

Thank you for purchasing the JUXTA Signal Conditioner.  
Please read through this manual before use for correct handling.

## CAUTIONARY NOTES FOR SAFE USE OF THE PRODUCT

This User's Manual should be carefully read before installing and operating the product. Please keep this User's Manual for future reference. The following symbol is used on the product and in this manual to ensure safe usage.



### WARNING

***Calls attention to actions or conditions that could cause serious or fatal injury to the user, and indicates precautions that should be taken to prevent such occurrences.***

The following symbols are used only in this manual.



### CAUTION

***Calls attention to actions or conditions that could cause injury to the user or damage to the instrument or property and indicates precautions that should be taken to prevent such occurrences.***

## CHECKING PRODUCT SPECIFICATIONS AND PACKAGE

### (1) Checking the Model and Product Specifications

Check that the model and specifications indicated on the nameplate attached to the main unit are as ordered.

### (2) Packaged Items

Check that the package contains the following items:

- FP1P: 1
- Mounting block: 2
- Tag number label : 1
- Mounting screw (M4 x 0.7): 2
- User's Manual (this manual)

## GENERAL

The FP1P is a compact, front terminal connection type pulse repeater that converts pulses from voltage-free contacts, open collector contacts, voltage pulses, and current pulses into isolated transistor switch pulses.

## MODEL AND SUFFIX CODES

Model	Suffix codes	Description
FP1P	-□ 1 *C	Pulse Repeater
Input Signal	-1	Transmitter power supply (12 V ±10%)
	-2	Transmitter power supply (24 V ±10%)
Output Signal	0	Open collector
Style code	*C	Style C

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2-9-32, Naka-cho Musashino-shi, Tokyo 180-8750 Japan

You can download the latest manuals from the following website:

 <http://www.yokogawa.com/ns/juxta/im/>

## 1. MOUNTING METHOD

### 1.1 Installing/Uninstalling the Mounting Block

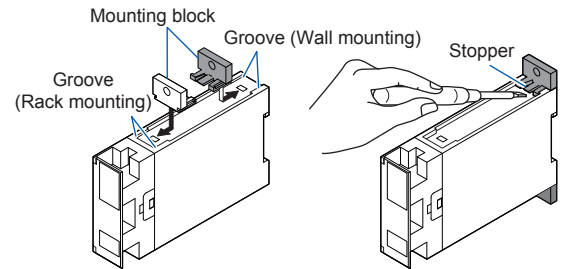
The mounting block is necessary for rack mounting or wall mounting.

#### Installing the mounting block

- Fit the mounting block into the grooves of the converter, and slide it in the direction of an arrow as shown below-left.

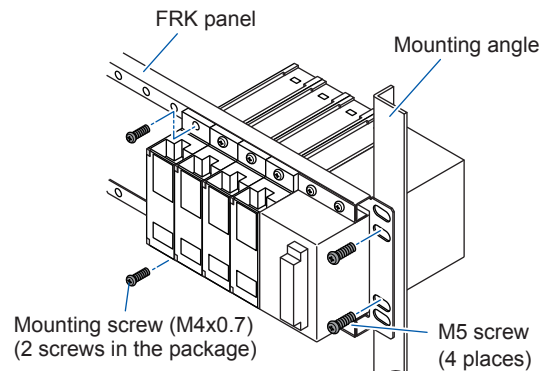
#### Uninstalling the mounting block

- Lift the stopper using a slotted screw-driver as shown below-right, and pull the mounting block to remove it.

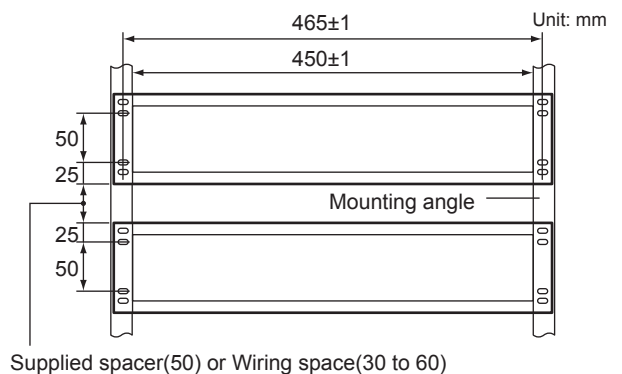


### 1.2 Rack Mounting

Take the FRK panel and install it on a mounting angle as shown below. This method is suitable for high density mounting of the converters on a 19-inch rack panel.

