Operation Manual

Sequence Creation Software

Wavy for PLZ-4W Ver. 5.3

SPEC70285

Version 5.3 Prepared: August , 2014

KIKUSUI ELECTRONICS CORPORATION

– Note –

Before contacting us to request repair, inspection, or adjustment, please re-read the Operation Manual and conduct a recheck. If you have any uncertainties or find any abnormalities, contact your Kikusui distributor or agent.

– Safety Precautions –

Before a test using this application software, carefully read the PBX Series operation manual for the specific hardware descriptions found therein to avoid improper connections or incorrect handling. Incorrect connection or handling of any equipment/device in the following configuration may result in serious accidents involving EUT damage or fire.

Product specifications and manual contents are subject to change without notice.

This manual applies to Wavy for PLZ-4W Version 4.0x.

Contents

1 Preface

1.1 Summary of the Product

The sequence-creation software “Wavy” is application software supporting the sequence function incorporated in the PAX, PBX, PLZ-3W, PCR-L(A), PAD-LET, PVD-T, and PLZ-4W series from Kikusui Electronics.
In the PAS and PWR series (+PIA4830), PLZ-U series sequences are directly run from the software. “Wavy” allows you to easily create and edit sequence function data using a mouse. Furthermore, the processing status of a sequence can be visually indicated during processing of the sequence, and voltage, current, and other data can be monitored and saved to file. The utility also supports real-time monitor graphs. This “Wavy” is PLZ-4W series only.

1.2 System Requirements

● Personal computer

CPU	Core2 or better
OS	Windows 8, Windows 7　(English 32bit / 64bit version)
CD-ROM	Required to install Wavy
Mouse	Required
Display	1024 x 768 or higher　(96 dpi display)
Memory	2GB or more
Hard disk capacity	Enough free disk space to save files must be available

Table 1-1

* Set up the PC so that it does not operate the following during test execution: OS power saving mode, Screen saver mode, Resident program.
* If advanced power management (APM) and suspend functions are available in your PC environment, turn them OFF. If left ON, proper operation may be hindered by periodic interrupts called SMIs to the CPU.
* When the DPI setting is changed, it may not be displayed depends on the resolution.
* When the long term test is applied, extend the size of memory.

● Interface

- RS-232C, GPIB, USB
- For GPIB, any of the interfaces for which a GPIB driver provided by the relevant manufacturer has been installed and is operable

National Instruments	NI-488.2 driver
CONTEC	GPIB communications driver API-GPIB (98/PC) W95, NT Ver. 3.50 or later
Interface	GPF-4301 for Windows Ver. 1.13-05 or later

Table 1-2

*To activate the software on Windows 8 and 7, the latest GPIB driver is required to be installed. Please download the latest driver from the web site respectively.

*For installation of a GPIB driver, see the operation manual of the relevant manufacturer.
*For RS-232C, use a cross cable as the connection cable.
*For USB, the USB driver (contained in the CD-ROM) must be installed separately.

1.3 Software Specifications

● Sequence Modes

There are two sequence modes: normal and fast.
The time setting ranges for these modes are as shown below:

Normal mode	Milliseconds	1 to 9999 [ms]
	Seconds	0.100 to 999.999 [s]
	Minutes	0.1 to 999.9 [min]
	Hours	0.1 to 999.9 [h]
Fast mode	Milliseconds	0.025, 0.050, 0.075, and 0.100 to 100.00 [ms]

Table 1-3

* The maximum number of steps in the normal mode is 256.
  The maximum number of steps in the fast mode is 1024.

● Operation Modes

There are four operation modes: constant current, constant voltage, constant power, and constant resistance.
The ranges of the number of significant digits for decimal fractions for these modes are indicated below:

Voltage value	2 to 3 digits	(x.xx to x.xxx)
Current value	2 to 5 digits	(x.xx to x.xxxxx)
Power value	2 to 4 digits	(x.xx to x.xxxx)
Resistance value	4 to 5 digits	(x.xxxx to x.xxxxx)

Table 1-4

* There is no fast mode for the Constant Voltage and Constant Power modes.
* The actual number of significant digits for a decimal fraction varies depending on differences in the instrument series or instrument's setting range.

2 Setup

The Wavy for PLZ-4W package contains the following items.

Item	Quantity
CD-ROM	1
Operation Manual	1

* **When installing the software, make sure that your user accounts setting is set to the computer administrator, if your computer is set to the limited user, contact your network administrator.**

(1) Insert the provided CD-ROM into the CD-ROM drive of the personal computer.

(2) The Setup Start screen, shown in Fig 2-1, should appear automatically after a few moments. If it does not appear, run the “Setup.exe” file on the CD-ROM.

