

ORDERING INFORMATION

Model : JPR2

PLEASE FILL IN THIS SECTION



Model
Company
Name
P/O No.

M-SYSTEM USE ONLY



Job No.	Approved by: (Sales office)
Ser No. -	
Sales	Issued by: (Sales office)

■ **SOFTWARE SETTING** Fill in blank sections or mark with . Standard settings will be used if not otherwise specified.

ITEM	SET VALUE	STANDARD	COMMENTS
INPUT TYPE	<input type="checkbox"/> Open collector <input type="checkbox"/> Mechanical contact <input type="checkbox"/> Voltage pulse <input type="checkbox"/> Two-wire current pulse <input type="checkbox"/> RS-422 line driver pulse	Open collector	Choose from the list to the left.
PULSE AMPLITUDE (voltage pulse & 2-wire current pulse only)	V p-p (mA p-p)	Must be specified	They are required to accurately understand the input waveform. The detecting level is usually equal to the DC offset for the voltage pulse and two-wire current pulse. The maximum voltage applicable across the input terminals is 50V. The detecting level is fixed at 1V or 2V for open collector/mechanical contact.
DC OFFSET (voltage pulse & 2-wire current pulse only)	V (mA)	Must be specified	
NOISE FILTER	<input type="checkbox"/> High <input type="checkbox"/> Low <input type="checkbox"/> No filter	No filter	High noise filter is selectable for 10 Hz or lower ranges. For the mechanical contact input, use of the filter is recommended to eliminate unwanted counts caused by chattering. Low noise filter is selectable for up to 500 Hz. None is automatically selected for RS-422 line driver pulse.
SCALING FACTOR Output pulse set count Input pulse set count	/	1/1	Scaling factor = Output pulse set count / Input pulse set count Specify both values in integer.
SAMPLING TIME (PERIOD)	seconds	0.1 second	This parameter is usually not changed from default value.
MAXIMUM OUTPUT FREQUENCY LIMIT	Hz	10 Hz	Specify between 0.5 Hz and 100000.0 Hz in 0.1 Hz increments. Max. 20 Hz for the output code R: Noncontact AC/DC switch.
OUTPUT PULSE WIDTH	msec.	50 msec.	Specify only for one-shot output, between 0.030 and 300 msec. Max. output frequency $\leq (\text{One shot time} \times 2)^{-1}$

■ PULSE LOGIC SETTING

Choose required input-output pulse logic relation and mark with ✓.

OUTPUT WAVEFORM		INPUT WAVEFORM	Voltage Pulse 2-wire Current Pulse RS-422 Line Driver Pulse		Open Collector or Mechanical Contact	
			<input type="checkbox"/>		<input type="checkbox"/>	
Voltage Pulse or RS-422 Line Driver Pulse	Non Inverted	No conversion to one-shot	<input type="checkbox"/>		<input type="checkbox"/>	
		One-shot, detecting input pulse rise 	<input type="checkbox"/>		<input type="checkbox"/>	
		One-shot, detecting input pulse drop 	<input type="checkbox"/>		<input type="checkbox"/>	
	Inverted	No conversion to one-shot	<input type="checkbox"/>		<input type="checkbox"/>	
		One-shot, detecting input pulse rise 	<input type="checkbox"/>		<input type="checkbox"/>	
		One-shot, detecting input pulse drop 	<input type="checkbox"/>		<input type="checkbox"/>	
Open collector or Noncontact AC/DC Switch	Non Inverted	No conversion to one-shot	<input type="checkbox"/>		<input type="checkbox"/>	
		One-shot, detecting input pulse rise 	<input type="checkbox"/>		<input type="checkbox"/>	
		One-shot, detecting input pulse drop 	<input type="checkbox"/>		<input type="checkbox"/>	
	Inverted	No conversion to one-shot	<input type="checkbox"/>		<input type="checkbox"/>	
		One-shot, detecting input pulse rise 	<input type="checkbox"/>		<input type="checkbox"/>	
		One-shot, detecting input pulse drop 	<input type="checkbox"/>		<input type="checkbox"/>	

The pulse width in one-shot means the bold lined section of a pulse waveform.

