

Dual Output Plug-in Signal Conditioners W-UNIT

PULSE ISOLATOR

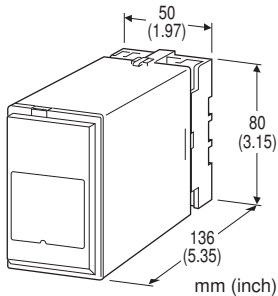
(built-in excitation)

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]

ORDERING INFORMATION

- Code number: WYPD-[1][2][3][4][5][6]-[7]
- Specify a code from below for each [1] through [7].
(e.g. WYPD-D4A2M23N-B)
- 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 (≤ 30 ms; std. pulse width 5 ms)
(Specify when optional pulse width is required.)
(10 ms for relay contact pulse)
- 3: One-shot output (≥ 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

GENERAL SPECIFICATIONS

- Construction:** Plug-in
- Connection:** M3.5 screw terminals
- 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 for 10 Hz or lower output frequency

(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 0 - 10 Hz or lower frequency)

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 0 - 10 Hz or lower frequency)

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_H	≥ 2.25 V	≥ 5.25 V
V_L	≤ 1.75 V	≤ 4.75 V

■ Two-wire Current Pulse

Max. frequency: 100 kHz

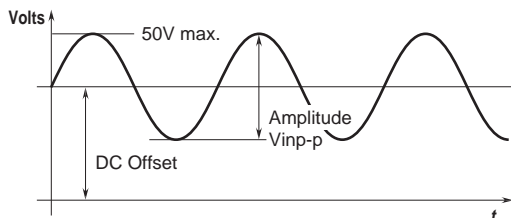
Pulse width time requirement: 5 µsec. min. (10 ms for 0 - 10 Hz or lower frequency)

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: 100 kHz 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 switching voltage: 380 V AC or 125 V DC

Maximum switching power: 120 VA or 30 W

Minimum load: 5 V DC @ 10 mA

Maximum frequency: 0.5 Hz

Relay life:

2 × 10⁷ cycles (mechanical)

7 × 10⁶ 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

Weight: 400 g (0.88 lbs)

PERFORMANCE

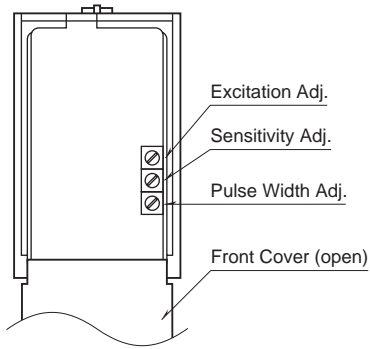
Insulation resistance: ≥ 100 MΩ with 500 V DC

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

■When an Open Collector is not Mixed with the Another Output Type:

INPUT TYPE	PULSE LOGIC	INPUT	VOLTAGE PULSE OUTPUT	OPEN COLLECTOR or RELAY CONTACT
Voltage Pulse Input 2-wire Current Pulse Input [ON current (H) OFF current (L)]	Non Inverted	H  L	H  L	OFF  ON 
	Inverted	H  L	H  L	OFF  ON 
Dry Contact Input	Non Inverted	OFF  ON	H  L	OFF  ON 
	Inverted	OFF  ON	H  L	OFF  ON 

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

■When an Open Collector is Mixed with Another Output Type:

When combinations "a voltage pulse and an open collector" or "a relay contact and an open collector" are chosen, be aware that the logic of the output 2 is inverted.

[example 1] Input : voltage pulse
 Output 1: voltage pulse
 Output 2: open collector

PULSE LOGIC	INPUT (voltage pulse)	OUTPUT 1 (voltage pulse)	OUTPUT 2 (open collector)
Non Inverted	H L	H L	OFF ON
Inverted	H L	H L	OFF ON

