General Specifications

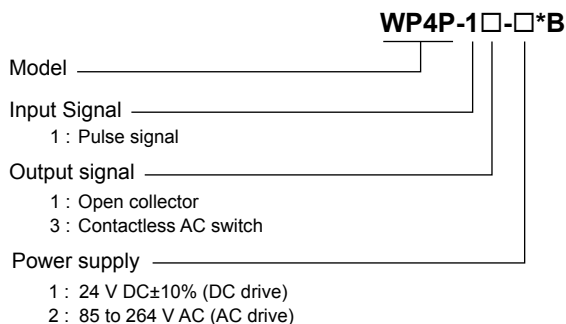Model WP4P
Pulse Rate Converter

JUXTA

GS 77J09P04-01E

■ General

The WP4P is a compact, front terminal connection type pulse rate converter that receives contact or voltage pulses from a field and converts them into an isolated transistor-contact pulse at a preset pulse rate.

• 2000 V AC withstand voltage specifications are available upon requests.

■ Model and Suffix Codes

WP4P-1☐-☐*B

Model
Input Signal
   1 : Pulse signal
Output signal
   1 : Open collector
   3 : Contactless AC switch
Power supply
   1 : 24 V DC±10% (DC drive)
   2 : 85 to 264 V AC (AC drive)

■ Ordering Information

Specify the following when ordering.

• Model and suffix codes: e.g. WP4P-11-2*B
• Input range: e.g. 0 to 5 kHz
• Output range: e.g. 0 to 10 Hz

■ Input/Output Specifications

Input signal: Contact pulse or voltage pulse
Input frequency: 0 to Fi_{100} Hz (Fi_{100}≤10 kHz)
             (Fi_{100}=100% input frequency)
Input pulse width: Pulse width with a duty of 50±30% when the input is Fi_{100}
Input signal level:
   Low level (V_L): -1 to +8 V DC
   High level (V_H): 2 V or more
   Swing width: V_H-V_L=2 to 50 V
Input resistance: 10 kΩ
Output signal: Open collector or contactless AC switch
Output frequency: 0 to Fo_{100} Hz (Fo_{100}≤16.6 Hz)
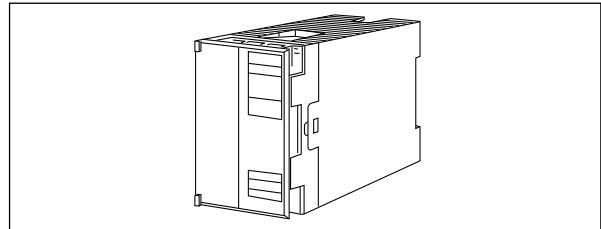   (Fo_{100}=100% output frequecy)
Output contact capacity:
   Open collector: 30 V DC/200 mA
   Contactless AC switch: 100 V AC/200 mA
   Note: This converter outputs the number of pulses arbitrarily specified within 0 to 9999 when inputting 10000 pulses.
       The number of output pulses is not always equal to the number of input pulses multiplied by the given pulse rate.

■ Standard Performance

Contact input detection power supply: 24 V DC, 1 mA
Pulse rate formula: Pulse rate=Fo_{100}/Fi_{100}, then round off to 4 decimal places.
        Setting resolution of pulse rate is 0.0001.

Maximum input frequency	Pulse rate
0 to 16.6 Hz	No limit
16.7 to 33.3 Hz	0.4000 or less
33.4 to 83.3 Hz	0.2000 or less
83.4 to 166 Hz	0.1000 or less
167 to 333 Hz	0.0400 or less
334 to 833 Hz	0.0200 or less
0.834 to 1.66 kHz	0.0100 or less
1.67 to 3.33 kHz	0.0040 or less
3.34 to 8.33 kHz	0.0020 or less
8.34 to 10.0 kHz	0.0010 or less

On-time pulse width: 30±3 ms
Insulation resistance: 100 MΩ or more at 500 V DC between input and output, input and power supply, input and ground, output and power supply, output and ground, and power supply and ground.
Withstand voltage:
  DC drive   1500 V AC/min. between input and (output and power supply).
             500 V AC/min. between output and power supply.
  AC drive   1500 V AC/min. between input and output, input and power supply, input and ground, output and power supply, output and ground, and power supply and ground.

