

User's Manual

Model VJP8 Pulse Rate Converter (Multi-function) (Isolated Single-output and Isolated Dual-output Types)

JUXTA

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You can download the latest manuals from the following website:

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

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

YOKOGAWA
Yokogawa Electric Corporation

IM 77J01P08-01E
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CAUTIONARY NOTES FOR SAFE USE OF THE PRODUCT

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



This symbol is displayed on the product when it is necessary to refer to the User's Manual for information on personal and instrument safety. This symbol is displayed in the User's Manual to indicate precautions to avoid danger to the operator, such as an electric shock.

The following symbols are used only in this manual.



Note

Draws attention to essential information for understanding the operations and/or functions of the product.

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:

- VJP8: 1 unit
- Tag number label: 1 sheet
- Range label: 1 sheet
- Shunt resistor (when optional code "/R" is specified): 1 piece
- User's Manual (this manual): 1 copy

GENERAL

The VJP8 is a plug-in pulse rate converter that receives contact, voltage or current pulse from a field, and converts it into isolated transistor-contact pulse or contactless AC switch pulse at a preset pulse rate. The VJP8 can also be used as a pulse signal repeater by setting the pulse rate and pulse width type.

- Either pulse output or communication function (RS-485) is selectable as Output-2.
- Various parameters such as input range can be set and modified using a PC(VJ77(sold separately)) or Handy Terminal (JHT200(VJ77(sold separately) and the like).

MODEL AND SUFFIX CODES

Model	Suffix codes	Description
VJP8	-0 □ □ □ □ □ 0 /□	Pulse Rate Converter (Multi-function)
	-0	Always -0
Output configuration	1	1 output
	2	2 outputs
Power supply	6	100-240 V AC/DC ^(*)
	7	15-30V DC ^(**)
Transmitter Power Supply	-1	12V DC±10%
	-2	24V DC±10%
Output-1	1	Open collector
	3	Contactless AC switch
Output-2	1	Open collector
	3	Contactless AC switch
	P	Communication (RS-485)
	N	None
	0	Always 0
Options		Blank: With socket
	/SN	Without socket
	/R	With 200 Ω shunt resistor (Specify when current pulse input.)

*1 Operating range: 85-264 V

*2 Operating range: 12-36 V

1. MOUNTING METHOD

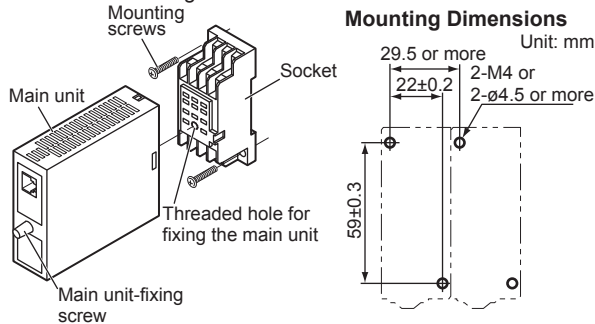


Note

Insert/pull out the main unit into/from the socket vertically to the face of socket. Otherwise the terminals are bent and it may cause a bad contact.

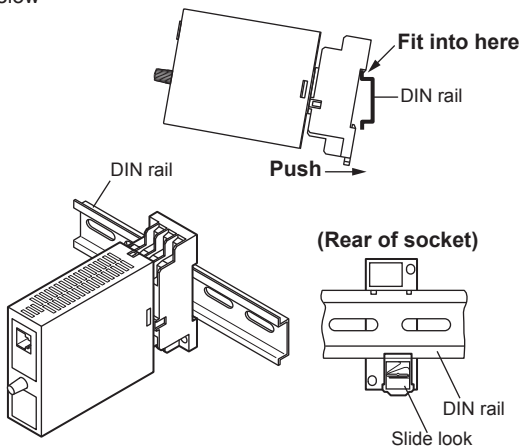
1.1 Wall Mounting

Loosen the main unit-fixing screw of the product and pull out the main unit from the socket. Fix the socket on the wall with screws. Next, insert the main unit into the socket and fasten the main unit with the main unit-fixing screw.



1.2 DIN Rail Mounting

Insert a DIN rail into the upper part of the DIN rail groove on the rear of the socket, and then slide the slide lock at the lower part of the socket upwards until the socket is fixed into position as shown below



1.3 Mounting Using

When using a multi-mounting base, see the User's Manual for VJCE (VJCE Mounting Base).

1.4 Using a Duct

When using a wiring duct, install the duct at least 30 mm away from the top and bottom faces of the main unit.

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.