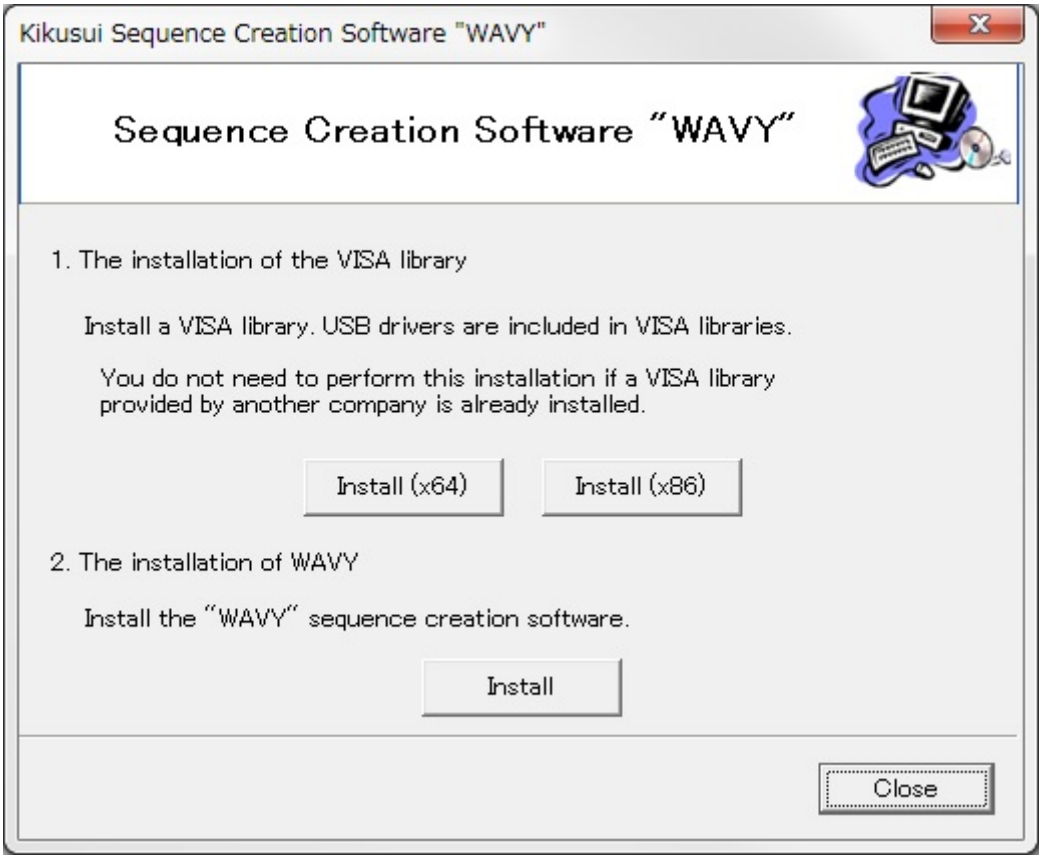


Fig. 2-1 Setup Start Screen

Follow the prompts displayed onscreen to complete the installation.

To uninstall Wavy, from the [Start] menu at the lower left of the Windows screen, select [Settings], click [Control Panel], and double click on [Add/Remove Programs]. From the displayed list, click on “ Kikusui SPEC70285 Wavy for PLZ-4W ” and click the [Remove] button. Follow the prompts displayed onscreen to complete the uninstallation.

3 Starting up Wavy

From the [Start] menu at the lower left of the Windows screen, click [Program], “Kikusui SPEC70285 Wavy,” and the Wavy for PLZ-4W. The Startup screen shown in Fig. 3-1 should appear.

