User's Manual

Model VJXS
Universal Computing Unit
(Isolated 1-output, Isolated 2-output Type)

JUXTA

IM 77J01X11-01E

Please read through this User's Manual before use for correct handling.
Please keep this User's Manual for future reference.

YOKOGAWA ◆
Yokogawa Electric Corporation

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 use.

⚠️

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

The following symbols are used only in this manual.

✋ **IMPORTANT**

Indicates that operating the hardware or software in a particular manner may cause damage or result in a system failure.

✋ **NOTE**

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

CHECKING PRODUCT SPECIFICATIONS AND PACKAGED ITEMS

(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:
- VJXS: 1
- Range label: 1
- Receiving resistor (for current input): 1
- User's Manual (this manual: IM 77J01X11-01E): 1
  * When the optional specification "/R250" is specified, the 250 Ω receiving resistor is attached. When the optional specification "/R250" is not specified, the 100 Ω receiving resistor is attached.

GENERAL

This plug-in type universal computing unit receives DC current or DC voltage signals, applies various computing functions to them, and then converts them into isolated DC current or DC voltage signals.

MODEL AND SUFFIX CODES

VJXS-□□□-□□□0/□

Model

Function
A: Free program	G: Limiter
B: Moving average	H: Velocity computation
C: Dead time	J: Linearizer
D: 1st-order lag	K: Ratio setter
E: 1st-order lead	
F: Uniform-speed response (velocity limiter)	

Output
1: 1 output
2: 2 outputs

Power supply
6: 100-240 V AC/DC (Operating range: 85 to 264 V)
7: 15-30 V DC (Operating range: 12 to 36 V)

Input signal
A: 0 to 50 mA DC	Span is 1 mA or more
B: 0 to 10 mA DC	Span is 0.1 mA or more
1: −10 to +10 V DC	Span is 0.1 V or more
2: −2 to +2 V DC	Span is 10 mV or more

Output-1 signal
A: 0 to 20 mA DC	Span is 2 mA or more
B: 0 to 5 mA DC	Span is 1 mA or more
1: 0 to 10 V DC	Span is 0.1 V or more
2: 0 to 100 mV DC	Span is 10 mV or more
3: −10 to +10 V DC	Span is 0.2 V or more
4: −100 to +100 mV DC	Span is 20 mV or more

Output-2 signal
A: 4 to 20 mA DC   6: 1 to 5 V DC
N: No output-2

Optional specification
/R250: With 250 Ω receiving resistor
/SN: Without socket

1. MOUNTING METHOD

![NOTE icon] **NOTE**

Plug/disconnect the main unit into/from the socket vertically to the socket face. Otherwise the terminals may bend and it may cause bad contact.
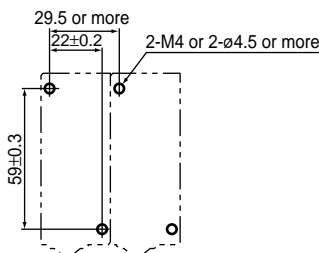
1.1   Wall Mounting

Loosen the main unit-fixing screw of the computing unit to disconnect the main unit from the socket. Next, anchor the socket onto the wall with screws. Then, plug the main unit into the socket and secure the main unit with the main unit-fixing screw.
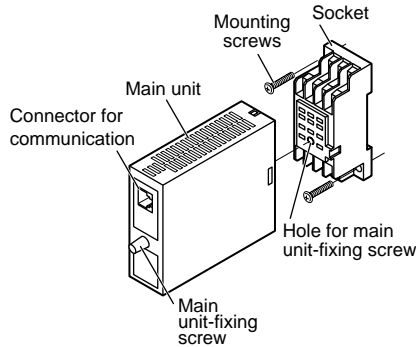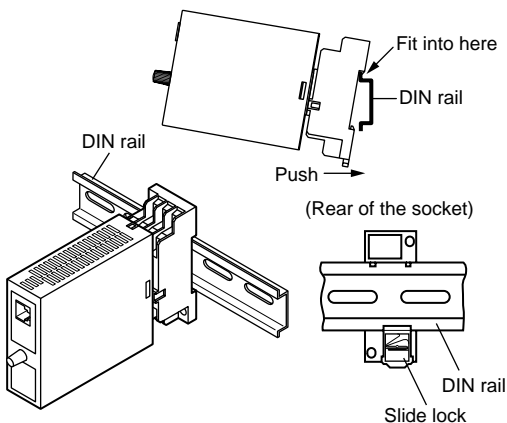