Note

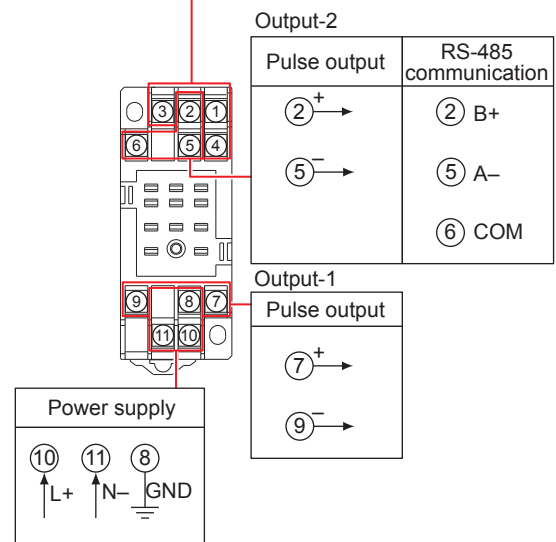
When power of VJP8 is turned on/off, one pulse may be counted by the pulse input device which connects to the VJP8.

Wiring should be connected to the terminals on the socket of the product. The terminals for external connections are of M3 screws. Use crimp-on terminal lugs for connections to the terminals.

- Recommended cables: A nominal cross-sectional area of 0.5 mm² or thicker for signal cables, and that of 1.25 mm² 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
	R: Shunt resistor	



Note

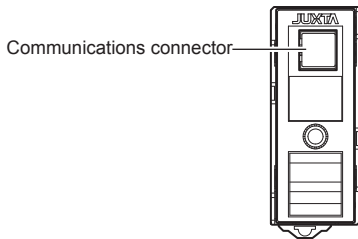
- Do not use output-2 for the single-output type.
- The power line and input/output signal lines should be installed away from noise-generating sources. Other wise accuracy cannot be guaranteed.
- Make sure to earth ground the ground terminal through minimum resistance. The length and thickness of the grounding cable should be as short and thick as possible. Directly connect the lead from the ground terminal (terminal no. 8) of the product to the ground. Do not carry out daisy-chained inter-ground terminal wiring.
- Use of the product ignoring the specifications may cause overheating or damage. Before turning on the power, ensure the following:
 - Power supply voltage and input signal value applied to the product should meet the required specifications.
 - The external wiring to the terminals and wiring to ground are as specifications.
- Do not operate the product in the presence of flammable or explosive gases or vapors. To do so is highly dangerous.
- The product is sensitive to static electricity; exercise care in operating it. Before you operate the product, touch a nearby metal part to discharge static electricity.

- For 15-30 V DC \pm (\pm 20%) power supply, as a safety measure, always install a circuit breaker (an IEC 60947-compatible product, 1 A, 30 V DC) in an easily accessible location near the instrument. Moreover, provide indication that the switch is a device for turning off the power to the instrument.

4. DESCRIPTION OF FRONT PANEL

4.1 Front Panel

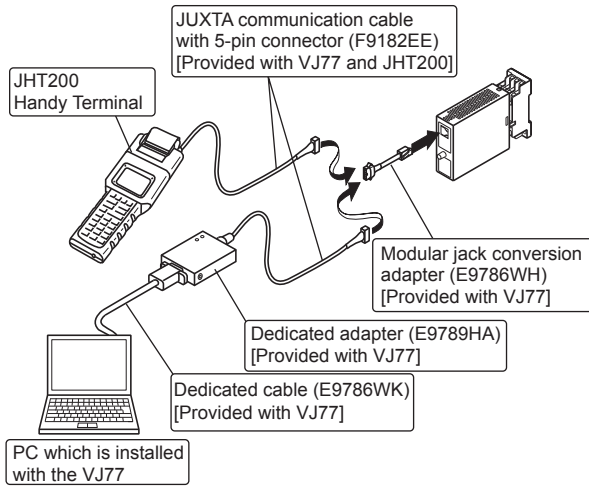
The communications connector in the front panel is used for setting up parameters through a PC (VJ77 PC-based Parameters Setting Tool) or the Handy Terminal.



4.2 Connector for Communication

Use the connector for communication when setting the parameters using a PC (VJ77 Parameters Setting Tool) or the Handy Terminal

How to connect with the setting tool



- Use the VJ77 of version R1.04 or later.
- The modular jack conversion adapter does not come with the JHT200 Handy Terminal. It is sold separately.

5. SETTING PARAMETERS

Set the parameters using a PC (VJ77 Parameter Setting Tool) or the Handy Terminal. Refer to "6. LIST OF PARAMETERS" in this manual and the User's Manual for VJ77 PC-based Parameters Setting Tool (IM 77J01J77-01E) or the User's Manual for JHT200 Handy Terminal (IM 77J50H01-01EN). Parameters are indicated inside the [].

5.1 Settings Related to Inputs and Outputs

5.1.1 Input Display Unit

The input display unit is used for referring the input signal. Select and set "Hz" or "kHz" in [D10: UNIT].

5.1.2 Pulse Rate

Set the pulse rate within the numerically specified range in [D41: PULSE RATE].

Setting range: 0.0001 to 2.0000 (settable up to 4 decimal places)
When the pulse width type is set to "THROUGH" (no change), effective range is 0.0001 to 1.0000.

5.1.3 Pulse Width Type

Select and set "THROUGH" or "ON PULSE" in [D42: PULSE TYPE].

THROUGH: Outputs ON-state pulse time of frequency as it is.

