

## Plug-in Signal Conditioners K-UNIT

### RTD TRANSMITTER

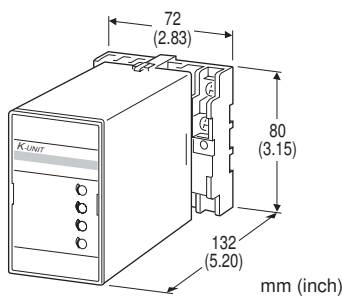
(CE, two isolated outputs)

#### Functions & Features

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

#### Typical Applications

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



## MODEL: KWRS2-[1][2][3]-[4][5]

### ORDERING INFORMATION

- Code number: KWRS2-[1][2][3]-[4][5]
- Specify a code from below for each of [1] through [5].  
(e.g. KWRS2-4AA-H/BL/Q)
- Temperature range (e.g. 0 - 500°C)
- Special output ranges (For codes Z & 0)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

Note: When the user requires a current and a voltage output, specify the current to be the Output 1 which allows a greater load.

### [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  $\Omega$  (JIS'81)

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

**6:** Ni 508.4  $\Omega$

(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

### [2] OUTPUT 1

#### Current

- A:** 4 - 20 mA DC (Load resistance 600  $\Omega$  max.)
- B:** 2 - 10 mA DC (Load resistance 1200  $\Omega$  max.)
- C:** 1 - 5 mA DC (Load resistance 2400  $\Omega$  max.)
- D:** 0 - 20 mA DC (Load resistance 600  $\Omega$  max.)
- E:** 0 - 16 mA DC (Load resistance 750  $\Omega$  max.)
- F:** 0 - 10 mA DC (Load resistance 1200  $\Omega$  max.)
- G:** 0 - 1 mA DC (Load resistance 12 k $\Omega$  max.)
- Z:** Specify current (See OUTPUT SPECIFICATIONS)

#### Voltage

- 1:** 0 - 10 mV DC (Load resistance 10 k $\Omega$  min.)
- 2:** 0 - 100 mV DC (Load resistance 100 k $\Omega$  min.)
- 3:** 0 - 1 V DC (Load resistance 1000  $\Omega$  min.)
- 4:** 0 - 10 V DC (Load resistance 10 k $\Omega$  min.)
- 5:** 0 - 5 V DC (Load resistance 5000  $\Omega$  min.)
- 6:** 1 - 5 V DC (Load resistance 5000  $\Omega$  min.)
- 0:** Specify voltage (See OUTPUT SPECIFICATIONS)

### [3] OUTPUT 2

#### Current

- A:** 4 - 20 mA DC (Load resistance 350  $\Omega$  max.)
- B:** 2 - 10 mA DC (Load resistance 700  $\Omega$  max.)
- C:** 1 - 5 mA DC (Load resistance 1400  $\Omega$  max.)
- D:** 0 - 20 mA DC (Load resistance 350  $\Omega$  max.)
- E:** 0 - 16 mA DC (Load resistance 430  $\Omega$  max.)
- F:** 0 - 10 mA DC (Load resistance 700  $\Omega$  max.)
- G:** 0 - 1 mA DC (Load resistance 7000  $\Omega$  max.)
- Z:** Specify current (See OUTPUT SPECIFICATIONS)

#### Voltage

Same range availability as Output 1

### [4] POWER INPUT

#### AC Power

- G:** 200 V AC
- H:** 220 V AC
- J:** 240 V AC

#### DC Power

- S:** 12 V DC
- R:** 24 V DC

**[5] OPTIONS (multiple selections)****Response Time (0 - 90 %)**

**blank:** Standard ( $\leq 0.5$  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 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)

Adjustable individually for each output 1 and output 2.

**At burnout:** Downscale  $\leq -10$  %, Upscale  $\geq 110$  %

**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 12 V max. for Output 1;

7 V max. for Output 2

■ **DC Voltage:** -10 - +12 V DC

**Minimum span:** 5 mV

**Offset:** Max. 1.5 times span

**Load resistance:** Output drive 1 mA max. at  $\geq 0.5$  V

**INSTALLATION****Power input**

•**AC:** Operational voltage range: rating  $\pm 10$  %, 50/60  $\pm 2$  Hz, approx. 3 VA

•**DC:** Operational voltage range: rating  $\pm 10$  % ripple 10 %p-p max., approx. 3 W (125 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:** 400 g (0.88 lb)

