Rack-mounted DCS Signal Conditioners 18-RACK

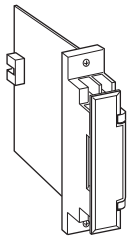
PULSE ISOLATOR

Functions & Features

- Galvanically isolating pulse rate signals
- Input frequency = output frequency
- Second channel output available at the front terminals and at the Standard Rack connector
- Excitation

Typical Applications

- Isolating field pulse signals in order to reduce noises



MODEL: 18PP–[1]22–R

ORDERING INFORMATION

- Code number: 18PP-[1]22-R

Specify a code from below for [1].
(e.g. 18PP-322-R)

- Frequency range (e.g. 0 – 1000 Hz)

[1] INPUT

1: Mechanical contact (max. 5 Hz)
2: Open collector (max. 10 kHz)
3: Voltage pulse (max. 10 kHz)
4: Two-wire current pulse, receiving resistor 200 Ω (max. 10 kHz)
5: Two-wire current pulse, receiving resistor 510 Ω (max. 10 kHz)
6: Two-wire current pulse, receiving resistor 1 kΩ (max. 10 kHz)

OUTPUT 1

2: Open collector (max. 10 kHz)

OUTPUT 2

2: Open collector (max. 10 kHz)
(Output 1 and 2 frequency is equal)

POWER INPUT

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

GENERAL SPECIFICATIONS

Construction: Rack-mounted; terminal access via screw terminals on the front and connector on the rear; terminal cover provided
Connection
Input: M3.5 screw terminals (torque 0.8 N·m)
Output 1: Connector
Output 2: M3.5 screw terminals (torque 0.8 N·m) and connector
Power input: Supplied from connector
Screw terminal: Nickel-plated steel
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: 12 V DC ±10 % @ 40 mA; shortcircuit protection

■ **Open Collector**

Input pulse sensing: DC coupled

Pulse width time requirement: ≥ 20 µsec. for ON and OFF

Sensing: Approx. 12 V DC @ 3 mA

ON/OFF level: ≤ 200 Ω / 5 V for ON, ≥ 100 kΩ / 7 V for OFF

■ **Mechanical Contact**

Input pulse sensing: DC coupled

Pulse width time requirement: ≥ 20 msec. for ON and OFF

Sensing: Approx. 12 V DC @ 3 mA

ON/OFF level: ≤ 200 Ω / 5 V for ON, ≥ 100 kΩ / 7 V for OFF

Time constant: 10 msec. (able to cancel it by changing jumper, J6)

■ **Voltage Pulse**: Square or sine waveform

Input pulse sensing: AC coupled

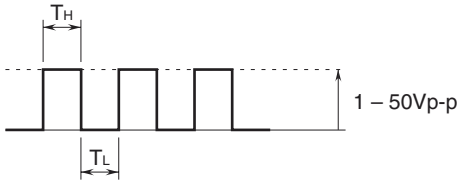
Input impedance: ≥ 10 kΩ

(Refer the graph and tables below for waveform, detection level range, the minimum amplitude, pulse width (duty ratio) and frequency requirements)

Square Waveform

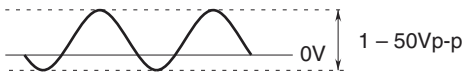
Pulse width is the smaller of T_H or T_L.

Duty ratio = frequency $\times T_H \times 100$ (%)



Sine or similar waveform

The input frequency range is 10 Hz to 10 kHz.



Detection level range: -50 to +50 V; max. 50 Vp-p

Waveform requirements

Square Waveform

FREQUENCY RANGE	AMPLITUDE	PULSE WIDTH & DUTY RATIO
0 to 10 kHz	1 to 3Vp-p	Duty 50 ±10%
0 to 10 kHz	Min. 3Vp-p	Min. 60 µsec.*

*When the frequency is 6 kHz or more, the pulse width is 30 µsec. or more.

