

Plug-in Signal Conditioners K-UNIT

LOW FREQUENCY TRANSMITTER

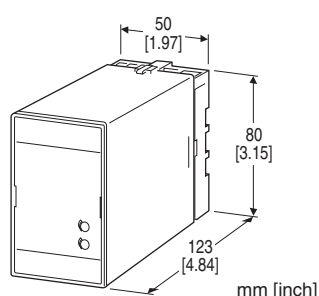
(50 Hz minimum, for Mitsubishi inverter)

Functions & Features

- Converting the pulse output from FM terminal of Mitsubishi inverter into standard process signal
- Isolation up to 2000 V AC
- High-density mounting

Typical Applications

- Positive displacement flowmeters, turbine flowmeters and vortex flowmeters
- Proximity switches



MODEL: KSP-2[1]-[2]-ME

ORDERING INFORMATION

- Code number: KSP-2[1]-[2]-ME
- Specify a code from below for each of [1] and [2].
(e.g. KSP-2A-B-ME)
- Frequency range (e.g. 0 - 1440 Hz)

INPUT

2: Voltage pulse

[1] 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)

[2] 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

GENERAL SPECIFICATIONS

Construction: Plug-in

Connection: M3.5 screw terminals

Housing material: Flame-resistant resin (black)

Isolation: Input to output to power

Overrange output: 0 to 120 % at 1 - 5 V

Zero adjustment: -5 to +5 % (front)

Span adjustment: 95 to 105 % (front)

Input pulse sensing: DC coupled standard

Input filter: CR filter incorporated

(C = 3.3 nF, R = 10 k Ω ; parallel connection)

Low-end cutout: 2 to 5 %

Applicable inverter:

Mitsubishi electric FREQROL series: A024, A200, A500, A700, A800, D700, E500, E700, E800, F400, F500, F700, F700PJ, F800, S500, U100, B, B3

Mitsubishi electric MELTRAC series: A100, A200, V200

(Note) Do NOT connect other devices except the transmitter to the inverter's FM terminal. Do NOT bundle the FM and motor wirings.

INPUT SPECIFICATIONS

Frequency range: 0 - 50 Hz through 0 - 1440 Hz

Pulse width (time) requirement: $\geq 280 \mu\text{sec}$. (Hi and Lo)

■ Voltage Pulse

Waveform: Square

Input amplitude: $V_H 4 \pm 0.7 - 50 \text{ V}$, $V_L 1 \pm 0.7 \text{ V}$

Input impedance: $\geq 7 \text{ k}\Omega$ (for 9 V DC pulse)

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 ≥ 0.5 V

INSTALLATION**Power input**

• **AC:** Operational voltage range: rating ± 10 %, 50/60 ± 2 Hz, approx. 2.5 VA

• **DC:** Operational voltage range: rating ± 10 %, ripple 10% p-p max.; approx. 2.5 W (100 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: ± 0.3 % (output 10 – 100 %)

Temp. coefficient: ± 0.02 %/°C (± 0.01 %/°F)

Response time: (0 – 90 %)

Approx. 2 sec. for 0 – 50 Hz

Approx. 1 sec. for 0 – 100 Hz

Approx. 0.5 sec. for 0 – 500 Hz

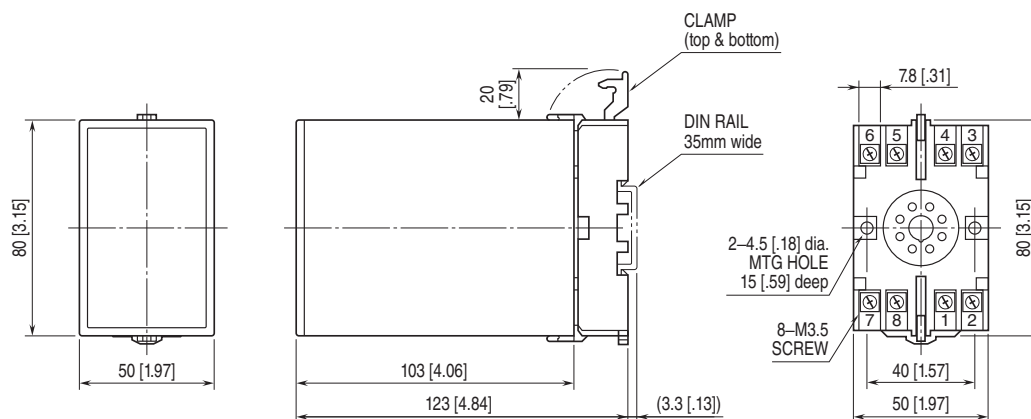
Approx. 0.5 sec. for 0 – 1440 Hz

Ripple: 0.2 %p-p max. with input ≥ 10 %

Line voltage effect: ± 0.1 % over voltage range

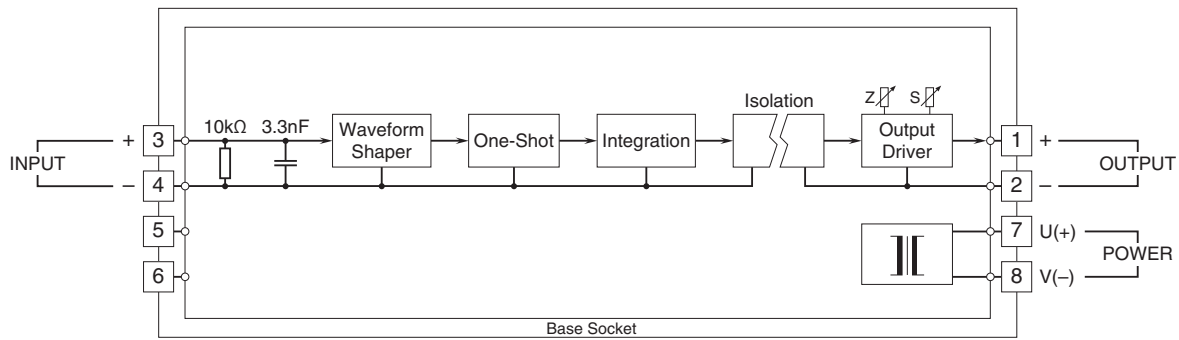
Insulation resistance: ≥ 100 M Ω with 500 V DC

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



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Do NOT bundle the FM and motor wirings.



Specifications are subject to change without notice.