User's Manual

Model VJSS JUXTA
High/Low Signal Selector
(Isolated Single-output and Isolated Dual-output Types)

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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 77J01S11-01E
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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:

- VJSS: 1 unit
- Tag number label: 1 sheet
- Shunt resistor (for current input): 2 piece
- User's Manual (this manual): 1 copy

GENERAL

The VJSS is a compact, plug-in high/low signal selector that selects the higher or lower of two DC input signals and converts it into an isolated DC voltage or DC current signals.

- Various parameters such as input range can be set and modified using a PC (VJ77(sold separately)) or Handy Terminal (JHT200(sold separately) and the like).

MODEL AND SUFFIX CODES

Model	Suffix codes								Description
VJSS	-□	□	□	-□	□	□	0	/□	High/Low Signal Selector
Selection rule	-H								Selects "high" signals
	-L								Selects "low" signals
Output configuration		1							Single
		2							Dual
Power supply			6						100-240 V AC/DC(*1)
			7						15-30 V DC(*2)
Input signal				A					4 to 20 mA DC
				6					1 to 5 V DC
Output-1 signal					A				4 to 20 mA DC
					B				2 to 10 mA DC
					C				1 to 5 mA DC
					D				0 to 20 mA DC
					E				0 to 16 mA DC
					F				0 to 10 mA DC
					G				0 to 1 mA DC
					1				0 to 10 mV DC
					2				0 to 100 mV DC
					3				0 to 1 V DC
					4				0 to 10 V DC
					5				0 to 5 V DC
					6				1 to 5 V DC
					7				−10 to 10 V DC
					Z				(Custom order)(*3)
Output-2 signal						A			4 to 20 mA DC
						6			1 to 5 V DC
						N			None
							0		Always 0
Options									Blank: With socket
								/SN	Without socket

*1 Operating range: 85-264 V
*2 Operating range: 12-36 V
*3 DC voltage signal or DC current signal

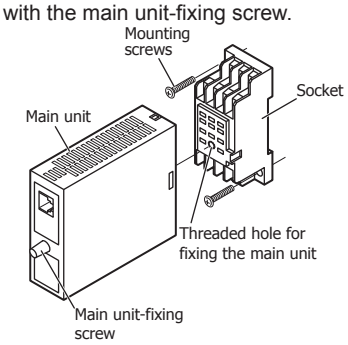
1. MOUNTING METHOD

Note

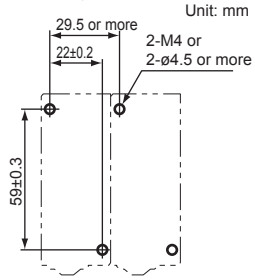
Insert/pull out the main unit into/from the socket vertically to the face of socket. Otherwise the terminals are bent and it may cause a bad contact.

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.

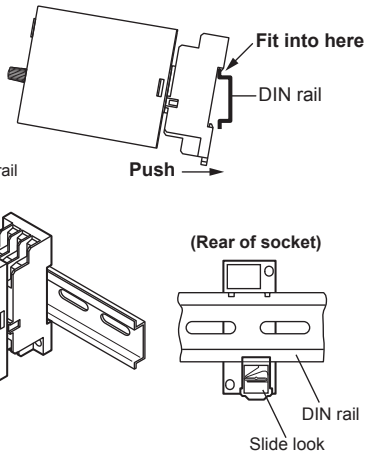


Mounting Dimensions



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 leaset 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 50ºC/5 to 90%RH (no condensation)

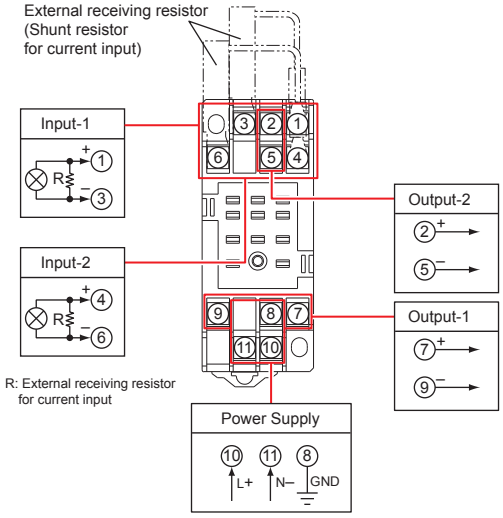
3. EXTERNAL WIRING

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.

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.



