

**Plug-in Signal Conditioners K-UNIT**

**REVERSE TRANSMITTER**

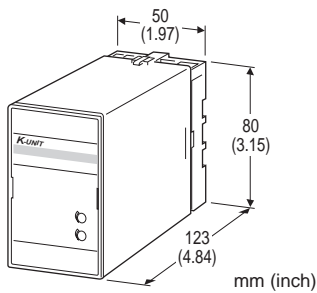
(non-isolated)

**Functions & Features**

- Providing a reversed output proportional to the input signal
- High-density mounting

**Typical Applications**

- Matching manipulating signal with the valve action



**MODEL: KU-[1][2]-[3][4]**

**ORDERING INFORMATION**

- Code number: KU-[1][2]-[3][4]
- Specify a code from below for each [1] through [4]. (e.g. KU-6A-B/Q)
- Special input and output ranges (For codes Z & 0)
- Specify the specification for option code /Q (e.g. /C01/S01)

**[1] INPUT**

**Current**

- A: 4 - 20 mA DC (Input resistance 250 Ω)
- A1: 4 - 20 mA DC (Input resistance 50 Ω)
- B: 2 - 10 mA DC (Input resistance 500 Ω)
- C: 1 - 5 mA DC (Input resistance 1000 Ω)
- D: 0 - 20 mA DC (Input resistance 50 Ω)
- E: 0 - 16 mA DC (Input resistance 62.5 Ω)
- F: 0 - 10 mA DC (Input resistance 100 Ω)
- G: 0 - 1 mA DC (Input resistance 1000 Ω)
- H: 10 - 50 mA DC (Input resistance 100 Ω)
- J: 0 - 10 μA DC (Input resistance 1000 Ω)
- K: 0 - 100 μA DC (Input resistance 1000 Ω)
- GW: -1 - +1 mA DC (Input resistance 1000 Ω)
- FW: -10 - +10 mA DC (Input resistance 100 Ω)
- Z: Specify current (See INPUT SPECIFICATIONS)

**Voltage**

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

- 15: 0 - 50 mV DC (Input resistance 10 kΩ min.)
- 16: 0 - 60 mV DC (Input resistance 10 kΩ min.)
- 2: 0 - 100 mV DC (Input resistance 100 kΩ min.)
- 3: 0 - 1 V DC (Input resistance 1 MΩ min.)
- 4: 0 - 10 V DC (Input resistance 1 MΩ min.)
- 5: 0 - 5 V DC (Input resistance 1 MΩ min.)
- 6: 1 - 5 V DC (Input resistance 1 MΩ min.)
- 4W: -10 - +10 V DC (Input resistance 1 MΩ min.)
- 5W: -5 - +5 V DC (Input resistance 1 MΩ min.)
- 0: Specify voltage (See INPUT SPECIFICATIONS)

**[2] OUTPUT**

**Current**

- A: 20 - 4 mA DC (Load resistance 750 Ω max.)
- B: 10 - 2 mA DC (Load resistance 1500 Ω max.)
- C: 5 - 1 mA DC (Load resistance 3000 Ω max.)
- D: 20 - 0 mA DC (Load resistance 750 Ω max.)
- E: 16 - 0 mA DC (Load resistance 900 Ω max.)
- F: 10 - 0 mA DC (Load resistance 1500 Ω max.)
- G: 1 - 0 mA DC (Load resistance 15 kΩ max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

**Voltage**

- 1: 10 - 0 mV DC (Load resistance 10 kΩ min.)
- 2: 100 - 0 mV DC (Load resistance 100 kΩ min.)
- 3: 1 - 0 V DC (Load resistance 100 Ω min.)
- 4: 10 - 0 V DC (Load resistance 1000 Ω min.)
- 5: 5 - 0 V DC (Load resistance 500 Ω min.)
- 6: 5 - 1 V DC (Load resistance 500 Ω min.)
- 4W: +10 - -10 V DC (Load resistance 2000 Ω min.)
- 5W: +5 - -5 V DC (Load resistance 1000 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**

- blank: none
- /Q: With options (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 or output to power**Overrange output:** Approx. -10 to +120 % at 5 - 1 V**Zero adjustment:** -5 to +5 % (front)**Span adjustment:** 95 to 105 % (front)**INPUT SPECIFICATIONS****■ DC Current:**

Shunt resistor attached to the input terminals (0.5 W)

Specify input resistance value for code Z.