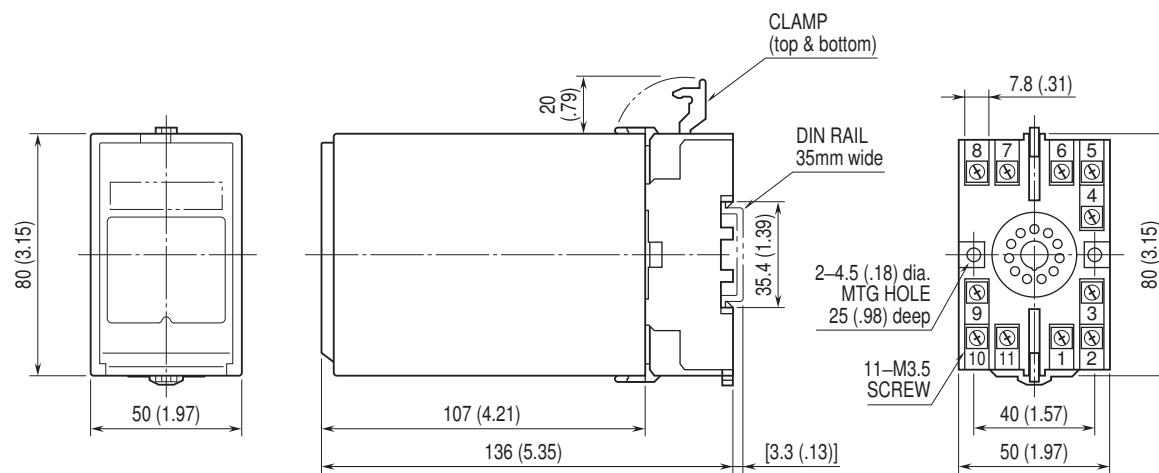
[example 2] Input : voltage pulse
 Output 1: relay contact
 Output 2: open collector

PULSE LOGIC	INPUT (voltage pulse)	OUTPUT 1 (relay contact)	OUTPUT 2 (open collector)
Non Inverted	H L	OFF ON	OFF ON
Inverted	H L	OFF ON	OFF ON

[example 3] Input : open collector
 Output 1: open collector
 Output 2: voltage pulse

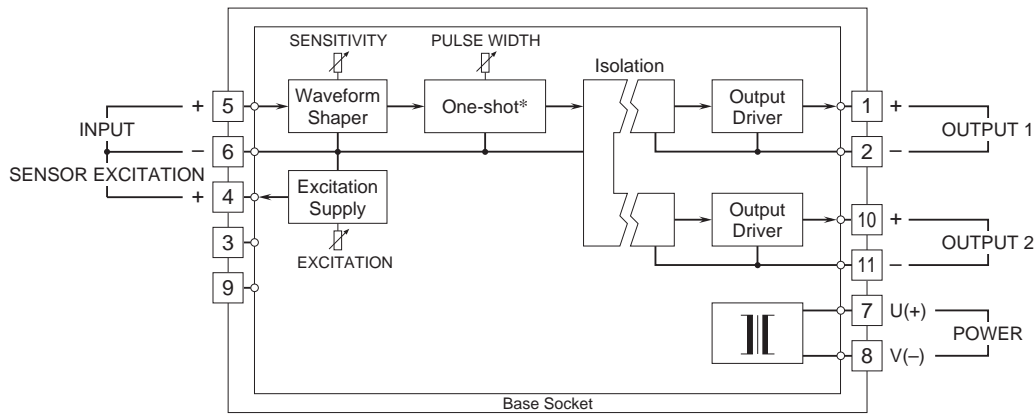
PULSE LOGIC	INPUT (open collector)	OUTPUT 1 (open collector)	OUTPUT 2 (voltage pulse)
Non Inverted	OFF ON	OFF ON	H L
Inverted	OFF ON	OFF ON	H L

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

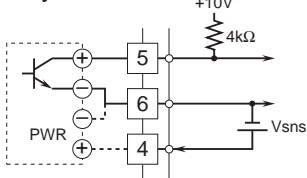
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



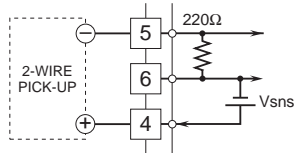
*Disregard one-shot circuit for output pulse width code "1"

Input Connection Examples

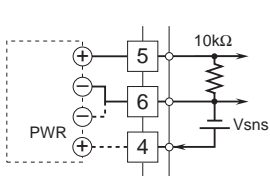
■ Dry Contact



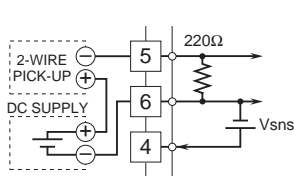
■ 2-Wire Current Pulse • Built-in Excitation



■ Voltage Pulse

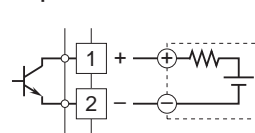


• External DC Supply

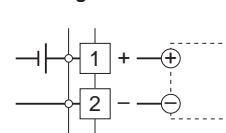


Output Connection Examples

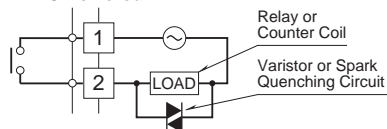
■ Open Collector



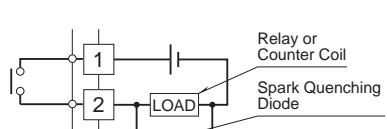
■ Voltage Pulse



■ Relay Contact • AC Powered



• DC Powered



Specifications are subject to change without notice.