# User's Manual

JUXTA

# Model VJ77
# PC-based Parameters Setting Tool
## (with Model L4506HA Dedicated Adapter)

IM 77J01J77-01E

vigilantplant®

YOKOGAWA
Yokogawa Electric Corporation

IM 77J01J77-01E
8th Edition

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# Introduction

**This instruction manual describes the functions and operation of the Model VJ77 PC-based Parameters Setting Tool.**

## ■ Configuation of This Manual

This manual consists of 11 chapters.

### ● Chapter 1 VJ77 PC-based Parameters Setting Tool

Gives an overview of VJ77 and describes its functions and the operating environment.

### ● Chapter 2 Setup

Describes how to setup the hardware and software required to use VJ77.

### ● Chapter 3 Basic Operation

Describes the basic operation and main windows of VJ77.

### ● Chapter 4 Setting Parameters

Describes how to set parameters of JUXTA instruments.

### ● Chapter 5 Setting a Program

Describes how to set a program for JUXTA computing units.

### ● Chapter 6 Uploading and Downloading Data from/to JUXTA

Describes how to upload parameter or program data inside JUXTA instruments from VJ77 and how to download the data to JUXTA instruments.

### ● Chapter 7 Saving Data

Describes how to save parameter or program data on a disk.

### ● Chapter 8 Printing Data

Describes how to print parameter or program data.

### ● Chapter 9 Monitoring Input/Output Values

Describes how to monitor the I/O values of JUXTA instruments and how to view the result of self-diagnosis.

### ● Chapter 10 Adjusting JUXTA Instruments

Describes how to adjust JUXTA instruments' input/output, how to correct the wiring resistance, and others.

### ● Chapter 11 Trouble shooting

Describes how to solve problems when any trouble has occurred while using VJ77.

## ■ Intended Readers

This manual is intended for people familiar with the functions of JUXTA signal conditioners and capable of working with Windows, such as instrumentation and control engineers and personnel in charge of maintaining instruments and control equipment.

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### ● Instruction manuals for individual JUXTA signal conditioners

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URL: http://www.yokogawa.com/ns/juxta/vj/doc/

- Manuals

  Model VJ77 PC-based Parameters Setting Tool (IM 77J01J77-01E)

  Model VJ77 PC-based Parameter Setting Tool
  Downloading the Software and Manual (IM 77J01J77-11Z1)

- General Specifications

  Model VJ77 PC-based Parameters Setting Tool (GS 77J01J77-01E)

# Visual Inspection and Cross-check of Accessories

On receiving the product, visually inspect it for any damage.

## ■ Checking Model and Suffix Codes

Make sure that the model and suffix codes of the delivered product are as specified in your order.

| Model | Suffix code | Description |
|---|---|---|
| VJ77 | | PC-based parameters setting tool |
| | -E10 | For use with PC/AT compatible personal computers (English version) |

## ■ Checking the Standard Accessories

Make sure that the delivered package contains all of the following items.

| | |
|---|---|
| Dedicated adapter (Model: L4506HA) | 1 unit |
| MicroUSB(USB2.0) cable (Part no.: A1590WL) | 1 cable |
| JUXTA communication cable with 3-pin connectors (Part no.: F9182ED) | 1 cable |
| JUXTA communication cable with 5-pin connectors (Part no.: F9182EE) | 1 cable |
| Modular jack conversion adapter (Part no.: E9786WH) | 1 unit |
| Model VJ77 PC-based Parameters Setting Tool Downloading the Software and Manual | 1 copy |

# Documentation Conventions

## ■ Documentation Conventions

The following conventions are used throughout this manual:

| Item | Usage |
|---|---|
| The names of named dialog boxes, windows, and views are written in title cap and refer to the exact titles. | Parameter Setting Menu dialog box<br><br>Gantt view |
| The names of unnamed windows, dialog boxes, and views are written in all lowercase letters. | document window<br><br>print preview |
| Commands (including buttons) in a dialog box or window and menu commands are written in **boldface**. | Click **OK**.<br>Click **Options**.<br>From the **File** menu, choose **Exit**. |
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Indicates that operating the hardware or software in a particular manner may damage it or result in a system failure.

**NOTE**

Draws attention to information that is essential for understanding the operation and/or features of the product.

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Gives additional information to complement the present topic.

**See Also**

Gives reference locations for further information on the topic.

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**CAUTION**

**This symbol on the product indicates that the operator must refer to an explanation in the user's manual to avoid the risk of injury or death of personnel or damage to the instrument. The manual describes how the operator should exercise special care to avoid electrical shock or other dangers that may result in injury or the loss of life.**

**Protective ground terminal:**

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# Model VJ77
# PC-based Parameters Setting Tool

IM 77J01J77-01E 8th Edition

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# 1. VJ77 PC-based Parameters Setting Tool

**This chapter gives an overview of the VJ77 tool and describes its operating environment.**

## 1.1 An Overview of VJ77 and Its Functions

### 1.1.1 What is VJ77?

The VJ77 PC-based Parameters Setting Tool is a software package for setting various parameters and programs of microprocessor-based JUXTA signal conditioners and computing units from a personal computer. This tool simplifies the configuration of high performance functions of JUXTA instruments. In addition, it is also possible to adjust microprocessor-based JUXTA instruments using this tool.

### 1.1.2 Functions

- **Parameter setting**

  Sets parameters that configure the functions of microprocessor-based JUXTA instruments.

- **Program setting**

  Sets programs of microprocessor-based JUXTA computing units.

  Programs can be edited from a PC even when offline.*

  * A state in which the PC (VJ77) and the JUXTA instrument are not connected

- **Download to/upload from the JUXTA instrument**

  Uploads parameters or program from a microprocessor-based JUXTA instrument to a personal computer, and downloads the parameters and program once loaded or a program you created, to a JUXTA instrument.

- **Data saving to disk**

  Saves parameters or program in a JUXTA instrument to the hard disk of a personal computer, etc.

- **Data printing**

  Prints parameters or program uploaded from a JUXTA instrument.

- **Input/output value monitor**

  Views the I/O values and the result of self-diagnosis of a microprocessor-controlled JUXTA instrument.

- **Adjusting JUXTA instruments**

  Adjusts inputs and outputs of a microprocessor-controlled JUXTA instrument.

# 1.2 Conceptual View of VJ77

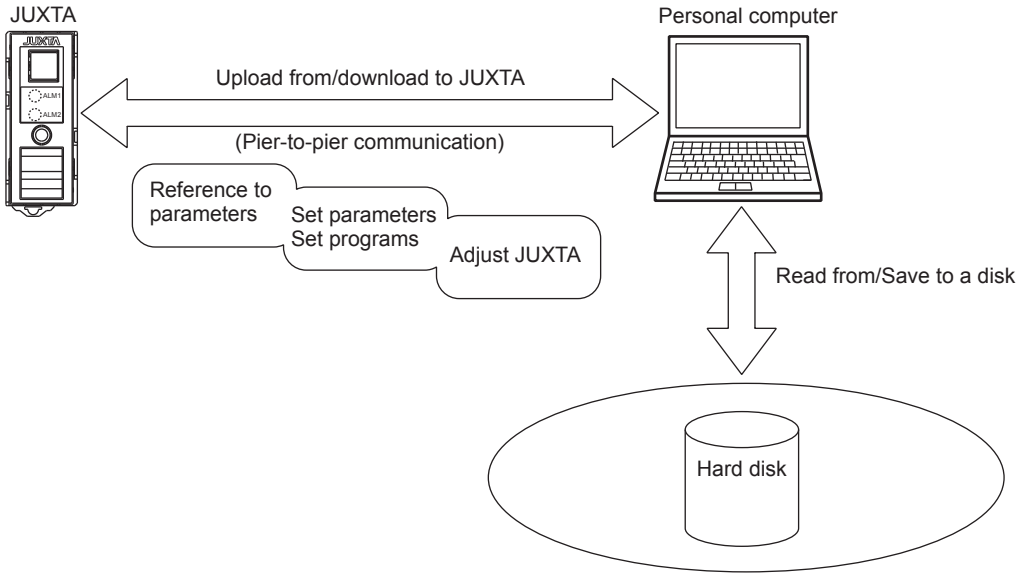


**Figure 1.2.1 Conceptual View of VJ77 PC-based Parameters Setting Tool**

# 1.3 Operating Environment and Wiring Specifications

## 1.3.1 System Requirements

| | |
|---|---|
| OS: | Windows 7 Professional (32-bit/64-bit version) |
| | Windows 8.1 Pro Update (32-bit/64-bit version) |
| | Windows 10 Pro (32-bit/64-bit version) |
| | Windows 7/8.1/10 supports a Japanese edition and English version. |
| CPU: | Pentium 4 series processor |
| | For Windows 7 Professional or Windows 8.1 Pro Update: Equivalent to 3.0 GHz or higher recommended |
| | For Windows 10 Pro: 1 GHz or higher processor or SoC |
| Main memory: | Windows 7 Professional/Windows 8.1 Pro Update: At least 2 GB recommended |
| | Windows 10 Pro: 1 GB (32-bit version), 2 GB (64-bit version) |
| Hard disk space: | Package program: 10MB or more |
| | .Net Framework 4.0 :620MBor more |
| Display: | 1024 × 768 pixels or better, 256 colors or more recommended |
| Communication port: | At least 1 port (USB port) |
| Printer: | Required for printing, support for letter or A4 size |

## 1.3.2 Dedicated Adapter

| | |
|---|---|
| Power supply: | Supplied from the USB bus power. |
| Insulation resistance: | Minimum of 100 M/500 V DC between USB communication port and the JUXTA connection sides. |
| Dielectric strength: | 500 V AC/minute between USB communication port and the JUXTA connection sides. |
| Ambient temperature: | 0 to 50°C |
| Ambient humidity: | 5 to 90%RH (no condensation) |
| Transport and storage conditions: | -40 to 70°C, 5 to 95%RH (no condensation) |
| Waterproof & dustproof construction: | Not applicable |

# 1.4 External View of Dedicated Adapter

Unit: mm

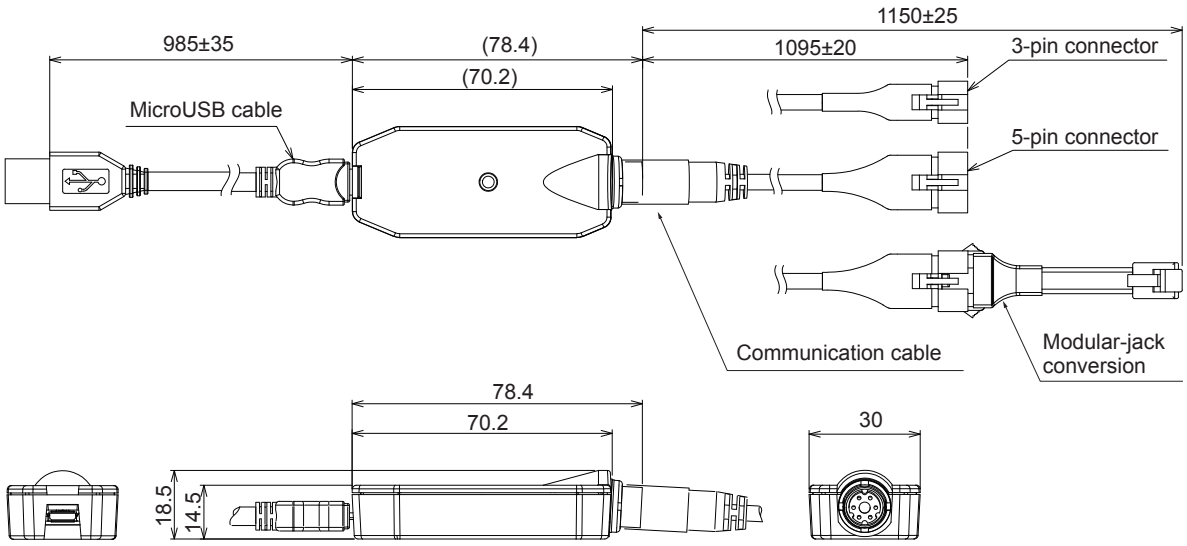


**Figure 1.4.1 Dedicated Adapter**

### EMC Standards

Moel L4506HA

EMC directive:

EN 61326-1 compliance, Class A Table 2

EN 55011 Class A Group 1

EMC Regulatory Arrangement in Australia and New Zealand (RCM): EN 55011 Class A, Group 1

KC marking: Electromagnetic wave interference prevention standard, electromagnetic wave protection standard compliance.

# 1.5 Precautions When Communicating with JUXTA

**NOTE**

Do not remove the communication cable while communicating with a JUXTA instrument.

Communication may be in progress in the following windows.

- Communication execution window
- Parameter setting window
- Parameter view window
- Program setting window
- Parameter Setting dialog box
- Program Editor dialog box
- Constant Setting dialog box
- Check Downloading to JUXTA dialog box
- Command Check Error list dialog box
- SLOT No. Setting dialog box

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# 2. Setup

This chapter describes how to set up the hardware and software required to run VJ77.

First, download the necessary software and driver from the website.

Next, install the USB driver to allow the use of a USB cable. Finally, install the VJ77 PC-based Parameters Setting Tool.

## 2.1 Downloading the Software and Driver

Download VJ77 PC-based Parameters Setting Tool and USB Converter Driver Software from the following URL. Download files are in zip format.

