

## Plug-in Signal Conditioners K-UNIT

(Usable range: -50 to +200°C, -58 to +392°F; min.span: 30°C, 54°F)

0: Specify

Note: Consult M-System for 2-wire RTD

### RTD TRANSMITTER

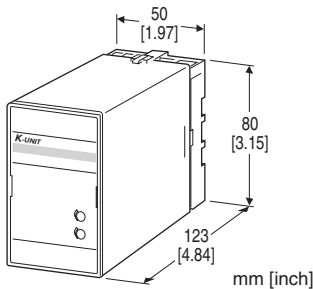
(isolated)

#### Functions & Features

- Accepting direct input from an RTD and providing a standard process signal
- Linearization
- Burnout protection
- "Active bridge" circuit containing two constant current sources allows large leadwire resistances up to 200 Ω
- Fast response type available
- High-density mounting

#### Typical Applications

- Long distance transmission between the RTD and the transmitter
- Combination with intrinsic safety barriers



## MODEL: KRS-[1][2]-[3][4]

### ORDERING INFORMATION

- Code number: KRS-[1][2]-[3][4]

Specify a code from below for each of [1] through [4].

- (e.g. KRS-4A-B/BL/Q)
- Temperature range (e.g. 0 - 500°C)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q (e.g. /C01/S01)

#### [1] INPUT RTD (2- or 3-wire)

1: JPt 100 (JIS'89)

(Usable range: -200 to +500°C, -328 to +932°F; min.span: 50°C, 90°F)

3: Pt 100 (JIS'89)

(Usable range: -200 to +650°C, -328 to +1202°F; min.span: 50°C, 90°F)

4: Pt 100 (JIS'97, IEC)

(Usable range: -200 to +650°C, -328 to +1202°F; min.span: 50°C, 90°F)

5: Pt 50 Ω (JIS'81)

(Usable range: -200 to +500°C, -328 to +932°F; min.span: 100°C, 180°F)

6: Ni 508.4 Ω

### [2] OUTPUT

#### Current

A: 4 - 20 mA DC (Load resistance 750 Ω max.)

B: 2 - 10 mA DC (Load resistance 1500 Ω max.)

C: 1 - 5 mA DC (Load resistance 3000 Ω max.)

D: 0 - 20 mA DC (Load resistance 750 Ω max.)

E: 0 - 16 mA DC (Load resistance 900 Ω max.)

F: 0 - 10 mA DC (Load resistance 1500 Ω max.)

G: 0 - 1 mA DC (Load resistance 15 kΩ max.)

Z: Specify current (See OUTPUT SPECIFICATIONS)

#### Voltage

1: 0 - 10 mV DC (Load resistance 10 kΩ min.)

2: 0 - 100 mV DC (Load resistance 100 kΩ min.)

3: 0 - 1 V DC (Load resistance 100 Ω min.)

4: 0 - 10 V DC (Load resistance 1000 Ω min.)

5: 0 - 5 V DC (Load resistance 500 Ω min.)

6: 1 - 5 V DC (Load resistance 500 Ω min.)

0: Specify voltage (See OUTPUT SPECIFICATIONS)

