

Space-saving Plug-in Signal Conditioners H-UNIT

DC/FREQUENCY CONVERTER

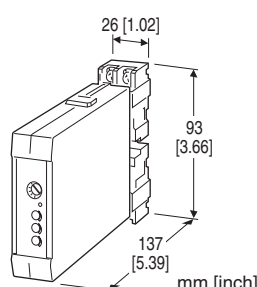
(selectable range)

Functions & Features

- Providing a pulse rate output in proportion to DC input signal
- Frequency range adjustable with a front-mounted 16-position rotary switch and potentiometer
- Low-end cutout adjustable
- Highdensity mounting

Typical Applications

- Totalizing applications in combination with a counter



MODEL: HAPU-[1]1-[2][3]

ORDERING INFORMATION

- Code number: HAPU-[1]1-[2][3]
- Specify a code from below for each of [1] through [3].
(e.g. HAPU-61-R/Q)
- Special input range (For codes Z & 0)
- Output frequency range (e.g. 0 – 100 Hz)
- Specify the specification for option code /Q
(e.g. /C01/S01)

[1] INPUT

Current

- A: 4 – 20 mA DC (Input resistance 250 Ω)
- A1: 4 – 20 mA DC (Input resistance 50 Ω)
- B: 2 – 10 mA DC (Input resistance 500 Ω)
- C: 1 – 5 mA DC (Input resistance 1000 Ω)
- D: 0 – 20 mA DC (Input resistance 50 Ω)
- E: 0 – 16 mA DC (Input resistance 62.5 Ω)
- F: 0 – 10 mA DC (Input resistance 100 Ω)
- G: 0 – 1 mA DC (Input resistance 1000 Ω)
- H: 10 – 50 mA DC (Input resistance 100 Ω)
- Z: Specify current (See INPUT SPECIFICATIONS)

Voltage

- 1: 0 – 10 mV DC (Input resistance 100 k Ω min.)

- 2: 0 – 100 mV DC (Input resistance 100 k Ω min.)
- 3: 0 – 1 V DC (Input resistance 1 M Ω min.)
- 4: 0 – 10 V DC (Input resistance 1 M Ω min.)
- 5: 0 – 5 V DC (Input resistance 1 M Ω min.)
- 6: 1 – 5 V DC (Input resistance 1 M Ω min.)
- 0: Specify voltage (See INPUT SPECIFICATIONS)

OUTPUT

- 1: Open collector (max. frequency 10 kHz)

[2] POWER INPUT

DC Power

S: 12 V DC

(Operational voltage range 12 V $\pm$ 10 %, ripple 10 %p-p max.)

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 our 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 (standard) or stainless steel

Housing material: Flame-resistant resin (black)

Isolation: Input to output to power

Zero adjustment: 0 – 5 % (front)

Span adjustment: 50 – 100 % of range (front)

Output frequency adjustment: Preselecting range with a rotary switch and fine control with span adjustment (50 – 100 %)

Low-end cutout: 0 to 10 % (front); a red LED assists in adjusting the cutout point; turns on during the cutout.

INPUT SPECIFICATIONS

■ DC Current:

Shunt resistor attached to the input terminals (0.5 W)

Specify input resistance value for code Z.

■ DC Voltage: -300 – +300 V DC

Minimum span: 10 mV

Offset: Max. 1.5 times span

Input resistance (Input Span: Input Resistance)

10 – 100 mV : 10 k (Ω minimum)

0.1 – 1 V : 100 k

≥ 1 V : 1 M

OUTPUT SPECIFICATIONS

■ Open Collector

Frequency range: 0 – 10 kHz

Rating: 50V DC @ 50 mA (resistive load)

ON pulse width: 0.5 sec. max. (varies according to the frequency)

Saturation voltage: 1.1 V DC

■ FREQUENCY RANGES

SW No.	SPAN RANGE	
	MIN. (50%)	MAX. (100%)
0	0 – 5 kHz	0 – 10 kHz
1	0 – 2.5 kHz	0 – 5 kHz
2	0 – 1.25 kHz	0 – 2.5 kHz
3	0 – 625 Hz	0 – 1.25 kHz
4	0 – 312 Hz	0 – 625 Hz
5	0 – 156 Hz	0 – 312 Hz
6	0 – 78 Hz	0 – 156 Hz
7	0 – 39 Hz	0 – 78 Hz
8	0 – 20 Hz	0 – 39 Hz
9	0 – 10 Hz	0 – 20 Hz
A	0 – 5 Hz	0 – 10 Hz
B	0 – 2.5 Hz	0 – 5 Hz
C	0 – 1.25 Hz	0 – 2.5 Hz
D	0 – 36 pulses/min.	0 – 1.25 Hz
E	0 – 18 pulses/min.	0 – 36 pulses/min.
F	0 – 9 pulses/min.	0 – 18 pulses/min.