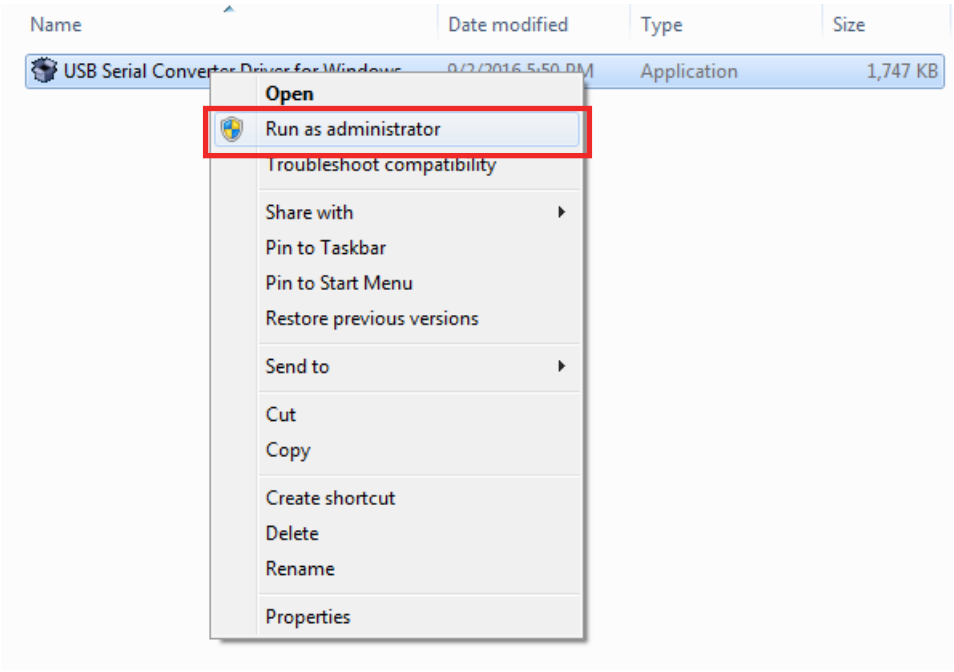
http://www.yokogawa.com/ns/juxta/vj77/download/

## 2.1 Installing the USB Driver

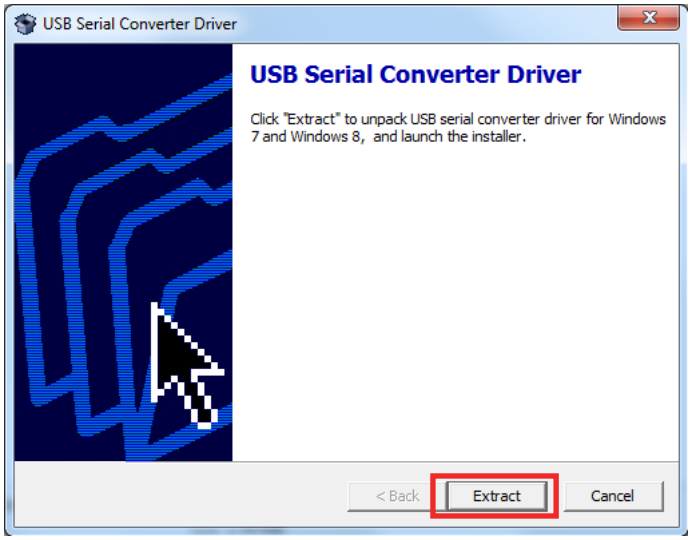
**NOTE**

Install the driver with administrator privileges.

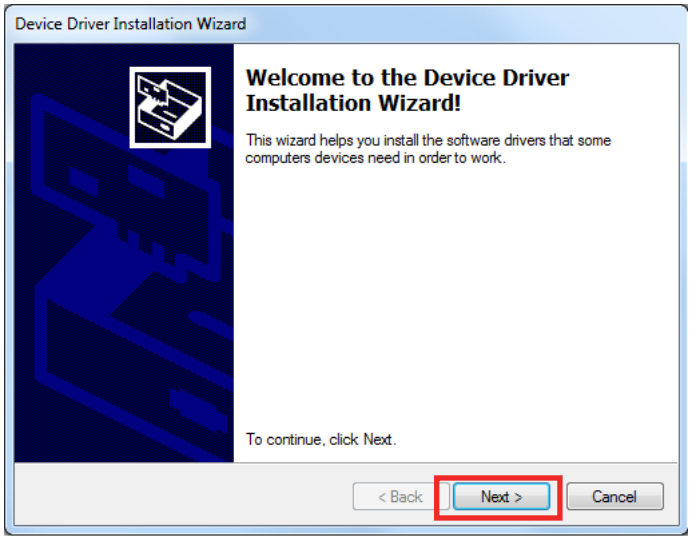
**Step 1** Double-click the downloaded file to extract the files. In the extracted folder, right-click the downloaded file, and click Run as administrator.



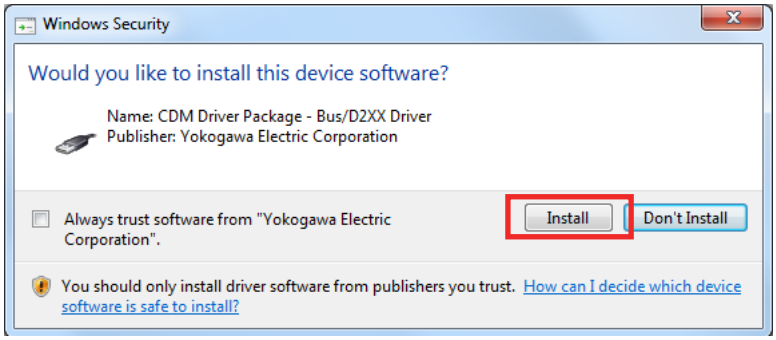
**Step 2** A driver installation window appears. Click Extract.




**Step 3** A device driver installation wizard window appears. Click Next.

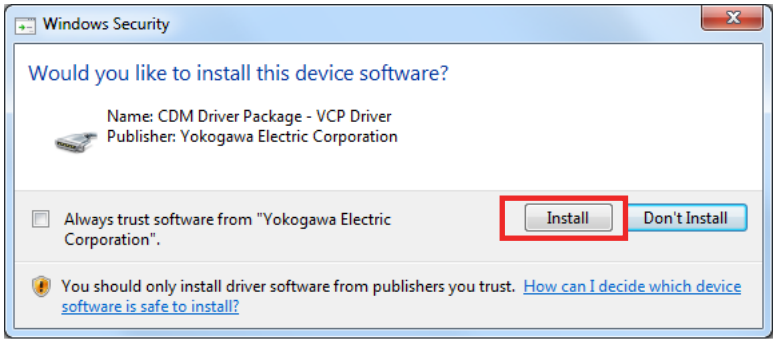



**Step 4** A Windows Security dialog box appears. Click Install.
* This dialog box does not appear on Windows 10.



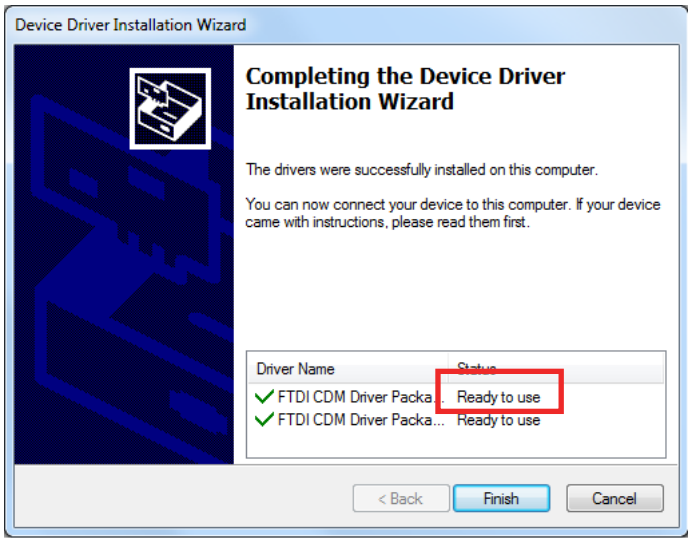

If you select the 'Always trust software from "Yokogawa Electric Corporation"' check box, the confirmation dialog box will no longer appear when installing our USB drivers.

**Step 5** A Windows Security dialog box appears. Click Install.
* This dialog box does not appear on Windows 10.




If you select the 'Always trust software from "Yokogawa Electric Corporation"' check box, the confirmation dialog box will no longer appear when installing our USB drivers.

**Step 6** A device driver installation wizard completion window appears. Click Finish.




This completes the installation of the driver.

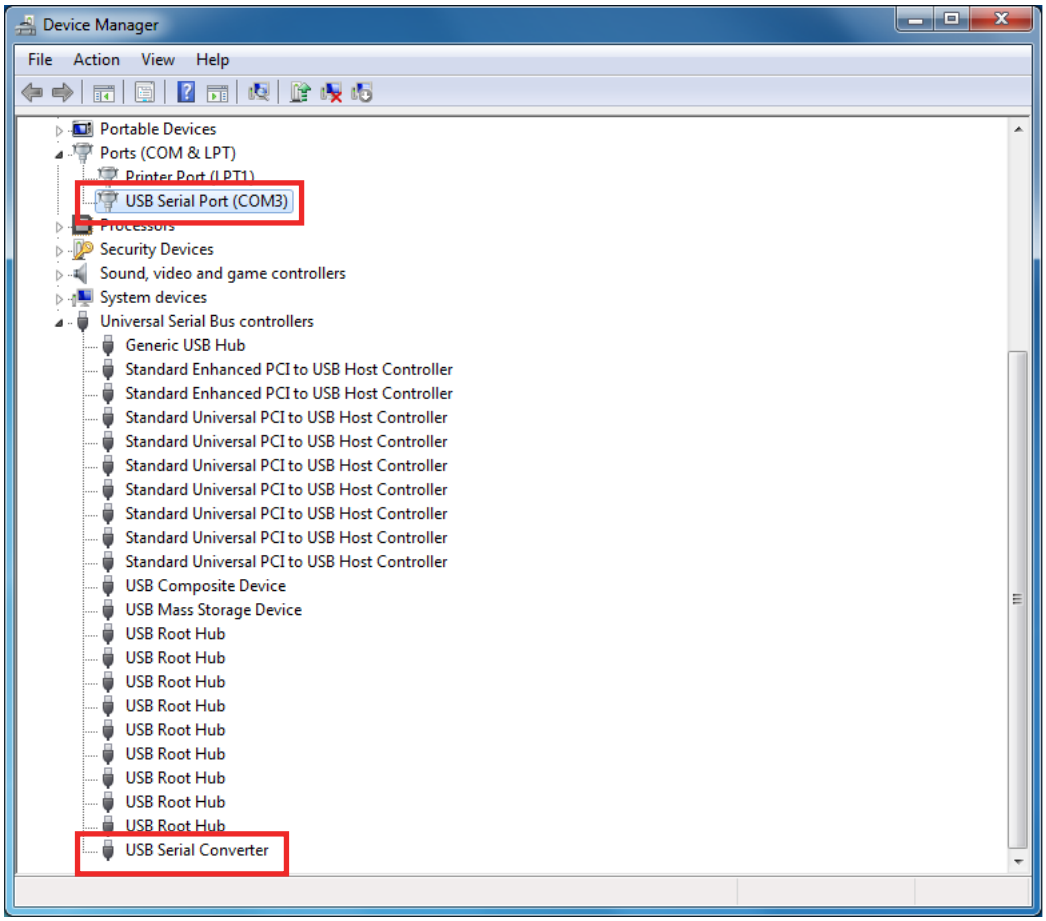
Connect the dedicated cable to the PC's USB port to automatically start using the cable.

## ■ Checking the Installation of the USB Driver

**Step 1** With the adapter connected to the dedicated cable, connect the dedicated cable to the PC.

**Step 2** On Windows 7, on the taskbar, click Start, Control Panel, and then Device Manager.
On Windows 10, on the taskbar, click Start, Settings, Devices, and then Device Manager.

**Step 3** Check that the virtual COM port driver “USB Serial Port (COMn)” appears under “Ports (COM & LPT)” and the USB device driver “USB Serial Converter” under “Universal Serial Bus controllers.”



