

Space-saving Plug-in Signal Conditioners F-UNIT

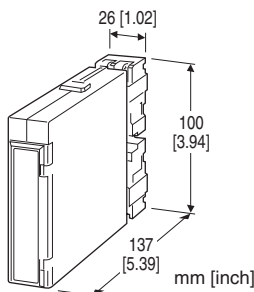
PULSE ISOLATOR

Functions & Features

- Galvanically isolating pulse rate signals
- Input frequency = output frequency
- Various outputs (open collector, voltage pulses and photo MOSFET relay pulse)
- 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: FPP-[1][2]-[3][4]

ORDERING INFORMATION

- Code number: FPP-[1][2]-[3][4]

Specify a code from below for each of [1] through [4].

- (e.g. FPP-33-K/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)

[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)
- 8: Photo MOSFET relay pulse (max. 30 Hz)

[3] POWER INPUT

AC Power

K: 85 - 132 V AC

(Operational voltage range 85 - 132 V, 47 - 66 Hz)

L: 170 - 264 V AC

(Operational voltage range 170 - 264 V, 47 - 66 Hz)

DC Power

R: 24 V DC

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

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

[4] OPTIONS

blank: none

/Q: With options (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

GENERAL SPECIFICATIONS

Construction: Plug-in

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

INPUT SPECIFICATIONS

Excitation: 12V DC \pm 2 V @ 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 200 Ω / 0.6 V for ON, \geq 100 k Ω / 6 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 / 6 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.

Power input code K, L, P:

1000 V AC @ 1 minute (input to output)

2000 V AC @ 1 minute (input or output or power to ground)

1500 V AC @ 1 minute (I/O to power)

OUTPUT SPECIFICATIONS

■ Low Frequency Open Collector

50 V DC @ 100 mA (resistive load)

Maximum frequency: 30 Hz

Timer: Limits ON time within 75 \pm 25 msec. for wider than 75 msec. pulses

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: ≤ 0.5 V

Load resistance:

$\geq 250 \Omega$ for 5 V

$\geq 600 \Omega$ for 12 V

$\geq 1200 \Omega$ for 24 V

■ Photo MOSFET Relay Pulse

Maximum frequency: 30 Hz

Timer: Limits ON time within 75 \pm 25 msec. for wider than 75 msec. pulses

Rating: 132 V AC @ 200 mA ($\cos \theta = 1$)

30 V DC @ 200 mA (resistive load)

ON resistance: $\leq 2 \Omega$

INSTALLATION

Power input

•AC: Approx. 4.5 VA

•DC: 24 V approx. 70 mA

110 V approx. 20 mA

Operating temperature: -5 to +55 $^{\circ}$ C (23 to 131 $^{\circ}$ F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail; Standard Rack Mounting

Frame BX-16H available

Weight: 180 g (0.40 lb)

PERFORMANCE

Insulation resistance: ≥ 100 M Ω with 500 V DC

Dielectric strength

Power input code R:

1000 V AC @ 1 minute (input to output)

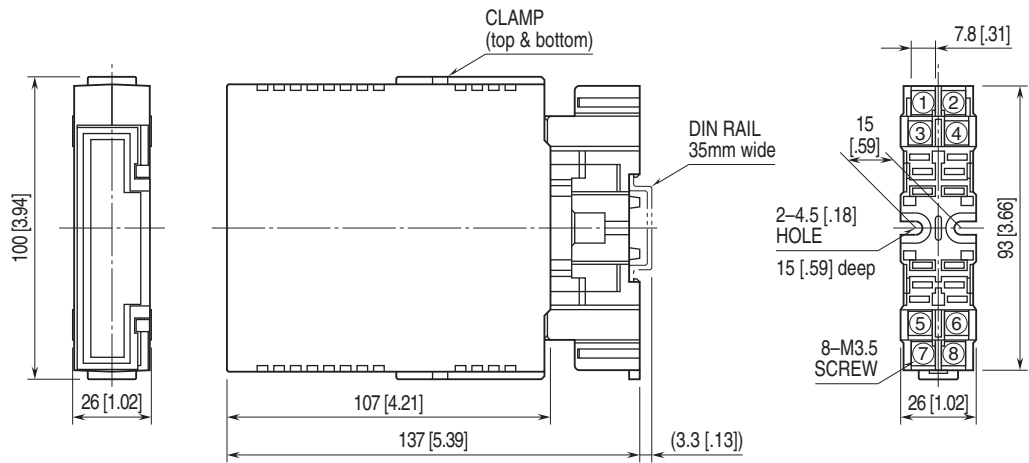
2000 V AC @ 1 minute (input or output or power to ground)

500 V AC @ 1 minute (I/O to power)

OUTPUT LOGIC

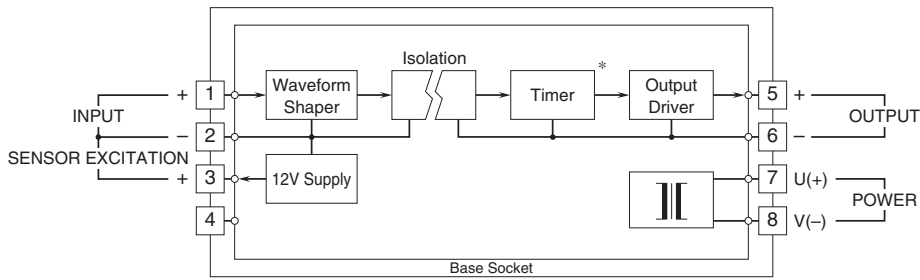
INPUT TYPE	INPUT	VOLTAGE PULSE OUTPUT	OPEN COLLECTOR or PHOTO MOSFET RELAY PULSE OUTPUT
Voltage Pulse	H L	H L	OFF ON
Mechanical Contact Open Collector	OFF ON	H L	OFF ON

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

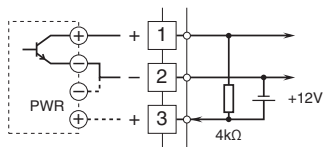
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



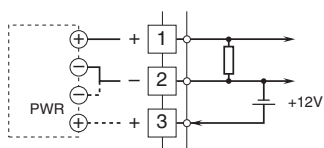
* Timer is provided for low frequency open collector or photo MOSFET relay pulse output.

Input Connection Examples

■ Mechanical Contact or Open Collector

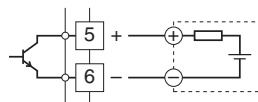


■ Voltage Pulse

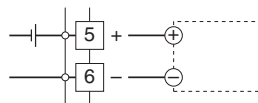


Output Connection Examples

■ Open Collector

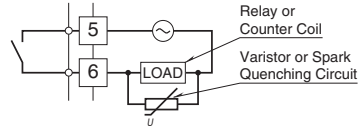


■ Voltage Pulse

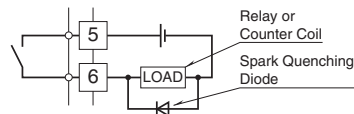


■ Photo MOSFET Relay Pulse

• AC Powered



• DC Powered





Specifications are subject to change without notice.