

## Space-saving Plug-in Signal Conditioners H-UNIT

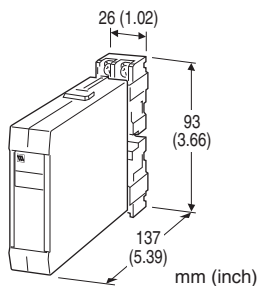
### PULSE ISOLATOR

#### Functions & Features

- Galvanically isolating pulse rate signals
- Input frequency = output frequency
- Various outputs (relay, open collector and voltage pulses)
- High-density mounting

#### Typical Applications

- Isolating field pulse signals in order to reduce noises
- Changing e.g. dry contact signal to e.g. 5 V signals



### MODEL: HPP-[1][2]-R[3]

#### ORDERING INFORMATION

- Code number: HPP-[1][2]-R[3]
- Specify a code from below for each [1] through [3].  
(e.g. HPP-33-R/Q)
- Frequency range (e.g. 0 - 1000 Hz)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

#### [1] INPUT

- 1: Mechanical contact (max. 30 Hz)
- 2: Open collector (max. 10 kHz)
- 3: Voltage pulse (max. 10 kHz)

#### [2] OUTPUT

- 1: Low frequency open collector (max. 30 Hz)
- 2: High frequency open collector (max. 10 kHz)
- 3: 5 V pulse (max. 10 kHz)
- 4: 12 V pulse (max. 10 kHz)
- 5: 24 V pulse (max. 10 kHz)
- 6: Mercury relay contact (max. 30 Hz)

#### POWER INPUT

##### DC Power

R: 24 V DC

(Operational voltage range 24 V  $\pm$ 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

Frequency range: Input and output are the same.

Chattering protection: Filter provided for mechanical contact input

#### INPUT SPECIFICATIONS

Excitation: 12V DC  $\pm$ 2 V @ 30 mA; shortcircuit protection

##### ■ Open Collector

Maximum frequency: 10 kHz

Pulse width time requirement: 10  $\mu$ 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 k $\Omega$  / 6 V for OFF

##### ■ Mechanical Contact

Maximum frequency: 30 Hz

Pulse width time requirement: 10 msec. 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 k $\Omega$  / 6 V for OFF

##### ■ Voltage Pulse

Maximum frequency: 10 kHz

Pulse width time requirement: 10  $\mu$ sec. min. for high and low levels

Waveforms: Square or sine

Hi/Lo level: 2 - 50 V for high level;  $\leq$ 1 V for low level

Input impedance: 10 k $\Omega$  min.

#### OUTPUT SPECIFICATIONS

##### ■ Low Frequency Open Collector:

50 V DC @ 100 mA (resistive load)

Maximum frequency: 30 Hz

Timer: Limits ON time within 75  $\pm$ 25 msec.

for wider than 75 msec. pulses

Saturation voltage: 0.5 V DC



■ **High Frequency Open Collector:**

50 V DC @ 100 mA (resistive load)

**Maximum frequency:** 10 kHz

**Saturation voltage:** 0.5 V DC

■ **Voltage Pulse**

**Maximum frequency:** 10 kHz

**High level:** Rating (5, 12 or 24 V)  $\pm 10\%$

**Low level:**  $\leq 0.5V$

**Load resistance:**

$\geq 250 \Omega$  for 5 V

$\geq 600 \Omega$  for 12 V

$\geq 1200 \Omega$  for 24 V

■ **Mercury Relay Contact:** 132 V AC @ 200 mA ( $\cos \phi = 1$ )

264 V AC @ 100 mA ( $\cos \phi = 1$ )

30 V DC @ 200 mA (resistive load)

100 V DC @ 60 mA (resistive load)

**Maximum frequency:** 30 Hz

**Timer:** Limits ON time within  $75 \pm 25$  msec.

for wider than 75 msec. pulses

**Relay life:**  $\geq 5 \times 10^8$  cycles (mechanical)

$\geq 5 \times 10^7$  cycles (electrical)

## INSTALLATION

**Power consumption:** Approx. 80 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:** 180 g (0.40 lbs)

## PERFORMANCE







**Insulation resistance:**  $\geq 100 M\Omega$  with 500 V DC

**Dielectric strength:** 500 V AC @ 1 minute

(input to output to power)

