

## Space-saving Dual Output Signal Conditioners Mini-MW Series

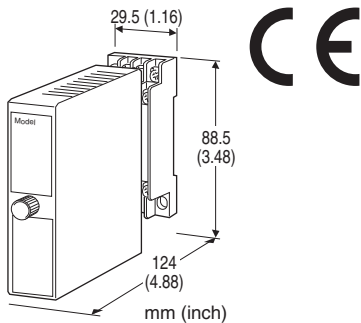
### PULSE ISOLATOR

#### Functions & Features

- Galvanically isolates pulse rate signals
- Input frequency = output frequency
- Various outputs (open collector, voltage pulses and dry contact AC/DC switch)
- 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: W2PP-[1][2][3][4]-[5][6]

#### ORDERING INFORMATION

- Code number: W2PP-[1][2][3][4]-[5][6]  
Specify a code from below for each of [1] through [6].  
(e.g. W2PP-333N-M2/CE/Q)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

#### [1] INPUT

- 1: Mechanical contact (max. 30 Hz)
- 2: Open collector (max. 10 kHz)
- 3: Voltage pulse (max. 10 kHz)
- 9: Clamp-on pulse sensor CLSP

#### [2] OUTPUT 1

- 1: Low frequency open collector (max. 30 Hz)
- 2: High frequency open collector (max. 10 kHz)  
(When the low frequency open collector or the dry contact AC/DC switch is selected as one of the outputs, the frequency of the other output is limited to max. 30 Hz.)
- 3: 5 V pulse (max. frequency 10 kHz)

(When the low frequency open collector or the dry contact AC/DC switch is selected as one of the outputs, the frequency of the other output is limited to max. 30 Hz.)

4: 12 V pulse (max. frequency 10 kHz)

(When the low frequency open collector or the dry contact AC/DC switch is selected as one of the outputs, the frequency of the other output is limited to max. 30 Hz.)

5: 24 V pulse (max. frequency 10 kHz)

(When the low frequency open collector or the dry contact AC/DC switch is selected as one of the outputs, the frequency of the other output is limited to max. 30 Hz.)

6: Dry contact AC/DC switch (max. frequency 30 Hz)

#### [3] OUTPUT 2

Same range availability as Output 1

Y: None

#### [4] OUTPUT LOGIC

N: The same as the input

R: Inverted

#### [5] POWER INPUT

##### AC Power

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)

##### DC Power

R: 24 V DC

(Operational voltage range 24 V  $\pm$ 10 %, ripple 10 %p-p max.)

R2: 11 - 27 V DC

(Operational voltage range 11 - 27 V, ripple 10 %p-p max.)

(Select '/N' for 'Standards & Approvals' code.)

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

#### [6] OPTIONS (multiple selections)

##### Standards & Approvals (must be specified)

/N: Without CE

/CE: CE marking

##### 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

## RELATED PRODUCTS

- Clamp-on pulse sensor (model: CLSP)

## GENERAL SPECIFICATIONS

**Construction:** Plug-in  
**Connection:** M3 screw terminals (torque 0.8 N·m)  
**Screw terminal:** Chromated steel (standard) or stainless steel  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input to output 1 to output 2 to power  
**Frequency range:** Input and output are the same.  
**Chattering protection:** Filter provided for mechanical contact input  
**Input pulse sensing:** DC coupled

## INPUT SPECIFICATIONS

**Excitation:** 12 V DC @30 mA; shortcircuit protection

■ **Open Collector**  
**Maximum frequency:** 10 kHz  
**Pulse width time requirement:** 10 μsec. min. for ON and OFF  
**Sensing:** Approx. 12 V DC @3 mA  
**ON/OFF level:** ≤ 600 Ω / 1.8 V for ON, ≥ 100 kΩ / 3.5 V for OFF

■ **Mechanical Contact**  
**Maximum frequency:** 30 Hz  
**Pulse width time requirement:** 10 msec. min. for ON and OFF  
**Sensing:** Approx. 12 V DC @3 mA  
**ON/OFF level:** ≤ 200 Ω / 0.6 V for ON, ≥ 100 kΩ / 2.5 V for OFF

■ **Voltage Pulse**  
**Maximum frequency:** 10 kHz  
**Pulse width time requirement:** 10 μsec. min. for high and low levels  
**Waveforms:** Square or sine  
**Hi/Lo level:** 2 - 50 V for high level; ≤1 V for low level  
**Input impedance:** 10 kΩ min.