<Mounting Dimensions>   Unit: mm

1.2   DIN Rail Mounting

Locate the computing unit so that the DIN rail fits into the upper part of the DIN-rail groove at the rear of the socket, and fasten the socket using the slide lock at the lower part of the socket.

1.3   Mounting Using a Multi-mounting Base

For mounting using a multi-mounting base, refer to the User's Manual for VJCE (VJ Mounting Base)(IM 77J01C51-01E).

1.4   Using Ducts

Wiring ducts should be installed at least 30 mm away from the top or bottom of the main unit.

2. INSTALLATION LOCATIONS

● 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
Installation altitude: 2000 m or less 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 computing unit and a field-installed device.
● Operating temperature/humidity range: 0 to 50°C/5 to 90%RH (no condensation)

3. EXTERNAL WIRING

![WARNING icon] **WARNING**

To avoid the risk of an electric shock, turn off the power supply and use a tester or similar device to ensure that no power is supplied to a cable to be connected, before carring out wiring work.

Wires are connected to the terminals of the computing unit's socket. M3 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^2 or thicker for signal cables, and that of 1.25 mm^2 or thicker for power cables.
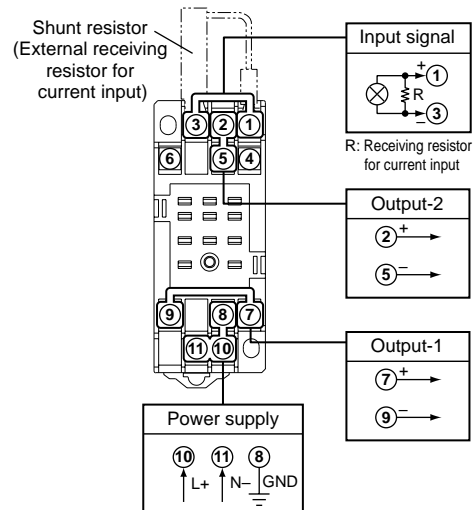
![IMPORTANT icon] **IMPORTANT**

● *The power line and input/output signal lines should be installed away from noise-generating sources. Other wise accuracy cannot be guaranteed.*
● *The grounding resistance must be 100 Ω (JIS Class D grounding). 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:*
  (a) Power supply voltage and input signal value applied to the product should meet the required specifications.
  (b) 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.*

Power Supply and Isolation

Power supply rated voltage:
100-240 V AC/DC ⌁ 50/60 Hz or 15-30 V DC ⎓.
Power supply input voltage:
100-240 V AC/DC ⌁ (−15, +10%) 50/60 Hz or
15-30 V DC ⎓ (±20%)
Power consumption:
24 V DC 2.3 W, 110 V DC 2.2 W
100 V AC 4.6 VA, 200 V AC 6.4 VA
Insulation resistance:
100 MΩ or more at 500 V DC between input, output-1, output-2, power supply, and grounding terminals mutually.
Withstand voltage:
2000 V AC for 1 minute between input, (output-1, output-2), power supply and grounding terminals mutually.
1000 V AC for 1 minute between output-1 and output-2 terminals.