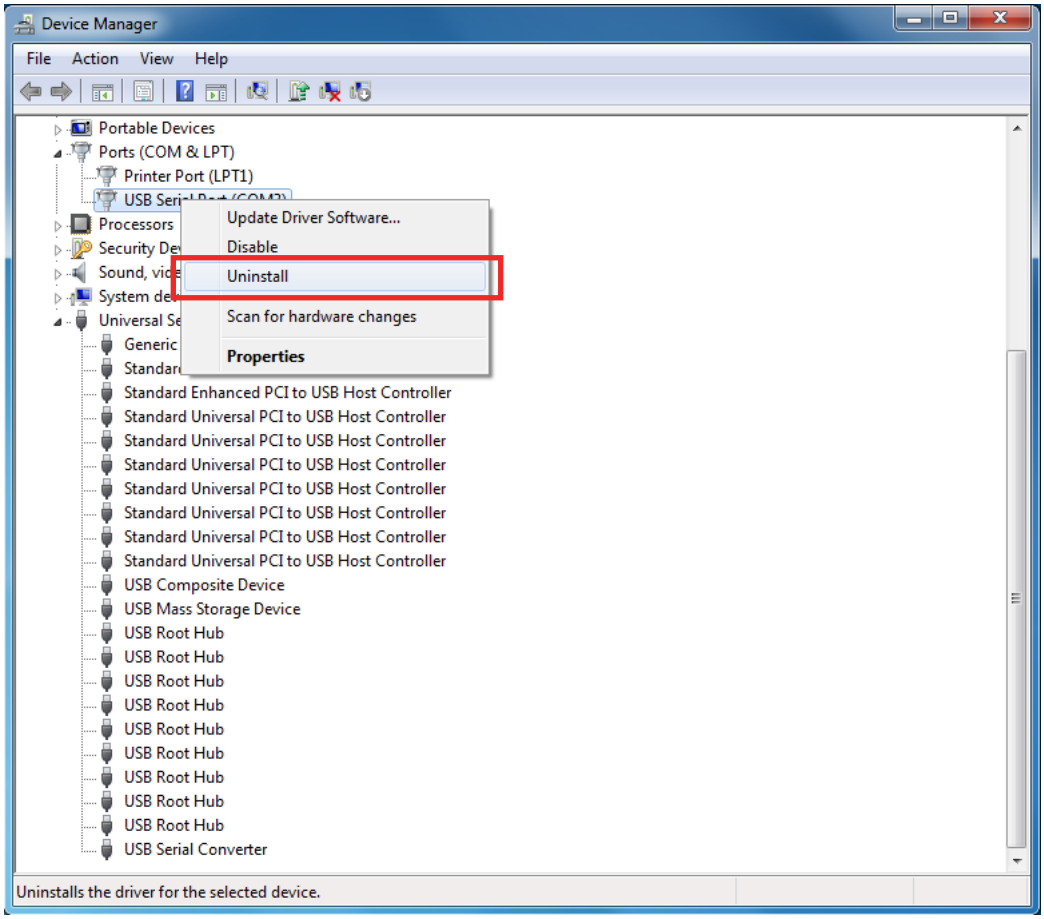

**Step 4** You can check the COM port number assigned to the dedicated cable with the port number displayed in “USB Serial Port (COMn)” in Device Manager (figure above).
To change the COM port number, double-click “USB Serial Port (COMn),” click the “Port Settings” tab on the properties window, and click Advanced. You can change the port number in the Advanced Settings for COMn window.

## ■ Uninstalling the USB Driver

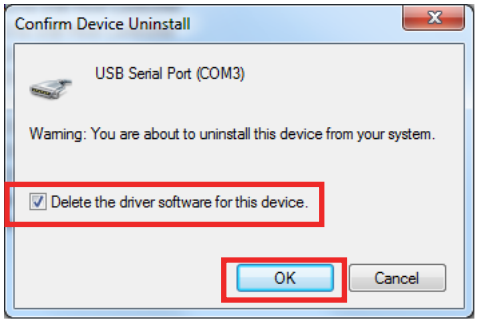
**Step 1** Connect the dedicated cable to the PC.

**Step 2** On Windows 7, on the taskbar, click Start, Control Panel, and then Device Manager.
On Windows 10, on the taskbar, click Start, Settings, Devices, and then Device Manager.

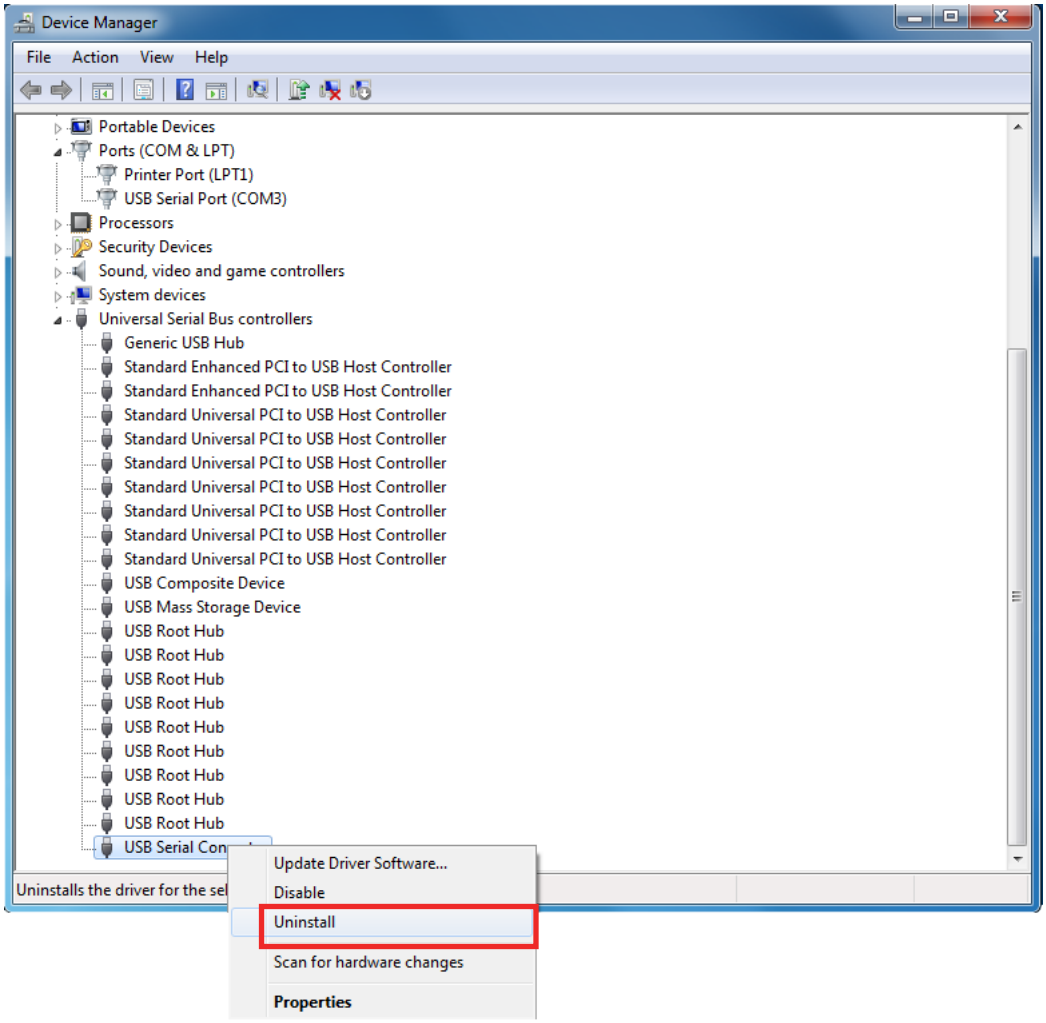
**Step 3** Right-click “USB Serial Port (COMn)” under “Ports (COM & LPT),” and click Uninstall.




**Step 4** A device uninstallation confirmation window appears. Select the “Delete the driver software for this device” check box, and click OK.



**Step 5** Right-click “USB Serial Converter” under “Universal Serial Bus controllers,” and click Uninstall.




**Step 6** A device uninstallation confirmation window appears. Select the “Delete the driver software for this device” check box, and click OK.


This completes the uninstallation.

# 2.3 Installing VJ77

**NOTE**

- Install the software as an administrator.
- Do not save VJ77 user file in Program Files folder. The VJ77 will not work properly.
- Before installing VJ77 Setting Software, quit all running applications.
- Avoid entering just the drive as the installation location, such as C:\. Enter the full directory path.
- If .NET Framework 4.0 is not installed in your PC, it will be installed. (This is necessary to run VJ77.)
- When reinstalling VJ77, uninstall the installed VJ77 first, and then reinstall VJ77.
- VJ77 R1.08 (old version) and R2.xx can coexist. To use them together, install R1.08 first and then R2.xx.
- To run VJ77, Microsoft's .NET Framework 4.0 runtime is required.
- If .NET Framework 4.0 needs to be installed and the PC is connected to a network, .NET Framework 4.0 will automatically be downloaded and installed before the installation of VJ77.

**Step 1** Double-click the downloaded zip file to extract the files.

**Step 2** Double-click setup.exe in the unzipped folder to start a setup wizard. Follow the instructions in the dialog boxes.

When installation is complete, VJ77 will be registered under All Programs in the Windows Start menu.

# 2.4 Uninstalling VJ77

**Step 1** On the task bar, click Start, Control Panel, and then Programs and Features* to uninstall VJ77.

**Step 2** A User Account Control window appears. Click Yes. VJ77 will be uninstalled.

*1: If the Control Panel display mode is Control Panel Home, use Uninstall a program.

# 2.5 Connecting JUXTA Instrument to Personal Computer

This section describes how to connect a JUXTA instrument to a personal computer.

## 2.5.1 Items Required for Connection

To connect a JUXTA instrument to a personal computer, the following are required:

(1) Personal computer with VJ77 installed

(2) MicroUSB(USB2.0) cable

(3) Dedicated adapter

(4) JUXTA communication cable with 3-pin connectors;
Used when communicating with JUXTA F and W series.

(5) JUXTA communication cable with 5-pin connectors;
Used when communicating with JUXTA VJ, M, and D series (DSC2).

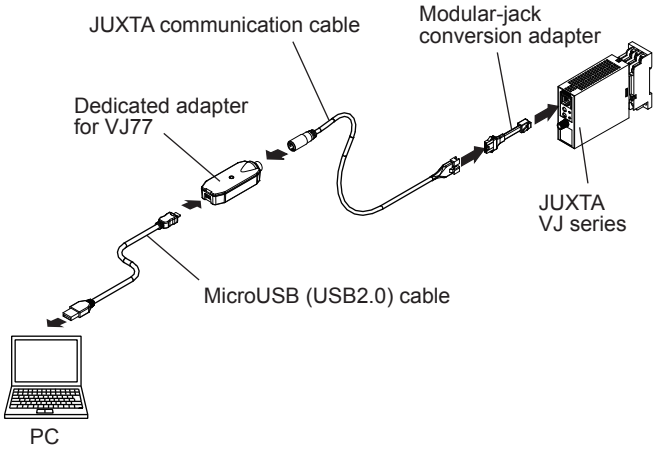
(6) Adapter for modular-jack (comes with VJ77);
Used when communicating with JUXTA VJ and M series.

## 2.5.2 How to Connect

**Step 1** Connect the dedicated cable to the personal computer.
Then, connect the VJ77-dedicated adapter to the other end of the dedicated cable.

**Step 2**

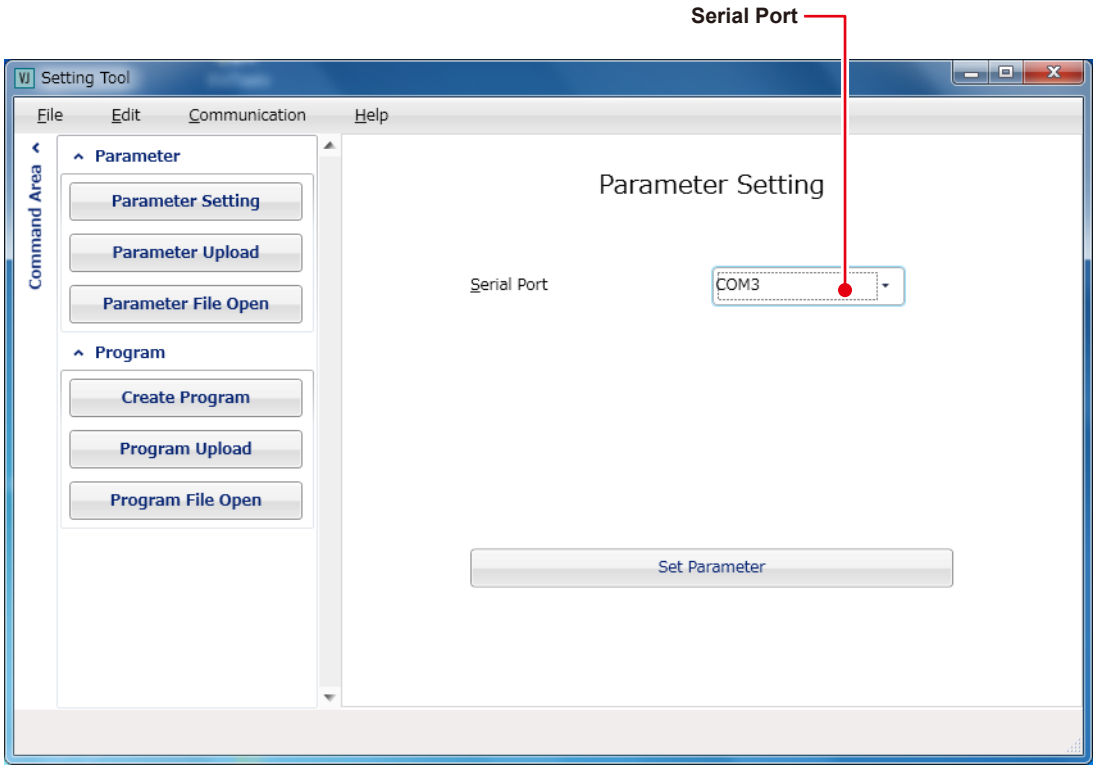
- When communicating with JUXTA D series (DSC2), connect the JUXTA communication cable with 5-pin connector to the VJ77-dedicated adapter.
- When communicating with JUXTA F and W series, connect the JUXTA communication cable with 3-pin connector to the VJ77-dedicated adapter.
- When communicating with JUXTA VJ and M series, connect the JUXTA communication cable with 5-pin connector to the VJ77-dedicated adapter, then connect the modular jack adapter to the connector of the JUXTA communication cable.



