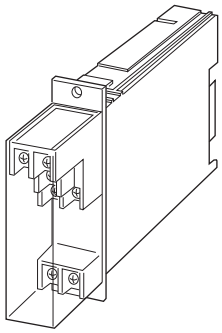
High-density Signal Conditioners 10-RACK

PULSE ISOLATOR

Functions & Features
- Galvanically isolating pulse rate signals
- Input frequency = output frequency
- Various outputs (relay, open collector and voltage pulses)
- Optional second channel output available at the front terminals and at the Standard Rack connector

Typical Applications
- Isolating field pulse signals in order to reduce noises
- Changing e.g. dry contact signal to e.g. 5 V signals



MODEL: 10PP-[1][2][3]-R[4]

ORDERING INFORMATION

- Code number: 10PP-[1][2][3]-R[4]

Specify a code from below for each of [1] through [4].
(e.g. 10PP-332-R/Q)
- Specify the specification for option code /Q
(e.g. /C01)

Note: Output 1 and 2 frequency is equal.

[1] INPUT

1: Mechanical contact (max. 30 Hz)
2: Open collector (max. 10 kHz)
3: Voltage pulse (max. 10 kHz)

[2] OUTPUT 1

1: Low frequency open collector (max. 30 Hz)
2: High frequency open collector (max. 10 kHz)
3: 5 V pulse (max. 10 kHz)
4: 12 V pulse (max. 10 kHz)
5: 24 V pulse (max. 10 kHz)
8: Photo MOSFET relay pulse (max. 30 Hz)

[3] OUTPUT 2

0: None
2: Open collector (max. 10 kHz)

POWER INPUT

DC Power
R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

[4] OPTIONS

blank: none
/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to our web site.)
/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating

GENERAL SPECIFICATIONS

Construction: Rack-mounted; terminal access via screw terminals at the front and via card-edge connector at the rear; terminal cover provided
Connection: M3.5 screw terminals (torque 0.8 N·m) and card-edge connector
Power input: Supplied from card-edge connector
Screw terminal: Nickel-plated 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 SPECIFICATIONS

Excitation: 12V DC ±2 V @ 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: ≤ 200 Ω / 3.5 V for ON, ≥ 100 kΩ / 7 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 / 3.5 V for ON, ≥ 100 kΩ / 7 V for OFF

■ Voltage Pulse
Maximum frequency: 10 kHz
Pulse width time requirement: 10 µsec. min. for high and low levels

MG CO., LTD.
www.mgco.jp

Waveforms: Square or sine
Hi/Lo level: 2 – 50 V DC for high level; ≤1 V DC for low level
Input impedance: 10 kΩ min.

OUTPUT SPECIFICATIONS

■ **Low Frequency Open Collector (Output 1)**
50 V DC @ 100 mA (resistive load)
Maximum frequency: 30 Hz
Timer: Limits ON time within 75 ±25 msec. for wider than 75 msec. pulses
Saturation voltage: 0.5 V DC

■ **High Frequency Open Collector (Output 1)**
50 V DC @ 100 mA (resistive load)
Maximum frequency: 10 kHz
Saturation voltage: 0.5 V DC

■ **Open Collector (Output 2)**
40 V DC @ 100 mA (resistive load)
Maximum frequency: 10 kHz
Timer: Limits ON time within 75 ±25 msec. for wider than 75 msec. pulses (Timer is provided when output 1 is low frequency open collector or photo MOSFET relay pulse.)
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

■ **Photo MOSFET Relay Pulse**
Maximum frequency: 30 Hz
Timer: Limits ON time within 75 ±25 msec. for wider than 75 msec. pulses
Rating: 132 V AC @ 200 mA (cos ø = 1)
30 V DC @ 200 mA (resistive load)
ON resistance: ≤ 2 Ω

INSTALLATION

Current consumption: Approx. 80 mA
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Standard Rack 10BXx
Weight: 200 g (0.44 lb)

PERFORMANCE

Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 500 V AC @ 1 minute
(input to output 1 to output 2 to power)
1500 V AC @ 1 minute (input or output or power to ground)

