

Plug-in Signal Conditioners M-UNIT

ULTRA-LOW FREQUENCY TRANSMITTER

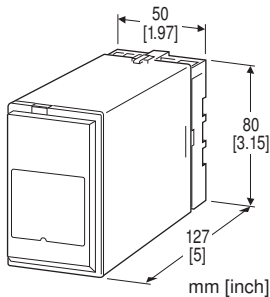
(0.01 Hz minimum)

Functions & Features

- Converting the output from a pulse-type transducer into a standard process signal
- Excitation
- Isolation up to 2000 V AC
- High-density mounting

Typical Applications

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



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

ORDERING INFORMATION

- Code number: EP-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4]. (e.g. EP-33-B/Q)
- Frequency range (e.g. 0 - 5 Hz)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q (e.g. /C01/S01)

[1] INPUT

- 1: Open collector (Excitation: 12 V @ 30 mA)
- 2: Voltage pulse (Excitation: 12 V @ 30 mA)
- 3: Mechanical contact (Excitation: 12 V @ 30 mA)

[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 kΩ max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)
- Voltage
- 1: 0 - 10 mV DC (Load resistance 10 kΩ min.)
- 2: 0 - 100 mV DC (Load resistance 100 kΩ min.)
- 3: 0 - 1 V DC (Load resistance 1000 Ω min.)
- 4: 0 - 10 V DC (Load resistance 10 kΩ min.)
- 5: 0 - 5 V DC (Load resistance 5000 Ω min.)
- 6: 1 - 5 V DC (Load resistance 5000 Ω min.)
- 4W: -10 - +10 V DC (Load resistance 10 kΩ min.)
- 5W: -5 - +5 V DC (Load resistance 5000 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
- V: 48 V DC

[4] OPTIONS

- blank: none
- /Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q (multiple selections)

- COATING (For the detail, refer to our 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
- Overrange output: 0 to 120 % at 1 - 5 V
- Zero adjustment: -5 to +5 % (front)
- Span adjustment: 95 to 105 % (front)

INPUT SPECIFICATIONS

Excitation: Shortcircuit protection

Pulse width (time) requirement: 10 msec. min. at
< 20 Hz; duty ratio 20 - 80 % at \geq 20 Hz

■ **Open Collector**

Frequency range: 0 - 0.01 Hz through 50 Hz

Sensing: approx. 12 V DC @ 3 mA

ON/OFF level: \leq 800 Ω / 2 V for ON,
 \geq 1.2 k Ω / 3.6 V for OFF

■ **Mechanical Contact**

Frequency range: 0 - 0.01 Hz through 5 Hz

Sensing: Approx. 12 V DC @ 3 mA

ON/OFF level: \leq 800 Ω / 2 V for ON,
 \geq 1.2 k Ω / 3.6 V for OFF

■ **Voltage Pulse:** Square or sine waveforms

Input pulse sensing: Capacitor coupled; detecting pulse rise

Frequency range: 0 - 0.01 Hz through 50 Hz

Input amplitude: 2 - 50 Vp-p

Input impedance: 10 k Ω min.

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 - +20 V DC

Span: Min. 5 mV, max. 20 V

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. 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: 350 g (0.77 lb)

PERFORMANCE in percentage of span

Accuracy: \pm 0.1 %

Temp. coefficient: \pm 0.015 %/°C (\pm 0.008 %/°F)

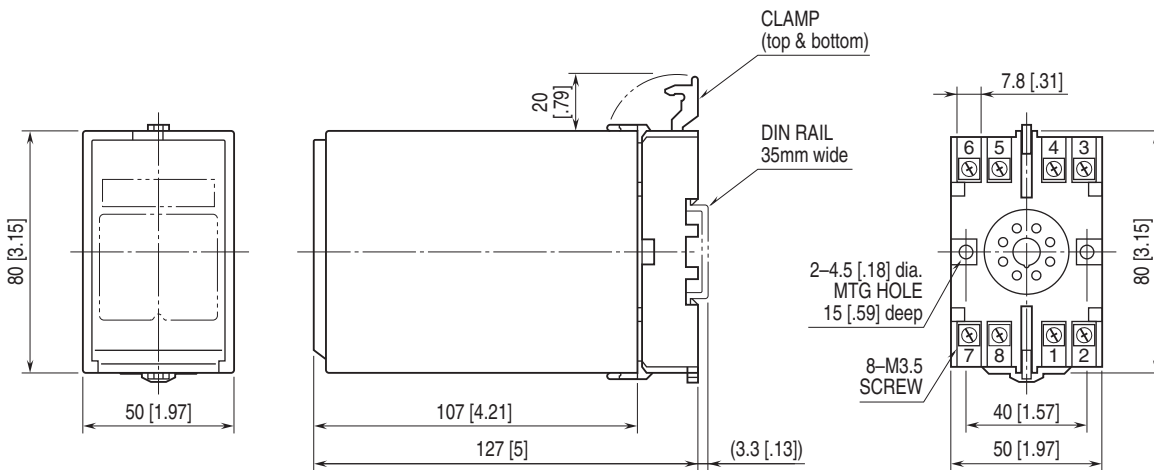
Response time: 0.5 sec. + 1 pulse cycle (0 - 90 %)

Line voltage effect: \pm 0.1 % over voltage range

Insulation resistance: \geq 100 M Ω with 500 V DC

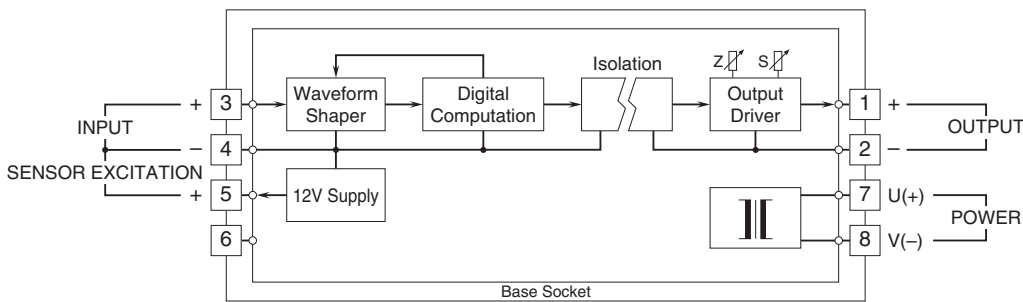
Dielectric strength: 2000 V AC @1 minute (input to output
to power to ground)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



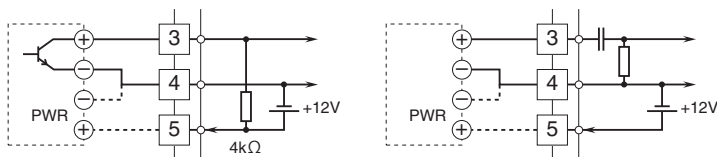
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Input Connection Examples

■ Open Collector or Mechanical Contact ■ Voltage Pulse



Specifications are subject to change without notice.