# 2.6 Setting the Communication Port

This section describes how to set the communication port to connect a JUXTA instrument to the personal computer (VJ77).

The communication port (serial port) indicates the valid serial port that the PC is using when a communication execution window is open.




The following five types of communication execution windows are available.

- Parameter Setting
- Upload Parameter Data from JUXTA
- Download Parameter Data to JUXTA
- Upload Program Data from JUXTA
- Download Program Data to JUXTA

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# 3. Basic Operation

This chapter describes basic operation and identifies the main dialog boxes of VJ77.

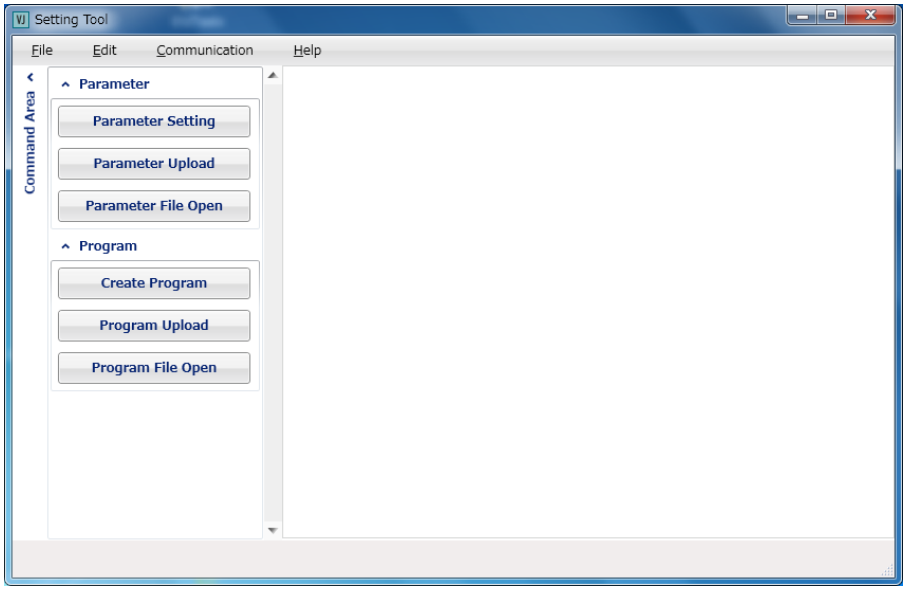
## 3.1 Starting VJ77

From the Windows Start menu, choose the commands in the following sequence.

Start > Programs > VJ77 > VJ77 Setting Tool

Or, double-click the shortcut (VJ77 Setting Tool).

VJ77 starts up, and the main window appears.

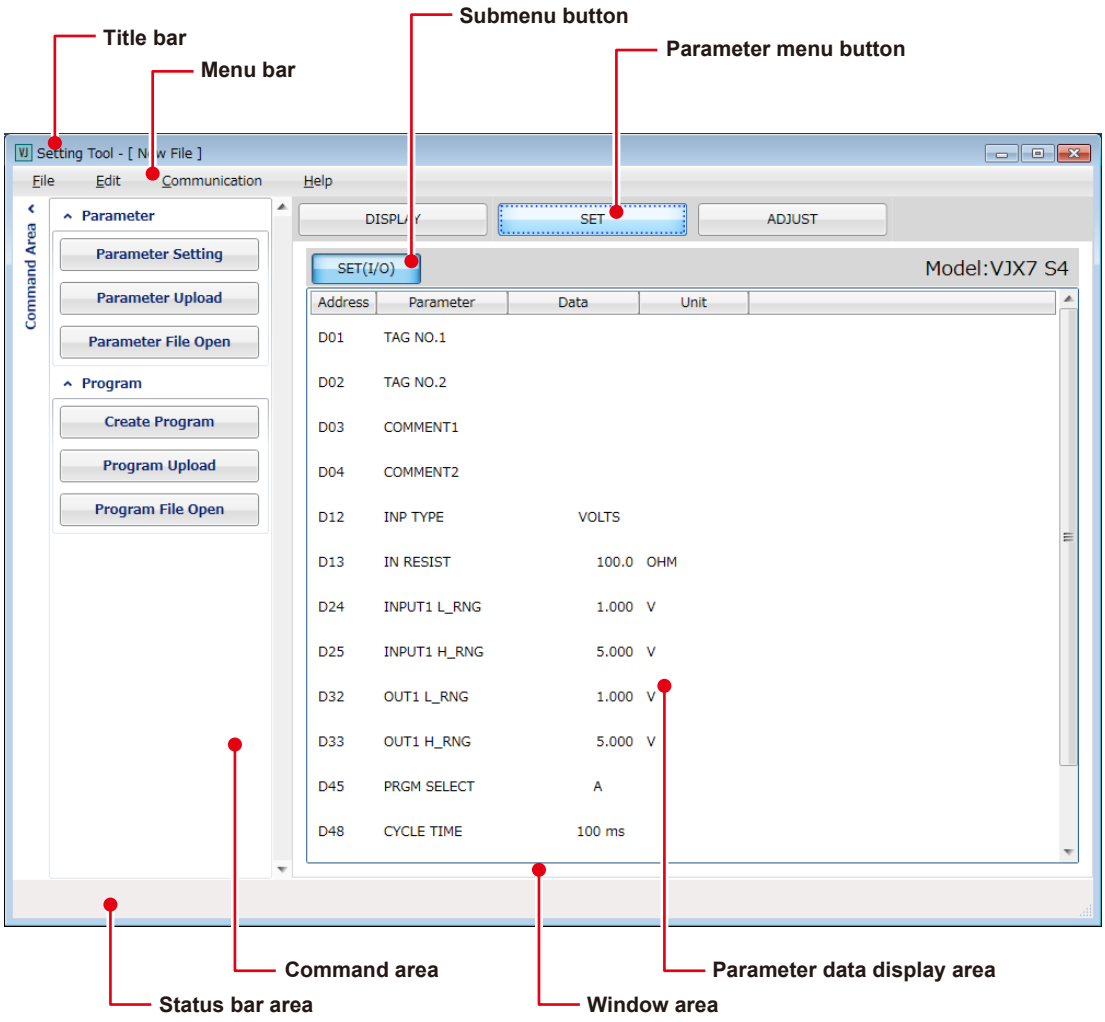



## 3.2 Quitting VJ77

From the File menu, choose Exit. Or, click × in the upper right of the window.

# 3.3 Window Elements and Functions

This section identifies the element and their functions of a window and dialog box of VJ77 with reference to the parameter setting window.




### Title bar

"Setting Tool" is displayed. If file data is displayed in the window, the file name is also displayed in the title bar.

### Menu bar

As is usual for Windows applications, the menu bar is displayed below the title bar of a window. Each menu name contains the related commands.

### Parameter menu button

Shows the menu items read from the JUXTA instrument.

### Submenu button

Shows the submenu items of the selected parameter menu.

### Command area

Shows the commands that can be used on VJ77. The commands are arranged by parameter or program type.

**Status Window area**

TShows command execution windows (communication execution window, parameter setting window, program setting window, etc.).

**bar area**

Shows communication status and other temporary information.

**Parameter data display area**

Shows the parameters retrieved from the JUXTA instrument.

# 3.4 Basic Operation

## 3.4.1 Operation Using a Mouse

### Menu bar operation

(1) Click an item on the menu bar to open a menu.

(2) From the menu, click the command you wish to execute.

### Selecting an item

(1) Click the command you wish to select.

### Data entry operation

(1) Double-click a data display area (parameter data display area, program display area, or CONST display area) to open a dialog box for entering data.

Parameter data display area: Parameter Setting dialog box

Program display area: Program Editor dialog box

CONST display area: Constant Setting dialog box

(2) In the Parameter Setting dialog box, after entering data, clicking WRITE updates the data. Some types of data require you to enter values in text boxes while others require you to select from drop-down lists.

**NOTE**

If you click **Close** without clicking **WRITE**, any data typed in the text box will not be written to the JUXTA instrument. Be sure to click **WRITE** after you enter data.

(3) In the Program Editor and Constant Setting dialog boxes, after entering data, clicking Enter applies the data in the program display area. Writing to the JUXTA instrument is executed using the Program Download command.

## 3.4.2 Operation Using Keyboard

### Menu bar operation

(1) Press the F10 or ALT key on the keyboard. **File** in the menu bar is displayed as a button, indicating that it is selected. Move to the menu item you wish to execute using the RIGHT ARROW and LEFT ARROW keys, then press the ENTER, UP ARROW, or DOWN ARROW key. The menu of the selected item is then displayed.
(Pressing the ALT key+F key opens the pull-down menu of **File**)

(2) In the pull-down menu, move to the command you wish to execute using the UP ARROW and DOWN ARROW keys, then press ENTER.

(3) To cancel the operation, press the ESC key.

### Selecting an item

In a window, each press of the TAB key switches the selected command in turn.

### Data entry operation

(1) In the data display area, after selecting an item (line), pressing Ctrl+Enter displays a dialog box for entering data.

(2) Enter the value from the keyboard.

(3) After entering data, press Tab to move the cursor to WRITE or Enter, and press Enter.

### Command buttons (WRITE, Close, Cancel, etc.)

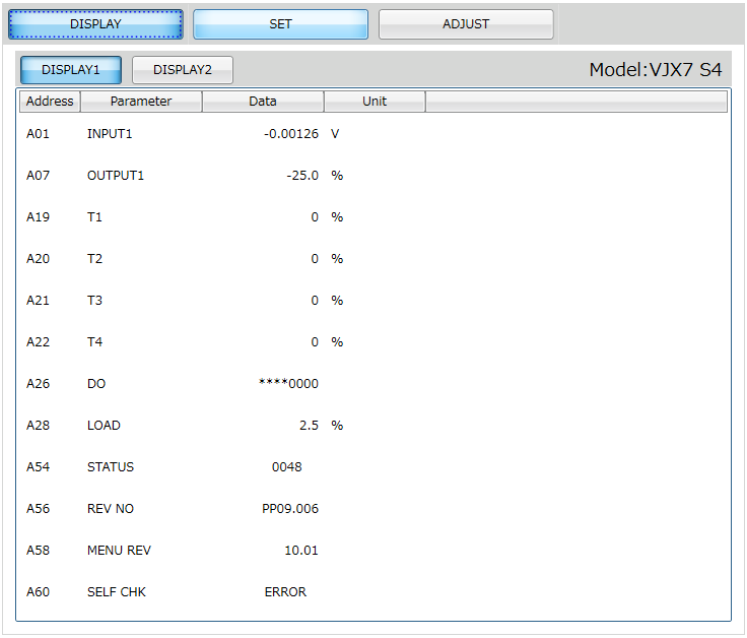
(1) Select a command button using the TAB key.

(2) Press ENTER to execute the corresponding command.

# 3.5 Main Windows and Their Functions

## 3.5.1 DISPLAY Menu Window

This window shows the input/output values of the JUXTA instrument and the results of self-diagnosis.

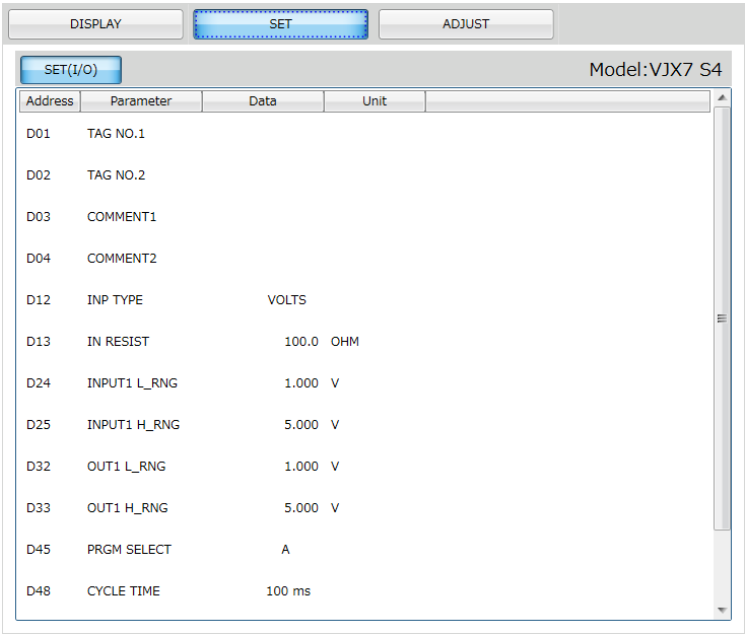



### See Also

For more information about the DISPLAY dialog box, see Chapter 9, “Monitoring I/O Values.”

## 3.5.2 SET Menu Window

This window is used to set various parameters of the JUXTA instrument.