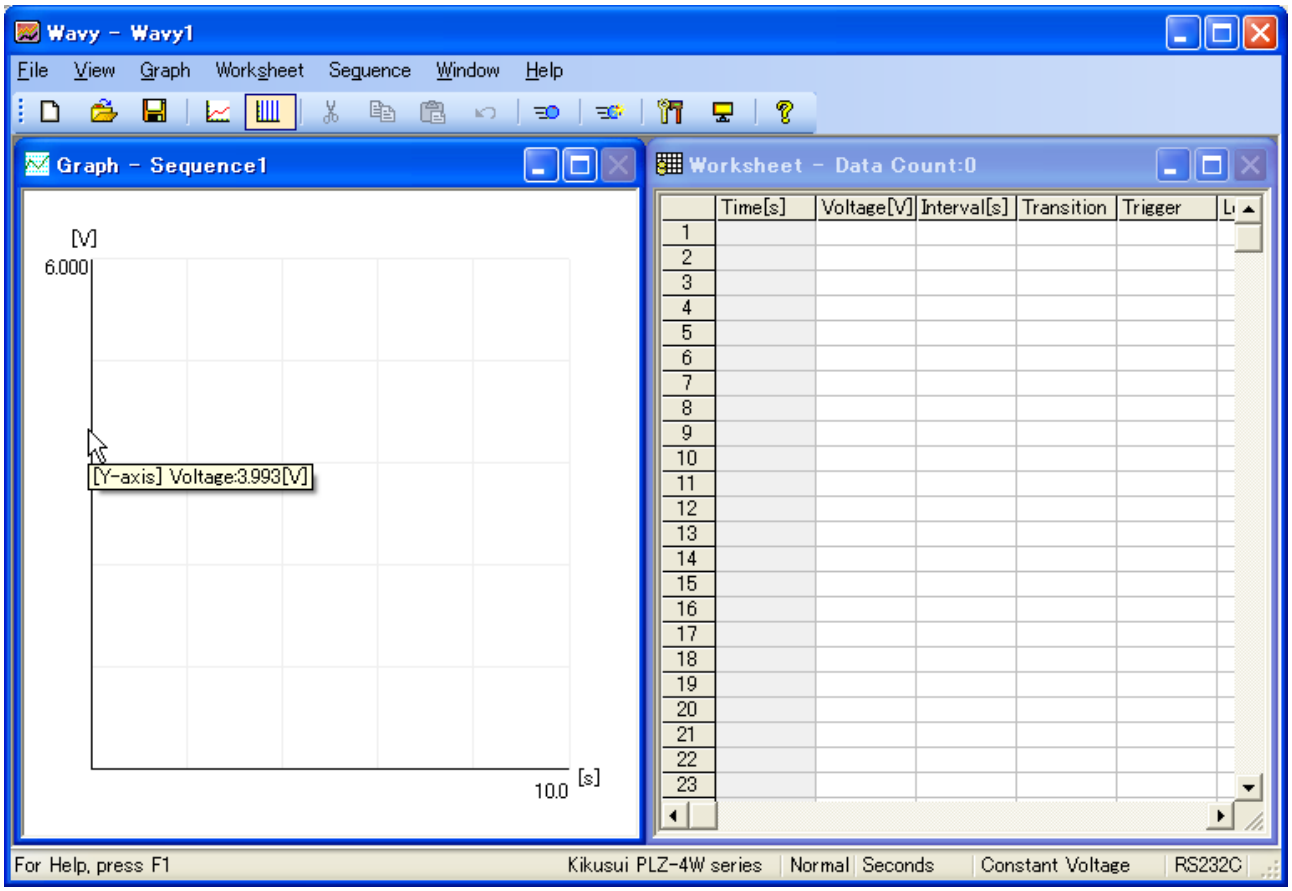


Fig. 3-1 Startup Screen

The Wavy operation procedure is:

(1) Select the sequence mode and operation mode.
(2) Create sequence data.
(3) Transfer the sequence data created to the instrument.
(4) Execute the sequence data that you created.

* Before transferring and processing the sequence data, always adjust the interface settings.

Fig. 3-2 shows the screen displayed when the “TestData.wvy” file has been loaded into Wavy. “TestData.wvy” is located in the folder in which Wavy has been installed.

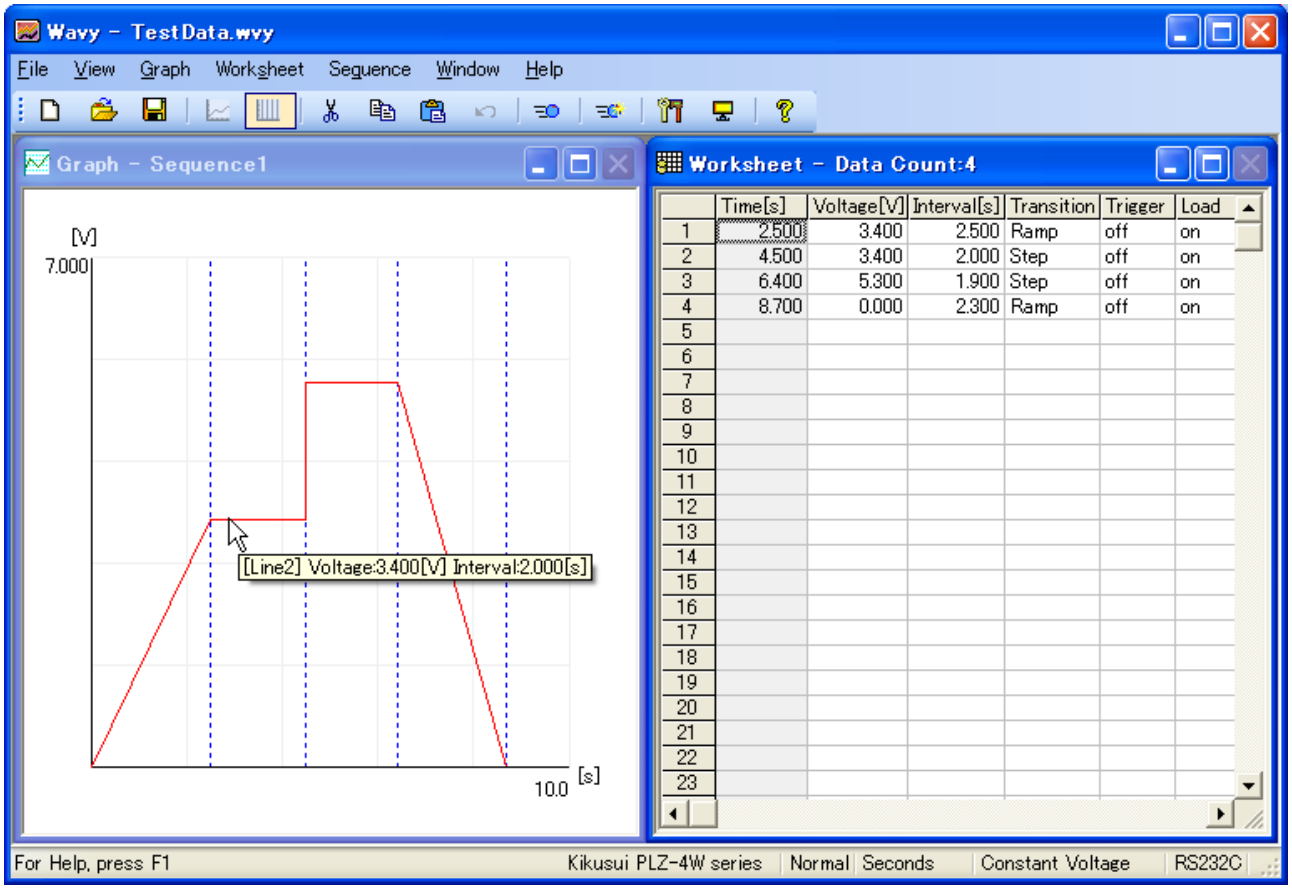


Fig. 3-2 Test Data Screen

4 Creating and Editing Sequence Data

(1) Move the mouse pointer to the Y-axis. This causes the pointer to change to a crosshair (Fig. 4-1).
At that location, hold down the left mouse button and drag the mouse with the crosshair (Fig. 4-2).
Release the left button at any location to establish that data point (Fig. 4-3).

