

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

### PULSE ISOLATOR

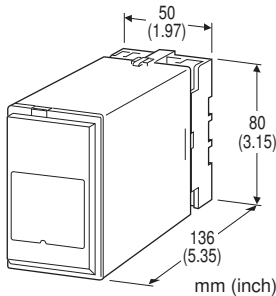
(built-in excitation)

#### Functions & Features

- Galvanically isolating pulse rate signals
- Input frequency = output frequency
- Various outputs (relay, open collector and voltage pulses)
- Excitation
- Isolation up to 2000 V AC
- 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: WYPD-[1][2][3][4][5][6]-[7][8]

### ORDERING INFORMATION

- Code number: WYPD-[1][2][3][4][5][6]-[7][8]
  - Specify a code from below for each [1] through [8].  
(e.g. WYPD-D4A2M23N-B/Q)
  - Specify the specification for option code /Q  
(e.g. /C01/S01)
  - Frequency range (e.g. 0 - 5 Hz)
  - Output pulse width (e.g. 75 msec.)
- Use Ordering Information Sheet (No. ESU-2276). Default setting will be used if not otherwise specified.

#### [1] INPUT

- A: Dry contact
- B: DC voltage pulse (Specify sensitivity)
- C: 5 V pulse (sensitivity 2 V)
- D: 12 V/24 V pulse (sensitivity 5 V)
- H: Two-wire current pulse

#### [2] EXCITATION

- 1: 5 V DC / 80 mA
- 4: 12 V DC / 40 mA

#### [3] OUTPUT 1

- A1: Open collector (max. frequency 100 kHz)
- A2: Open collector (max. frequency 10 Hz)
- M1: 5 V pulse (max. frequency 100 kHz)
- M2: 5 V pulse (max. frequency 10 Hz)
- N1: 12 V pulse (max. frequency 100 kHz)
- N2: 12 V pulse (max. frequency 10 Hz)
- H: Relay contact (max. frequency 0.5 Hz)

#### [4] OUTPUT 2

Same range availability as Output 1  
(Choose a combination of output 1 and 2 with same max. frequency limit. Output logic of open collector is reversed when open collector and others are mixed.)

#### [5] OUTPUT PULSE WIDTH

- 1: Equal to the input
- 2: One-shot output ( $\leq 30$  ms; std. pulse width 5 ms)  
(Specify when optional pulse width is required.)  
(10 ms for relay contact pulse)
- 3: One-shot output ( $\geq 30$  ms; std. pulse width 50 ms)  
(Specify when optional pulse width is required.)

#### [6] OUTPUT LOGIC

- N: The same as the input
- R: Inverted

#### [7] 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

#### [8] 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

**Screw terminal:** Chromated steel (standard) or stainless steel

**Housing material:** Flame-resistant resin (black)

**Isolation:** Input to output 1 to output 2 to power

**Excitation adjustment:** 5 - 12 V DC

**Detecting level adjustments (voltage pulse):** 2 - 10 V

**Input pulse sensing:** DC coupled

**Input filter:** Provided with output code A2, M2, N2, H (time constant approx. 1 msec.)

## INPUT SPECIFICATIONS

**Excitation:** Shortcircuit protection; approx. 150 mA at shortcircuit

### ■ Dry Contact

**Max. frequency:** 100 kHz

**Pulse width time requirement:** 5 µsec. min. (10 ms for output code A2, M2, N2, H)

**Sensing:** 10 V DC @ 2.5 mA

**ON/OFF level:**

≥ 5.5 kΩ / 5.5 V for OFF

≤ 1.8 kΩ / 4.5 V for ON

■ **Voltage Pulse:** Specify DC offset and amplitude.

**Max. frequency:** 100 kHz

**Pulse width time requirement:** 5 µsec. min. (10 ms for output code A2, M2, N2, H)

**Waveform:** Square or sine

**Input impedance:** 10 kΩ min.

**Input amplitude:** 2 - 50 Vp-p

**Offset:** 2 - 10 V

**Max. voltage between input terminals:** 50 V

• 5V, 12V, 24V Pulse

**Waveform:** Square or sine

**Input impedance:** 10 kΩ min.

**Detecting level**

INPUT	5 V PULSE	12 V / 24 V PULSE
V <sub>H</sub>	≥ 2.25 V	≥ 5.25 V
V <sub>L</sub>	≤ 1.75 V	≤ 4.75 V