4. DESCRIPTION OF FRONT PANEL

Connector for communication
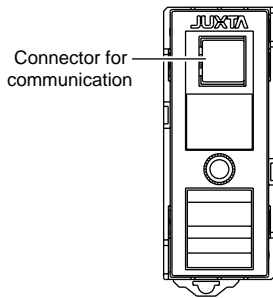
4.1 Connector for Communication

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>

JUXTA communication cable with 5-pin connector (F9182EE) [Provided with VJ77 and JHT200]

JHT200 Handy Terminal

Modular jack conversion adapter (E9786WH) [Provided with VJ77]

Dedicated adapter (E9789HA) [Provided with VJ77]

Dedicated cable (E9786WK) [Provided with VJ77]

PC which is installed with the VJ77
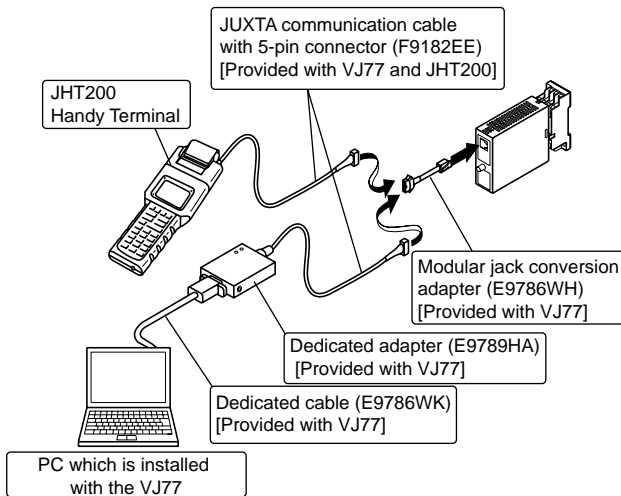
*: Use the VJ77 of version R1.04 or later.

5. SETTING PARAMETERS

Set the parameters using a PC (VJ77 Parameter Setting Tool) or the Handy Terminal. Refer to "7. 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 JF81-02E). Parameters are indicated inside the [ ].

■ Setting Input Range

Set the 0% value of input range in [D27: INPUT1 L_RNG] and the 100% value of input range in [D28: INPUT1 H_RNG].

⚠ NOTE

Changing the input range resets the input adjusted value.

■ Setting Output-1 Range

Set the 0% value of output range in [D38: OUT1 L_RNG] and the 100% value of output range in [D39: OUT1 H_RNG].

⚠ NOTE

Changing the output-1 range resets the output adjusted value.

6. COMPUTING FUNCTIONS

6.1 VJXS-A Free Program

This computing unit is used to meet individual applications by programming the available commands using a PC (VJ77 Parameters Setting Tool) or the JHT200 Handy Terminal. Set the computing program in G01 to G59.
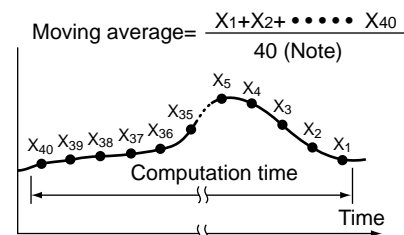
6.2 VJXS-B Moving Average Computation

This computing unit stores the input values (X) sampled at intervals of one-fortieth of the moving-average time (L) into 40 buffers in order, and outputs the moving average of 40 input values (output-1 = Y1, output-2 = Y2). The output between samplings is smoothed out by interpolation. Minimum sampling time is the set computation cycle. Therefore, when the moving-average time is set shorter, the number of samplings is less than 40. When using a first-order lag filter for input (X), set the first-order lag time constant (T).

Set the moving-average time (L) at % value in H02: CONST. The value of 0 to 100.0% corresponds to that of 0 to 1000 seconds. For example, enter "6" in H02 to set 60 seconds.
● Setting range of moving-average time:
0 to 320000 seconds (about 3.7 days) with 4 significant digits; minimum unit is 1 second (however, 0.1 second for a setting of 4 seconds or shorter).
0.0 to 32000% can be set in H02.
(e.g. 12345% unacceptable, 12340% acceptable)
● Setting accuracy of moving-average time : (±5.0% of set value) ±1 second