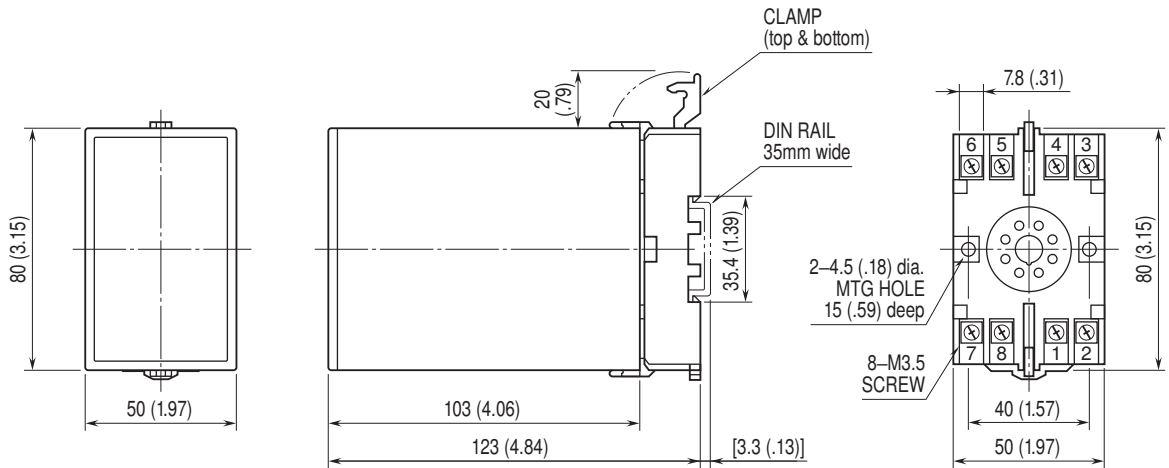
**■ DC Voltage:** -300 - +300 V DC**Minimum span:** 3 mV**Offset:** Max. 1.5 times span**Input resistance**Span 3 - 10 mV :  $\geq 10 \text{ k}\Omega$ Span 10 - 100 mV :  $\geq 10 \text{ k}\Omega$ Span 0.1 - 1 V :  $\geq 100 \text{ k}\Omega$ Span  $\geq 1 \text{ V}$  :  $\geq 1 \text{ M}\Omega$ **OUTPUT 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  $\geq 0.5 \text{ V}$ **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 (90 mA at 24 V)

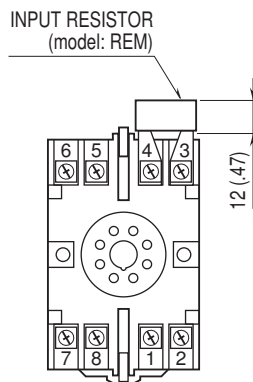
**Operating temperature:** -5 to +55°C (23 to 131°F)**Operating humidity:** 30 to 90 %RH (non-condensing)**Mounting:** Surface or DIN rail**Weight:** 400 g (0.88 lb)**PERFORMANCE in percentage of span****Accuracy:**  $\pm 0.1 \%$ **Temp. coefficient:**  $\pm 0.02 \text{ }^\circ\text{C}$  ( $\pm 0.01 \text{ }^\circ\text{F}$ )**Response time:**  $\leq 0.5 \text{ sec.}$  (0 - 90 %)**Line voltage effect:**  $\pm 0.1 \%$  over voltage range**Insulation resistance:**  $\geq 100 \text{ M}\Omega$  with 500 V DC**Dielectric strength:** 2000 V AC @1 minute (input or output to power to ground)

## DIMENSIONS unit: mm (inch)



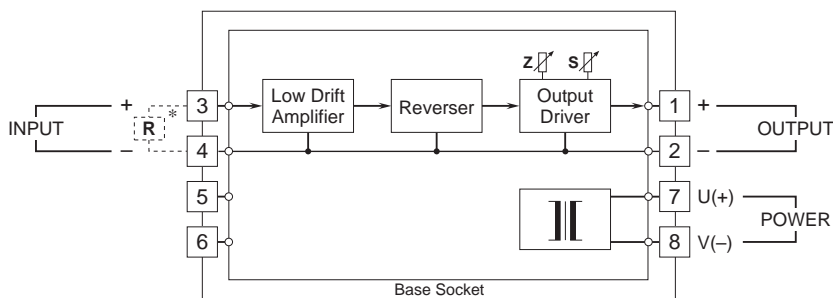
• When mounting, no extra space is needed between units.

## TERMINAL ASSIGNMENTS unit: mm (inch)



Input shunt resistor attached for current input.

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



\*Input shunt resistor attached for current input.



Specifications are subject to change without notice.