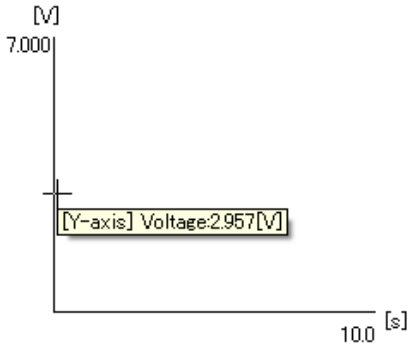


Fig. 4-1 Start Point of the Mouse

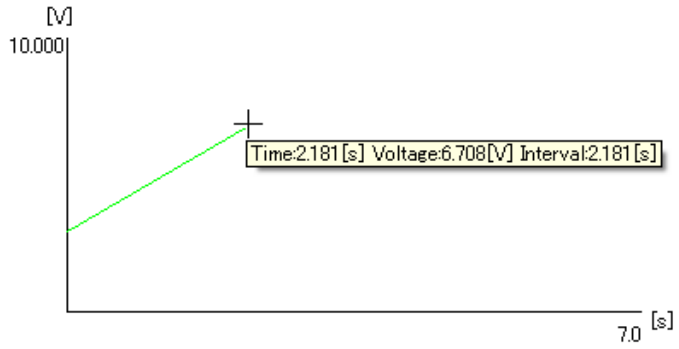


Fig. 4-2 Moving the Mouse

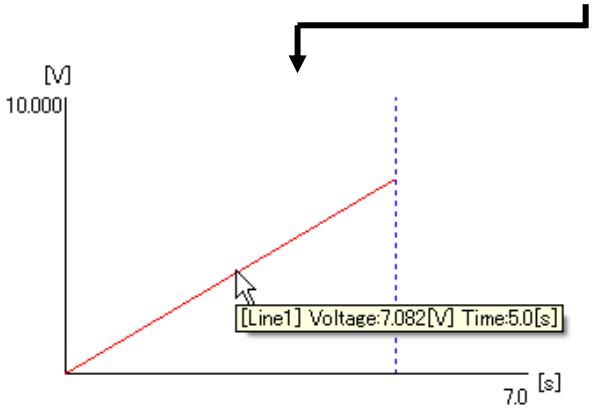
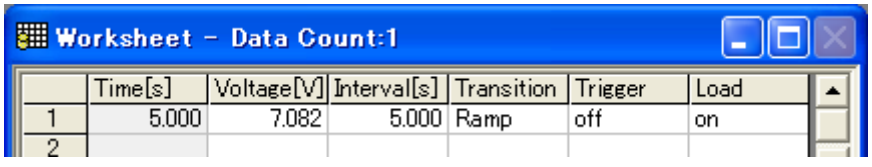


Fig. 4-3 End Point of the Mouse

(2) The data that has just been created with the mouse is indicated as shown below:



	Time[s]	Voltage[V]	Interval[s]	Transition	Trigger	Load
1	5.000	7.082	5.000	Ramp	off	on
2						

Fig. 4-4 Display of Data in Cells

Data can also be created by directly entering it into the worksheet. In such a case, directly type data in the cell in which you wish to enter data, or select a cell and press the [Enter] key or double click on it to make it available for input. To cancel data entry during input, press the [**Esc**] key. Note that because the time is automatically calculated when the interval is entered, you cannot enter data into the time cell.

(3) To edit data, simply select the cell to be modified. This will allow you to edit the cell (Fig. 4-5). After editing, press the [Enter] key to confirm the change.

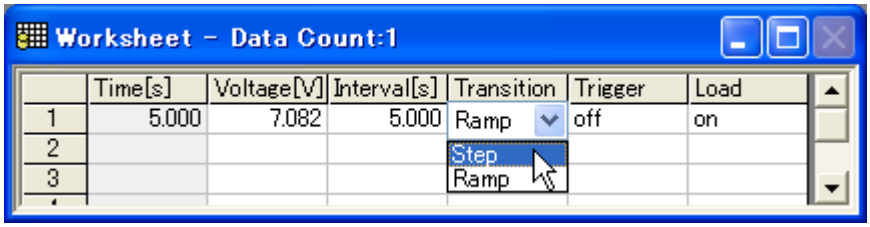


Fig. 4-5 Editing Data in a Cell

(4) To edit data from a graph, double click on the line to be modified.
This will cause the end point of the line to change to a black point (Fig 4-6).
Move the mouse pointer over the black point, and, when the pointer changes to an arrow (Fig. 4-7), hold down the left mouse button to select that point and drag the mouse up or down (Fig. 4-8). Release the left button at any location to establish that data point.