Set the first-order lag time constant (T) at % value in H01: CONST. The value of 0 to 100% corresponds to that of 0 to 100 seconds.
● Setting range of first-order lag time constant:
1.0 to 799.0 seconds; minimum unit is 0.1 second.
However, when not using the first-order lag function, set 0 second.
● Setting accuracy of first-order lag time constant : (±5.0% of set value) ±1 second

$$\text{Moving average} = \frac{X_1 + X_2 + \bullet \bullet \bullet \bullet \bullet X_{40}}{40 \text{ (Note)}}$$

Computation time

Time

Note: For the moving-average times at 3, 2 and 1 second, the number of samplings is 30, 20 and 10, respectively (when the computation cycle is 100 ms).

6.3 VJXS-C Dead Time Computation

This computing unit stores the input values (X) sampled at intervals of one-fortieth of the dead time (L) into 40 buffers in order and outputs data (output-1 = Y1, output-2 = Y2) after the dead time has elapsed. Minimum sampling time is the set computation cycle. Therefore, when the dead time is set shorter, the number of samplings is less than 40. The output between samplings is smoothed out by interpolation.

However, for the dead times of 3, 2 and 1 second, the number of samplings is 30, 20, and 10, respectively (when the computation cycle is 100ms). When using a first-order lag filter for input (X), set the first-order lag time constant (T).

Set the dead time (L) at % value in H02: CONST. The value of 0 to 100.0% corresponds to that of 0 to 1000 seconds. For example, enter "6" in H02 to set 60 seconds.

- Setting range of dead time:
  0 to 320000 seconds (about 3.7 days) with 4 significant digits; minimum unit is 1 second (however, 0.1 second for a setting of 4 seconds or shorter). 0.0 to 32000% can be set in H02. (e.g. 12345% unacceptable, 12340% acceptable)
- Setting accuracy of dead time: ($\pm$5.0% of set value) $\pm$1 second.

Set the first-order lag time constant (T) at % value in H01: CONST. The value of 0 to 100% corresponds to that of 0 to 100 seconds.

- Setting range of first-order lag time constant:
  1.0 to 799.0 seconds; the value of 1.0 to 799.0% corresponds to that of 1.0 to 799.0 seconds; minimum unit is 0.1 second. However, when not using the first-order lag function, set 0 second.
- Setting accuracy of first-order lag time constant :
  ($\pm$5.0% of set value) $\pm$1 second

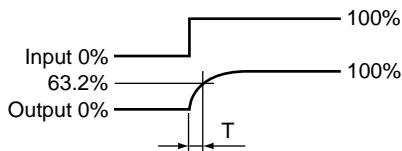$$Y1=Y2= \frac{e^{-L[s]}}{1+T[s]} X$$

e.g. 0% → 100% step input
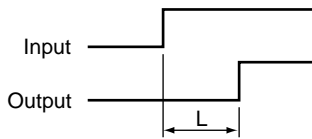
6.4 VJXS-D First-order Lag Computation

This computing unit provides a first-order lag computation on input (X) with a time constant (T) and outputs the result (output-1 = Y1, output-2 = Y2). Set the time constant (T) at % value in H01: CONST. The value of 0 to 100% corresponds to that of 0 to 100 seconds.

- Setting range of first-order lag time constant:
  1.0 to 799.0 seconds; minimum unit is 0.1 second.
- Setting accuracy of first-order lag time constant :
  ($\pm$5.0% of set value) $\pm$1 second

$$Y1=Y2= \frac{1}{1+T[s]} X$$

e.g. 0% → 100% step input

6.5 VJXS-E First-order Lead Computation

This computing unit provides a first-order lead computation on input (X) with a time constant (T) and outputs the result (output-1 = Y1, output-2 = Y2). Set the time constant (T) at % value in H01: CONST. The value of 0 to 100% corresponds to that of 0 to 100 seconds.