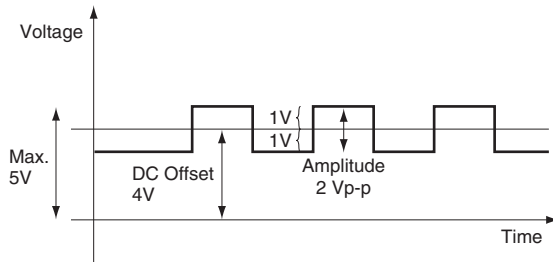
INPUT AMPLITUDE, DC OFFSET and MAX. VOLTAGE ACROSS THE INPUT TERMINALS FOR VOLTAGE PULSE INPUT

The JPR2 will not be able to detect input pulses if the input amplitude and the maximum voltage across the input terminals do not match the values in the following table:

PULSE AMPLITUDE	MAX. INPUT VOLTAGE
50 – 100 V p-p	50 V
25 – 50 V p-p	50 V
10 – 25 V p-p	25 V
5 – 10 V p-p	10 V
1 – 5 V p-p	5 V
0.5 – 1 V p-p	1 V
0.1 – 0.5 V p-p	0.5 V

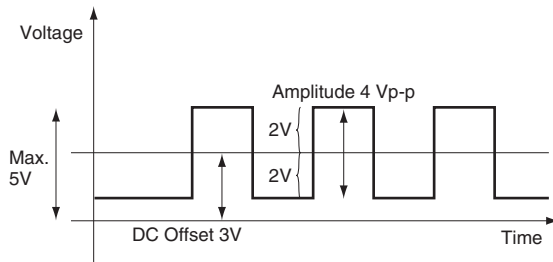
EXAMPLE 1.

With the input amplitude 2 Vp-p, the maximum voltage across the input terminals is of 5V according to the above table. Offset is allowed up to 4V.



EXAMPLE 2.

With the input amplitude 4 Vp-p, the maximum voltage across the input terminals is of 5V according to the above table. Offset is allowed up to 3V.



■ EXPLANATIONS OF TERMS AND FUNCTIONS

• SCALING FACTOR, INPUT PULSE SET COUNT & OUTPUT PULSE SET COUNT

The scaling factor, rate of number of output pulses divided by number of input pulses, is determined by two parameters: input pulse set count and output pulse set count.

The JPR2 output is designed to be proportional in number of pulses relative to the input. For example, when the pulse rate is set to 0.0583, the JPR2, provided with 10000 input pulses, outputs 583 pulses. However, the output is not supplied in a constant frequency. The JPR2 counts the number of input pulses during the sampling time (period) and stores it in the internal buffer counter, and provides the number of output pulses multiplied by the scaling factor for the number of input pulses, by the end of next sampling cycle. With the maximum output frequency limit, those pulses exceeding the limit are still in the buffer and output only in the following cycle.

• SAMPLING TIME

The sampling time is defined as a time period required by the JPR2 to count the input signals for one cycle. With its factory default setting (0.1 sec.), the output is refreshed every 100 milliseconds.

This setting is not usually be changed unless for a specific purpose.

• MAXIMUM OUTPUT FREQUENCY LIMIT

You can limit the maximum output frequency from the JPR2.

The JPR2 multiplies the number of input pulses by the scaling factor. However when the output pulses are supplied to a low-speed response counter, the number of output pulses (output frequency of the JPR2) may have to be limited within a certain level.

Those surplus pulses remains in the buffer and are output in the following sampling cycles within the limit.

■ OPERATION

[Example]

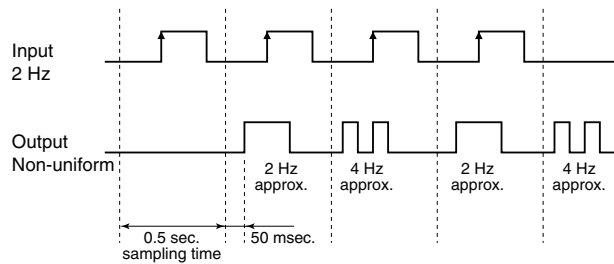
Input frequency: 2 Hz

Sampling time: 0.5 sec.

Pulse rate: 3/2

Output pulse width: Duty ratio approx. 50%

Max. output frequency: 1 kHz



- 1) The JPR2 counts the number of pulses during the sampling time (period). In the example, 1 count in 0.5 sec. time.
- 2) Converts the number in the preset rate. In the example, $1 \text{ pulse} \times 3/2 = 1.5 \text{ pulses}$
- 3) Outputs the converted pulses in the next sampling period. If certain pulses are not output within the time due to a fraction or the max. output frequency limit, they are output in the following sampling period. In the example, 1 pulse is output in the second period, two pulses are output in the third to adjust the fraction.