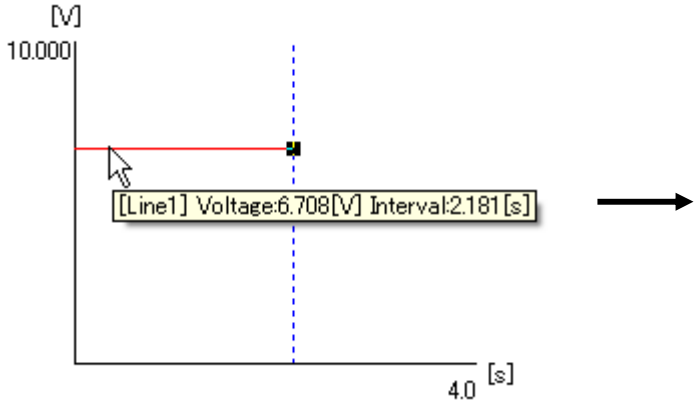


Fig. 4-6 Selecting the Line to be Changed

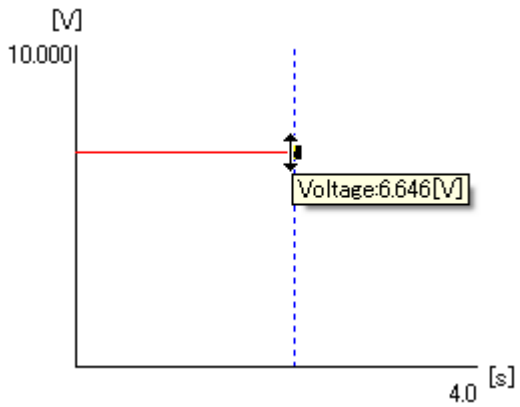


Fig. 4-7 Start Changing the Data

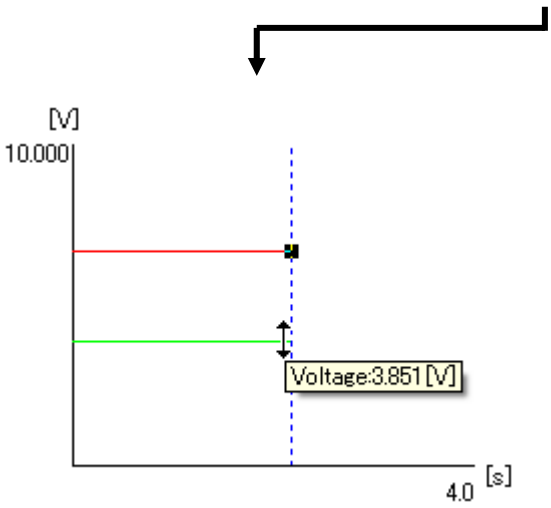


Fig. 4-8 Moving to the Desired Position

* To edit the time interval, double click on the blue dotted line (vertical line).
  The operating procedure is the same as the one noted above.

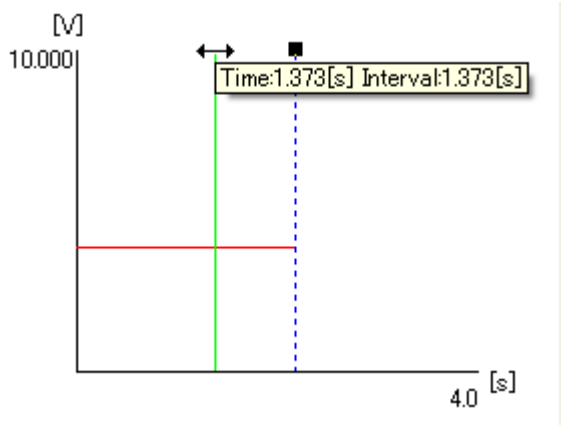


Fig. 4-9 Moving to the Desired Position (Time)

* Transition data can be changed from the graph.
  Double click on the line you wish to change. This will cause the end of the line to change to a black point (Fig. 4-10).
  At this stage, press the right mouse button (Fig. 4-10).

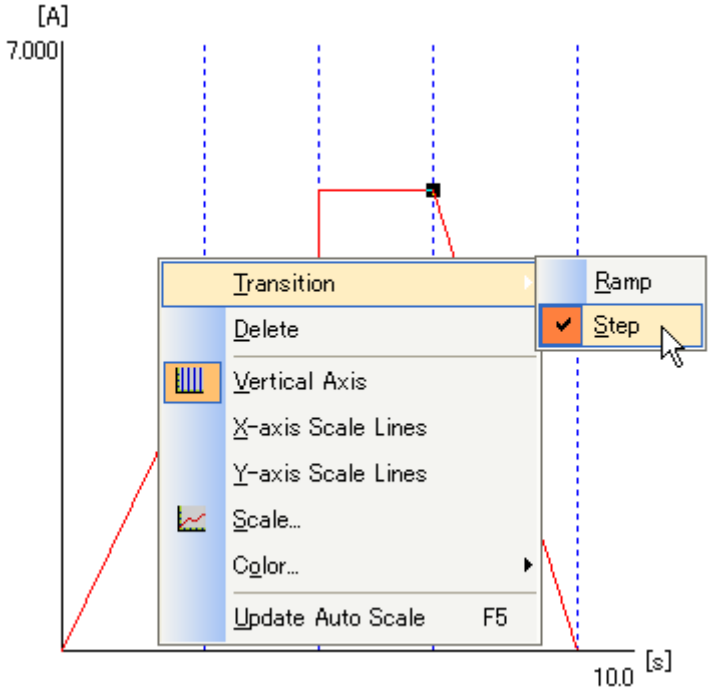


Fig. 4-10 Transition Change

* You can also delete, copy, or insert multiple lines. To perform these actions, press the right mouse button (Fig. 4-11).