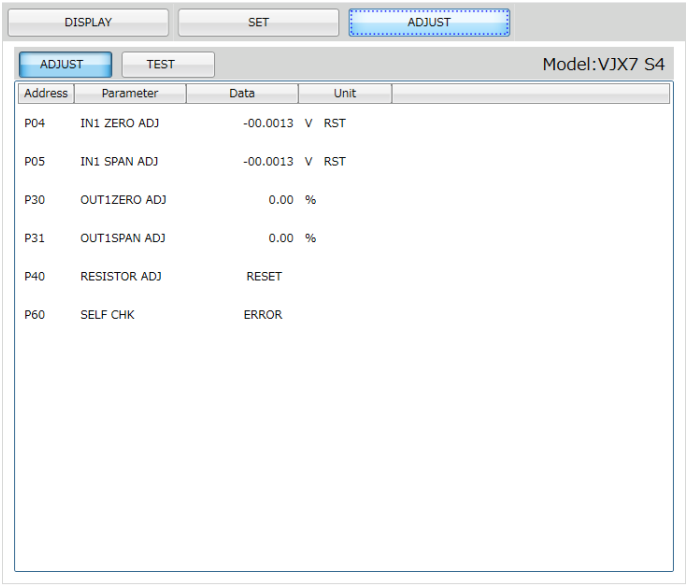



### See Also

For more information about the SET dialog box, see Chapter 4, “Setting Parameters.”

## 3.5.3 ADJUST Menu Window

This window is used to adjust the I/O of the JUXTA instrument.

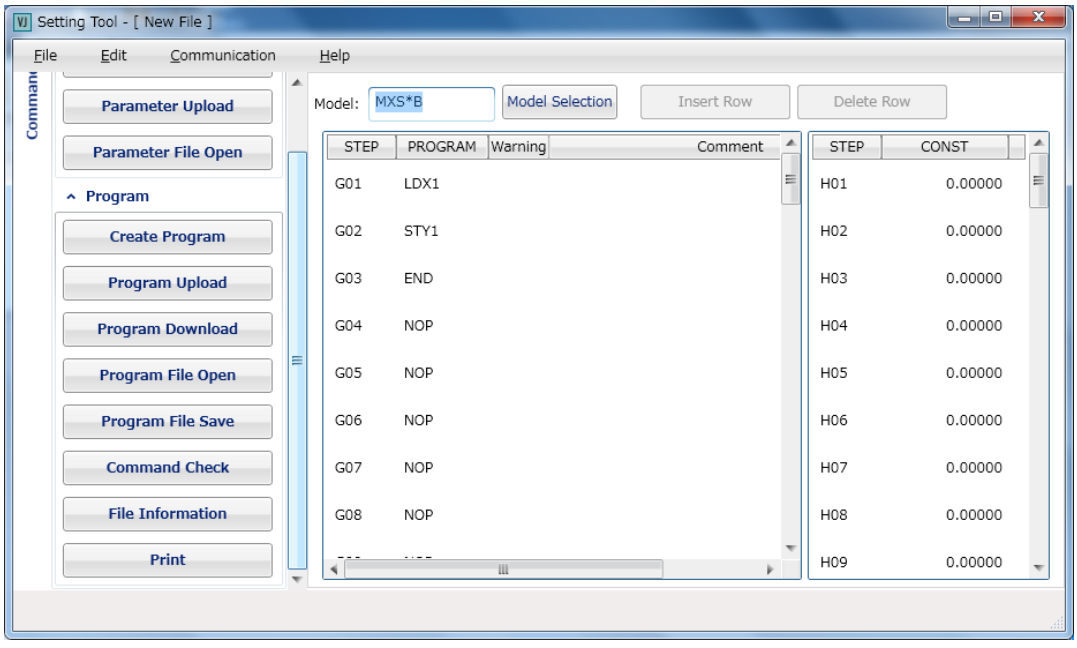



### See Also

For more information about the ADJUST dialog box, see Chapter 10, “Adjusting JUXTA Instruments.”

## 3.5.4 Program Setting Window

This window is used to create/edit programs for JUXTA computing units.




#### Model Selection button

Clicking **Model Selection** selects the model name of a JUXTA computing unit.

### Program display area*

Shows programs and comment data.

| | |
|---|---|
| STEP | Shows the program step. |
| PROGRAM | Shows the program command. |
| Warning | Shows an icon when a command error occurs. |
| Comment | A cell for entering comments for the specified program (up to 25 characters). |

### CONST (constant) display area*

Shows constants for the specified program.

*: When Upload Program Data from JUXTA is executed and the Program Editor dialog box is displayed, these cells show the program and constants uploaded from the JUXTA instrument.

### Insert Row button

When a line is selected in the program display area, clicking this button inserts a line above the selected line.

### Delete Row button

When a line is selected in the program display area, clicking this button deletes the line.

#### See Also

For more information about the Program Editor dialog box, see Chapter 5, “Setting a Program.”

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# 4. Setting Parameters

This chapter describes the operation to set parameters of JUXTA instruments using VJ77. Parameters are set in the parameter setting window.

### See Also

When you set parameters, refer to the parameter lists given in the respective user's manuals of JUXTA signal conditioners and computing units.

## 4.1 Displaying the Parameter Setting Window

### Preparation

Connect the JUXTA instrument to the personal computer, then turn on the power to the JUXTA instrument.

**Step 1** Start VJ77, and click **SET**.

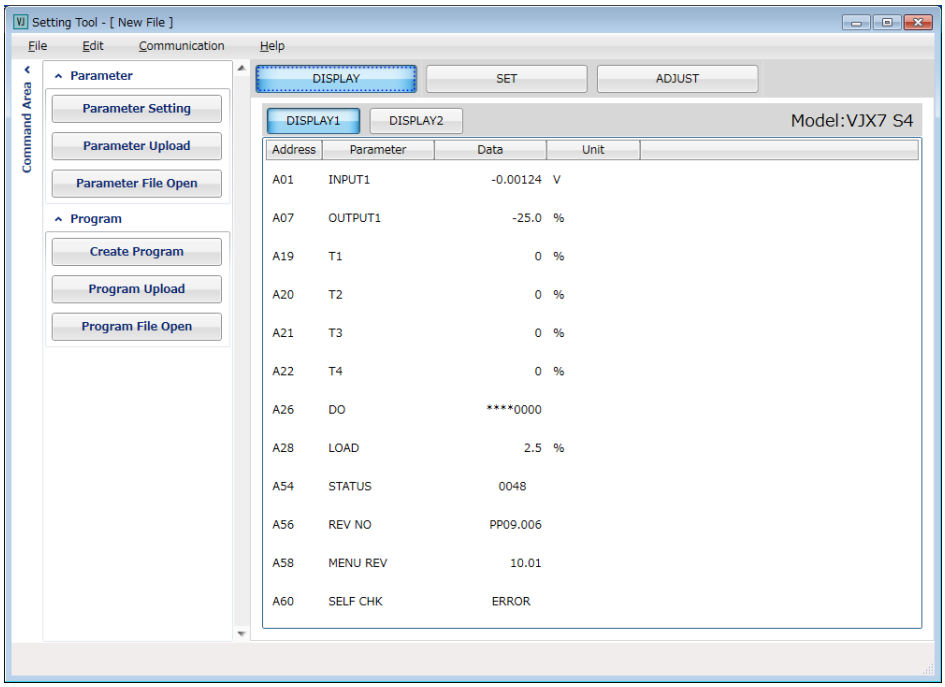
The communication execution window appears.

**Step 2** Click **Parameter Setting**.

The "Starts communication. Press OK button if ready" message appears.

**Step 3** Click **OK** if ready.

The parameter setting window appears.




If connected via the DSC or DSC2 port of the JUXTA D series, carry out Step 4.

**Step 4** When connected via the DSC or DSC2 port of the JUXTA D series, the SLOT No. Setting dialog box appears. Enter the slot number you wish to communicate with in the entry box and click **OK**.
(Slots are numbered from 1 to 16, from the left to right of the D series nest.)

# 4.2 Setting Parameters

This section describes how to input individual parameter data and write the data to the JUXTA instrument from the parameter setting display (the SET dialog box).

## 4.2.1 Entering a Setting Value and Writing It to JUXTA

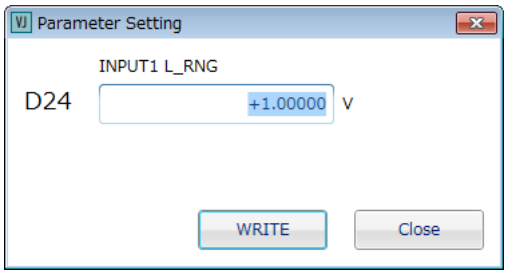
The following describes how to change the input range of JUXTA VJX7 (S4) (computing unit) with reference to the example of changing the input range from 1 to 5 V DC, to –10 to 10 V DC.

**Step 1** In the Parameter Setting window, click **SET** and then **SET(I/O)**.

The SET(I/O) submenu window appears.

**Step 2** Double-click the parameter **D24: INPUT1 L_RNG**.

A Parameter Setting dialog box appears.




**Step 3** In the text box, type `-10` and click **WRITE.**

The new data is written to the JUXTA instrument, and the display data in the cell is updated from 1 to –10.

**NOTE**

After you click **WRITE**, the data value shown in the data cell may be different from the value you entered in the text box. This is because the JUXTA instrument has limits for some of its parameters, and if the entered value is outside the limits, the instrument automatically sets the parameter to the nearest limit value.

**Step 4** In the same way as Step 1 to Step 3, set the 100% value of the input range by double-clicking the data cell of **D25: INPUT1 H_RNG**.

The input range of the connected JUXTA instrument has now been changed from 1 to 5 V DC, to –10 to +10 V DC.

## 4.2.2 Notes on Setting Parameters

The input range/output range of a JUXTA instrument can be set in two ways, depending on the model of the instrument.

(1) Models for which 0% and 100% values of the range are set:

The high range limit and low range limit are represented as L_RNG and H_RNG, as in **INPUT L_RNG** and **INPUT H_RNG**.

(2) Models for which the span value and span of the range are set:

The 0% value and span are represented as ZERO and SPAN, respectively, as in **INP ZERO** and **INP SPAN**.

For example, to set an input range of –10 to 10 V DC:

- In case (1), set –10 for **INPUT L_RNG** and 10 for **INPUT H_RNG**.
- In case (2), set –10 for **INP ZERO** and 20 for **INP SPAN**.

**IMPORTANT**

When you set the range of a JUXTA instrument, confirm the respective parameter codes to determine whether they are **L_RNG** and **H_RNG**, or **ZERO** and **SPAN**, to make sure that you set 0% and 100% values of the range or set the 0% value and span.

**NOTE**

For a numeral parameter, the number of significant digits is 4. For example, if you enter 12345, the data value will be written as 12340 and if you enter 0.12345, the data value will be written as 0.12340.

## 4.2.3 Selecting an Item from a List Box and Writing It to JUXTA

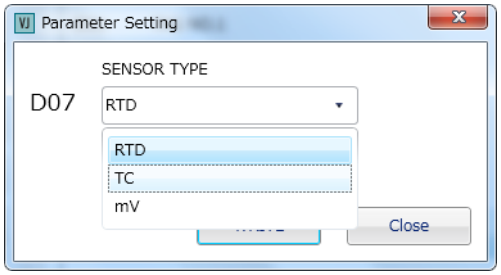
The procedure is explained with an example to change the input type of a JUXTA VJU7 (universal temperature converter) from RTD to TC.

**Step 1** In the parameter setting window, click **SET** and then **SET(I/O)**.

The SET(I/O) submenu window appears.

**Step 2** Double-click the parameter **D07: SENSOR TYPE**.

A Parameter Setting dialog box appears.




**Step 3** Click the arrow button (▼) next to the text box, select **TC** from the list which opens, and then click **WRITE**. The change you made is written to the JUXTA instrument.

# 5. Setting a Program

This chapter describes the procedure to set a program for a JUXTA instrument via the program setting window.

**See Also**

When setting programs, refer to the parameter lists given in the documentation for the respective JUXTA computing units. For details about creating a program, see the Technical Information documents for the respective programmable computing units (document No. TI 231-01E).

You can download the latest manuals from the following website:

URL: http:/www.yokogawa.com/ns/juxta/vj/doc/

To set a program, do one of the following:

• Create a new program.

• Upload program data from a JUXTA instrument and modify it.

• Read program data from a file and modify it.

Whichever method is chosen, there are no major differences in operations in the program setting window. This chapter is an example of the procedure to create a new program.