Sine or similar waveform

FREQUENCY RANGE	AMPLITUDE	PULSE WIDTH & DUTY RATIO
50 Hz to 10 kHz	1 to 3Vp-p	-
10 Hz to 10 kHz	Min. 3Vp-p	-

■ **Two-wire Current Pulse**

Input pulse sensing: AC coupled

Refer to the table above for the minimum amplitude, pulse width (duty ratio) and frequency requirements.

Convert the current to the voltage for the amplitude.

OUTPUT SPECIFICATIONS

Open collector

Rating: 30 V DC @ 100 mA (resistive load)

Maximum frequency: 10 kHz

Saturation voltage: 0.5 V DC

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 18BXx or 18KBXx

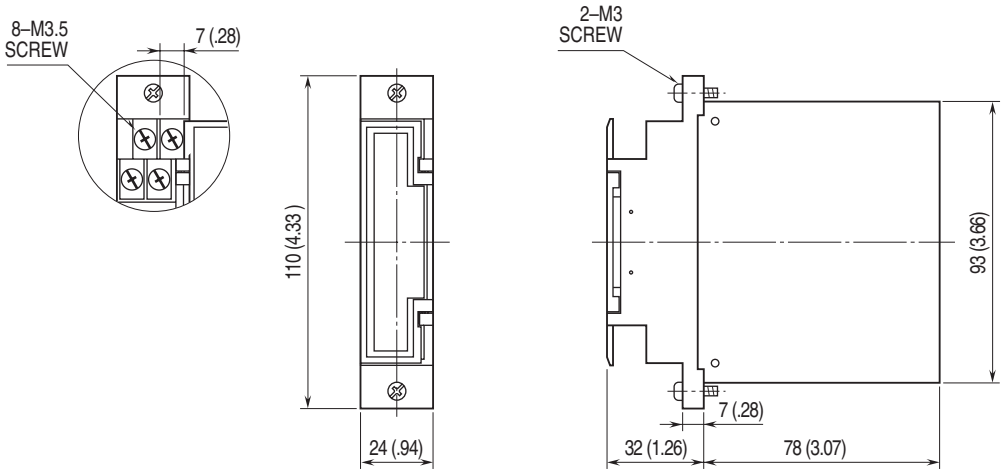
Weight: 150 g (0.33 lb)

PERFORMANCE

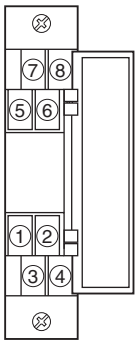
Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute
(input to output 1 or output 2 or power)
500 V AC @ 1 minute
(output 1 to output 2 to power)
1500 V AC @ 1 minute
(input or output or power to ground)

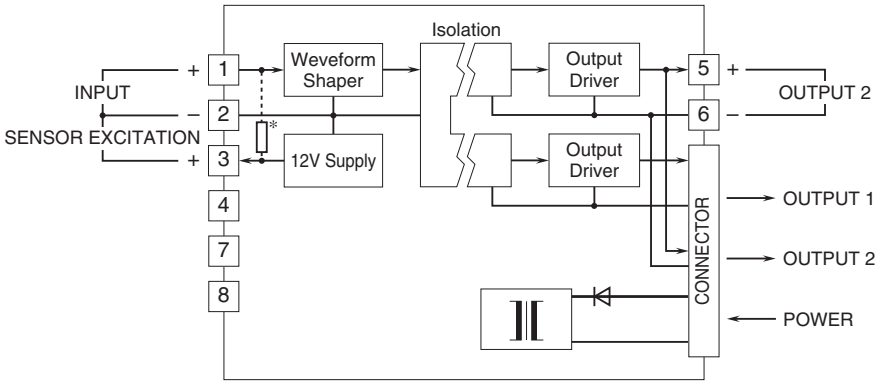
EXTERNAL DIMENSIONS unit: mm (inch)



TERMINAL ASSIGNMENTS



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*4kΩ attached for mechanical contact and open collector input.
200Ω, 510Ω or 1kΩ attached for two-wire current pulse input (jumper selectable).

⚠ Specifications are subject to change without notice.