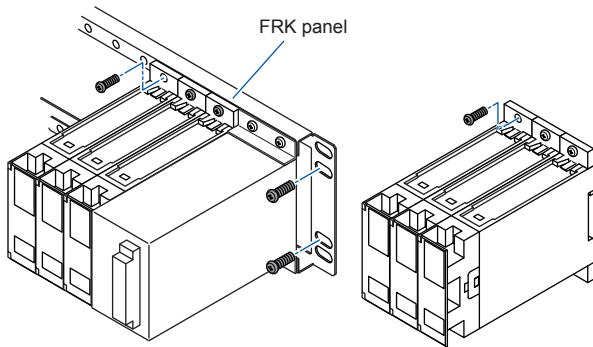


#### Mounting Dimensions



### 1.3 Wall Mounting

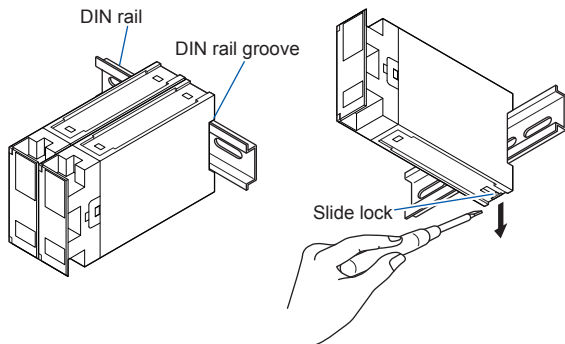
Mount the converter onto the FRK panel as shown below or mount it directly on the wall.



### 1.4 DIN Rail Mounting

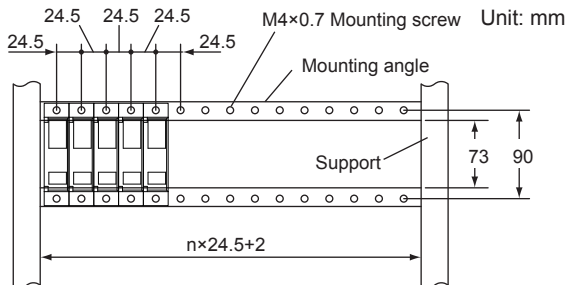
Place the converter so that the DIN rail fits into the upper part of the DIN-rail groove at the rear of the converter, and push until it clicks. The converter is fixed by a slide lock (at the lower part on the rear side of the converter).

To remove the converter, pull down the slide lock using a slotted screw-driver.

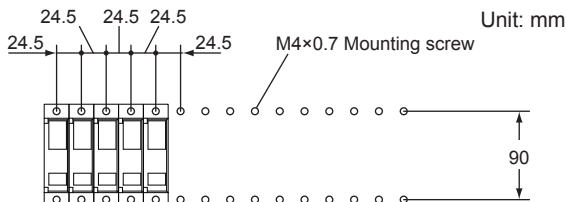


### 1.5 Mounting Dimensions

#### Angle Mounting Dimensions



#### Wall Mounting Dimensions



## 2. INSTALLATION LOCATION

- Avoid the following environments for installation locations: Areas with vibration, corrosive gases, dust, water, oil, solvents, direct sunlight, radiation, a strong electric field, and/or a strong magnetic field, altitude of more than 2000m above sea level.
- If there is any risk of a surge being induced into the power line and/or signal lines due to lightning or other factors, a dedicated lightning arrester should be used as protection for both this converter and a field-installed device.
- Operating temperature/humidity range: 0 to 50°C/5 to 90%RH (no condensation)

## 3. EXTERNAL WIRING



### WARNING

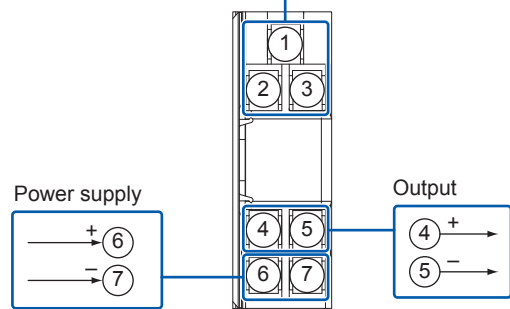
**Be sure to turn OFF the power supply before wiring to avoid the risk of electric shock. Use a tester or similar device to ensure that no power is being supplied to a cable to be connected.**

M4 screw terminals are provided for the connection of external signals. Attach a crimp-on lug to each wire for connection to the terminals.

- Recommended cables: A nominal cross-sectional area of 0.5 mm<sup>2</sup> or thicker for signal cables, and that of 1.25 mm<sup>2</sup> or thicker for power cables.