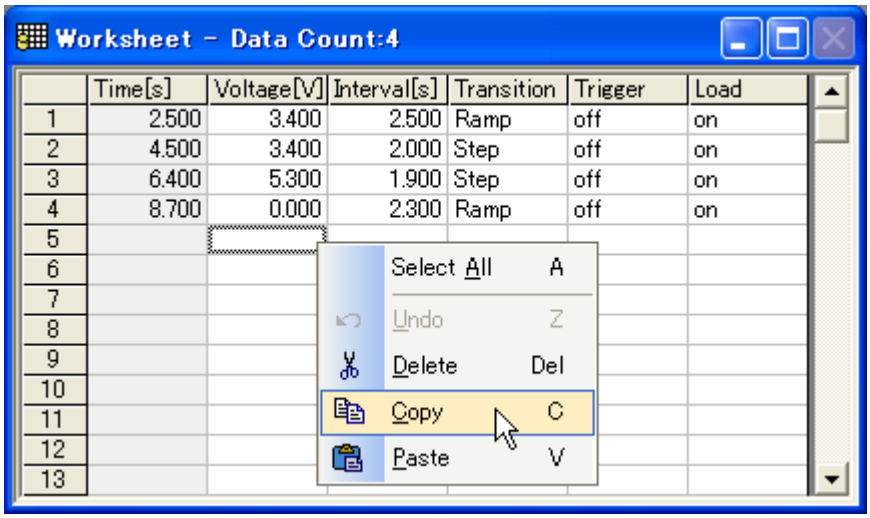
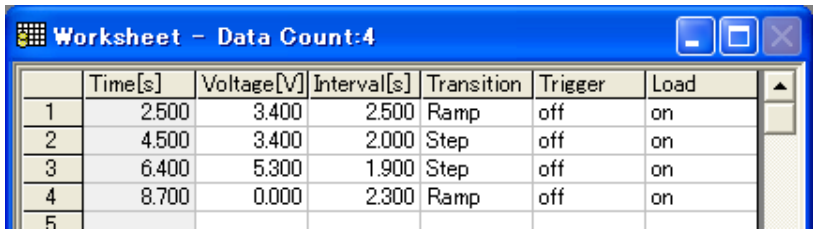


Fig. 4-11 Delete, Copy, and Paste

* When entering the data directly on the sheet, enter the data in order from the first line.
You can only enter the data of the second line (step 2) after you have entered the data of the first line (step 1).
Note that you cannot enter time values, as they are automatically calculated when you enter the interval.

5 Saving Sequence Data as a File

(1) Create sequence data as shown in Fig. 5-1 and save it as a file. After creating the data, select [Save] from the [File] menu. When the [Save As] dialog appears, save the data under the file name “Wavy1.wvy.”



	Time[s]	Voltage[V]	Interval[s]	Transition	Trigger	Load
1	2.500	3.400	2.500	Ramp	off	on
2	4.500	3.400	2.000	Step	off	on
3	6.400	5.300	1.900	Step	off	on
4	8.700	0.000	2.300	Ramp	off	on
5						

Fig. 5-1 Data in Cells

(2) Open the “Wavy1.wvy” file in Notepad (Fig. 5-2).

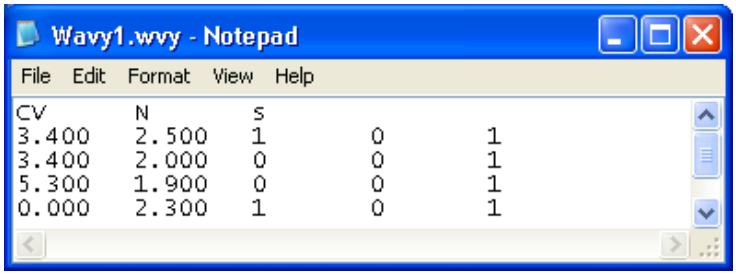


Fig. 5-2 Opening the File in Notepad

The first line shows the data conditions. The contents are as shown below:

1st item	CV CC CP CR	Constant voltage mode Constant current mode Constant power mode Constant resistance mode
2nd item	N F	Normal mode Fast mode
3rd item	s ms min h	In seconds In milliseconds In minutes In hours

Table 5-1 File Formats

The 2nd and 5th lines are sequence data. The contents are as shown below:

1st data	Voltage [V], current [A]
2nd data	Time interval. The units are [ms], [s], [min], or [h].
3rd data	Transition. “0” represents step, while “1” denotes ramp.
4th data	Trigger. “0” represents off, while “1” denotes on.
5th data	Output. “0” represents off, while “1” denotes on.

Table 5-2 File Format

*Pieces of data are **separated by tabs**. Note that they are not separated by spaces.
Tab separation can be changed to comma separation (see 12 Environment Settings).

6 Transferring Sequence Function and Processing Sequence Data

6.1 Sequence Function

The folder in which Wavy has been installed contains a file called “TestData.wvy.”
The following describes sequence data, using data from this file as an example.
The data to be written (transferred) to the instrument is related as shown in Fig. 6-1.

