

Space-saving Plug-in Signal Conditioners H-UNIT

LOW FREQUENCY TRANSMITTER

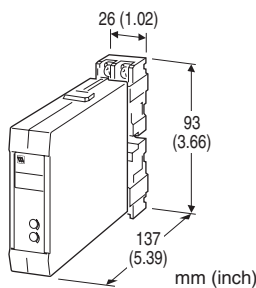
(50 Hz minimum)

Functions & Features

- Converting the output from a pulse-type transducer into a standard process signal
- Excitation
- High-density mounting

Typical Applications

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



MODEL: HSP-[1][2]-R[3]

ORDERING INFORMATION

- Code number: HSP-[1][2]-R[3]
- Specify a code from below for each [1] through [3]. (e.g. HSP-2A-R/Q)
- Frequency range (e.g. 0 - 10 kHz)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q (e.g. /C01/S01)

[1] INPUT

- 1: Dry contact
- 2: Voltage pulse

[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.)
- 0: Specify voltage (See OUTPUT SPECIFICATIONS)

POWER INPUT

DC Power

- R: 24 V DC
- (Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

[3] 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 (torque 0.8 N·m)
- Screw terminal: Nickel-plated 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 pulse sensing: DC coupled; detecting pulse rise
- Low-end cutout: 2 to 5 %



INPUT SPECIFICATIONS

Excitation: 12 V DC @30 mA; shortcircuit protection
Frequency range: 0 - 50 Hz through 10 kHz
■ **Dry Contact:** Mechanical contact or open collector
Pulse width time requirement: 20 μ sec. min. for ON and OFF
Sensing: Approx. 12 V DC @3 mA
ON/OFF level: $\leq 200 \Omega$ / 0.6 V for ON, $\geq 100 \text{ k}\Omega$ / 6 V for OFF
■ **Voltage Pulse:** Square or sine waveforms
Pulse width time requirement: 20 μ sec. min. for high and low levels
Hi level: 2 - 50 V
Lo level: ≤ 1 V
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:** 0 - 12 V DC
Minimum span: 5 mV
Offset: Max. 1.5 times span
Load resistance: Output drive 1 mA max.; at ≥ 0.5 V

INSTALLATION

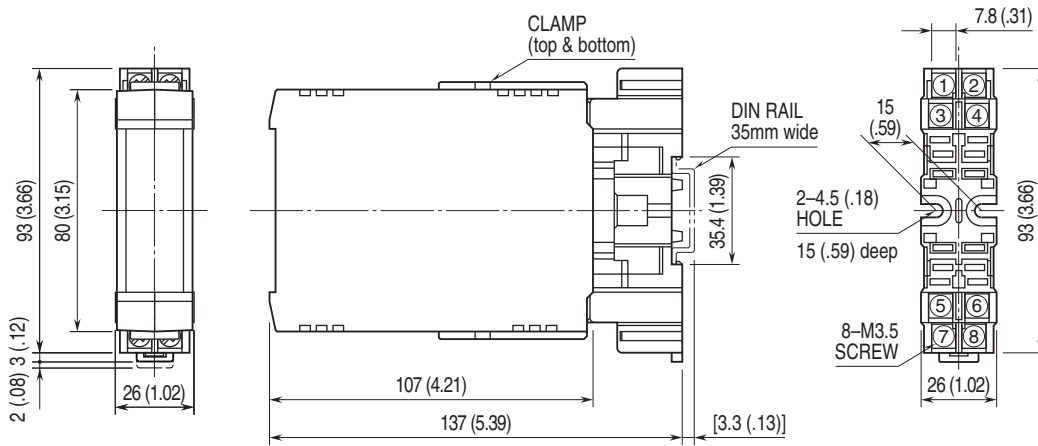
Power consumption: approx. 85 mA
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Surface or DIN rail; Standard Rack Mounting
Frame BX-16H available
Weight: 200 g (0.44 lbs)

PERFORMANCE in percentage of span

Accuracy: ± 0.1 % (output 10 - 100 %)
Temp. coefficient: ± 0.015 %/°C (± 0.008 %/°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 - 10 kHz
Ripple: 0.2 %p-p max. with input ≥ 10 %
Line voltage effect: ± 0.1 % over voltage range
Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC
Dielectric strength: 500 V AC @ 1 minute
(input to output to power)
1500 V AC @ 1 minute (input or output or power to ground)

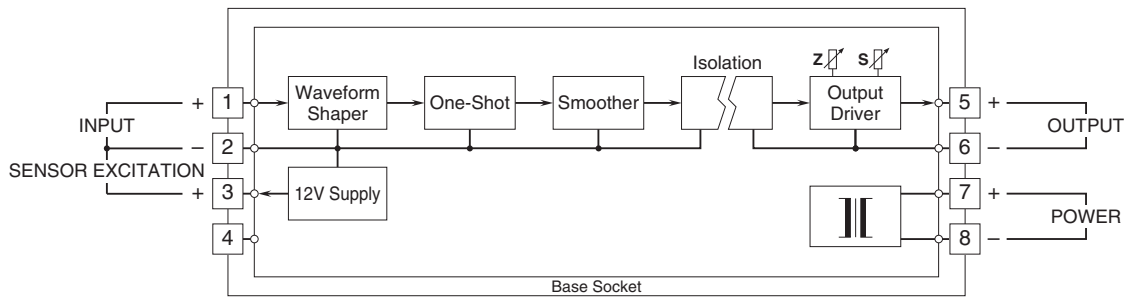


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



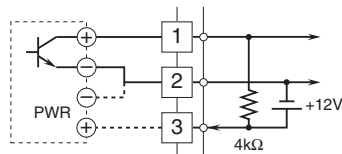
•When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

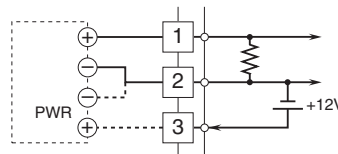


Input Connection Examples

■ Dry Contact



■ Voltage Pulse



Specifications are subject to change without notice.