

**Dual Output Plug-in Signal Conditioners W-UNIT**

**LOW FREQUENCY TRANSMITTER**

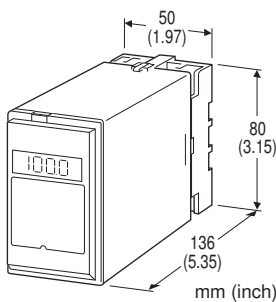
(50 Hz minimum)

**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 of [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 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

**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 $\Omega$  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  $\geq 0.5$  V

**INSTALLATION****Power input**

• **AC:** Operational voltage range: rating  $\pm 10$  %, 50/60  $\pm 2$  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  $\geq 10$  %

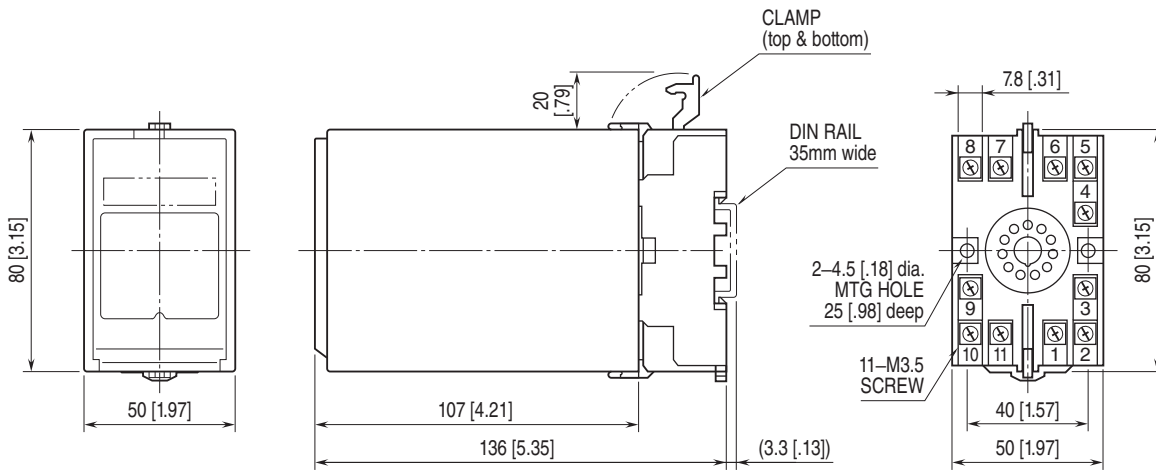
**Line voltage effect:**  $\pm 0.1$  % over voltage range

**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)

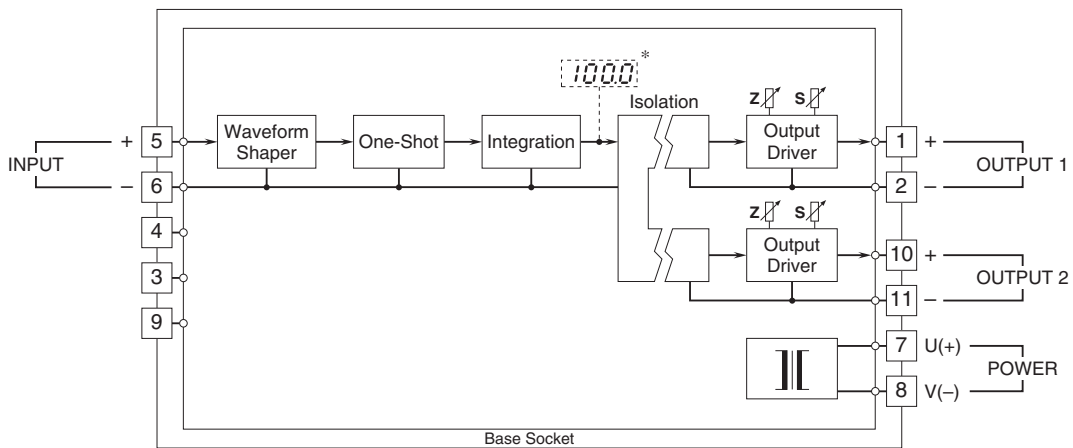
1000 V AC @ 1 minute (output 1 to output 2)

## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

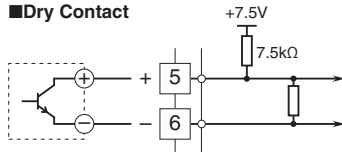
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



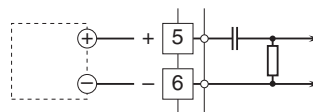
\*Option /E

### Input Connection Examples

■ Dry Contact



■ Voltage Pulse



Specifications are subject to change without notice.