

Dual Output Plug-in Signal Conditioners W-UNIT**LOW FREQUENCY TRANSMITTER**

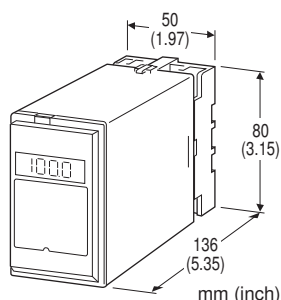
(50 Hz minimum)

Functions & Features

- Converting the output from a pulse-type transducer into standard process signal
- Isolation up to 2000 V AC
- High-density mounting

Typical Applications

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

**MODEL: WSP-[1][2][3]-[4][5]****ORDERING INFORMATION**

- Code number: WSP-[1][2][3]-[4][5]
- Specify a code from below for each [1] through [5].
(e.g. WSP-2A6-B/E/Q)
- Frequency range (e.g. 0 - 10 kHz)
- Special output ranges (For codes Z & 0)
- Specify the specification for option code /Q
(e.g. /C01/S01)

Note: When the user requires a current and a voltage output, specify the current to be the Output 1 which allows a greater load.

[1] INPUT

- 1: Dry contact
2: Voltage pulse

[2] OUTPUT 1**Current**

- A: 4 - 20 mA DC (Load resistance 600 Ω max.)
B: 2 - 10 mA DC (Load resistance 1200 Ω max.)
C: 1 - 5 mA DC (Load resistance 2400 Ω max.)
D: 0 - 20 mA DC (Load resistance 600 Ω max.)
E: 0 - 16 mA DC (Load resistance 750 Ω max.)

F: 0 - 10 mA DC (Load resistance 1200 Ω max.)G: 0 - 1 mA DC (Load resistance 12 k Ω max.)

Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage1: 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] OUTPUT 2**Current**A: 4 - 20 mA DC (Load resistance 350 Ω max.)B: 2 - 10 mA DC (Load resistance 700 Ω max.)C: 1 - 5 mA DC (Load resistance 1400 Ω max.)D: 0 - 20 mA DC (Load resistance 350 Ω max.)E: 0 - 16 mA DC (Load resistance 430 Ω max.)F: 0 - 10 mA DC (Load resistance 700 Ω max.)G: 0 - 1 mA DC (Load resistance 7000 Ω max.)

Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage

Same range availability as Output 1

[4] 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

[5] OPTIONS (multiple selections)**LCD Meter (after low-end cutout)**

blank: Without

/E: With (0.0 - 100.0 % display)

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 1 to output 2 to power**Overrange output:** Approx. 0 to 120 % at 1 - 5V**Zero adjustment:** -5 to +5 % (front)**Span adjustment:** 95 to 105 % (front)

Adjustable individually for each output 1 and output 2.

Low-end cutout: 2 to 5 %**■ DISPLAY (LCD meter)**• **Option code:** /E**LCD digital display:** 0.0 - 100.0 % (min. digit 0.1 %)

(No scaling)

INPUT SPECIFICATIONS**Frequency range:** 0 - 50 Hz through 10 kHz**Pulse width (time) requirement:** Duty ratio 20 - 80 % at 100 % input**■ Dry Contact:** Mechanical contact or open collector**Sensing:** Approx. 7.5 V DC @1 mA**ON/OFF level:** $\leq 200 \Omega$ / 0.6 V for ON, $\geq 100 \text{ k}\Omega$ / 2 V for OFF**■ Voltage Pulse:** Square or sine waveforms**Input pulse sensing:** Capacitor coupled; detecting pulse rise**Input amplitude:** 2 - 50 Vp-p**Input impedance:** 100 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 12 V max. for Output 1;
7 V max. for Output 2**■ DC Voltage:** -10 - +12 V DC**Minimum span:** 5 mV**Offset:** Max. 1.5 times span**Load resistance:** Output drive 1 mA max. at $\geq 0.5 \text{ V}$ **INSTALLATION****Power input**• **AC:** Operational voltage range: rating $\pm 10 \%$,
50/60 ± 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. 2.5 W (100 mA at 24 V)

Operating temperature: -5 to +55°C (23 to 131°F)**Operating humidity:** 30 to 90 %RH (non-condensing)**Mounting:** Surface or DIN rail**Weight:** 400 g (0.88 lb)**PERFORMANCE in percentage of span****Accuracy:** $\pm 0.3 \%$ (output 10 - 100 %)**Display accuracy:** $\pm (0.3 \%$ of FS + 1 digit)
(Output 10 - 100 %)**Temp. coefficient:** $\pm 0.015 \%$ /°C ($\pm 0.008 \%$ /°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

