

Dual Output Plug-in Signal Conditioners W-UNIT

LOW FREQUENCY TRANSMITTER

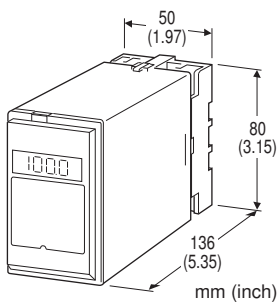
(50 Hz minimum)

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 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.)
- 4W: -10 - +10 V DC (Load resistance 10 kΩ 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 ≥ 0.5 V**INSTALLATION****Power input**• **AC:** Operational voltage range: rating ± 10 %, 50/60 ± 2 Hz, approx. 3 VA• **DC:** Operational voltage range: rating ± 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:** ± 0.3 % (output 10 - 100 %)**Display accuracy:** $\pm(0.3$ % of FS + 1 digit)

(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

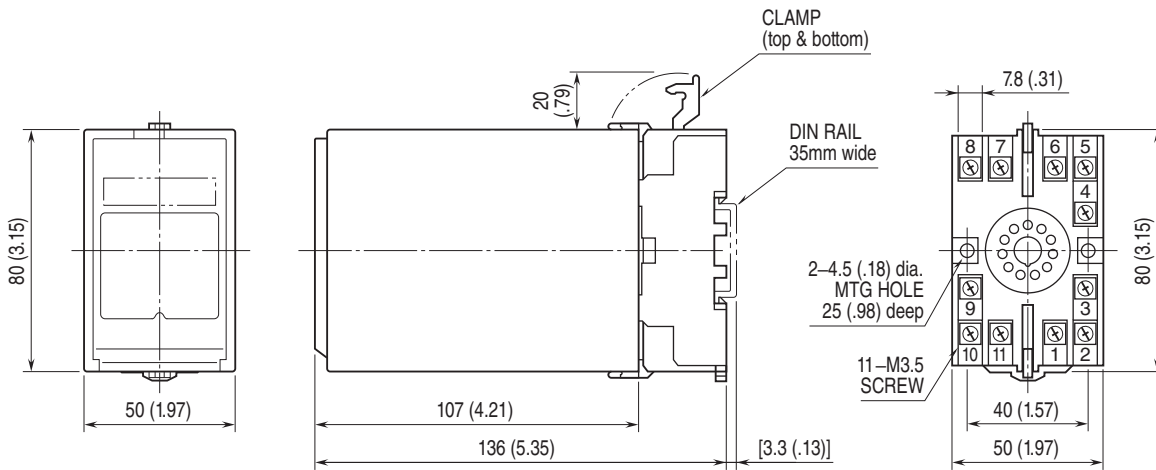
Approx. 0.5 sec. for 0 - 10 kHz

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:** 2000 V AC @1 minute

(input to output to power to ground)

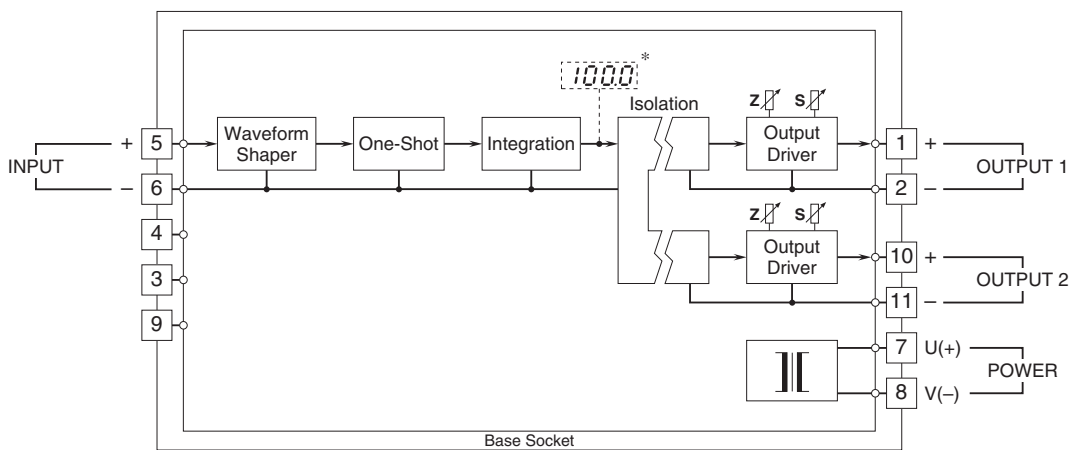
1000 V AC @ 1 minute (output 1 to output 2)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

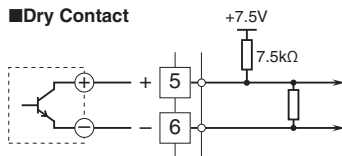
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



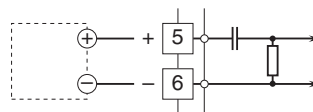
*Option /E

Input Connection Examples

■ Dry Contact



■ Voltage Pulse



Specifications are subject to change without notice.