Input

When receiving non-voltage contact signal or voltage pulse	When receiving current pulse by running a transmitter on an internal power supply	When receiving voltage pulse by running a transmitter on an internal power supply



### CAUTION

- **This instrument may output a pulse when the power is turned on/off. Depending on the connected devices, this pulse output is counted as "one pulse."**
- **Do not connect anything to the terminals that are not used in the wiring diagram. Otherwise it may cause the malfunction or damage.**
- **The power line and input/output signal lines should be installed away from noise-generating sources. Otherwise accuracy cannot be guaranteed.**
- **Adhere strictly to the specifications to avoid overheating or damage. Before turning on the power, ensure the following:**
  - (a) Power supply voltage and input signal value applied to the product should meet the required specifications.
  - (b) The external wiring to the terminals are as specifications.
- **Do not operate the product in the presence of flammable or explosive gases or vapors.**
- **The product is sensitive to static electricity; exercise care in handling. Before you operate the product, touch a nearby metal part to discharge static electricity.**

## Power Supply and Isolation

Power supply voltage: 24 V DC  $\pm 10\%$  (percentage ripple: less than 5% p-p)

Current consumption: 24V DC 60 mA

Insulation resistance: 100 M $\Omega$  at 500 V DC between input and output, output and power supply, and input and power supply.

Withstand voltage: 1500 V AC/min. between input and (output and power supply)  
500 V AC/min. between output and power supply.

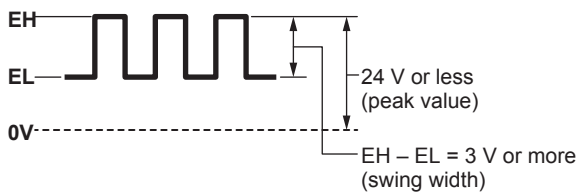
## 4. SETTING THE LOAD RESISTANCE FOR CURRENT PULSES AND THE INPUT FILTER

If the signal from the generator is a current pulse, it needs to be converted into voltage using load resistance for current pulses. Further, if the input contains chattering noise and the like, you can set an input filter to suppress its effect.

- The load resistance and filter are set using a DIP switch (SW1) inside the product.

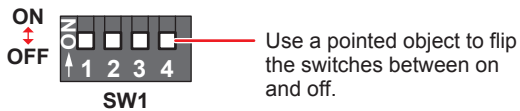
### 4.1 SETTING THE LOAD RESISTANCE

Set the load resistance so that the relationship between the peak current  $i$  (p-p) from the generator and the combined load resistance  $RL$  satisfies the following: swing width  $i \times RL \geq 3V$ .



Set the resistance by turning on or off the DIP switch (SW1-2, SW1-3, SW1-4).

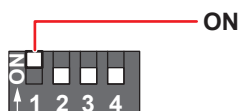
When the SW1 settings are all off



Resistance value	SW1			DIP switch setting
	2	3	4	
200 $\Omega$	OFF	OFF	ON	
	ON	OFF	OFF	
510 $\Omega$	OFF	ON	OFF	
	ON	OFF	OFF	
1k $\Omega$	OFF	ON	ON	
	ON	OFF	ON	
144 $\Omega$	ON	OFF	ON	
	OFF	ON	ON	
167 $\Omega$	ON	ON	OFF	
	OFF	OFF	OFF	
338 $\Omega$	ON	ON	ON	
	OFF	OFF	OFF	
126 $\Omega$	ON	ON	ON	
	OFF	OFF	OFF	

### 4.2 SETTING THE INPUT FILTER

Set SW1-1 to ON. An input filter with a time constant around 10 ms will be connected.



- If the input filter is set to ON, the input frequency will be limited to no more than 100 Hz and the pulse width to no less than 3 ms.

## 5. MAINTENANCE

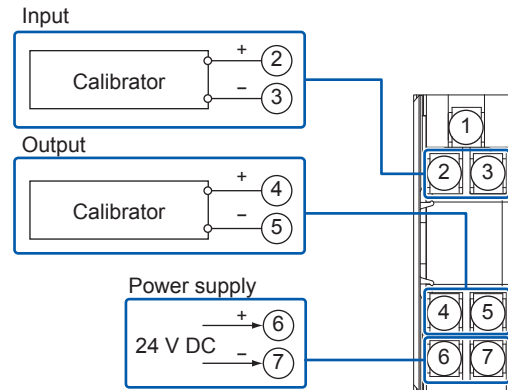
The product starts running immediately when the power is turned on; however, it needs 10 to 15 minutes of warm-up before it meets the specified performance.

### 5.1 Calibration Apparatus

- A calibrator (YOKOGAWA CA150 or equivalent)

### 5.2 Calibration Procedure

1. Connect the instruments as shown below.



2. Apply a calibrator-generated rectangular pulse at any frequency within the specifications to the input.
3. Measure the output with the calibrator, and check that the pulse frequency is the same as the input frequency.

