

## Plug-in Signal Conditioners M-UNIT

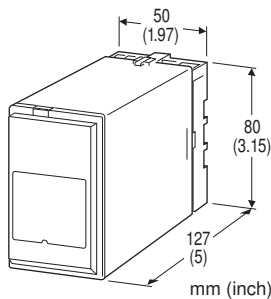
### FREQUENCY TRANSDUCER

#### Functions & Features

- Providing a DC output signal in proportion to deviation ( $\pm 1, 2$  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 [1] through [4]. (e.g. HZ-1A-B/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  $\Omega$  max.)
- B: 2 - 10 mA DC (Load resistance 1500  $\Omega$  max.)
- C: 1 - 5 mA DC (Load resistance 3000  $\Omega$  max.)
- D: 0 - 20 mA DC (Load resistance 750  $\Omega$  max.)

- E: 0 - 16 mA DC (Load resistance 900  $\Omega$  max.)
- F: 0 - 10 mA DC (Load resistance 1500  $\Omega$  max.)
- G: 0 - 1 mA DC (Load resistance 15 k $\Omega$  max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

##### Voltage

- 1: 0 - 10 mV DC (Load resistance 10 k $\Omega$  min.)
- 2: 0 - 100 mV DC (Load resistance 100 k $\Omega$  min.)
- 3: 0 - 1 V DC (Load resistance 1000  $\Omega$  min.)
- 4: 0 - 10 V DC (Load resistance 10 k $\Omega$  min.)
- 5: 0 - 5 V DC (Load resistance 5000  $\Omega$  min.)
- 6: 1 - 5 V DC (Load resistance 5000  $\Omega$  min.)
- 4W: -10 - +10 V DC (Load resistance 10 k $\Omega$  min.)
- 5W: -5 - +5 V DC (Load resistance 5000  $\Omega$  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

- 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: Approx. -10 to +120 % at 1 - 5 V



Zero adjustment: -5 to +5 % (front)  
 Span adjustment: 95 to 105 % (front)

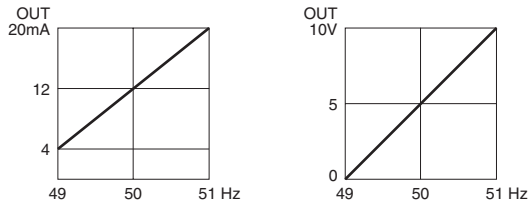
## INPUT SPECIFICATIONS

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  $\geq 0.5$  V

### ■ OPERATION DIAGRAM (example)



## INSTALLATION

### Power input

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

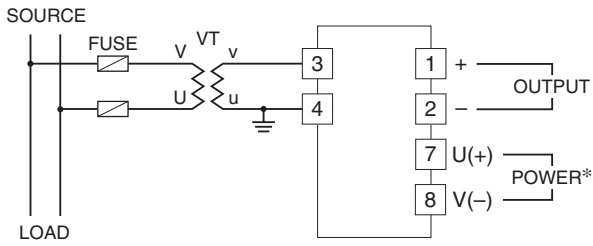
Operating temperature: -5 to +60°C (23 to 140°F)  
 Operating humidity: 30 to 90 %RH (non-condensing)  
 Mounting: Surface or DIN rail  
 Weight: 450 g (0.99 lb)

## PERFORMANCE in percentage of span

Accuracy:  $\pm 0.3$  %  
 Temp. coefficient:  $\pm 0.02$  %/°C ( $\pm 0.01$  %/°F)  
 Response time:  $\leq 0.5$  sec. (0 – 90 %)  
 Ripple: 0.5 %p-p max.  
 Line voltage effect:  $\pm 0.1$  % over voltage range  
 Insulation resistance:  $\geq 100$  M $\Omega$  with 500 V DC  
 Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

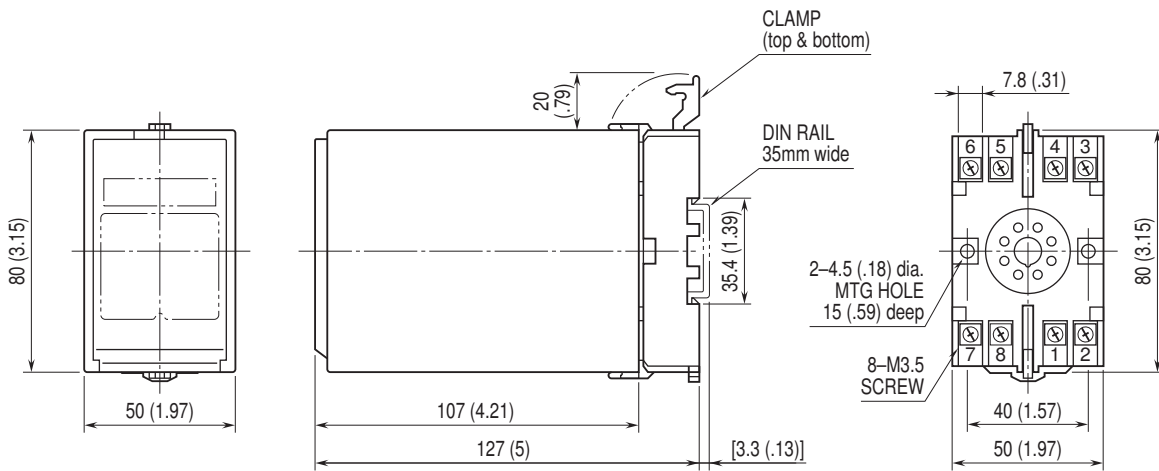


## CONNECTION DIAGRAM



\*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.