**PERFORMANCE in percentage of span**

**Accuracy:**  $\pm 0.2$  %

**Temp. coefficient:**  $\pm 0.02$  %/°C ( $\pm 0.01$  %/°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:** 2300 V AC @ 1 minute

(input or output to power to ground)

1350 V AC @ 1 minute (input to output)

1000 V AC @ 1 minute (output 1 to output 2)

**STANDARDS & APPROVALS****EU conformity:**

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

Low Voltage Directive

EN 61010-1

Installation Category II

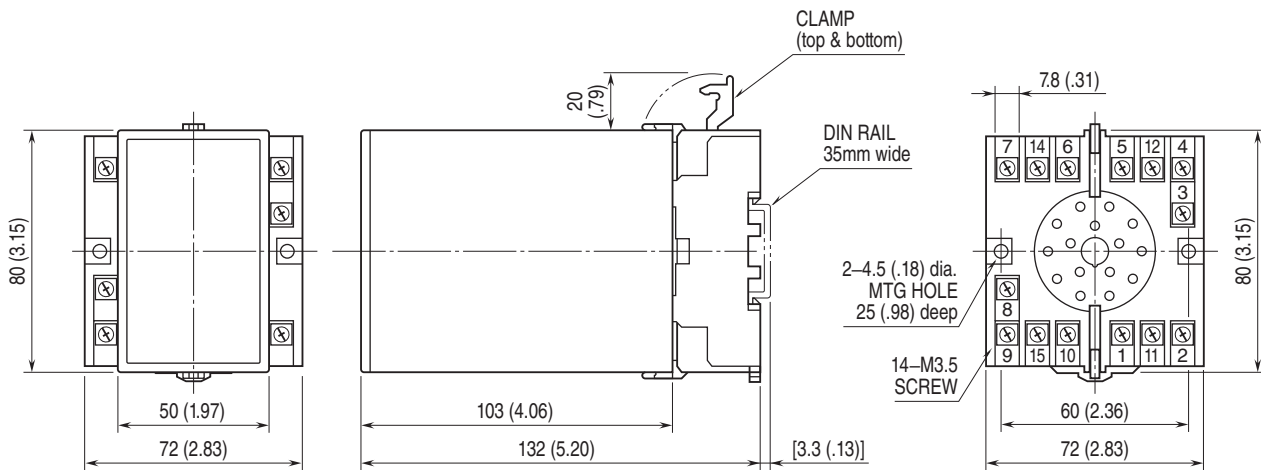
Pollution Degree 2

Input or output to power: Reinforced insulation (300 V)

Input to output: Basic insulation (300 V)

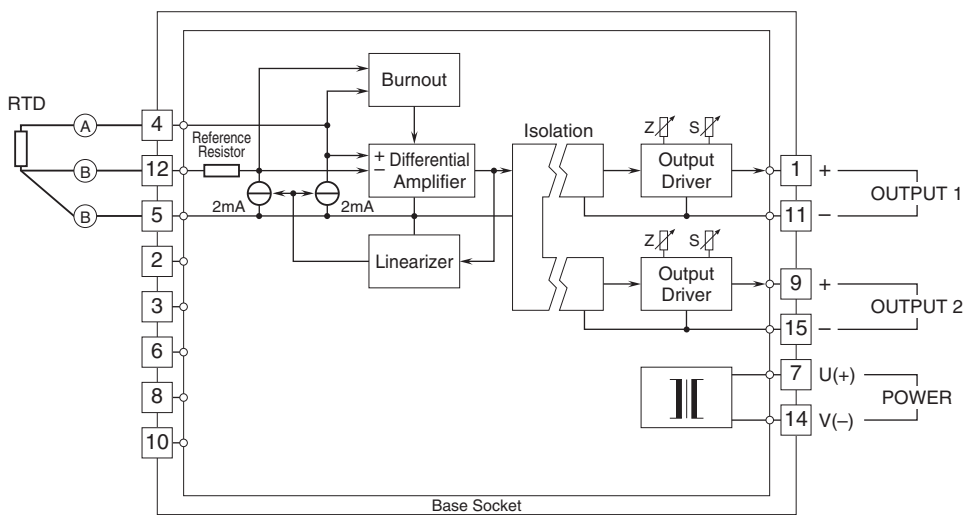
RoHS Directive

## 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.