■ **Clamp-on Pulse Sensor CLSP**  
**Maximum frequency:** 50 000 pulses/hour  
**ON/OFF level:** ≤ 400 Ω / 1.3 V for ON, ≥ 200 kΩ / 12 V for OFF

## OUTPUT SPECIFICATIONS

■ **Low Frequency Open Collector:**  
50 V DC @100 mA (resistive load)  
**Maximum frequency:** 30 Hz  
**Timer:** Limits within 75 ±25 msec.  
for wider than 75 msec. pulses  
ON time for output logic non-inverted  
OFF time for output logic inverted  
(When the low frequency open collector or the dry contact

AC/DC switch is selected as one of the outputs, the timer is applied also to the other output.)

**Saturation voltage:** 0.5 V DC

■ **High Frequency Open Collector:**  
50 V DC @100 mA (resistive load)

**Maximum frequency:** 10 kHz

**Saturation voltage:** 0.5 V DC

■ **Voltage Pulse**

**Maximum frequency:** 10 kHz

**High level:** Rating (5, 12 or 24 V) ±10 %

**Low level:** ≤ 0.5V

**Load resistance:**

≥ 250 Ω for 5 V

≥ 600 Ω for 12 V

≥ 1200 Ω for 24 V, output 1

≥ 2400 Ω for 24 V, output 2

■ **Dry Contact AC/DC Switch**

132 V AC @200 mA (cos φ = 1)

30 V DC @200 mA (resistive load)

**Maximum frequency:** 30 Hz

**Timer:** Limits within 75 ±25 msec.

for wider than 75 msec. pulses

ON time for output logic non-inverted

OFF time for output logic inverted

(When the low frequency open collector or the dry contact AC/DC switch is selected as one of the outputs, the timer is applied also to the other output.)

**Saturation voltage:** 3 V DC

## INSTALLATION

**Power Consumption**

• **AC:**

Approx. 4 VA at 100 V

Approx. 5 VA at 200 V

Approx. 6 VA at 240 V

• **DC:** Approx. 4 W

**Operating temperature:** -5 to +55°C (23 to 131°F)

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

**Mounting:** Surface or DIN rail

**Weight:** 200 g (0.44 lb)

## PERFORMANCE

**Insulation resistance:** ≥ 100 MΩ with 500 V DC

**Dielectric strength:** 2000 V AC @1 minute (input to output 1 to output 2 to power to ground)

## STANDARDS & APPROVALS

**EU conformity:**

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

Low Voltage Directive

EN 61010-1

Measurement Category II (output)

Installation Category II (power)

Pollution Degree 2

Input or output 1 or output 2 to power input:

Reinforced insulation (300 V)

Input to output 1 to output 2: Basic insulation (300 V)

