

Super-mini Signal Conditioners F2 Series

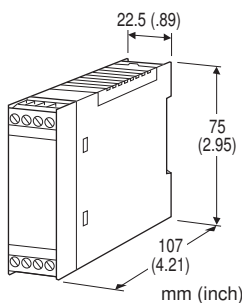
PULSE ISOLATOR

Functions & Features

- Galvanically isolating pulse rate signals
- Input frequency = output frequency
- Various outputs (open collector and voltage pulses)
- 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: F2PP-[1][2][3]-R[4]

ORDERING INFORMATION

- Code number: F2PP-[1][2][3]-R[4]
- Specify a code from below for each of [1] through [4].
(e.g. F2PP-33N-R/Q)
- Frequency range (e.g. 0 - 1000 Hz)
 - Specify the specification for option code /Q
(e.g. /C01)

[1] INPUT

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

Note: When the output signal is Low frequency open collector, the max. input frequency is 30 Hz.

[2] OUTPUT

- 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)

[3] OUTPUT LOGIC

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

POWER INPUT

DC Power

- R: 24 V DC
(Operational voltage range 24 V \pm 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 M-System's web site.)

- /C01: Silicone coating
- /C02: Polyurethane coating

GENERAL SPECIFICATIONS

- Construction:** Stand-alone; terminal access at the front
- Connection:** Euro type connector terminal
(applicable wire size: 0.2 to 2.5 mm², stripped length 7 mm)
- 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
- Input pulse sensing:** DC coupled

INPUT SPECIFICATIONS

- Excitation:** 12 V DC @30 mA; shortcircuit protection
- **Open Collector**
Sensing: Approx. 12 V DC @ 3 mA
ON/OFF level: \leq 200 Ω / 0.6V for ON, \geq 100 k Ω / 6V for OFF
Low frequency open collector output
Maximum frequency: 30 Hz
Pulse width time requirement: 10 msec. min. for ON and OFF
High frequency open collector output
Maximum frequency: 10 kHz
Pulse width time requirement: 10 μ sec. min. for ON and 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 / 6 V for OFF
- **Voltage Pulse:** Square or sine waveforms
Low frequency open collector output
Maximum frequency: 30 Hz

Pulse width time requirement: 10 msec. min. for ON and OFF
High frequency open collector output
Maximum frequency: 10 kHz
Pulse width time requirement: 10 µsec. min. for ON and OFF
Voltage range: -30 – +30 V DC
Hi/Lo level: 2 – 30 V for high level; ≤ 1 V for low level
Input impedance: 10 kΩ minimum

EN 50581
Approval:
UL/C-UL general safety requirements
(UL 3111-1, CAN/CSA-C22.2 No.1010-1)

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
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

INSTALLATION

Current consumption
•DC: Approx. 80 mA
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: DIN rail
Weight: 150 g (0.33 lb)

PERFORMANCE

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

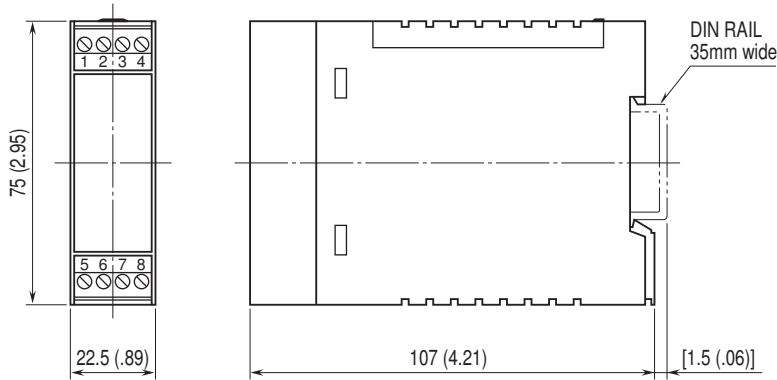
STANDARDS & APPROVALS

EU conformity:
EMC Directive
EMI EN 61000-6-4
EMS EN 61000-6-2
RoHS Directive

OUTPUT LOGIC

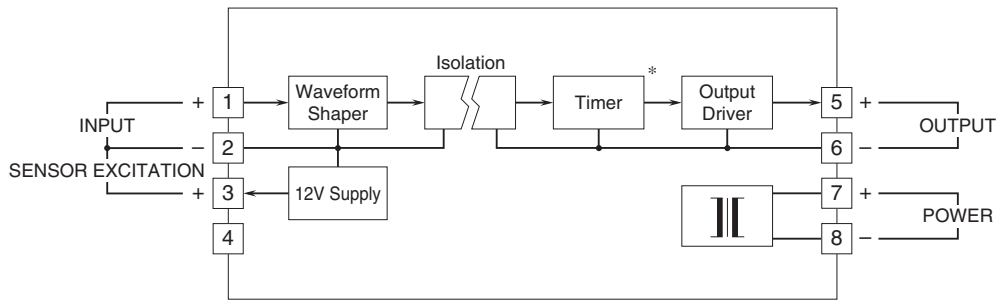
INPUT TYPE	PULSE LOGIC	INPUT	VOLTAGE PULSE OUTPUT	OPEN COLLECTOR OUTPUT
Voltage Pulse	Non Inverted	H L	H L	OFF ON
	Inverted	H L	H L	OFF ON
Mechanical Contact Open Collector	Non Inverted	OFF ON	H L	OFF ON
	Inverted	OFF ON	H L	OFF ON

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



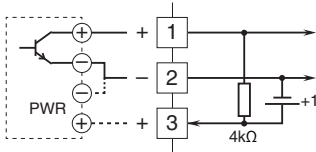
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

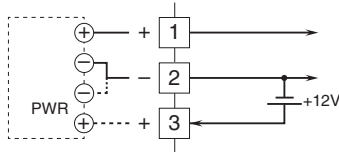


Input Connection Examples

■ Mechanical Contact or Open Collector

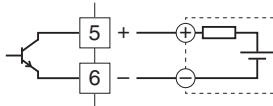


■ Voltage Pulse

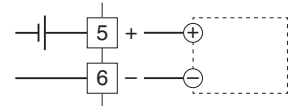


Output Connection Examples

■ Open Collector



■ Voltage Pulse



Specifications are subject to change without notice.