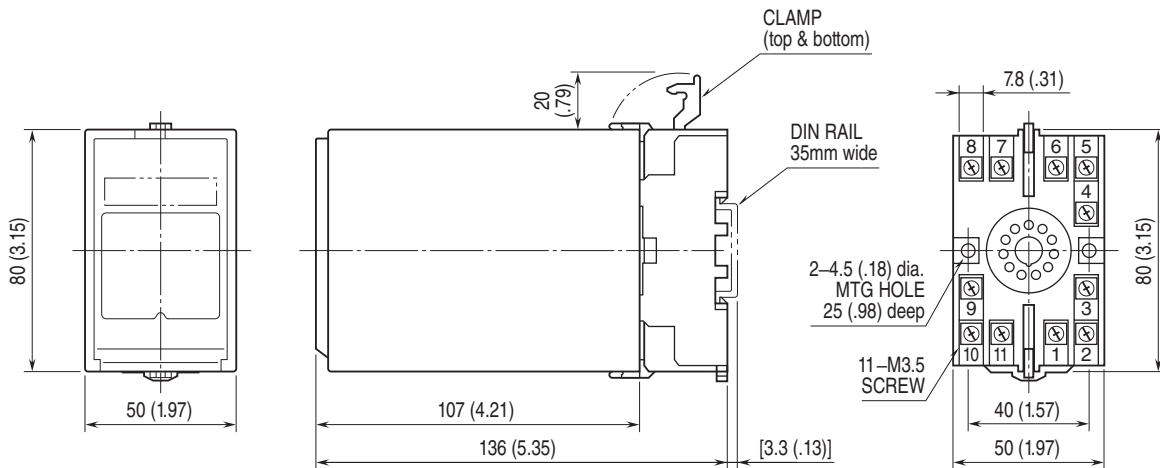
Approx. 0.5 sec. for 0 - 10 kHz

Ripple: 0.2 %p-p max. with input $\geq 10 \%$ **Line voltage effect:** $\pm 0.1 \%$ over voltage range**Insulation resistance:** $\geq 100 \text{ M}\Omega$ with 500 V DC**Dielectric strength:** 2000 V AC @1 minute

(input to output to power to ground)

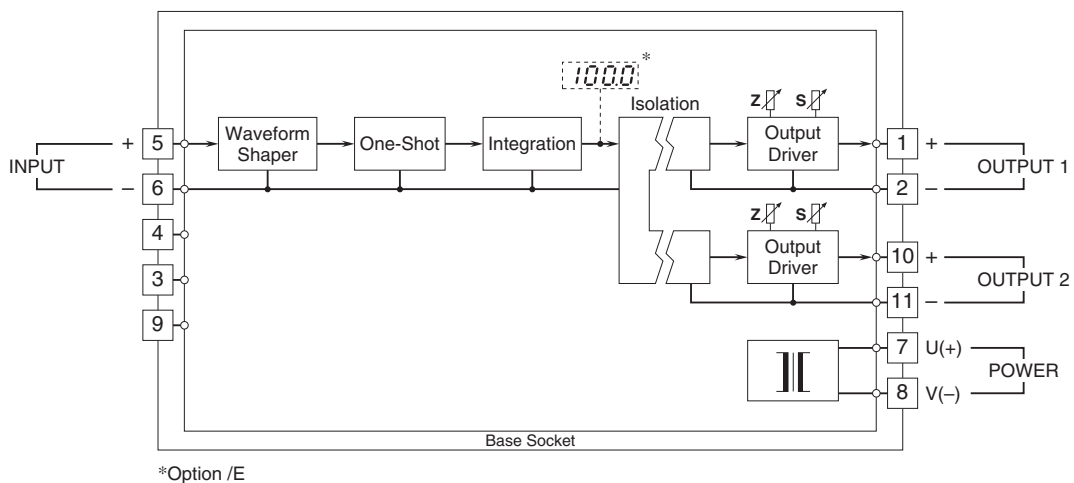
1000 V AC @ 1 minute (output 1 to output 2)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

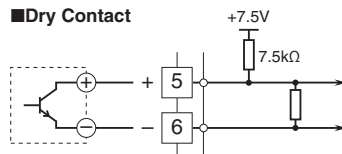
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



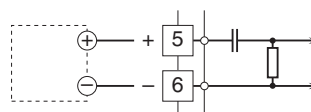
*Option /E

Input Connection Examples

■ Dry Contact



■ Voltage Pulse



Specifications are subject to change without notice.