

Plug-in Signal Conditioners K-UNIT

DELAY BUFFER

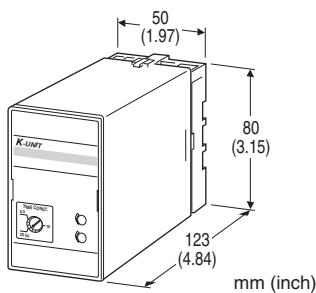
(isolated)

Functions & Features

- Generating a first order lag output in accordance with the preset time constant
- Time constant adjustable up to 20 seconds
- High-density mounting

Typical Applications

- Smoothing pulsating signals
- Stabilizing indicator value of dust chambers



MODEL: KFS-[1][2]-[3][4]

ORDERING INFORMATION

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

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

- (e.g. KFS-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 μ A DC (Input resistance 1000 Ω)
- K: 0 – 100 μ A 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 k Ω min.)
- 15: 0 – 50 mV DC (Input resistance 10 k Ω min.)
- 16: 0 – 60 mV DC (Input resistance 10 k Ω min.)
- 2: 0 – 100 mV DC (Input resistance 100 k Ω min.)
- 3: 0 – 1 V DC (Input resistance 1 M Ω min.)
- 4: 0 – 10 V DC (Input resistance 1 M Ω min.)
- 5: 0 – 5 V DC (Input resistance 1 M Ω min.)
- 6: 1 – 5 V DC (Input resistance 1 M Ω min.)
- 4W: -10 – +10 V DC (Input resistance 1 M Ω min.)
- 5W: -5 – +5 V DC (Input resistance 1 M Ω min.)
- 0: Specify voltage (See INPUT SPECIFICATIONS)

[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 k Ω max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage

- 1: 0 – 10 mV DC (Load resistance 10 k Ω min.)
- 2: 0 – 100 mV DC (Load resistance 100 k Ω 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.)
- 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 to output to power

Time constant adjustment: 270°-turn screwdriver adjustment (front)

Adjustable range: Approx. 0.5 to 20 sec.

(0 to approx. 63.2 %)

(factory set to MIN.)

Overrange output: Approx. -10 to +120 % at 1 – 5 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 $\pm 2 \text{ Hz}$, 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)

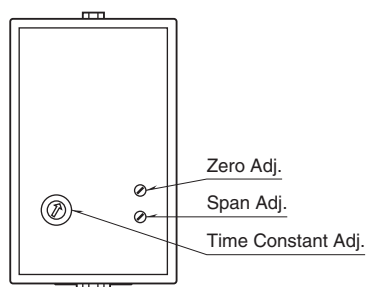
Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail

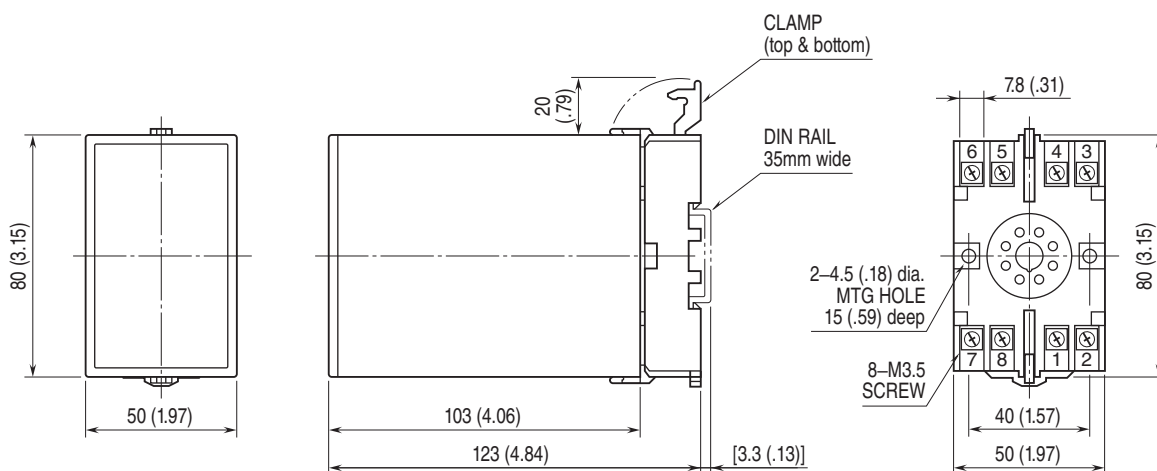
Weight: 300 g (0.66 lb)

PERFORMANCE in percentage of spanAccuracy: $\pm 0.2 \%$ Temp. coefficient: $\pm 0.02 \text{ }^\circ\text{C}$ ($\pm 0.01 \text{ }^\circ\text{F}$)Line voltage effect: $\pm 0.1 \%$ over voltage rangeInsulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DCDielectric strength: 2000 V AC @1 minute (input to output
to power to ground)

EXTERNAL VIEW

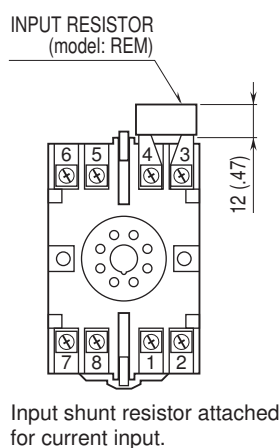


EXTERNAL DIMENSIONS unit: mm (inch)

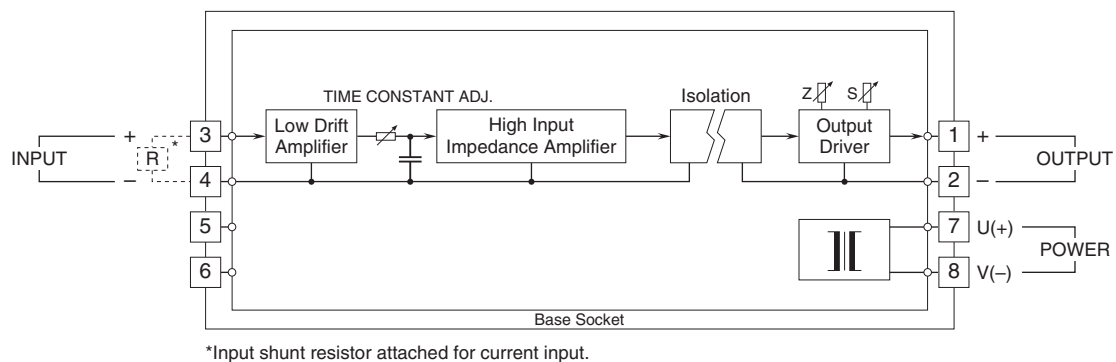


• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.