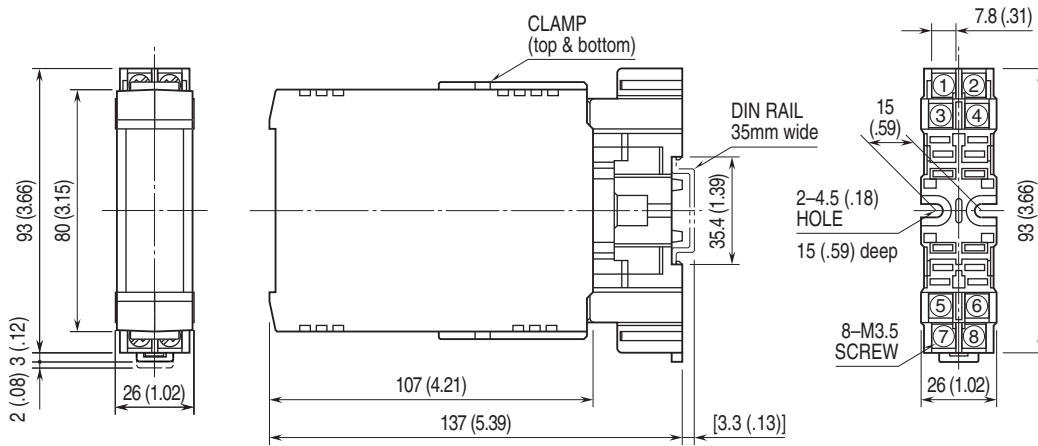
1500 V AC @ 1 minute (input or output or power to ground)

## OUTPUT LOGIC

INPUT TYPE	INPUT	VOLTAGE PULSE OUTPUT	OPEN COLLECTOR or RELAY OUTPUT
Voltage Pulse	H L 	H L 	OFF ON 
Mechanical Contact Open Collector	OFF ON 	H L 	OFF ON 

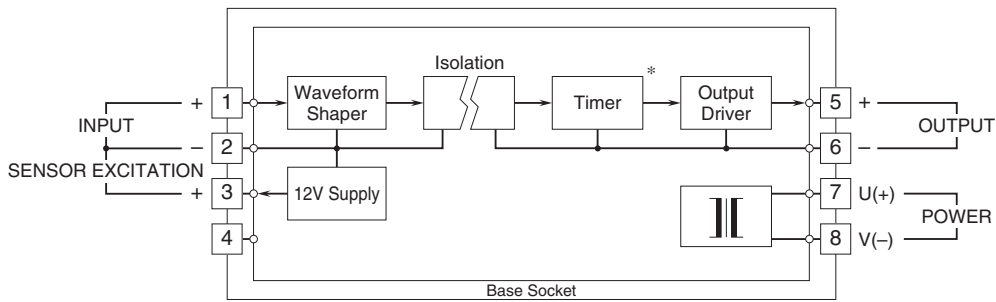


**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)**



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

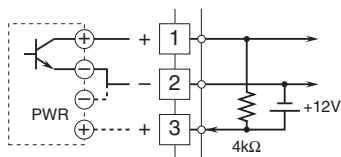
**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



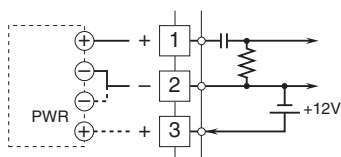
\*Low freq. open collector and mercury relay output only.

**Input Connection Examples**

■ Mechanical Contact or Open Collector

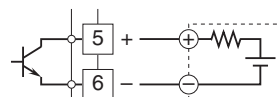


■ Voltage Pulse

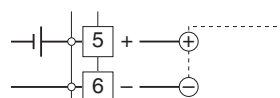


**Output Connection Examples**

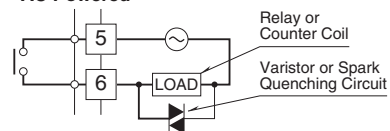
■ Open Collector



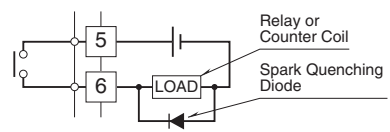
■ Voltage Pulse



■ Relay  
•AC Powered



•DC Powered



Specifications are subject to change without notice.