Plug-in Signal Conditioners K-UNIT

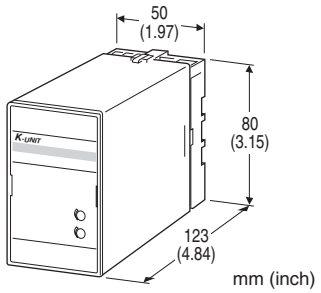
DC/FREQUENCY CONVERTER

Functions & Features

• Providing a pulse rate output in proportion to DC input signal
• Isolation up to 2000 V AC
• Highdensity mounting

Typical Applications

• Totalizing applications in combination with a counter



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

ORDERING INFORMATION

• Code number: KAP-[1][2]-[3][4]
Specify a code from below for each of [1] through [4].
(e.g. KAP-61-B/Q)
• Special input range (For codes Z & 0)
• Output frequency range (e.g. 0 – 500 Hz)
• 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)
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.)
0: Specify voltage (See INPUT SPECIFICATIONS)

[2] OUTPUT

1: Open collector (1 kHz)
3: AC/DC switch (1 kHz)
( ) = Max. frequency

[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
Zero adjustment: 0 – 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: 10 mV
Offset: Max. 1.5 times span
Input resistance
Span 10 – 100 mV : ≥ 10 kΩ
Span 0.1 – 1 V : ≥ 100 kΩ
Span ≥ 1 V : ≥ 1 MΩ

OUTPUT SPECIFICATIONS

Frequency range: 0 – 0.01 Hz through 1 kHz
ON pulse width: Approx. 50 % of the duty of the maximum output frequency (500 µsec. – 0.8 sec.)
Pulse width is forcibly limited to approx. 0.8 sec. if the value [approx. 50 % of the duty of the maximum output frequency] is not smaller than 0.8 sec.
■ **Open Collector**: 50 V DC @50 mA (resistive load)
Saturation voltage: 0.6 V DC
■ **AC/DC Switch:** 100 V AC @200 mA (cosø=1)
150 V DC @200 mA (resistive load)
Voltage drop: 6 V or less

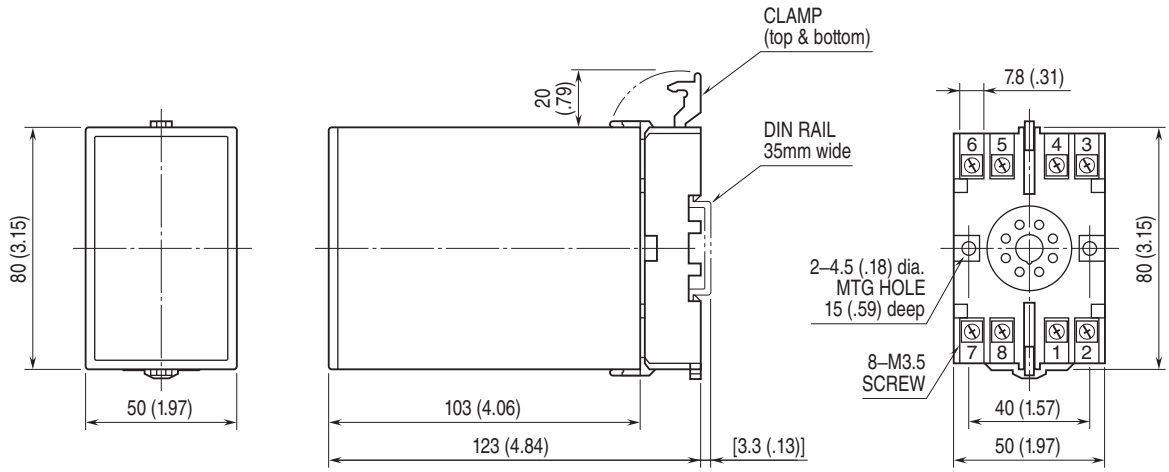
INSTALLATION

Power input
• **AC**: Operational voltage range: rating ±10 %, 50/60 ±2 Hz, approx. 2 VA
•**DC**: Operational voltage range: rating ±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: 450 g (0.99 lb)

PERFORMANCE in percentage of span

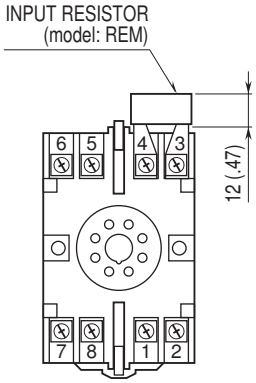
Accuracy: ±0.1 %
Temp. coefficient: ±0.02 %/°C (±0.01 %/°F)
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

EXTERNAL DIMENSIONS unit: mm (inch)



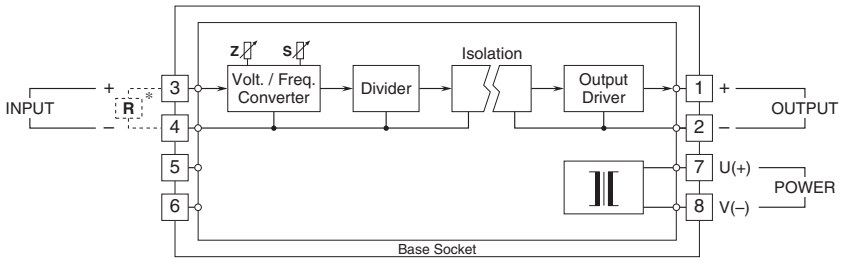
• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



Input shunt resistor attached
for current input.

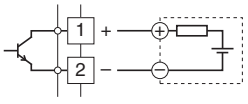
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



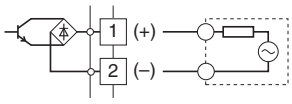
*Input shunt resistor attached for current input.

Output Connection Examples

■ **Open Collector**



■ **AC/DC Switch**



⚠ Specifications are subject to change without notice.