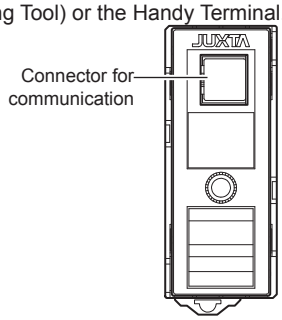
Note

- **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 daisychained 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 ⎓ (±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

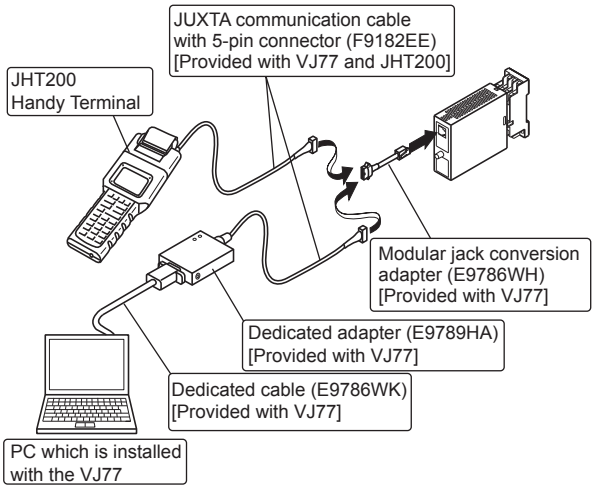
The communications connector in the front panel is used for setting up parameters through a PC (VJ77 PC-based Parameters Setting Tool) or the Handy Terminal.



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 **[ ]**.

Setting High Selector/Low Selector

- Set the high selector or low selector in the fixed constant **[H01:CONST]**.
- High selector: H01=100.0
- Low selector: H01=0.000

Note

Do not change the parameter set value of the other than above.

6. LIST OF PARAMETERS

	Parameter Display	Item	
	MODEL	Model	
	TAG NO	Tag No.	
	SELF CHK	Self-check result	
A	**DISPLAY1**	**Display 1**	*1
A01	INPUT1	Input value 1	
A02	INPUT2	Input value 2	
A05	OUTPUT1	Output value 1	
A06	OUTPUT2	Output value 2	
A11	T1	Temporary memory 1	
A12	T2	Temporary memory 2	
A13	T3	Temporary memory 3	
A14	T4	Temporary memory 4	
A15	DI	Digital input	
A16	DO	Digital output	
A17	LOAD	Load factor	
A54	STATUS	Status	*2
A56	REV NO	REV No.	
A58	MENU REV	MENU REV	
A60	SELF CHK	Self-check result	
B	**DISPLAY2**	**Display2**	*1
B01	INPUT1	Input value 1	
B02	INPUT2	Input value 2	
B05	OUTPUT1	Output value 1	
B06	OUTPUT2	Output value 2	
B11	T1	Temporary memory 1	
B12	T2	Temporary memory 2	
B13	T3	Temporary memory 3	
B14	T4	Temporary memory 4	
B15	DI	Digital input	
B16	DO	Digital output	
B17	LOAD	Load factor	
B60	SELF CHK	Self-check result	
D	**SET (I/O)**	**Setting (I/O)**	*1
D01	TAG NO.1	Tag No.-1	
D02	TAG NO.2	Tag No.-2	
D03	COMMENT1	Comment-1	
D04	COMMENT2	Comment-2	
D20	INP TYPE	Input type	*3
D22	IN RESIST	Input resistor	*3
D27	INPUT1 L_RNG	Input-1 low range	*3
D28	INPUT1 H_RNG	Input-1 high range	*3
D29	INPUT2 L_RNG	Input-2 low range	*3
D30	INPUT2 H_RNG	Input-2 high range	*3
D38	OUT1 L_RNG	Output-1 low range	*3
D39	OUT1 H_RNG	Output-1 high range	*3
D40	OUT2 L_RNG	Output-2 low range	*3
D41	OUT2 H_RNG	Output-2 high range	*3
D46	PRGM SELECT	Program selection	*3
D47	CYCLE TIME	Computation cycle	*3
D60	SELF CHK	Self-check result	
G	**PROGRAM**	Program	
G01	PROGRAM	Program	*3
G02	PROGRAM	Program	*3
↓	↓	↓	*3
G59	PROGRAM	Program	*3
G60	SELF CHK	Self-check result	
H	**CONST**	**Fixed constant**	
H01	CONST	Fixed constant	
H02	CONST	Fixed constant	*3
↓	↓	↓	*3
H59	CONST	Fixed constant	*3
H60	SELF CHK	Self-check result	
P	**ADJUST**	**Adjustment**	
P08	IN1 ZERO ADJ	Input-1 zero adjustment	
P09	IN1 SPAN ADJ	Input-1 span adjustment	
P10	IN2 ZERO ADJ	Input-2 zero adjustment	
P11	IN2 SPAN ADJ	Input-2 span adjustment	
P26	OUT1ZERO ADJ	Output-1 zero adjustment	
P27	OUT1SPAN ADJ	Output-1 span adjustment	
P28	OUT2ZERO ADJ	Output-2 zero adjustment	
P29	OUT2SPAN ADJ	Output-2 span adjustment	
P60	SELF CHK	Self-check result	
Q	**TEST**	**Test**	
Q03	OUT1 TEST	Forced output-1	
Q04	OUT2 TEST	Forced output-2	
Q60	SELF_CHK	Self-check result	

*1 The displayed status is to let the service staff know the past records of the product.

