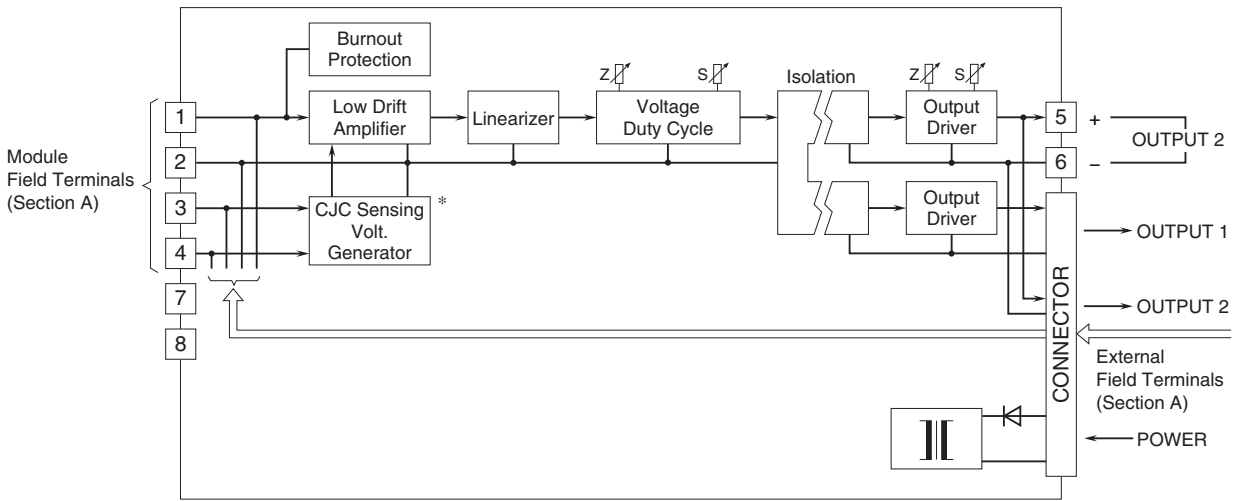
EXTERNAL DIMENSIONS unit: mm [inch]



TERMINAL ASSIGNMENTS



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

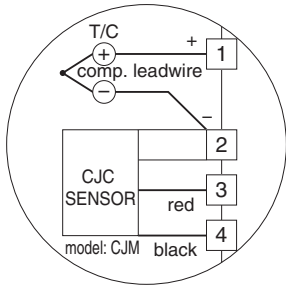


* Deleted with B thermocouple

Note 1: Use either of module or external field terminals.

Note 2: For OUTPUT 2 with current output, use either of terminals on the front or connector on the rear.

Section A. Field Terminals



Specifications are subject to change without notice.