INSTALLATION

Current consumption: ≤ 70 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 lb)

PERFORMANCE in percentage of span

Accuracy: ± 0.25 %

Temp. coefficient: ± 0.05 %/°C (± 0.03 %/°F)

Line voltage effect: ± 0.1 % over voltage range

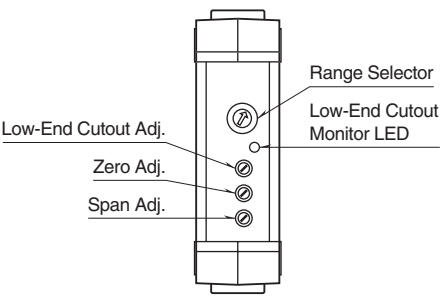
Insulation resistance: ≥ 100 M Ω with 500 V DC

Dielectric strength: 500 V AC @ 1 minute

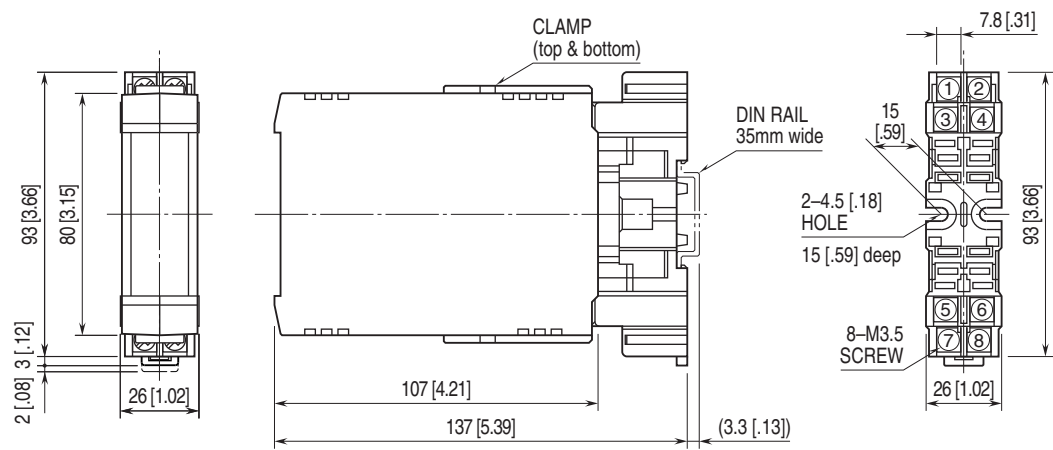
(input to output to power)

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

EXTERNAL VIEW

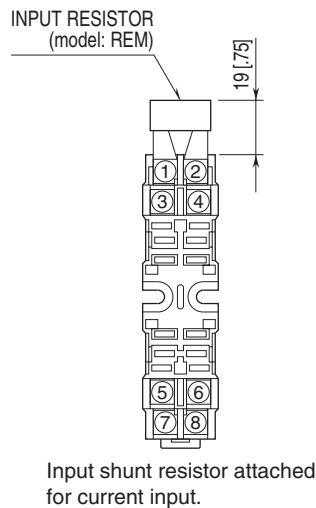


EXTERNAL DIMENSIONS unit: mm [inch]

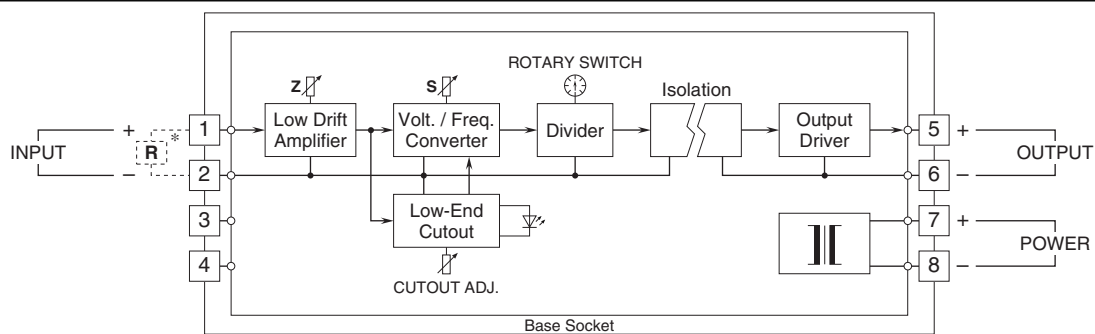


•When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm [inch]



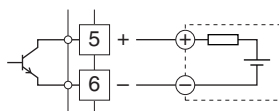
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*Input shunt resistor attached for current input.

Output Connection Examples

■ Open Collector



Specifications are subject to change without notice.