- Setting range of first-order lead time constant:
  1.0 to 799.0 seconds; minimum unit is 0.1 second.
- Setting accuracy of first-order lead time constant :
  ($\pm$5.0% of set value) $\pm$1 second

$$Y1=Y2= (1+ \frac{T[s]}{1+T[s]}) X$$

e.g. 0% → 50% step input
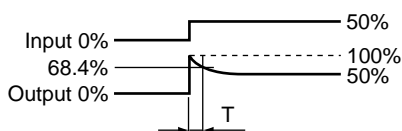
6.6 VJXS-F Uniform-speed Response (Velocity Limiter)

This computing unit limit the input (X) velocity at the ascending velocity limit for a positive change and the descending velocity limit for a negative change, and outputs the limited value (output-1 = Y1, output-2 = Y2). When the input velocity (slope) is no more than the limit value, the unit outputs the input as is.

Set the ascending velocity limit at % value in H01:CONST, and the descending velocity limit at % value in H02:CONST. The value of 0 to 100.0% corresponds to that of 0 to 100.0%/minute.

- Setting range of velocity limit:
  0.1 to 699.9%/minute; minimum unit is 0.1%/minute. Setting the limit at 700.0%/minute or above does not limit the input, so the unit simply outputs the input as is (i.e., works as an open limit function).
- Setting accuracy of velocity limit:
  ($\pm$5.0% of set value) $\pm$0.1%/minute

e.g. 0% → 100% → 0% step input
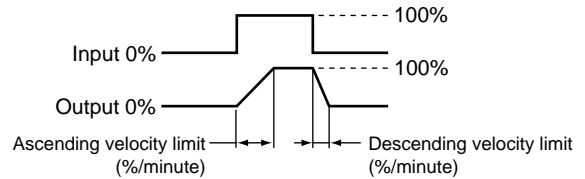
6.7 VJXS-G Limiter

This computing unit serves as an ordinary computing unit as long as the input (X) is within the upper and lower limits. When the input exceeds the limit, the unit outputs the signal that corresponds to the limit value (output-1 = Y1, output-2 = Y2).

Set the upper limit at % value in H01:CONST, and the lower limit at % value in H02:CONST.

- Setting range of upper and lower limits:
  −6.0% to 106.0%; minimum unit is 0.01%. However, if the setting is made so that the upper limit < lower limit, the unit outputs the upper limit.

6.8 VJXS-H Velocity Computation

This computing unit calculates the input velocity by subtracting the input of the last velocity computation (X_L) from the present input (X). The unit then adds a 50% bias to one-half of the obtained velocity and outputs the result (output-1 = Y1, output-2 = Y2). The output results is 50% when the input is not changed, 50% or more when the input increases (100% for $X–X_L = 100$%), and 50% or less when the input decreases (0% for $X–X_L = −100$%). When using a first-order lag filter for input (X), set the first-order lag time constant (T).

$$Y1=Y2= \frac{X–X_L}{2} +50\%$$

Set the velocity computation time (L) at % value in H02: CONST. The value of 0.0 to 100.0% corresponds to that of 0 to 1000 seconds. For example, enter "6" in H02 to set 60 seconds.

- Setting range of velocity computation time:
  0 to 320000 seconds (about 3.7 days) with 4 significant digits; minimum unit is 1 second (however, 0.1 second for a setting of 4 seconds or shorter). 0.0 to 32000% can be set in H02. (e.g. 12345% unacceptable, 12340% acceptable)
- Setting accuracy of velocity computation time: ($\pm$5.0% of set value) $\pm$1 second

Set the first-order lag time constant (T) at % value in H01: CONST. The value of 0 to 100% corresponds to that of 0 to 100 seconds.

- Setting range of first-order lag time constant:
  1.0 to 799.0 seconds; minimum unit is 0.1 second. However, when not using the first-order lag function, set 0 second.
- Setting accuracy of first-order lag time constant :
  ($\pm$5.0% of set value) $\pm$1 second

6.9 VJXS-J Linearizer (Optionally-set Line-segment Function)

This computing unit gives an optional relationship between the input (X) and output (output-1 = Y1, ouput-2 = Y2) signals using an optionally-set line-segment function. The line-segment function has 21 breakpoints, which each gives an input-output relationship as a percentage (%).

