

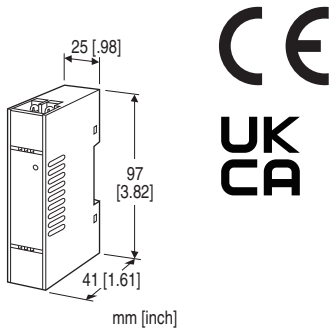
Super-mini Terminal Block Signal Conditioners M5-UNIT

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

PULSE ISOLATOR

Functions & Features

- Galvanically isolates pulse rate signals
- Input frequency = output frequency
- Various outputs (open collector and voltage pulse)
- Power LED



MODEL: M5PP-[1][2][3]-R[4]

ORDERING INFORMATION

- Code number: M5PP-[1][2][3]-R[4]
- Specify a code from below for each of [1] through [4].
(e.g. M5PP-BMN-R/Q)
- Specify the specification for option code /Q
(e.g. /C01/S01)

[1] INPUT

- A1:** Open collector (max. 10 kHz)
- A2:** Mechanical contact (max. 30 Hz)
- B:** Voltage pulse (max. 10 kHz)
- I:** Clamp-on pulse sensor CLSP

[2] OUTPUT

- A1:** High frequency open collector (max. 10 kHz)
- A2:** Low frequency open collector (max. 30 Hz)
- M:** 5 V pulse (max. 10 kHz)
- N:** 12 V pulse (max. 10 kHz)
- P:** 24 V pulse (max. 10 kHz)

[3] OUTPUT LOGIC

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

POWER INPUT

- DC Power
- R:** 24 V DC

[4] OPTIONS

- blank:** none
- /Q:** Options other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q (multiple selections)

COATING (For the detail, refer to our 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:** Terminal block
- Connection:** M3.5 screw terminals (torque 0.8 N·m)
- Screw terminal:** Nickel-plated steel (standard) or stainless steel
- Housing material:** Flame-resistant resin (black)
- Isolation:** Input to output to power
- Frequency range:** Input and output are the same.
- Chattering protection:** Filter provided for mechanical contact input
- Power indicator LED:** Green LED turns on when the power is supplied.
- 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 Ω / 1.8 V for ON, \geq 100 k Ω / 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 Ω / 0.6 V for ON, \geq 100 k Ω / 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 DC for high level; ≤ 1 V DC 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, ≥ 200 k $\Omega / 12$ V for OFF

equivalent to the applicable EU directives.
(Refer to our website for more information about the legislations and designated standards.)

OUTPUT SPECIFICATIONS

■ **High Frequency Open Collector:**
50 V DC @100 mA (resistive load)
Maximum frequency: 10 kHz
Saturation voltage: 0.5 V DC
■ **Low Frequency Open Collector:**
50 V DC @100 mA (resistive load)
Maximum frequency: 30 Hz
Timer: Limits ≥ 75 msec. within 75 ± 25 msec.
ON time for output logic non-inverted
OFF time for output logic inverted
Saturation voltage: 0.5 V DC
■ **Voltage Pulse**
Maximum frequency: 10 kHz
High level: Rating (5, 12 or 24 V) ± 10 %
Low level: ≤ 0.5 V
Load resistance:
 ≥ 1.0 k Ω for 5 V
 ≥ 2.4 k Ω for 12 V
 ≥ 4.8 k Ω for 24 V

INSTALLATION

Power consumption
•DC: Approx. 1.5 W
Operating temperature: -20 to +65°C (-4 to +149°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: DIN rail
Weight: 80 g (2.8 oz)

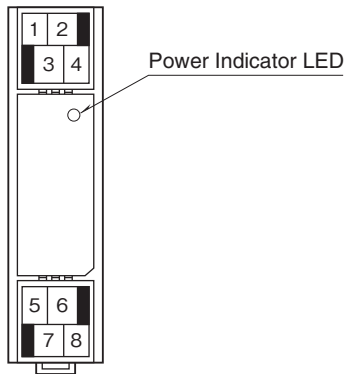
PERFORMANCE

Insulation resistance: ≥ 100 M Ω with 500 V DC
Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