### [3] POWER INPUT

#### AC Power

B: 100 V AC

C: 110 V AC

D: 115 V AC

F: 120 V AC

G: 200 V AC

H: 220 V AC

J: 240 V AC

#### DC Power

S: 12 V DC

R: 24 V DC

### [4] 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

#### 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

**TERMINAL SCREW MATERIAL**

/S01: Stainless steel

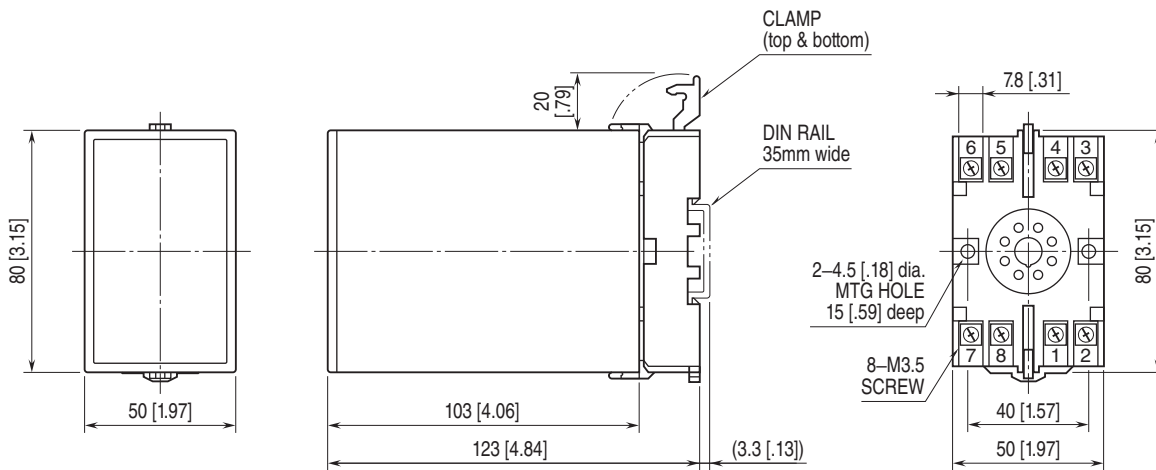
**GENERAL SPECIFICATIONS****Construction:** Plug-in**Connection:** M3.5 screw terminals**Screw terminal:** Chromated steel (standard) or stainless steel**Housing material:** Flame-resistant resin (black)**Isolation:** Input to output to power**Overrange output:** Approx. -10 to +120 % at 1 - 5 V**Zero adjustment:** -5 to +5 % (front)**Span adjustment:** 95 to 105 % (front)**At burnout:** Downscale  $\leq -10\%$ , Upscale  $\geq 110\%$ (When the offset is negative, downscale  $\leq -8\%$ , upscale  $\geq 108\%$ .)**Linearization:** Standard**INPUT SPECIFICATIONS****Maximum leadwire resistance:** 200  $\Omega$  per wire (3-wire)**Sensing current:** 2 mA**OUTPUT SPECIFICATIONS**■ **DC Current:** 0 - 20 mA DC**Minimum span:** 1 mA**Offset:** Max. 1.5 times span**Load resistance:** Output drive 15 V max.■ **DC Voltage:** -10 - +12 V DC**Minimum span:** 5 mV**Offset:** Max. 1.5 times span**Load resistance:** Output drive 10 mA max.; 5 mA for negative voltage output; at  $\geq 0.5$  V**INSTALLATION****Power input**

- **AC:** Operational voltage range: rating  $\pm 10\%$ , 50/60  $\pm 2$  Hz, approx. 2 VA

- **DC:** Operational voltage range: rating  $\pm 10\%$ , ripple 10 %p-p max., approx. 2 W (80 mA at 24 V)

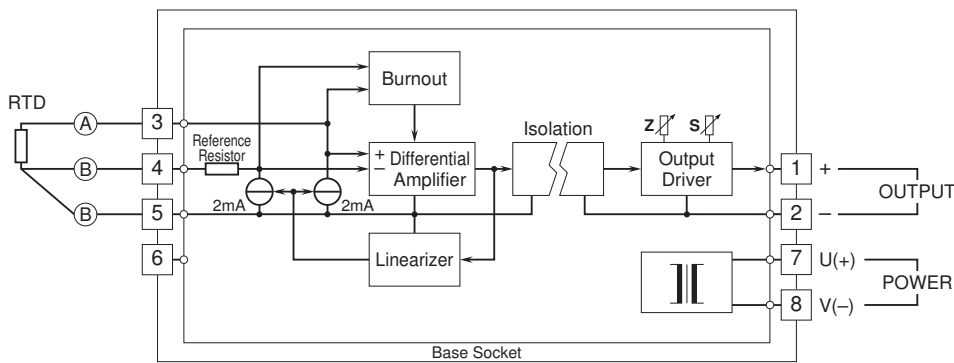
**Operating temperature:** -5 to +55°C (23 to 131°F)**Operating humidity:** 30 to 90 %RH (non-condensing)**Mounting:** Surface or DIN rail**Weight:** 350 g (0.77 lb)**PERFORMANCE in percentage of span****Accuracy:**  $\pm 0.2\%$ **Temp. coefficient:**  $\pm 0.02\%/^{\circ}\text{C}$  ( $\pm 0.01\%/^{\circ}\text{F}$ )**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:** 2000 V AC @1 minute (input to output to power to ground)

## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.