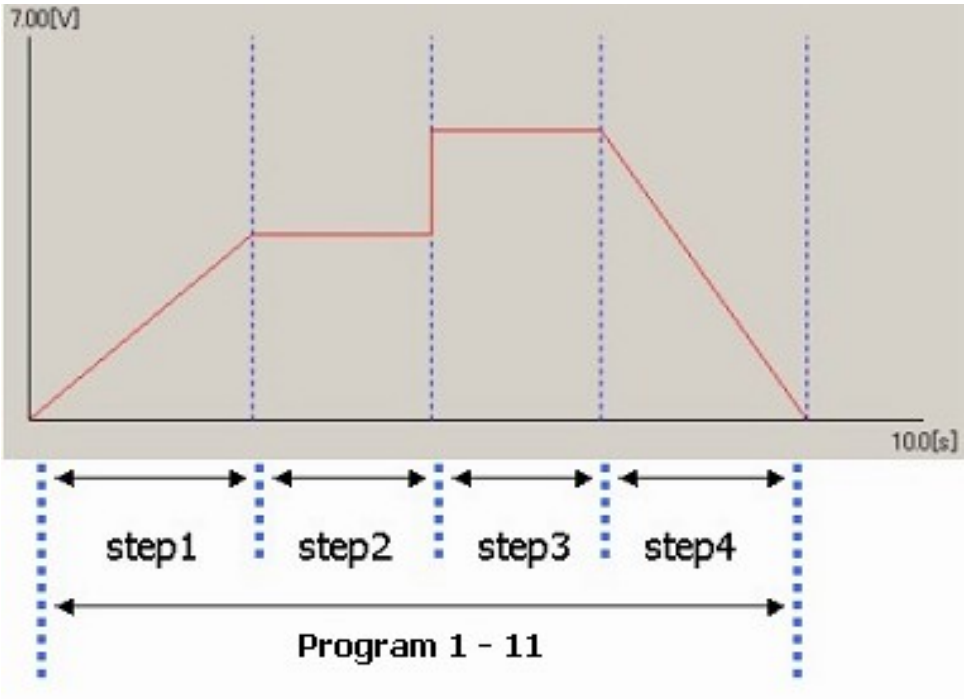


Fig. 6-1 Sequence Function

Sequence operation supports both normal and fast modes.
The program number can be selected from a range of “1” to “10” in the normal mode and is fixed at “11” in the fast mode.
The maximum number of steps in the normal mode is **a total of 256 for program numbers “1” to “10.”** The maximum number of steps in the fast mode is 1024.
The “Repetition Count” setting represents the number of repetitions in the relevant program number (see Fig. 6-2).
The operation mode can be selected from among constant voltage, constant current, constant power, and constant resistance. For the specific setting method, see “7 Setting the Mode.”

* For more information on the sequence function, see the operation manual of each instrument.

6.2 Data Transfer

To write the sequence data created to the instrument, select [Transfer] from the [Sequence] menu. The [Transfer] dialog appears (Fig. 6-2).

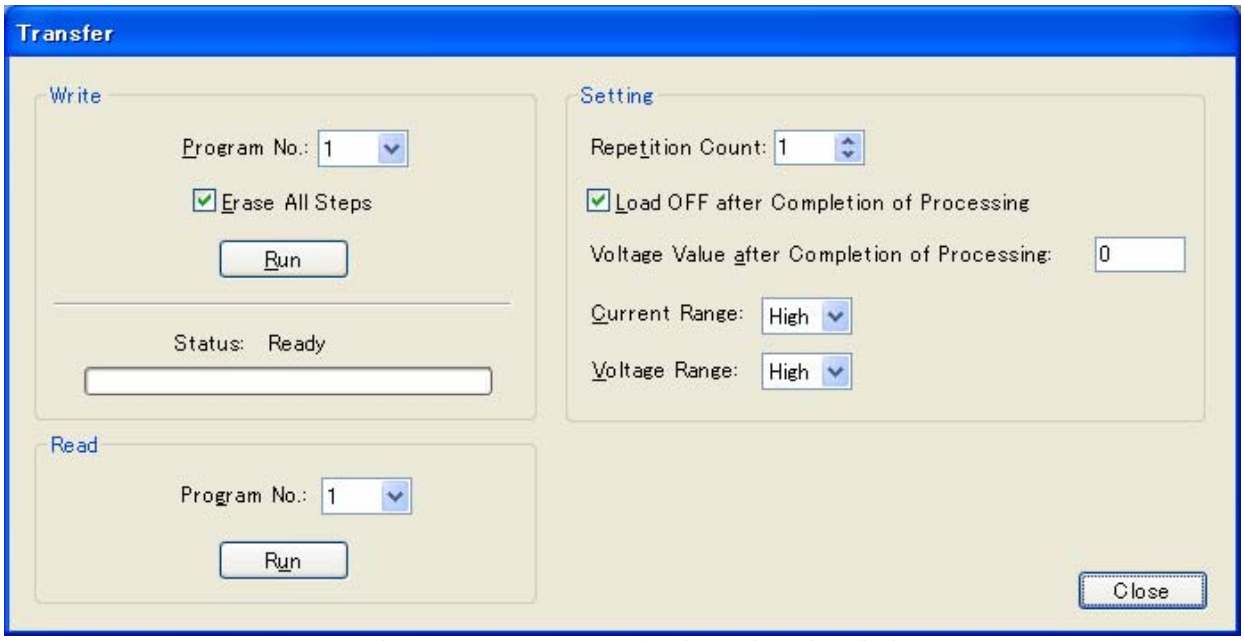


Fig. 6-2 Data Transfer (Read and Write)

Clicking the [Run] button in the Write section causes the current sequence data to be written to the instrument. If you wish to read the sequence data that has already been written to the instrument, click the [Run] button in the Read section.

* If there are a large number of steps, it may take up to approx. 3 minutes to write the sequence data.

The program number can be selected from a range of “1” to “10” in the normal mode, while it is fixed at “11” in the fast mode. If the “Erase All Steps” checkbox has been selected (checked), steps registered in program numbers 1 to 10 are all deleted before the data is written.