MANUAL Outputs ON-state pulse time after changing it to the set value.
When the instrument is used as a pulse signal repeater, set the pulse width type to "THROUGH", and the pulse rate to "1.0000".

5.1.4 Pulse Width Time

The pulse width time is set when the pulse width type is set to "ON PULSE."

Select and set "12.5 μ s", "50 μ s", "100 μ s", "12.5ms", "30ms", "50ms", or "100ms" in [D43: PULSE WIDTH].

5.1.5 Input Filter

When the chattering noise is generated in input, the input filter is used to restrain the influence.

Select and set "ON" in [D50: INPUT FILTER], then the input filter for time constant of about 10ms will be connected.

5.2 Settings Related to Communication Function

Set the following parameters when output-2 is specified for communication function. For more information on the communication function, see the Instruction Manual for VJ Series Communication Function (IM 77J1J11-01E).

5.2.1 Communication Protocol

Set the communication protocol by selecting from among PCLINK, PC-LINK WITH SUM, MODBUS ASCII, MODBUS RTU, and LADDER in [F01: PROTOCOL].

5.2.2 Communication Address

Set the address number of the isolator numerically in a range of 1 to 99 in [F02: ADDRESS].

5.2.3 Baud Rate

Set the baud rate by selecting from among 1200, 2400, 4800, and 9600 bps in [F03: BAUD RATE].

5.2.4 Parity

Select and set NONE, EVEN, or ODD in [F04: PARITY].

5.2.5 Data Length

Select and set 7 bits or 8 bits in [F05: DATA LEN].

5.2.6 Stop Bit

Select and set 1 bit or 2 bits in [F06: STOP BIT].

5.2.7 Input Decimal Point Position

Number of digits of decimal places (setting of D register [D0003]) can be set.

Select and set among 0 to 5 digits in [F07: INPUT DEC PT].

6. LIST OF PARAMETERS

Parameter Display	Item
MODEL	Model
TAG NO	Tag no.
SELF CHK	Self-check result
A DISPLAY1	Display1
A01 INPUT1	Input value 1
A31 COUNTER1	Integrating counter 1
A32 COUNTER2	Integrating counter 2
A33 COUNTER3	Integrating counter 3
A34 COUNTER4	Integrating counter 4
A54 STATUS	Status *1
A56 REV NO	Rev. no.
A58 MENU REV	MENU REV
A60 SELF CHK	Self-check result
B DISPLAY2	Display2
B01 INPUT1	Input value 1
B31 COUNTER1	Integrating counter 1
B32 COUNTER2	Integrating counter 2
B33 COUNTER3	Integrating counter 3
B34 COUNTER4	Integrating counter 4
B60 SELF CHK	Self-check result
D SET (I/O)	Setting (I/O) *2
D01 TAG NO.1	Tag no. 1
D02 TAG NO.2	Tag no. 2
D03 COMMENT1	Comment 1
D04 COMMENT2	Comment 2
D10 UNIT	Input display unit
D41 PULSE RATE	Pulse rate
D42 PULSE TYPE	Pulse width type
D43 PULSE WIDTH	Pulse width time
D50 INPUT FILTER	Input filter
D60 SELF CHK	Self-check result
F SET(COM)	Setting (communication) *2
F01 PROTOCOL	Communication protocol
F02 ADDRESS	Address
F03 BAUD RATE	Baud rate
F04 PARITY	Parity
F05 DATA LEN	Data Length
F06 STOP BIT	Stop bit
F07 INPUT DEC PT	Decimal point position of input
F60 SELF CHK	Self-check result
P ADJUST	Adjustment
P60 SELF CHK	Self-check result

*1 The Status is displayed for service personnel to see history records.

*2 There are items not displayed depending on what output-2 is specified.

7. MAINTENANCE

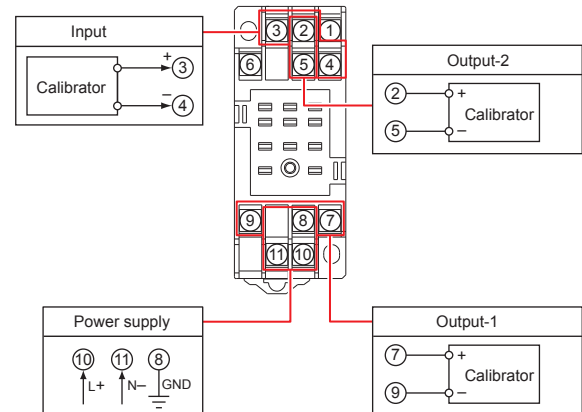
The product starts running immediately when the power is turned on; however, it needs 10 to 15 minutes of warm-up before it meets the specified performance.

7.1 Calibration Apparatus

- A calibrator (YOKOGAWA CA150 or equivalent)

7.2 Calibration Procedure

1. Connect the instruments as shown below. First adjust the output-1 signal and then the output-2 signal.



2. Produce a rectangular pulse of any frequency from the calibrator to measure the value using a calibrator, then check that the frequency (input frequency x set rate) is output.