### ■ Two-wire Current Pulse

**Max. frequency:** 100 kHz

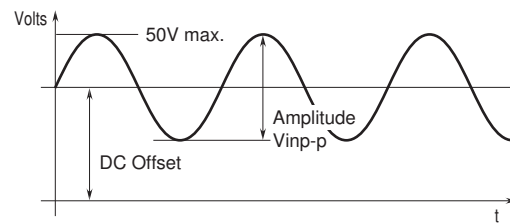
**Pulse width time requirement:** 5 µsec. min. (10 ms for output code A2, M2, N2, H)

**Input resistance:** Receiving resistor 220 Ω

**Maximum current:** ± 50 mA

**Hi/Lo level:** ≤ 5 mA for Lo, ≥ 15 mA for Hi

## Voltage pulse waveform



## OUTPUT SPECIFICATIONS

■ **Open Collector:** 50 V DC @ 50 mA (resistive load)

**Maximum frequency:**

Output code A1: 100 kHz with load resistance ≤ 1 kΩ

Output code A2: 10 Hz with load resistance ≤ 1 kΩ

**Saturation voltage:** 0.5 V DC

■ **Voltage Pulse:** Rating (5 or 12 V) ± 10 %

**Maximum frequency:** 100 kHz

**Load resistance:** 1.5 kΩ min. for 5 V, 3 kΩ min. for 12 V

■ **Relay Contact:** 120 V AC or 30 V DC @ 200 mA

(resistive load)

**Maximum frequency:** 0.5 Hz

**Maximum switching voltage:** 380 V AC or 125 V DC

**Maximum switching power:** 120 VA or 30 W

**Minimum load:** 5 V DC @ 10 mA

**Relay life:**

2 × 10<sup>7</sup> cycles (mechanical)

7 × 10<sup>6</sup> cycles (electrical)

## OUTPUT PULSE WIDTH

• **Equal to the Input:** No pulse width conversion (difference between input and output within ±10 µsec.)

• **One-shot Output:** Constant pulse width  
Output Frequency (Hz) = 500 / (Output Pulse Width (msec.))

**Adjustable pulse width**

**Pulse width max. 30 msec. (code 2):**

1 - 30 msec. adjustable (standard 5 msec. ±20 %) for

'Output' code other than 'H'

10 - 30 msec. adjustable (standard 10 msec. ±20 %) for

'Output' code 'H'

**Pulse width min. 30 msec. (code 3):** 30 msec. - 1 sec.

adjustable (standard 50 msec. ±20 %)

## INSTALLATION

**Power input**

• **AC:** Operational voltage range: rating ±10 %, 50/60 ± 2 Hz, approx. 2.5 VA

• **DC:** Operational voltage range: rating ±10 %, ripple 10 %p-p max., approx. 2 W (80 mA at 24 V)

**Operating temperature:** -5 to +60°C (23 to 140°F)

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Mounting:** Surface or DIN rail



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## PERFORMANCE

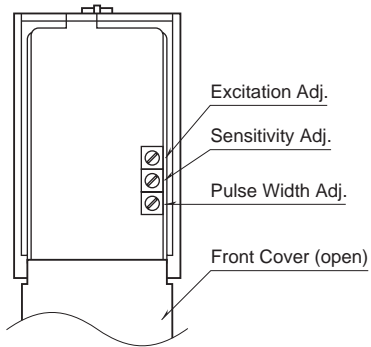
Insulation resistance:  $\geq 100 \text{ M}\Omega$  with 500 V DC

Dielectric strength:

2000 V AC @1 minute (input to output 1 or output 2 to power to ground)

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

## EXTERNAL VIEW



**OUTPUT LOGIC**

INPUT WAVEFORM		VOLTAGE PULSE or 2-WIRE CURRENT PULSE		DRY CONTACT	
		H	L	OFF	ON
NON INVERTED	No pulse width conversion	Voltage pulse			
		Open collector or relay contact			
	One-shot, detecting input pulse rise	Voltage pulse			
		Open collector or relay contact			
	One-shot, detecting input pulse sink	Voltage pulse			
		Open collector or relay contact			
	INVERTED	No pulse width conversion	Voltage pulse		
			Open collector or relay contact		
One-shot, detecting input pulse rise		Voltage pulse			
		Open collector or relay contact			
One-shot, detecting input pulse sink		Voltage pulse			
		Open collector or relay contact			