Set the number of line segments by 1 to 20.

Set the input (X) at % value in H01:CONST to H21:CONST, and the output (Y) at % value in H22:CONST to H42:CONST.

● Setting condition of breakpoints:
   For input: $-6.0 \leqq X_0$ (H01) to X_{20} (H21) $\leqq 106.0\%$; with 4 significant digits, minimum unit is 0.01%
   $X_0 < X_1 < X_2 < \cdots\cdots < X_{20}$
   For output: $-6.0 \leqq Y_0$ (H22) to Y_{20} (H42) $\leqq 106.0\%$; with 4 significant digits, minimum unit is 0.01%
   When input $\leqq X_0$ (H01), Y_0 (H22) is output.
   When input $\geqq$ final set value, the final set value of output is output. Any number of line segments (1 to 20) can be set in H43.
   The number of line segments 1 to 20 corresponds 100 to 2000%.
● Computation accuracy:
   ±0.1% (However, when line-segment gain is 1 or less.)

6.10 VJXS-K Ratio Setter

This computing unit sets the ratio by the following expression.

$Y1 = Y2 = K1 \cdot (X + A1) + A2$

where Y1:   Output-1 signal (%)
      Y2:   Output-2 signal (%)
      X: Input signal (%)
      K1:   Ratio (no unit)
      A1, A2: Bias (%)

Set the ratio (K1) in H01:CONST, and the bias (A1) at % value in H02:CONST, and the bias (A2) at % value in H03:CONST.

● Setting range of ratio:
   −320 to 320 with 4 significant digits; minimum unit is 0.00001.
● Setting range of bias:
   −32000 to 32000% with 4 significant digits; minimum unit is 0.001%.
● Computation accuracy:
   ±0.1% (However, when the ratio is 1 or less.)

🖐 NOTE

Decide ratio or bias so as not to exceed $\pm 3.4 \times 10^{38}\%$ during computation. Ratio, bias and computation results are 4 significant digits.

7. LIST OF PARAMETERS

7.1 VJXS (except for the function suffix code "A")

Parameter Display		Item
	MODEL	Model
	TAG NO	Tag No.
	SELF CHK	Self-check result
A	**DISPLAY1**	**Display 1**[*2]
A01	INPUT1	Input-1
A05	OUTPUT1	Output-1
A06	OUTPUT2	Output-2
A54	STATUS	Status[*1]
A56	REV NO	REV No.
A58	MENU REV	MENU REV
A60	SELF CHK	Self-check result
B	**DISPLAY2**	**Display 2**[*2]
B01	INPUT1	Input-1
B05	OUTPUT1	Output-1
B06	OUTPUT2	Output-2
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
D20	INP TYPE	Input type[*3]
D22	IN RESIST	Input resistor[*3]
D27	INPUT1 L_RNG	Input-1 low range
D28	INPUT1 H_RNG	Input-1 high range
D38	OUT1 L_RNG	Output-1 low range
D39	OUT1 H_RNG	Output-1 high range
D40	OUT2 L_RNG	Output-2 low range[*3]
D41	OUT2 H_RNG	Output-2 high range[*3]
D44	PRGM SELECT	Program selection
D60	SELF CHK	Self-check result
H	**CONST**	**Fixed Constant of Computing Unit**
H01	CONST	Fixed constant
H02	CONST	Fixed constant
⋮	⋮	⋮
H58	CONST	Fixed constant
H59	CONST	Fixed constant
H60	SELF CHK	Self-check result
P	**ADJUST**	**Adjustment**[*2]
P08	IN1 ZERO ADJ	Input-1 zero adjustment
P09	IN1 SPAN ADJ	Input-1 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**[*2]
Q03	OUT1 TEST	Forced output-1
Q04	OUT2 TEST	Forced output-2
Q60	SELF CHK	Self-check result