■ Environmental Conditions

Operating temperature range: 0 to 50°C
Operating humidity range: 5 to 90% RH (no condensation)
Power supply voltage: 85 to 264 V AC, 47 to 63Hz or 24 V DC±10%
Effect of power supply voltage fluctuations: ±0.1% of span or less for fluctuation within the operating range of power supply voltage specification.
Effect of ambient temperature change: Normal operation is guaranteed over the rated operating temperature range.
Current consumption: 24 V DC 60 mA
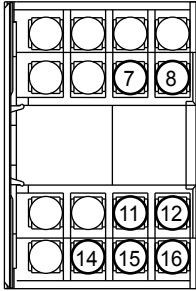Power consumption: 100 V AC 6 VA

YOKOGAWA ◆

■ Mounting and Dimensions

Material: ABS resin (Case body)
Mounting method: Rack, Wall or DIN rail mounting
Connection method: M4 screw terminals
External dimensions: 72 (H) × 48 (W) × 127 (D) mm
Weight: DC; Approx.150g, AC; Approx.300g

■ Standard Accessories

Tag number label: 1
Mounting block: 2
Mounting screw: M4 screw x 4

■ Terminal Assignments

7	Input	(+)
8	Input	(−)
11	Output	(+)
12	Output	(−)
14	Supply	(L+)
15	Supply	(N−)
16	Ground	(GND)*

*: Use for AC power supply only.

■ Custom Order Specifications

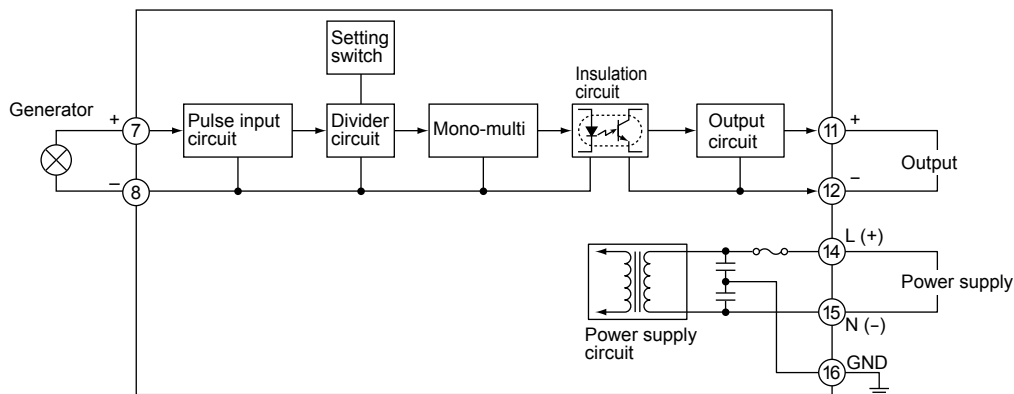| Output frequency	Less than 10 kHz
Output ON pulse width	40 μs or more

However, the output pulse width should meet the following condition:

$$40\mu \leq \text{Output ON pulse width} \leq \frac{1}{Fi_{100}} \times 0.5 \times n$$

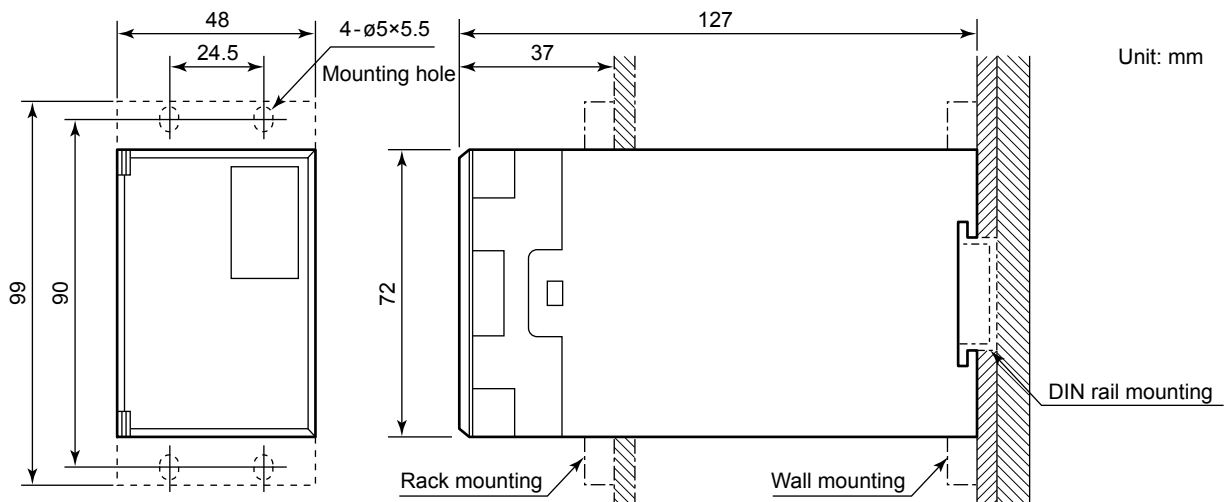"n" varies according to the pulse rate. (See the table below.)

Pulse rate=Fo_{100}/Fi_{100}	n
0.9999 to 0.4001	1
0.4000 to 0.2001	2
0.2000 to 0.1001	5
0.0400 to 0.0201	10
0.0200 to 0.0101	50
0.0100 to 0.0041	100
0.0040 to 0.0021	200
0.0020 to 0.0011	500
0.0010 to 0.0005	1000
0.0004 to 0.0003	2000
0.0002	5000
0.0001	10000

■ Block Diagram

■ External Dimensions

Unit: mm