# 5.1 Opening Program Setting Window

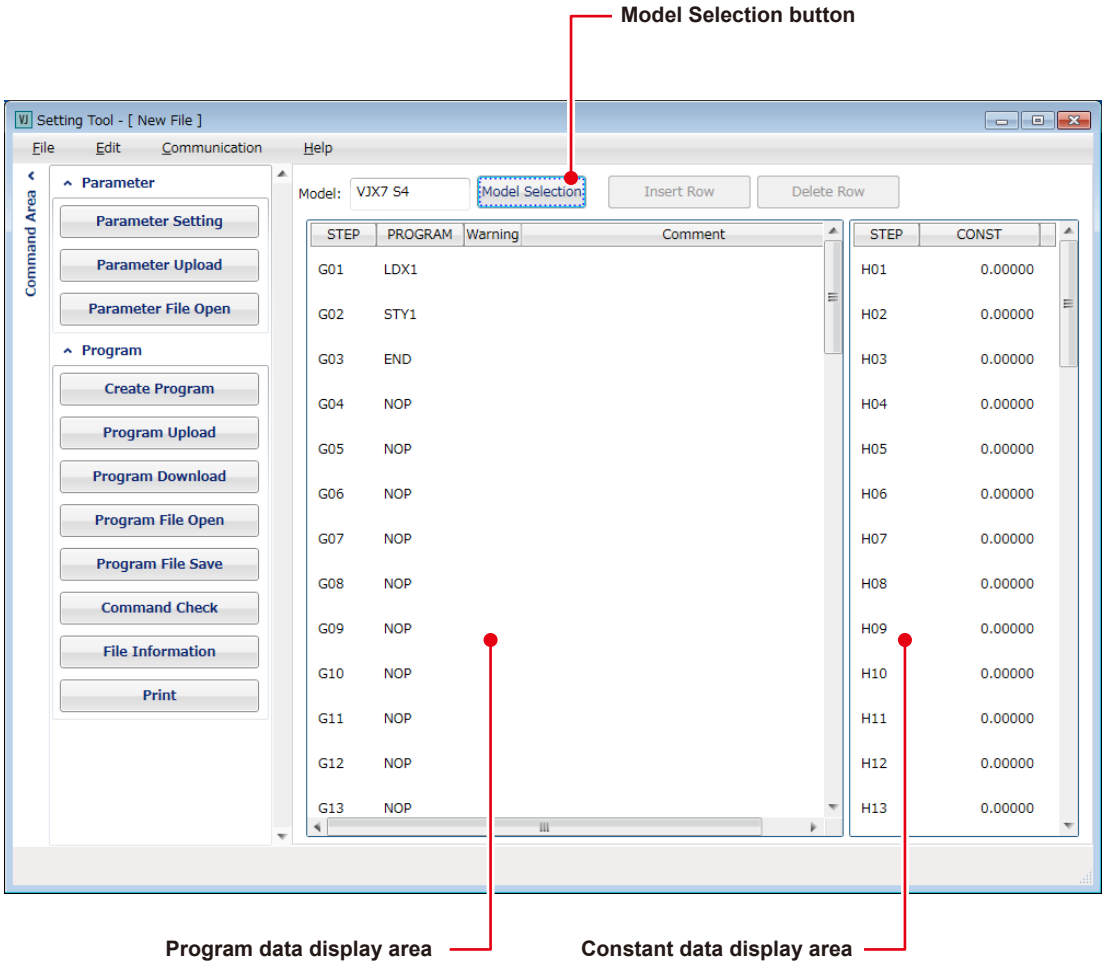
**Step 1** Start VJ77.

**Step 2** Click **Create Program**.

The program setting window appears.

## See Also

For operations after selecting **Upload Program Data from JUXTA** or **Read Program Data from a File**, see Chapter 6, “Uploading and Downloading Data from/to JUXTA.”



# 5.2 Setting a Program

## 5.2.1 Creating a New Program

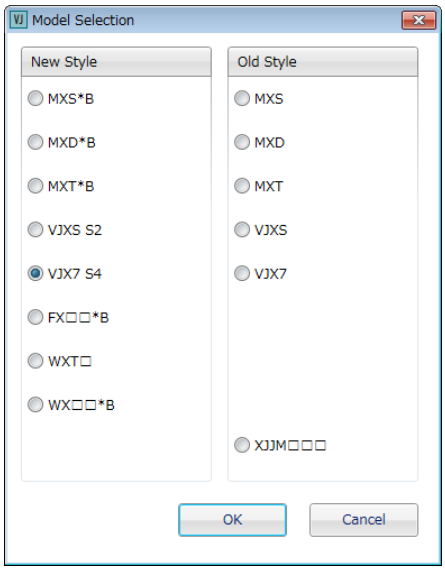
The following is an example of the procedure to set a moving average computation (of the last 100 seconds) for a VJX7 free program.

### NOTE

- When setting a program, be sure to click Model Selection button to select a model (see Step 2 in the following procedure). Selecting a model name updates the contents of the **STEP** and **CONST** columns accordingly.
- If the model name of your target instrument is not included in the list of models, click **Close** to return to the Program Setting Menu dialog box. Then, choose **Upload Program Data from JUXTA** and open the Program Editor dialog box again.

**Step 1** Display the program setting window.

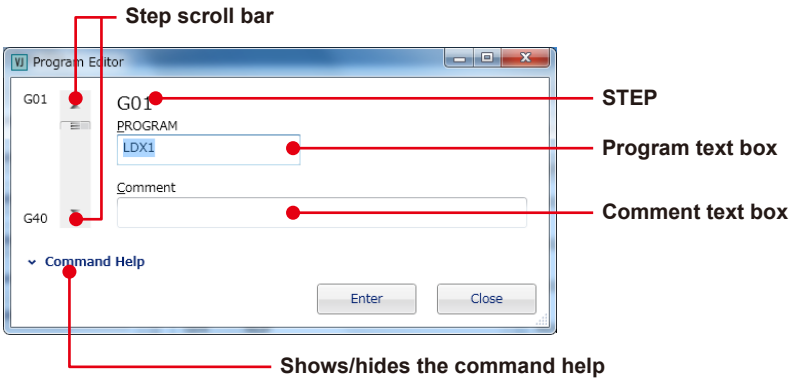
**Step2** In the program setting window, click the **Model Selection** button and select the model name from the Model Selection dialog box. (Select VJX7 in this example) Click **OK**.



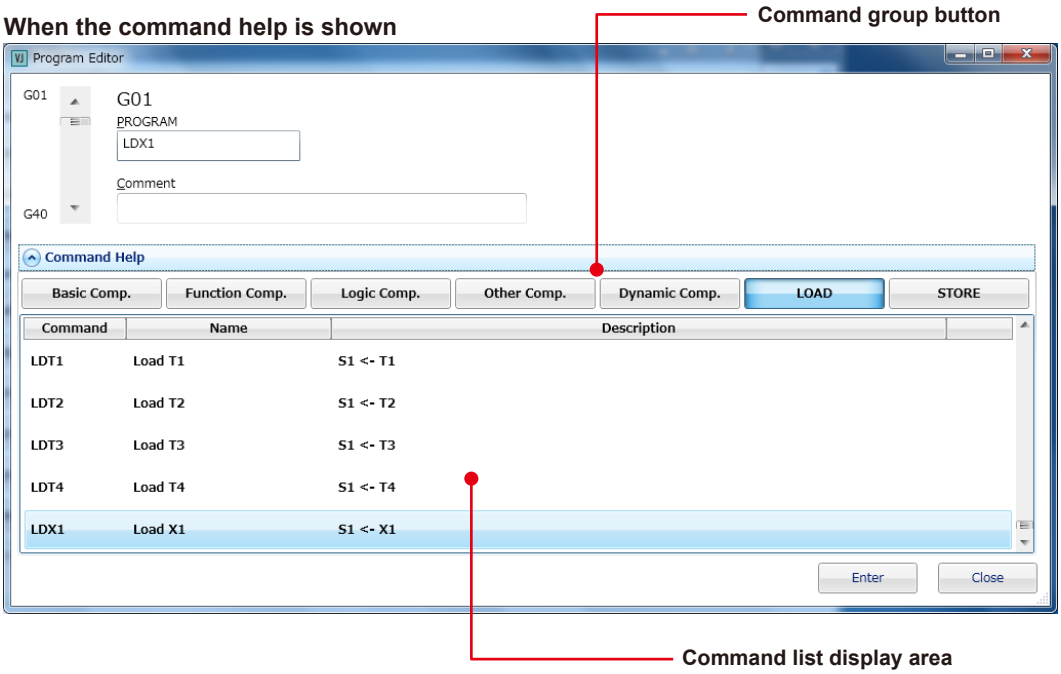

If you are using a new style TOKUCHU product (XJJMxxx), select the standard model name under New Style. Example: For MXD*B (XJJM.504), select MXD*B.

**Step 3** Double-click the program display area (STEP:G01).

The Program Editor dialog box appears.




**When the command help is shown**




**Step 4** Click the program text box under STEP:G01, type **LDX1**, and then click Enter.

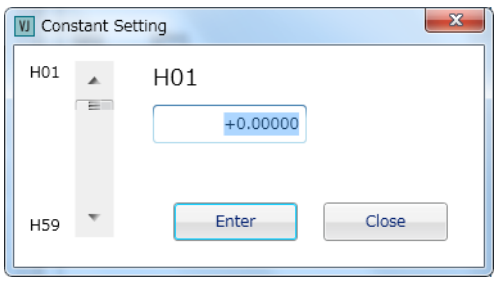
**Step 5** Like step 4, enter **LDH1** for G02, **MAV** for G03, **STY1** for G04, and **END** for G05. Then, click **Enter**.

**Step 6** To enter comments for each program step, type them in the comment text box.

You can enter up to 25 characters in a comment text box.

**Step 7** Double-click the constant display area (STEP:H01).

A Constant Setting dialog box appears.



**Step 8** Type “10” in the H01 text box, and then click Enter.

Set the moving average time span to 100 seconds (enter a percentage where 0.0 to 100.0% corresponds to 0 to 1000 seconds).

Now the program setting is complete.

**NOTE**

In the Program Editor dialog box, the step numbers of program cells and the constant numbers of constant cells differ depending on the JUXTA model selected. Refer to the parameter lists given in the documentation for the respective JUXTA computing units.

**IMPORTANT**

DO NOT change a program for a computing unit of the JUXTA F series and JUXTA W series other than programmable computing units. In case the unit is operated on the computing function with program changed after factory-ship, the operation will not be guaranteed.

## 5.2.2 Functions to Facilitate Program Coding

### To insert a step:

Click the cell immediately below the position where you want to insert a step, then click **Insert Row**.

### To delete a step:

Click the cell of the step you want to delete, then click **Delete Row**.

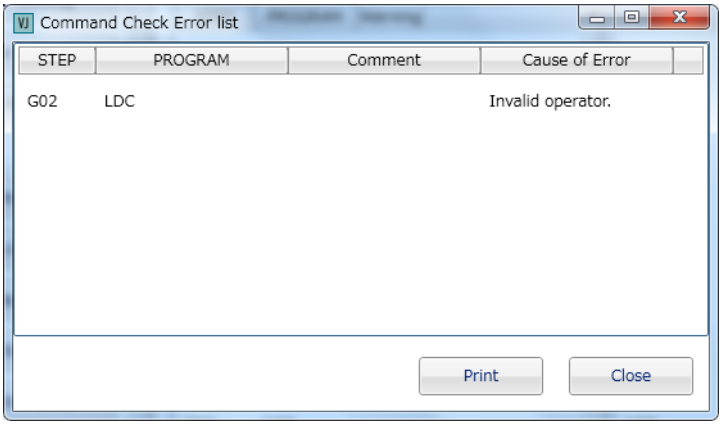
## To check the syntax of the program you created or modified:

Click **Command Check**.

### NOTE

- The **Command Check** function is disabled when setting up the program of any model whose name is not listed in the Model Selection dialog box.
- The **Command Check** button is used to check the spelling of operation codes and whether the number of steps exceeds the limit.

### A dialog box appears when an error is found:




## To copy program code, comment, or constant to another cell:

Select a cell or characters and press the Ctrl + C keys. Then click the position to which you want to copy the contents of the selected cell or the selected characters, and press the Ctrl + V keys.

## 5.2.3 Converting Free (User) Program Automatically

This section explains how to convert old style MXS free (user) programs to those for the new style MXS.

**Step 1** Upload free (user) program data from the JUXTA (see Section 6.1.3 for details on the uploading procedure).

**Step 2** In the Program Editor dialog box, click the **Model Selection** button.

**Step 3** In the Model Selection dialog box, select a new style **MXS** and click the **OK** button. Check the command after conversion because some program codes are not available depending on the model.

**Step 4** Download the free (user) program to the JUXTA (see Section 6.2.2 for details on the downloading procedure).

**Step 5** Save the free (user) program to the disk as necessary (see Section 7.2 for details on the saving procedure).

### Automatic conversion of free programs

Free programs can be converted from older style models to new style models or vice versa, or between different models. Converting a free program automatically causes the start address name, start address number and operation code to be converted as well. Automatic conversion of free programs may not be possible, however, depending on the number of steps in the user program or on the number of fixed constants (CONST).

Example: Assume that a new style MXS user program (59 steps and 59 fixed constants) is converted to an old style MXS user program. In this case, conversion is not possible since the old style MXS can only have up to 40 steps and 44 fixed constants; therefore the number of user program steps exceeds the limit.

Old style models: MXS, MXD, MXT, VJXS, XJJMxxx, VJX7

New style models: MXS*B, MXD*B, MXT*B, VJXS(S2), VJX7 (S4), FXnn*B, WXTx, WXxx*B

#### Converting the start address of user programs and fixed constants (CONST)

| Target model to which the user program is converted | Program start address after conversion | CONST start address after conversion |
|---|---|---|
| FXxx*B, WXx*B | B20 | C11 |
| WXTx, MXS, MXD, MXT, VJXS, XJJMxxx | B20 | C20 |
| VJX7 | G01 | H01 |
| MXS*B, MXD*B, MXT*B, VJXS(S2), VJX7(S4) | G01 | H01 |

#### Converting operation code (operation code LDC before conversion and operation code LDH)

If the new style target model to which the program is converted is either the VJX7, MXS*B, MXD*B, MXT*B or VJXS(S2), the operation code LDC is converted to LDH.

