

## Super-mini Signal Conditioners F2 Series

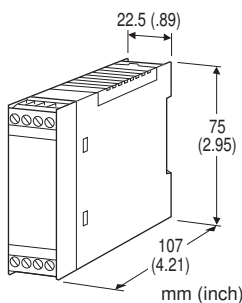
### PULSE ISOLATOR

#### 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/CE/Q)

- 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 (multiple selections)

Standards & Approvals (must be specified)

/N: Without CE

/CE: CE marking

Other 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

### GENERAL SPECIFICATIONS

**Construction:** Stand-alone; terminal access at the front

**Connection:** Euro type connector terminal

(applicable wire size: 0.2 to 2.5 mm<sup>2</sup>, 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:**  $\leq 200 \Omega$  / 0.6V for ON,  $\geq 100 \text{ k}\Omega$  / 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  $\mu$ 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:**  $\leq 200 \Omega$  / 0.6 V for ON,  $\geq 100 \text{ k}\Omega$  / 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

## 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

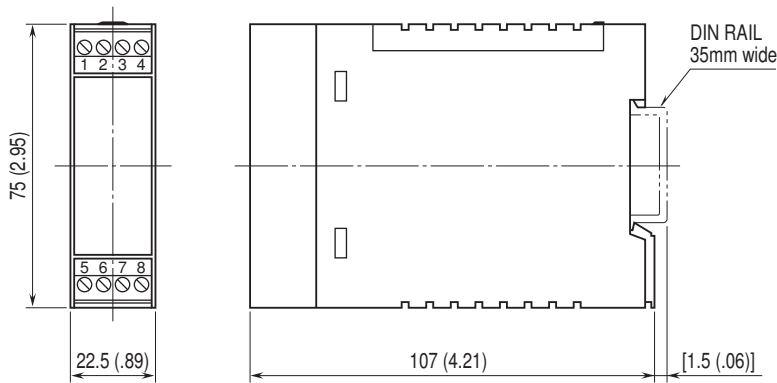
EMS EN 61000-6-2

RoHS Directive

**OUTPUT LOGIC**

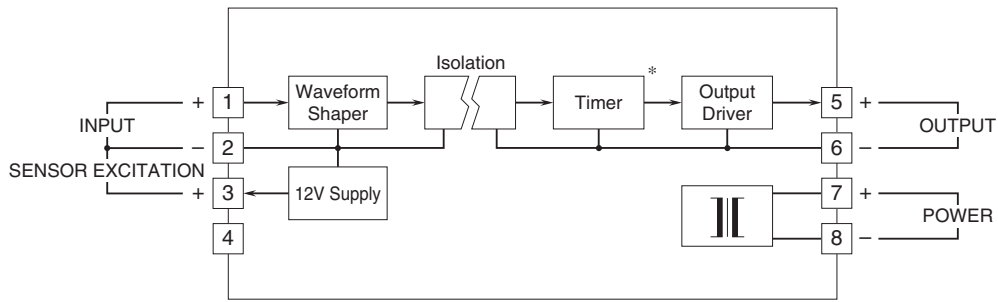
INPUT TYPE	PULSE LOGIC	INPUT	VOLTAGE PULSE OUTPUT	OPEN COLLECTOR OUTPUT
Voltage Pulse	Non Inverted	H L	H L	OFF ON
	Inverted	H L	H L	OFF ON
Mechanical Contact Open Collector	Non Inverted	OFF ON	H L	OFF ON
	Inverted	OFF ON	H L	OFF ON

**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]**



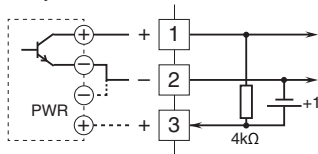
• When mounting, no extra space is needed between units.

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**

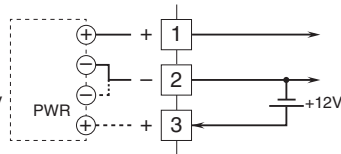


**Input Connection Examples**

■ Mechanical Contact or Open Collector

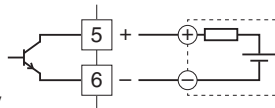


■ Voltage Pulse

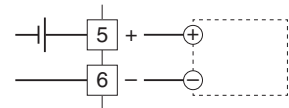


**Output Connection Examples**

■ Open Collector



■ Voltage Pulse



Specifications are subject to change without notice.