7.2 VJXS (for the function suffix code "A")

Parameter Display		Item
	MODEL	Model
	TAG NO	Tag No.
	SELF CHK	Self-check result
A	**DISPLAY1**	**Display 1**[*2]
A01	INPUT1	Input-1
A05	OUTPUT1	Output-1
A06	OUTPUT2	Output-2
A11	T1	Temporary memory-1
A12	T2	Temporary memory-2
A13	T3	Temporary memory-3
A14	T4	Temporary memory-4
A16	DO	Digital output
A17	LOAD	Load factor
A54	STATUS	Status[*1]
A56	REV NO	REV No.
A58	MENU REV	MENU REV
A60	SELF CHK	Self-check result
B	**DISPLAY2**	**Display 2**[*2]
B01	INPUT1	Input-1
B05	OUTPUT1	Output-1
B06	OUTPUT2	Output-2
B11	T1	Temporary memory-1
B12	T2	Temporary memory-2
B13	T3	Temporary memory-3
B14	T4	Temporary memory-4
B16	DO	Digital output
B17	LOAD	Load factor
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
D20	INP TYPE	Input type[*3]
D22	IN RESIST	Input resistor[*3]
D27	INPUT1 L_RNG	Input-1 low range
D28	INPUT1 H_RNG	Input-1 high range
D38	OUT1 L_RNG	Output-1 low range
D39	OUT1 H_RNG	Output-1 high range
D40	OUT2 L_RNG	Output-2 low range[*3]
D41	OUT2 H_RNG	Output-2 high range[*3]
D44	PRGM SELECT	Program selection
D47	CYCLE TIME	Computation cycle
D60	SELF CHK	Self-check result
G	**PROGRAM**	**Program of Computing Unit**
G01	PROGRAM	Program
G02	PROGRAM	Program
⋮	⋮	⋮
G58	PROGRAM	Program
G59	PROGRAM	Program
G60	SELF CHK	Self-check result
H	**CONST**	**Fixed Constant of Computing Unit**
H01	CONST	Fixed constant
H02	CONST	Fixed constant
⋮	⋮	⋮
H58	CONST	Fixed constant
H59	CONST	Fixed constant
H60	SELF CHK	Self-check result
P	**ADJUST**	**Adjustment**[*2]
P08	IN1 ZERO ADJ	Input-1 zero adjustment
P09	IN1 SPAN ADJ	Input-1 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**[*2]
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.

8. 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.

8.1 Calibration Apparatus
- A DC voltage/current standard (Yokogawa 7651 or the equivalent)
- A digital multimeter (Yokogawa 7561 or the equivalent)
- A precision resistor of 250 Ω $\pm$0.01%, 1 W
- Setting tool for adjustment (Refer to "4.1 Connector for Communication" in this manual.)

8.2 Calibration Procedure
(1) Connect the instruments as shown below. First adjust the output-1 signal and then the output-2 signal.
(2) Use the DC voltage/current standard and apply input signals equivalent to 0, 25, 50, 75, and 100% of input span to the computing unit.
(3) Check to see the output values obtained from the computation of each input are within the specified accuracy rating. "R" is used for current output.
- Use the setting tool (VJ77 Parameters Setting Tool or JHT200 Handy Terminal) to adjust the input/output signals.

Input Adjustment Procedure
(1) Input the value equivalent to 0% value of input range.
(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.)

Output Adjustment Procedure
(1) When adjusting 0% value of output-1, 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 0% / 100% values 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 "7. List of Parameters" in this manual.
User's Manual for VJ77 [Document No.: IM 77J01J77-01E]; however, use the VJ77 of version R1.04 or later.
User's Manual for JHT200 [Document No.: IM JF81-02E]

Shunt resistor (External receiving resistor for current input)

Input
DC voltge/current standard
R: Receiving resistor for current input

Output-2
Digital multimeter
R: 250 Ω precision resistor for current output

Output-1
Digital multimeter
R: 250 Ω precision resistor for current output

Power supply
L+ N− GND