If the source model whose program is converted is new style VJX7, MXS*B, MXD*B, MXT*B and VJXS(S2) and the target model is either the FXxx*B, WXTx or WXxx*B; or either the old style MXS, MXD, MXT, VJXS, VJX7 or XJJMxxx, the operation code LDH is converted to LDC.

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# 6. Uploading and Downloading Data from/to JUXTA

This chapter describes how to upload/download parameter or program data.

## 6.1 Uploading Data to Your PC

This section describes how to upload parameter or program data inside a JUXTA instrument or open a parameter file.

### 6.1.1 Uploading Parameter Data from JUXTA Instrument

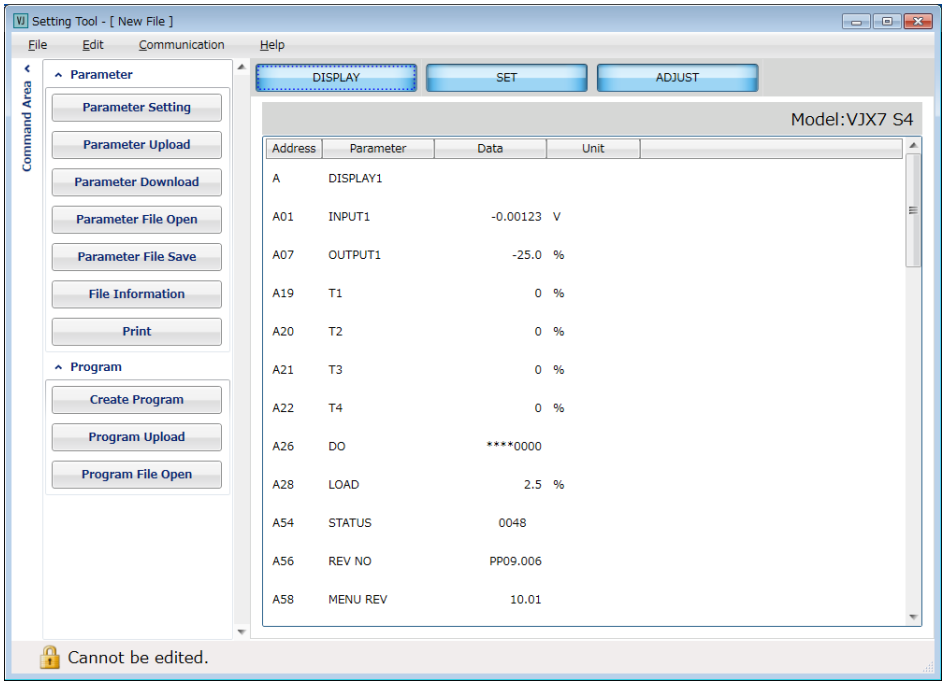
**Step 1** In the main window, click **Parameter Upload**.

The communication execution window appears.

**Step 2** Click **Upload Parameter Data from JUXTA.**

The “Starts communication. Press OK button if ready.” message appears. Click **OK** to upload data from the JUXTA instrument.

A parameter view window appears.




**NOTE**

The parameter values in the parameter view window cannot be changed.

## 6.1.2 Opening a Parameter File

**Step 1** In the main window, click **Parameter File Open**.

An Open dialog box appears.

Files created on the old version (R1.08.01 or earlier) of VJ77 (.7pa extension) can also be loaded.

**Step 2** Click the name of the file to load, and click Open.

A parameter view window appears.

**See Aiso**

For how to save the parameter data to disk, see Chapter 7, “Saving Data.”

## 6.1.3 Uploading Program Data from JUXTA Instrument

**Step 1** In the main window, click **Program Upload**.

The communication execution window appears.

**Step 2** Click **Upload Program Data from JUXTA.**

The “Starts communication.  Press OK button if ready.” message appears.

Click **OK** to upload data from the JUXTA instrument.

A program setting window appears.

**NOTE**

Only constants (CONST) are displayed for a computing unit other than programmable computing units of the JUXTA VJ series, JUXTA M series, and WXT.

**See Aiso**

For the how to create and modify a program in the Program Editor dialog box, see Chapter 5, “Setting a Program.”

## 6.1.4 Opening a Program File

**Step 1** In the main window, click **Program File Open**.

An Open dialog box appears.

Files created on the old version (R1.08.01 or earlier) of VJ77 (.7pr extension) can also be loaded.

**Step 2** Click the name of the file to load, and click Open.

A program setting window appears.

**See Aiso**

For how to save the program data to disk, see Chapter 7, “Saving Data.”

# 6.2 Downloading Data to JUXTA Instrument

This section describes the operation to download the parameter or program data from VJ77 to the JUXTA instrument. You can copy parameter settings or a program to multiple JUXTA instruments.

**NOTE**

Before you download parameter data, make sure that the model name of the JUXTA instrument selected in **MODEL** box matches with that of the product's nameplate. For some models, VJ77 cannot determine whether it is a standard product or a customized product, and a communication error may result.

## 6.2.1 Downloading Parameter Data to JUXTA Instrument

**Step 1** In the parameter view window, click **Parameter Download**.

**Step 2** Click **Download Parameter Data to JUXTA.**

The "Starts communication. Press OK button if ready." message appears. Click **OK** to download data from the JUXTA instrument.

The Now Communicating dialog box appears and shows the progress of downloading. When the download is complete, the "Downloading to JUXTA completed." message appears.

**NOTE**

VJ77 only downloads the data shown in the SET menu window. Data shown in the DISPLAY or ADJUST menu window is not downloaded.

## 6.2.2 Downloading a Program to JUXTA Instrument

**Step 1** In the program setting window, click **Program Download**.

**Step 2** Click **Download Program Data to JUXTA.**

The “Starts communication. Press OK button if ready.” appears. Click **OK** to start downloading.

The Now Communicating dialog box appears and shows the progress of downloading. When the download is complete, the “Downloading to JUXTA completed.” message appears.

### NOTE

- Data in the **Comment** cells are not downloaded.
- A created program downloaded to the JUXTA computing unit other than programmable computing units is not downloaded and only constants are downloaded.

### TIP

The “Error found during command check. Do you want to see the error content?” appears if the program contains any syntax error or other kind of error. Clicking **Yes** opens the Command Check Error list dialog box shown in Section 5.2.2. Or, clicking **No** downloads the data containing the program with syntax errors. In this case, each illegal program code will overwrite the corresponding current code or be written as “NOP” and the Check Downloading to JUXTA dialog box appears.

# 7. Saving Data

This chapter describes how to save to disk the parameter/program data that was uploaded or you created.

Parameter data and program data will be saved with the following filename extensions:

- Parameter data files: ********.7pm
- Program data files: ********.7pg
- Filename extension of CSV files: *.csv

## 7.1 Saving Parameter Data to Disk

**Step 1** Follow the instructions in Section 6.1, “Uploading Data to Your PC” to upload parameter data.

**Step 2** In the parameter view window, click **Program File Save**.

A Save As dialog box appears.

**Step 3** Type the file name in the File name text box, and click **Save**.

Click File Information to display an Information dialog box. You can specify the file title, author, date, instrument serial number, and comment (up to 40 characters for the title, author, date, and instrument serial number and up 400 characters for the comment).

## 7.2 Saving Program Data to Disk

**Step 1** In the Program Editor dialog box, click **Save to file**. The Save As dialog box opens.

**Step 2** In the **File name** box of the Save As dialog box, type the file name within 16 characters and click **Save**. The Information dialog box appears. In the same way as in Section 7.1, set the file information and click **OK**. The file is saved to disk.

## 7.3 Saving Comma-separated Value File to Disk

Parameters and programs can be saved to CSV files.

**Step 1** In the Save As dialog box, set Files of type to CSV files.

**Step 2** In the Save As dialog box, type the file name in the File name text box, and click **Save**.

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# 8. Printing Data

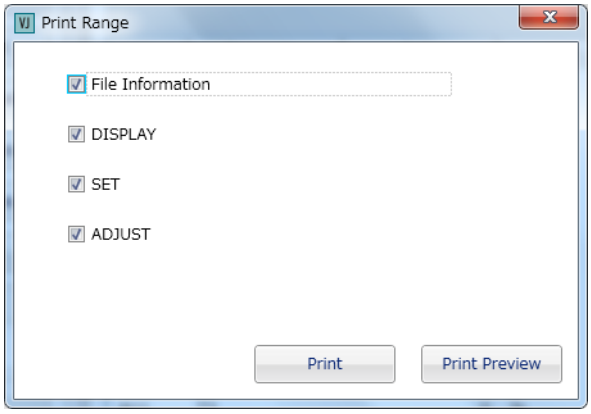
This chapter describes how to print the parameter or program data.

## 8.1 Printing Data

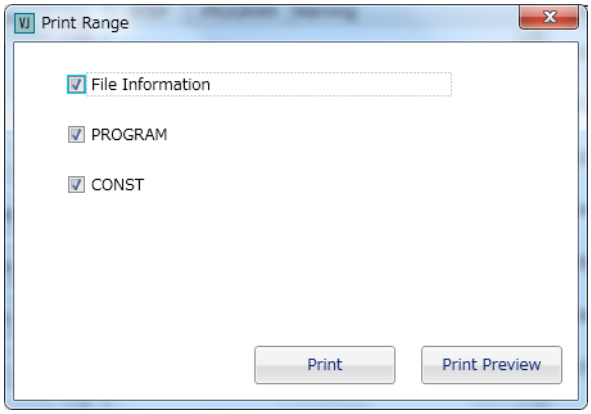
**Step 1** To print parameters, click Print in the parameter view window. To print the program, click Print in the Program Setting window.

A Print Range dialog box appears.

### Printing parameters




### Printing a program




**Step 2** The Print dialog box appears. You can select the ranges of items to be printed by selecting and clearing the check boxes. Then, click **Print** to start printing.

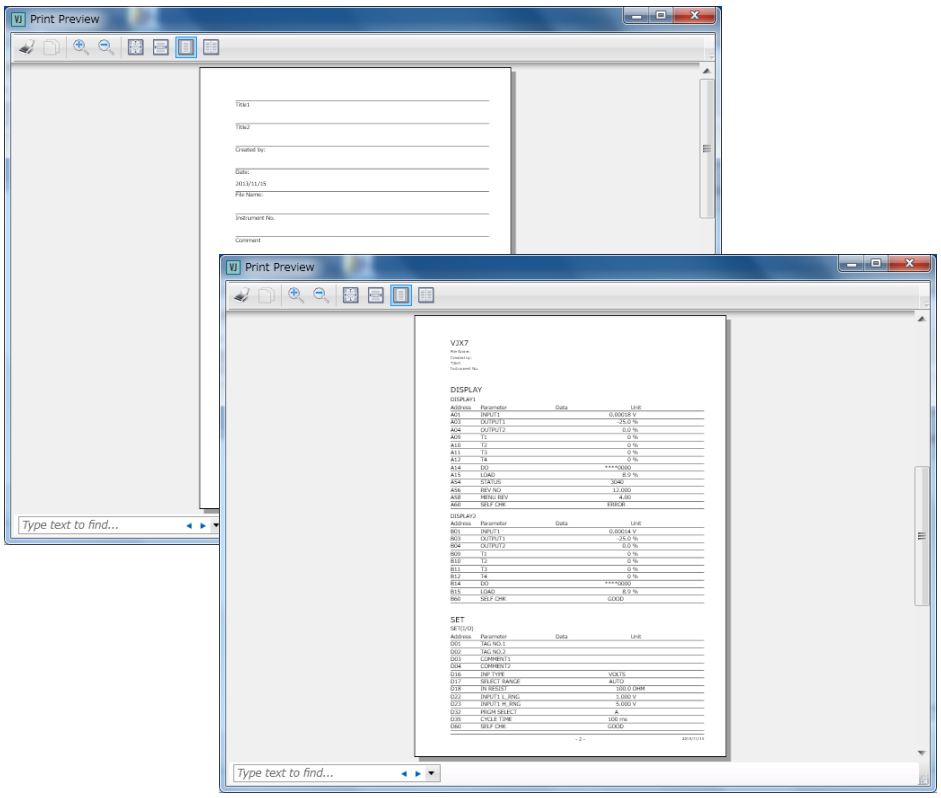
# 8.2 Previewing the Print Image

This section describes how to view the print image.

**Step** In the Print Range dialog box, click **Print Preview**.

A Print Preview dialog box appears. If there are multiple pages, you can use the scroll bar to turn the displayed page.

Close the Print Preview dialog box to return to the parameter view window or Program Setting window.



# 9. Monitoring I/O Values

This chapter describes how to monitor input/output values of a JUXTA instrument and the self-diagnosis result. You can monitor this information via the DISPLAY menu window.

## 9.1 Opening the Monitor Dialog Box

### Preparation

Connect the JUXTA instrument to the personal computer, then turn on the power to the instrument.