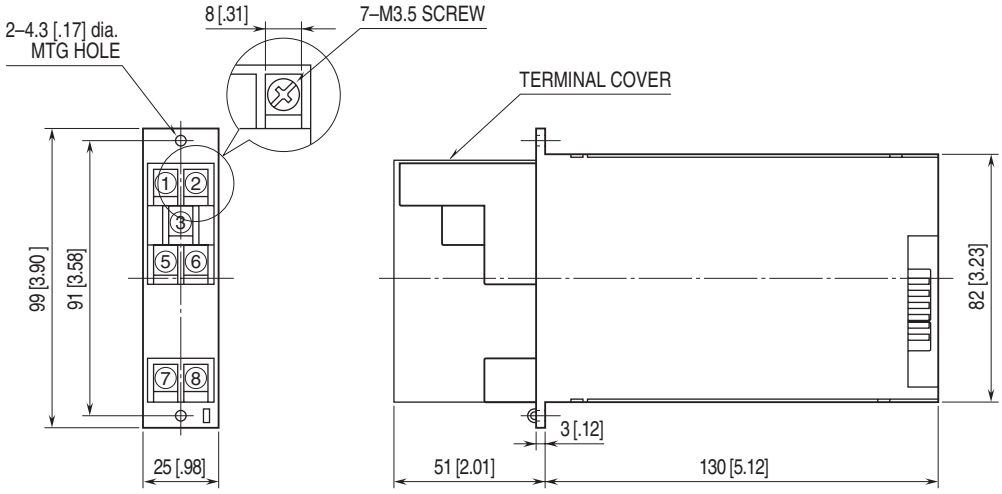
MG CO., LTD.
www.mgco.jp

OUTPUT LOGIC

Applicable for both Output 1 and 2.

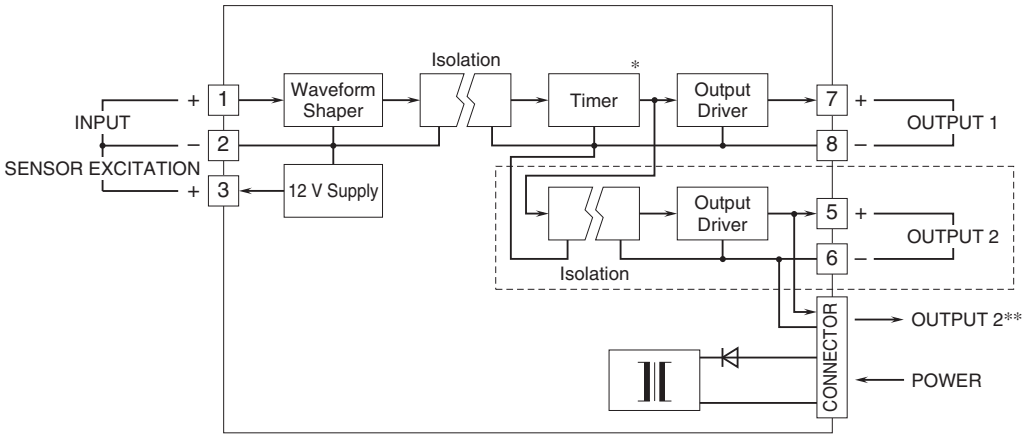
INPUT TYPE	INPUT	VOLTAGE PULSE OUTPUT	OPEN COLLECTOR or PHOTO MOSFET RELAY PULSE OUTPUT
Voltage Pulse	H / L	H / L	OFF / ON
Mechanical Contact Open Collector	OFF / ON	H / L	OFF / ON

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



MG CO., LTD.
www.mgco.jp

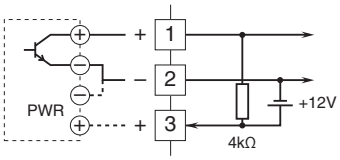
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



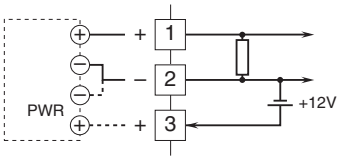
* Timer is provided for low frequency open collector or photo MOSFET relay pulse output.
** For 1 output channel type, OUTPUT 1 is also connected to the card-edge connector inside.
Note: The section enclosed by broken line is only for 2nd output channel.

Input Connection Examples

■ Mechanical Contact or Open Collector

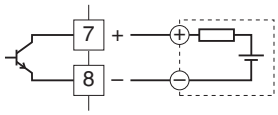


■ Voltage Pulse

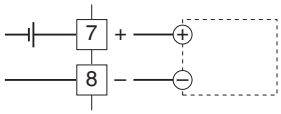


Output Connection Examples

■ Open Collector

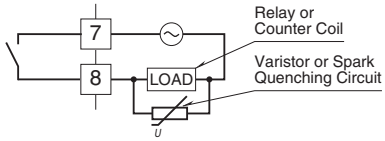


■ Voltage Pulse

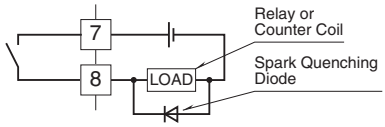


■ Photo MOSFET Relay Pulse

• AC Powered



• DC Powered



⚠ Specifications are subject to change without notice.

MG CO., LTD.
www.mgco.jp