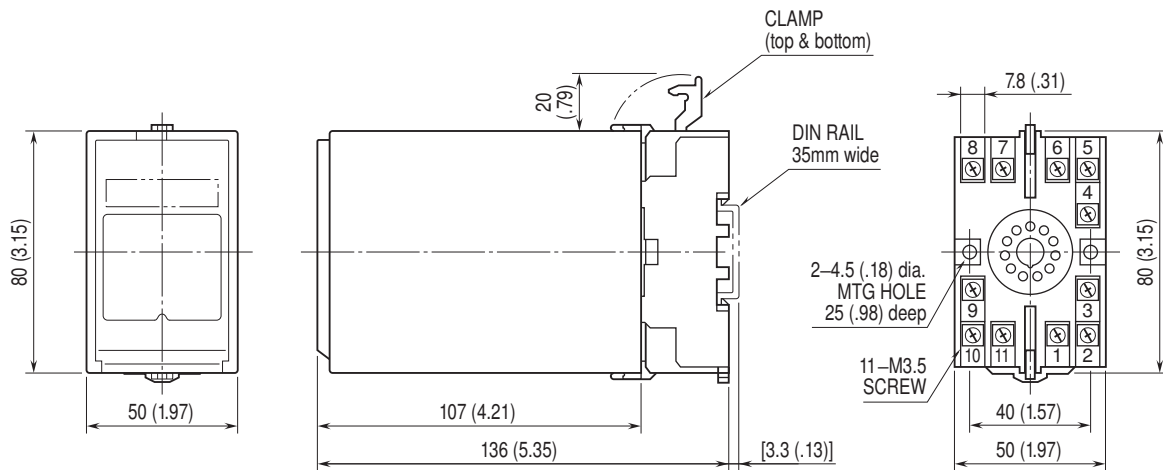
The pulse width in one-shot means the bold lined section of a pulse waveform.

Shades indicate default setting.

Input pulse rise/sink detected with voltage level

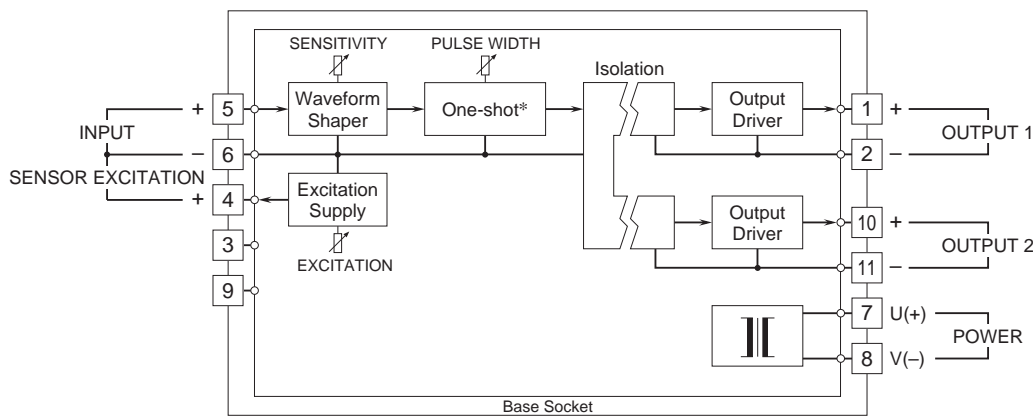


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

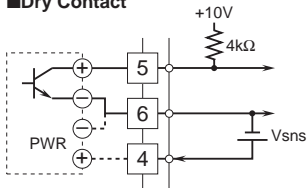
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



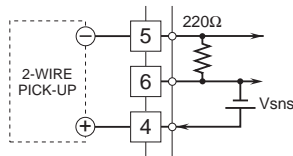
\*Disregard one-shot circuit for output pulse width code "1"

### Input Connection Examples

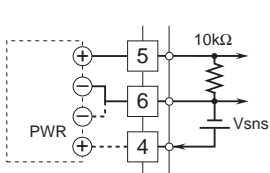
#### ■ Dry Contact



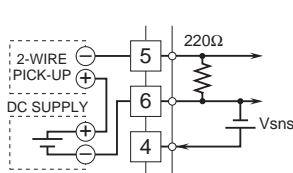
#### ■ 2-Wire Current Pulse • Built-in Excitation



#### ■ Voltage Pulse

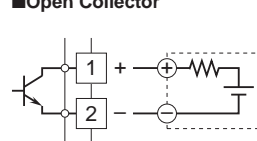


#### • External DC Supply

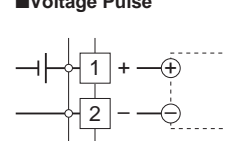


### Output Connection Examples

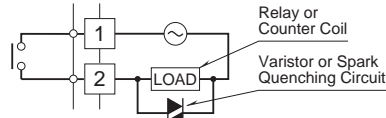
#### ■ Open Collector



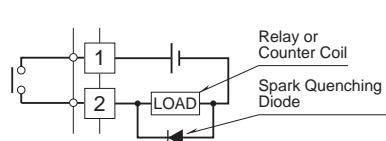
#### ■ Voltage Pulse



#### ■ Relay Contact • AC Powered



#### • DC Powered





Specifications are subject to change without notice.

