

Plug-in Signal Conditioners M-UNIT

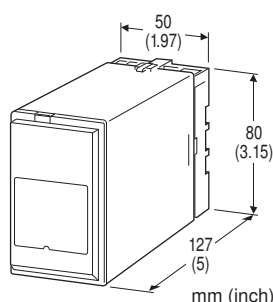
FREQUENCY TRANSDUCER

Functions & Features

- Providing a DC output signal in proportion to deviation (± 1 , 2 or 5 Hz) from center frequency (50 Hz or 60 Hz)
- DC output containing little ripple is ideal for computer input
- Isolation up to 2000 V AC
- High-density mounting

Typical Applications

- Centralized monitoring and control of power management system in manufacturing facility or building
- Measuring frequency for UPS



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

ORDERING INFORMATION

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

[1] INPUT

- 1: 49 - 51 Hz
- 2: 48 - 52 Hz
- 3: 45 - 55 Hz
- 6: 59 - 61 Hz
- 7: 58 - 62 Hz
- 8: 55 - 65 Hz

[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 1000 Ω min.)

4: 0 - 10 V DC (Load resistance 10 k Ω 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 k Ω 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

P: 110 V DC

[4] OPTIONS (multiple selections)

Output limit

blank: none

/LM: Limit 0 %, 100 %

Other Options

blank: none

/Q: Option other than the above (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: Approx. -10 to +120 % at 1 - 5 V
 (For 'LM' (limit 0 %, 100 %), 0 to 100 %)
Zero adjustment: -5 to +5 % (front)
Span adjustment: 95 to 105 % (front)

Ripple: 0.5 %p-p max.

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)

INPUT SPECIFICATIONS

Operational range: 80 - 250 V AC
Overload capacity: 450 V for 1 min.
Input burden: 0.1 VA max.

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.

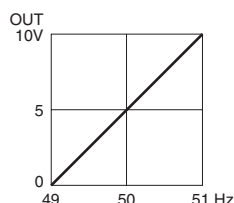
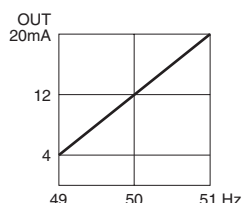
■ **DC Voltage:** -10 - +12 V DC

Minimum span: 5 mV

Offset: Max. 1.5 times span

Load resistance: Output drive 1 mA max. at ≥ 0.5 V

■ **OPERATION DIAGRAM (example)**

**INSTALLATION**

Power input

- **AC:** Operational voltage range: rating ± 10 %, 50/60 ± 2 Hz, approx. 3 VA
- **DC:** Operational voltage range: rating ± 10 %, or 85 - 150 V for 110 V rating, ripple 10 %p-p max., approx. 3 W (27 mA at 110 V)

Operating temperature: -5 to +60°C (23 to 140°F)

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

Mounting: Surface or DIN rail

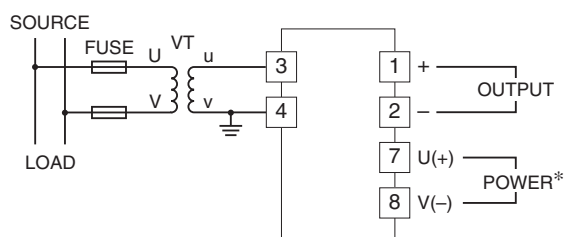
Weight: 450 g (0.99 lb)

PERFORMANCE in percentage of span

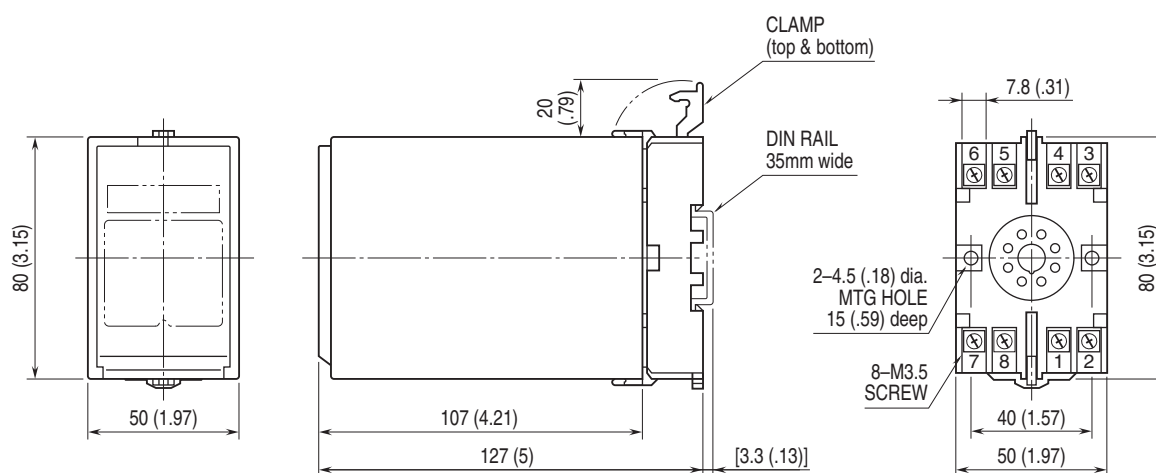
Accuracy: ± 0.3 %

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

Response time: ≤ 0.5 sec. (0 - 90 %)

CONNECTION DIAGRAM

*The transducer can be powered from the input voltage when the voltage is sufficiently stable and meets other supply voltage requirements.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

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



Specifications are subject to change without notice.