

Space-saving Dual Output Signal Conditioners Mini-MW Series

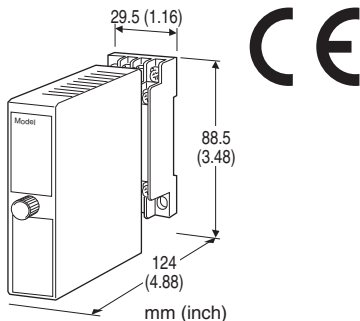
PULSE ISOLATOR

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 μ sec. min. for ON and OFF

Sensing: Approx. 12 V DC @3 mA

ON/OFF level: $\leq 600 \Omega$ / 1.8 V for ON, $\geq 100 \text{ k}\Omega$ / 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: $\leq 200 \Omega$ / 0.6 V for ON, $\geq 100 \text{ k}\Omega$ / 2.5 V for OFF

■ **Voltage Pulse**

Maximum frequency: 10 kHz

Pulse width time requirement: 10 μ sec. 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 k Ω min.

■ **Clamp-on Pulse Sensor CLSP**

Maximum frequency: 50 000 pulses/hour

ON/OFF level: $\leq 400 \Omega$ / 1.3 V for ON, $\geq 200 \text{ k}\Omega$ / 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 $\pm$ 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) $\pm 10 \%$

Low level: ≤ 0.5 V

Load resistance:

$\geq 250 \Omega$ for 5 V

$\geq 600 \Omega$ for 12 V

$\geq 1200 \Omega$ for 24 V, output 1

$\geq 2400 \Omega$ for 24 V, output 2

■ **Dry Contact AC/DC Switch**

132 V AC @200 mA ($\cos \phi = 1$)

30 V DC @200 mA (resistive load)

Maximum frequency: 30 Hz

Timer: Limits within 75 $\pm$ 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: $\geq 100 \text{ M}\Omega$ 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

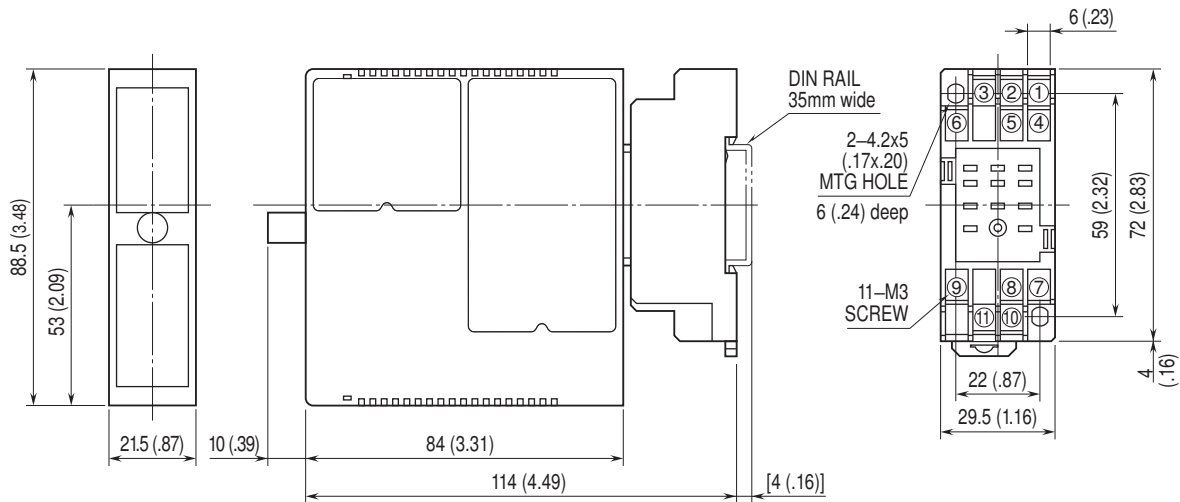
EMS EN 61000-6-2

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

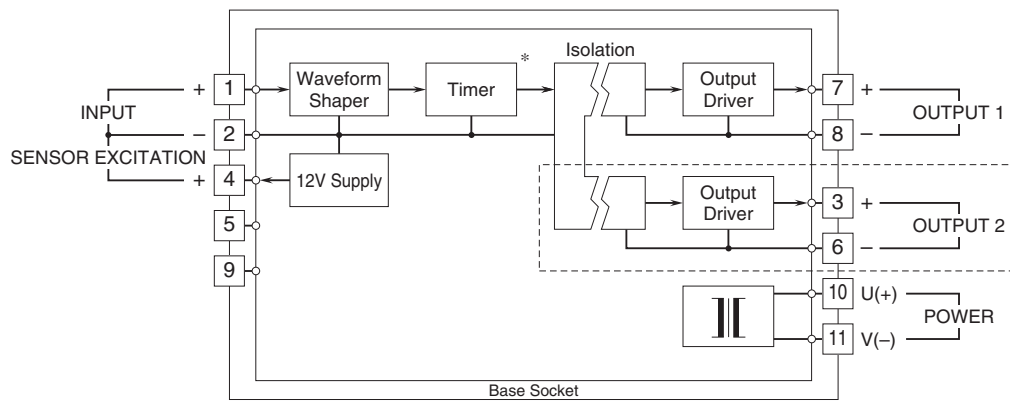
INPUT TYPE	PULSE LOGIC	INPUT PULSE	VOLTAGE PULSE OUTPUT	OPEN COLLECTOR DRY CONTACT AC/DC SW OUT
Voltage Pulse	Non Inverted	H L	H L	OFF ON
	Inverted	H L	H L	OFF ON
Mechanical Contact Open Collector Clamp-on Pulse Sensor CLSP	Non Inverted	OFF ON	H L	OFF ON
	Inverted	OFF ON	H L	OFF ON

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

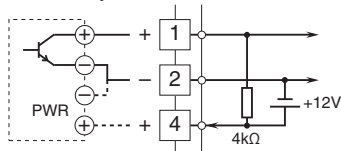


*The timer is provided when the low frequency open collector or the dry contact AC/DC switch is selected as one of the outputs.

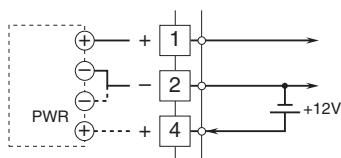
Note: The section enclosed by broken line is only with 2nd output option.

Input Connection Examples

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

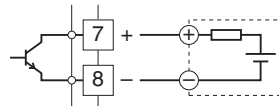


■ Voltage Pulse

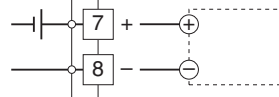


Output Connection Examples

■ Open Collector

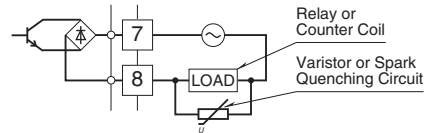


■ Voltage Pulse

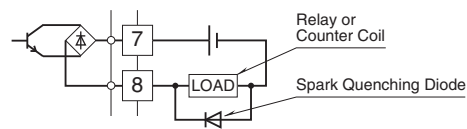


■ Dry Contact AC/DC Switch

• AC Powered



• DC Powered



Specifications are subject to change without notice.