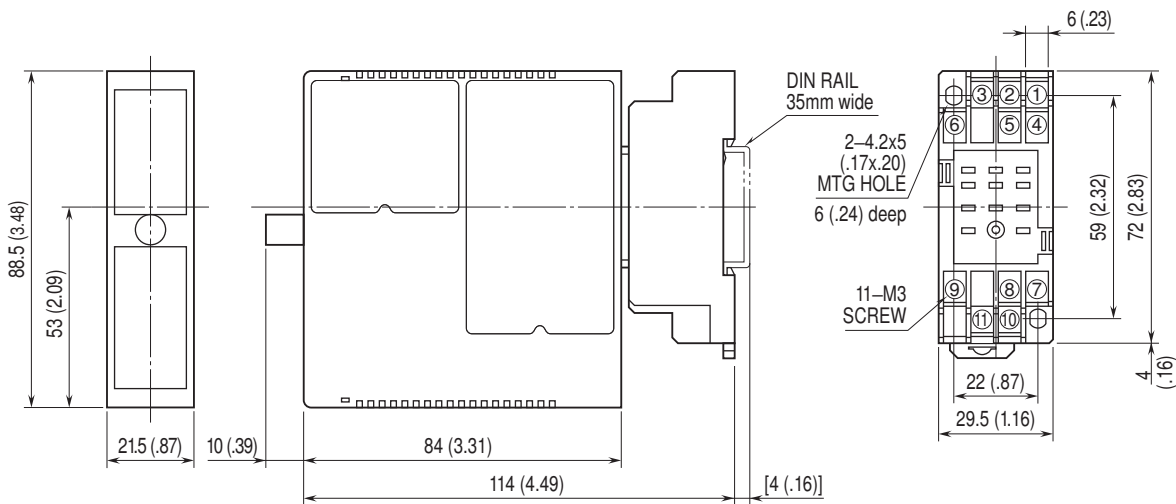
RoHS Directive

EN 50581

## OUTPUT LOGIC

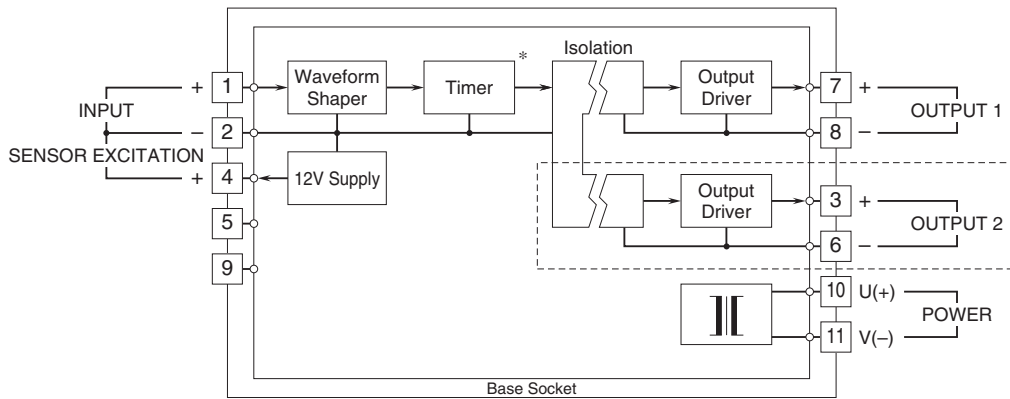
INPUT TYPE	PULSE LOGIC	INPUT PULSE	VOLTAGE PULSE OUTPUT	OPEN COLLECTOR DRY CONTACT AC/DC SW OUT
Voltage Pulse	Non Inverted			
	Inverted			
Mechanical Contact Open Collector Clamp-on Pulse Sensor CLSP	Non Inverted			
	Inverted			

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



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

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

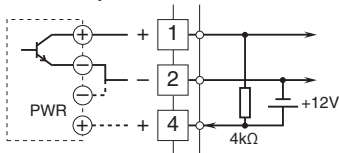


\*The timer is provided when the low frequency open collector or the dry contact AC/DC switch is selected as one of the outputs.

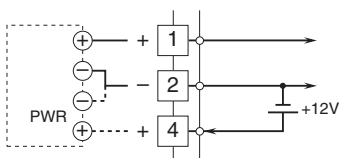
Note: The section enclosed by broken line is only with 2nd output option.

### Input Connection Examples

#### ■ Mechanical Contact, Open Collector or Clamp-on Pulse Sensor CLSP

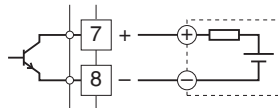


#### ■ Voltage Pulse

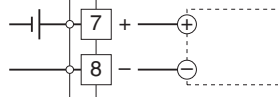


### Output Connection Examples

#### ■ Open Collector

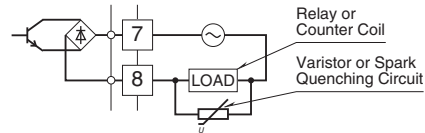


#### ■ Voltage Pulse

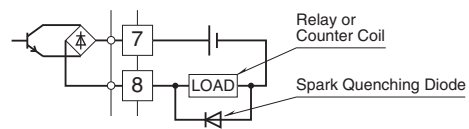


#### ■ Dry Contact AC/DC Switch

##### • AC Powered



##### • DC Powered



Specifications are subject to change without notice.