**Step 1** Start VJ77, and click **SET** in the main window.

The communication execution window appears

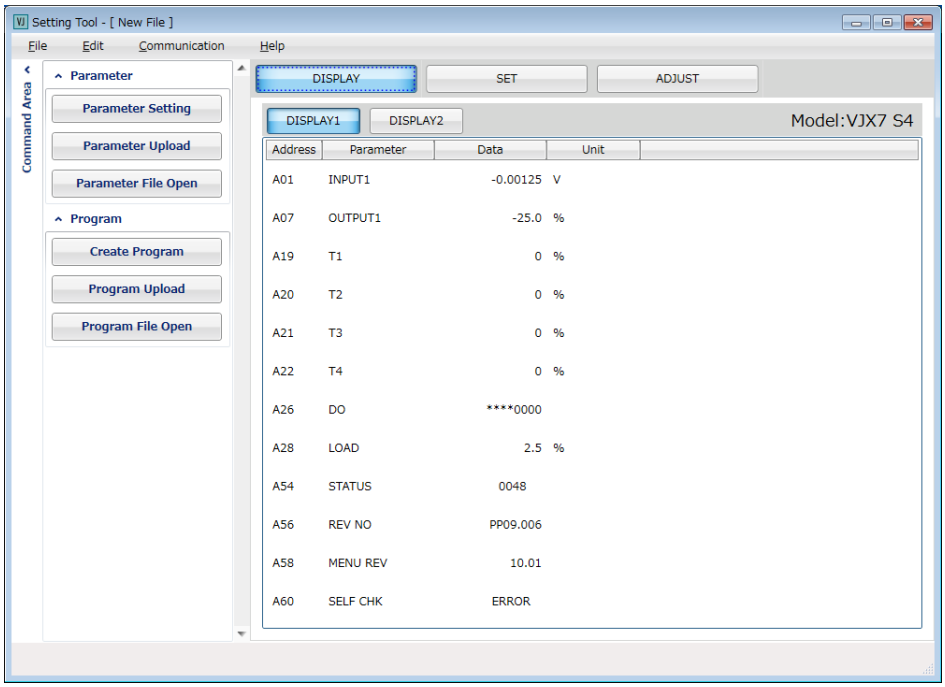
**Step 2** Click Parameter Setting.

The “Starts communication. Press OK button if ready” message appears.

Click **OK** if ready.

A Parameter Setting window (DISPLAY menu window) appears.

Depending on the type of JUXTA instrument, two submenus, DISPLAY1 and DISPLAY2, will be displayed.




### TIP

The **DISPLAY1** page or the DISPLAY dialog box without a tabbed page shows the conditions at the time of communication. However, the **DISPLAY2** page updates its display contents in approximately 5-second intervals (periodic upload for updating).

To update the display data on the **DISPLAY1** page or in the DISPLAY dialog box without a tabbed page, double-click the cell of the parameter you wish to update.

To stop the periodic upload for updating of the **DISPLAY2** page, click **READ STOP**. The button label changes from **READ STOP** to **READ START**. To resume the periodic upload for updating, click **READ START**.

# 10. Adjusting JUXTA Instruments

This chapter describes how to use VJ77 to monitor input/output values of a JUXTA instrument and how to set wire resistance compensation. JUXTA adjustments are made in the ADJUST menu window of the Parameter Setting window.

## 10.1 Opening the Adjusting Window

### Preparation

Connect the JUXTA instrument to the personal computer, then turn on the power to the instrument.

**Step 1** Start VJ77 to display the main window.

**Step 2** Click **SET**.

The communication execution window appears.

**Step 3** Click **Parameter Setting**.

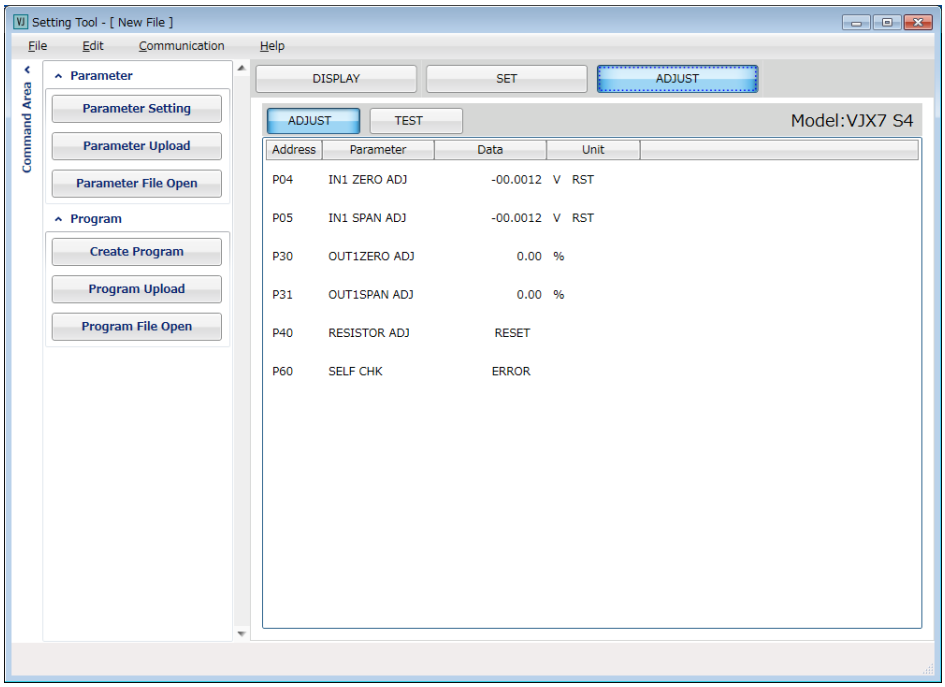
The “Starts communication.  Press OK button if ready” message appears.

Click **OK** if ready.

The parameter setting window appears.

**Step 4** Click **ADJUST**.

The ADJUST menu window appears.



# 10.2 Performing Fine Adjustment of Input

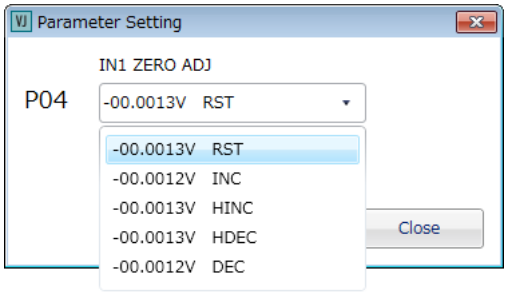
This section describes how to perform fine adjustments of inputs. The following shows an example when doing so for a JUXTA VJX7 (S4). For wiring with a calibrator or other apparatuses, see the user's manuals for respective JUXTA instruments.

## 10.2.1 Adjusting the Zero Point of Input

**Step 1** Apply the 0% level of the input to the JUXTA instrument. If the signal level after A/D conversion in the JUXTA instrument (the value displayed in the **P04: IN1 ZERO ADJ** data cell) and the value actually input do not match, perform the following steps to offset the zero-point shift.

**Step 2** Double-click the **P04: IN1ZERO ADJ** data cell. The text box at the bottom of the ADJUST dialog box becomes available.

**Step 3** Click the down arrow next to the text box to open a list, which contains the following:




**+*.* V INC:** Adds the specified voltage after A/D conversion.

**+*.* V DEC:** Subtracting specified voltage after A/D conversion.

**+*.* V RST:** Resets the value that has been adjusted by INC or DEC to 0.

**HINC or HDEC:** Adjusts the value by about 10 times that specified by the **+*.* INC** or **+*.* DEC** command."

**Step 4** Since the value shown in the **P04: IN1 ZERO ADJ** cell is larger than the actual input level in the example above, select **+*.* V DEC** and click **WRITE**. Repeat this procedure to complete the adjustment.

## 10.2.2 Adjusting the Input Span

Apply the 100% level of the input to the JUXTA instrument. If the signal level after A/D conversion in the JUXTA instrument (the value displayed in the **P05: IN1 SPAN ADJ** data cell) and the actual input signal level do not match, you must correct the input span. The procedure is the same as above.

**NOTE**

For some models, **+***.* **HINC and +***.* **HDEC** are not included in the list. The unit of signal differs depending on the model.

# 10.3 Correcting the Output

This section describes how to perform corrections of outputs. The following shows an example when doing so for a JUXTA VJH7 isolator. For wiring with a calibrator or other apparatuses, see the user's manuals for respective JUXTA instruments.

**Step 1** Double-click the **P30: OUT1 ZERO ADJ** data cell and click **WRITE**. The 0% level is then forcedly set to the output regardless of the input level. Calculate the percent value of the deviation from zero in the reading of the calibrator. If there is a positive deviation, correct it by setting a negative percent value to offset the deviation.

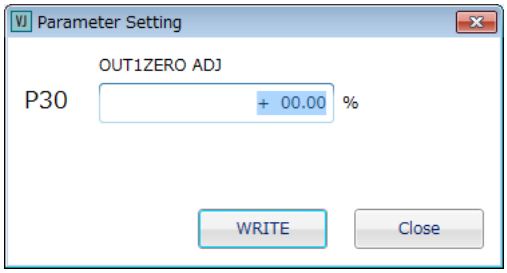
For example, provided the output signal range of the JUXTA instrument is 4—20 mA DC and the reading of the calibrator when forcibly outputting the 0% value is 3.96 mA DC, the error (%) can be calculated as follows and set the same value to the opposite polarity.

**Error (%) = [(measured value – reference value)/span] × 100**

**= [(3.96 – 4.00)/16] × 100**

**= –0.25**

**Step 2** In this example, the output level read in step 1 showed the –0.25% deviation. Hence, you should type 0.25 in the text box and click **WRITE**. Check that the reading of the calibrator is within the range of rated accuracy and quit the procedure.




In the same way, correct the 100% output level.

**Step 3** To correct the 100% output level, double-click the **P31: OUT1 SPAN ADJ** data cell and follow steps 1 to 2.

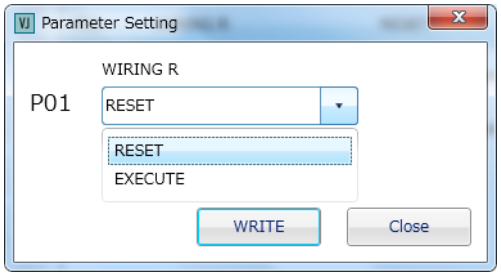
# 10.4 Setting Wire Resistance Compensation

This section explains how to perform wiring resistance correction using JUXTA VJU7 (S4) as an example. For wiring details, see the relevant JUXTA user's manual.

If the input wiring resistance is causing a significant error after the wiring to the field device has been completed, you can compensate for the wiring resistance with the following procedure. Change the wiring connections in the field as shown at the bottom of this page.

**Step 1** When the input is stable, double-click the **P01: WIRING R** data cell.

**Step 2** Click the arrow next to the text box. Choose **EXECUTE** from the list and click **WRITE**. The wiring resistance is then compensated.



# 10.5 Using the Forced Output Function

This section explains how to use the forced output function using JUXTA VJX7 (S4) as an example.

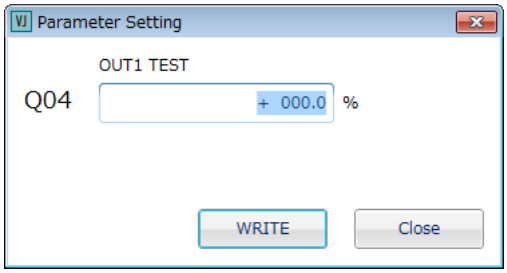
Using the forced output function allows you to perform function tests of the equipment connected to the JUXTA instrument's output terminals.

**Step 1** In the ADJUST menu window, click the **TEST**.

The TEST sub menu window appears.

**Step 2** Double-click the **Q04: OUT1 TEST** data cell.

A parameter setting dialog box appears.




**Step 3** In the text box, enter the percent value of the level you want to output.

To output the 100% value forcedly for example, type 100 and click **WRITE**.

The 100% value is then output.

**TIP**

The ADJUST menu window for some models of JUXTA does not have the TEST sub menu window on which you can forcibly set an output level. Even with such models however, it is possible to output 0% and 100% levels forcedly by the same procedure as that used for output correction. To do so, double-click the **OUT1ZERO ADJ** or **OUT1SPAN ADJ** data cell and click **WRITE**.

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# 11. Troubleshooting

This chapter explains troubleshoot problems that may occur when running VJ77.

| | |
|---|---|
| **Symptom:** | **Abnormal display** |
| **Possible Cause:** | There is a problem with the operating conditions of your computer. |
| **Remedy:** | Check whether your system meets the following requirements:<br>• A display unit having a resolution of 1024 × 768 pixels capable of displaying 256 colors or superior is required.<br>• Use of small fonts is recommended. |

| | |
|---|---|
| **Symptom:** | **The “Communication error. Check the condition.” message appears.** |
| **Possible Cause:** | The communication cable is disconnected or power is not being supplied to the JUXTA instrument. |
| **Remedy:** | Check the connection of the communication cable and the power to the JUXTA instrument. |

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# Revision Information

Title : Model VJ77 PC-based Parameters Setting Tool
Manual No. : IM 77J01J77-01E

**Dec. 1999/1st Edition**
Newly published

**Jan. 2004/2nd Edition**
Supports Windows 2000 and XP.

**June 2004/3rd Edition**
Change of the company name.

**July 2005/4th Edition**
Addition of new style product and automatic conversion function of free programs.

**Feb. 2011/5th Edition**
Supports Windows Vista/Windows 7 and changes the media from floppy disk to CD.

**Feb. 2013/6th Edition**
Supports Windows 8.

**Mar. 2016/7th Edition**
The influence rate in the immunity test environment is added in this manual.

**Feb. 2017/8th Edition**
Windows 10, USB conversion cable, and VJ series S4 support.

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Published by Yokogawa Electric Corporation
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Apr. '15

Printed in Japan