STANDARDS & APPROVALS

EU conformity:
EMC Directive
EMI EN 61000-6-4
EMS EN 61000-6-2
RoHS Directive
UK conformity (UKCA):
The UK legislations and designated standards are

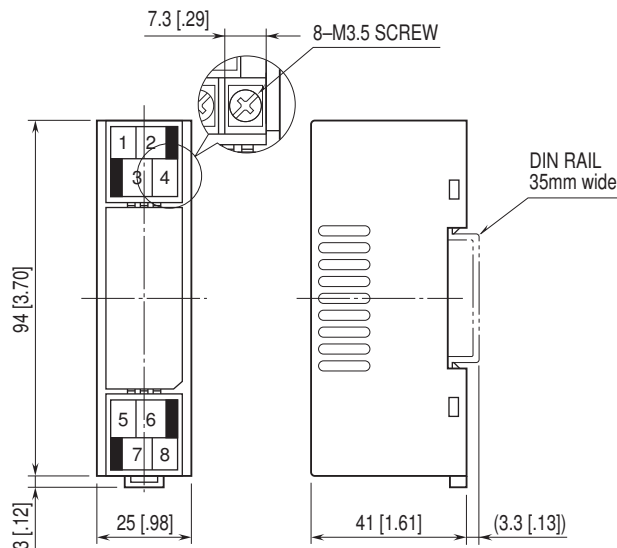
FRONT VIEW



OUTPUT LOGIC

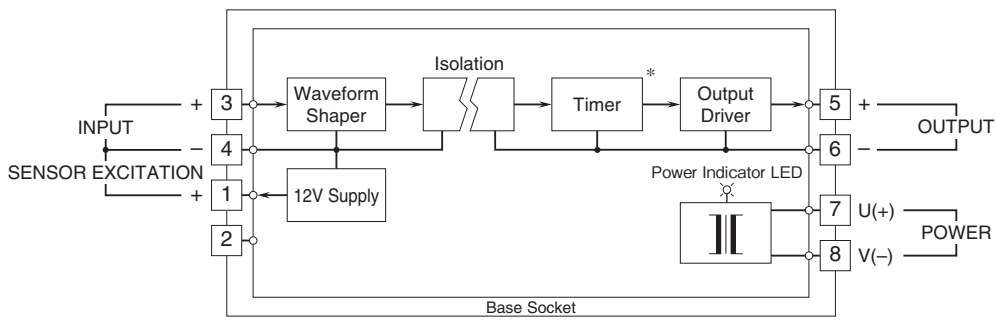
INPUT TYPE	PULSE LOGIC	INPUT	VOLTAGE PULSE OUTPUT	OPEN COLLECTOR
Voltage Pulse	Non Inverted	H L	H L	OFF ON
	Inverted	H L	H L	OFF ON
Mechanical Contact Open Collector Clamp-on Pulse Sensor CLSP	Non Inverted	OFF ON	H L	OFF ON
	Inverted	OFF ON	H L	OFF ON

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

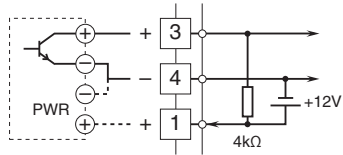
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



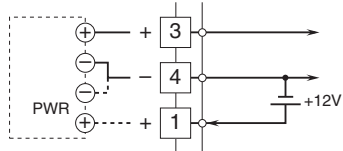
* Low freq. open collector and dry contact AC/DC switch output only.

Input Connection Examples

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

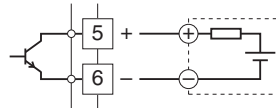


■ Voltage Pulse

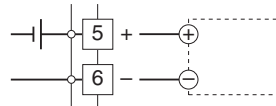


Output Connection Examples

■ Open Collector



■ Voltage Pulse



Specifications are subject to change without notice.