Plug-in Signal Conditioners M-UNIT

ULTRA-LOW FREQUENCY TRANSMITTER

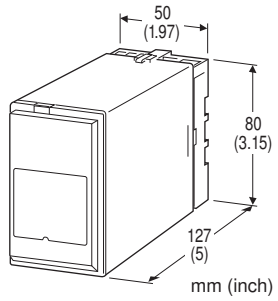
(0.01 Hz minimum)

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 [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 – 1 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 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
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 ≥ 20 Hz
■ **Open Collector**
Frequency range: 0 – 0.01 Hz through 50 Hz
Sensing: approx. 12 V DC @ 3 mA
ON/OFF level: ≤ 800 Ω / 2 V for ON,
≥ 1.2 kΩ / 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: ≤ 800 Ω / 2 V for ON,
≥ 1.2 kΩ / 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 kΩ 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 ≥ 0.5 V

INSTALLATION

Power input
•**AC**: Operational voltage range: rating ±10 %, 50/60 ±2 Hz, approx. 3 VA
•**DC**: Operational voltage range: rating ±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: ±0.1 %
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Response time: 0.5 sec. + 1 pulse cycle (0 – 90 %)
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)

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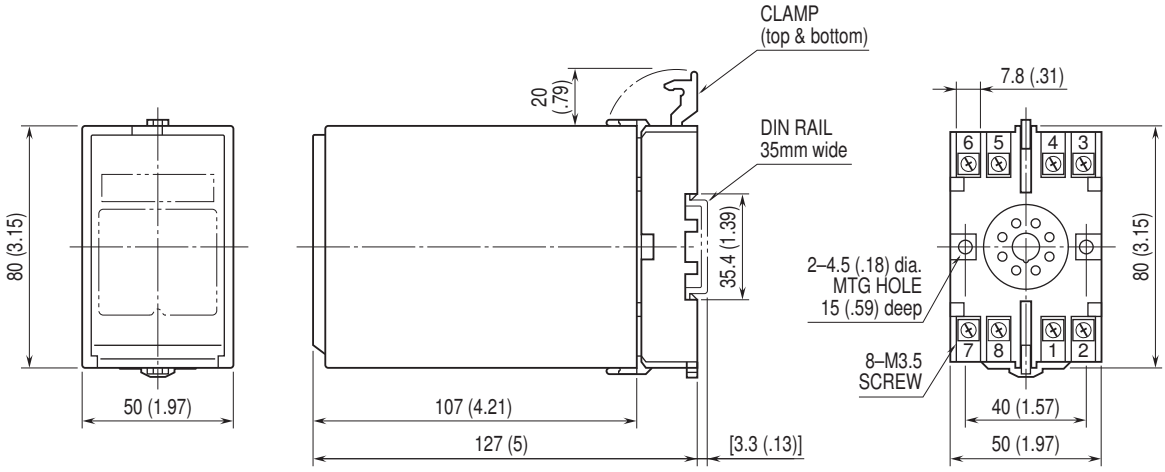
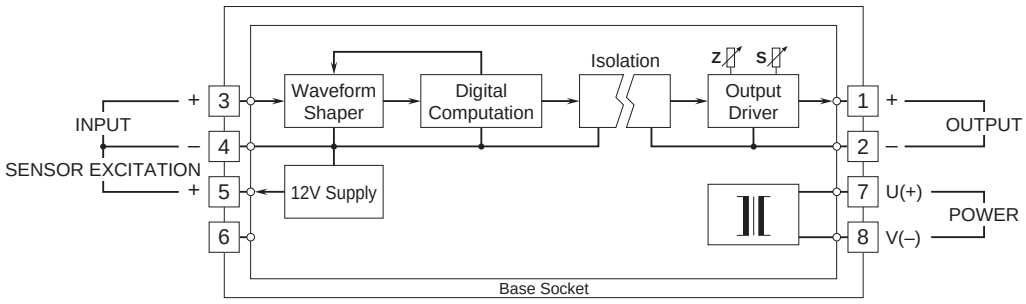
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



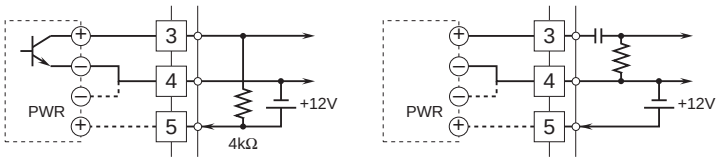
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Input Connection Examples

■Open Collector or Mechanical Contact **■Voltage Pulse**



⚠ Specifications are subject to change without notice.

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