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

*3 The parameters are the items to be set at the factory.

7. MAINTENANCE

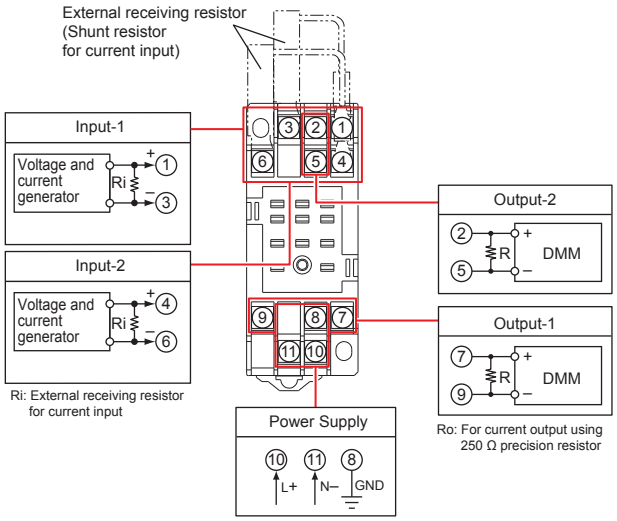
The product starts running immediately when the power is turned on; however, it needs 10 to 15 minutes of warm-up before it meets the specified performance.

7.1 Calibration Apparatus

- Two DC voltage/current standard (YOKOGAWA GS200 or the equivalent)
- A digital multimeter (YOKOGAWA 7561 or equivalent)
- A precision resistor of 250 Ω ±0.01%, 1W
- Setting tool for adjustment (Refer to **"4.2 Connector for Communication"** in this manual.)

7.2 Calibration Procedure

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



2. For the high signal selector: VJSS-Hxx-xxx0
   Apply the input signal equivalent to -5 to 0% of the input span to one of two inputs of the converter from a voltage current source.
   For the low signal selector: VJSS-Lxx-xxx0
   Apply the input signal equivalent to 100 to 105% of the input span to one of two inputs of the converter from a voltage current source.
3. Apply the input signal equivalent to 0, 25, 50, 75, and 100% of the input span to one of two inputs of the converter from a voltage current source.
4. Check to see the corresponding output voltages are 0, 25, 50, 75, and 100% respectively and within the specified accuracy rating. "R" is used for current output.

- Use the setting tool (VJ77 Parameter Setting Tool or JHT200 Handy Terminal) to adjust the input/output signals.

Input Adjustment Procedure

(1) Input the value equivalent to 0% value of the input range to the high/low signal selector.
(2) Call the display item (A: DISPLAY1) to check the input value in A01: INPUT1.
(3) If the adjustment is necessary, call the adjustment item (P: ADJUST).
(4) Select P08: IN1 ZERO ADJ to enter the adjustment mode. Select EXECUTE (adjustment) for adjustment. (If RESET is selected, the adjusted value is reset to the factory-set default.)
(5) Input the value equivalent to 100% value of input range.
(6) Call the display item (A: DISPLAY1) to check the input value in A01: INPUT1.
(7) If the adjustment is necessary, call the adjustment item (P: ADJUST).
(8) Select P09: IN1 SPAN ADJ to enter the adjustment mode. Select EXECUTE (adjustment) for adjustment. (If RESET is selected, the adjusted value is reset to the factory-set default.)

- Input-2 can be adjusted by the same operation as the above.

Output Adjustment Procedure

(1) When adjusting 0% value of output, call the adjustment item (P:ADJUST) to select [P26:OUT1ZERO ADJ].
(2) If there is a positive deviation, correct it by setting a negative value to offset the deviation. If there is a negative deviation, correct it by setting a positive value.

*: The 100% value of output-1 and the 0%/100% value of output-2 can be adjusted by the same operation as the above.

For adjustment using a setting tool, refer to the User's Manual for each setting tool and **"6. LIST OF PARAMETERS"** in this manual.

User's Manual for VJ77 [Document No.: IM 77J01J77-01E]
User's Manual for JHT200 [Document No.: IM 77J50H01-01EN]