*** If 100 steps of data have already been registered in program number 2, an attempt to write 200 steps of data to program number 1 with the “Erase All Steps” checkbox unchecked will result in an error.**

If the “Load OFF after Completion of Processing” checkbox has been selected (checked), load is turned OFF when sequence operation is completed or is stopped during processing.
“Voltage Value after Completion of Processing” is a set value applied after completion of a sequence. This set value varies depending on the operation mode, and may be alternately indicated as “Current Value after Completion of Processing,” “Power Value after Completion of Processing,” or “Resistance Value after Completion of Processing.”

“Current Range” and “Voltage Range” are range settings of the PLZ-4W. For more information, see the operation manual of that instrument.

[CAUTION]	**Data created using Wavy is not checked for validity of values (values exceeding the instrument’s limit) when the sequence data is written to the instrument. As such, there may be cases where erroneous data is recorded by the instrument. In such a case, the sequence data will be insufficient. Do not to set a voltage or current value exceeding the specifications of the instrument.**

6.3 Processing

To process the sequence data input, select [Run] from the [Sequence] menu. The [Run] dialog will appear (Fig. 6-3).

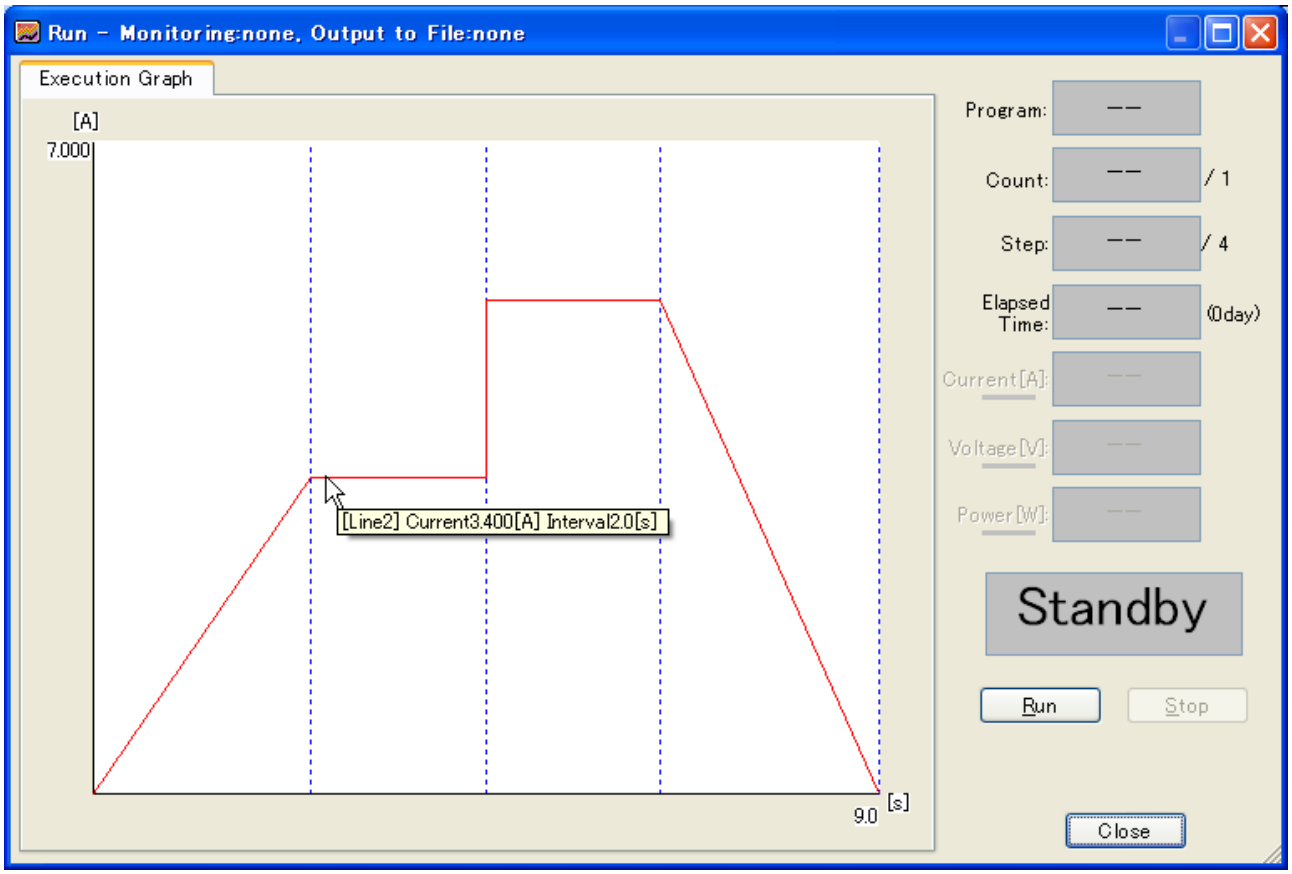


Fig. 6-3 Processing

Click the [Run] button to process the sequence data that has just been written to the instrument. To stop processing before completion, click the [Stop] button.

The status indications that appear onscreen are as below:

Standby	Gray	Sequence processing is on standby
End	Gray	Sequence processing has been completed.
Running	Green	The [Run] button was pressed, and a sequence is being processed.
Stop	Yellow	The [Stop] button has been pressed.
Error	Red	A communication error or file storage error has occurred. Confirm that the interface settings are correct and that the path to the destination folder is specified correctly.

Table 6-1 Status

Fig. 6-4 shows the screen displayed during processing of a sequence.

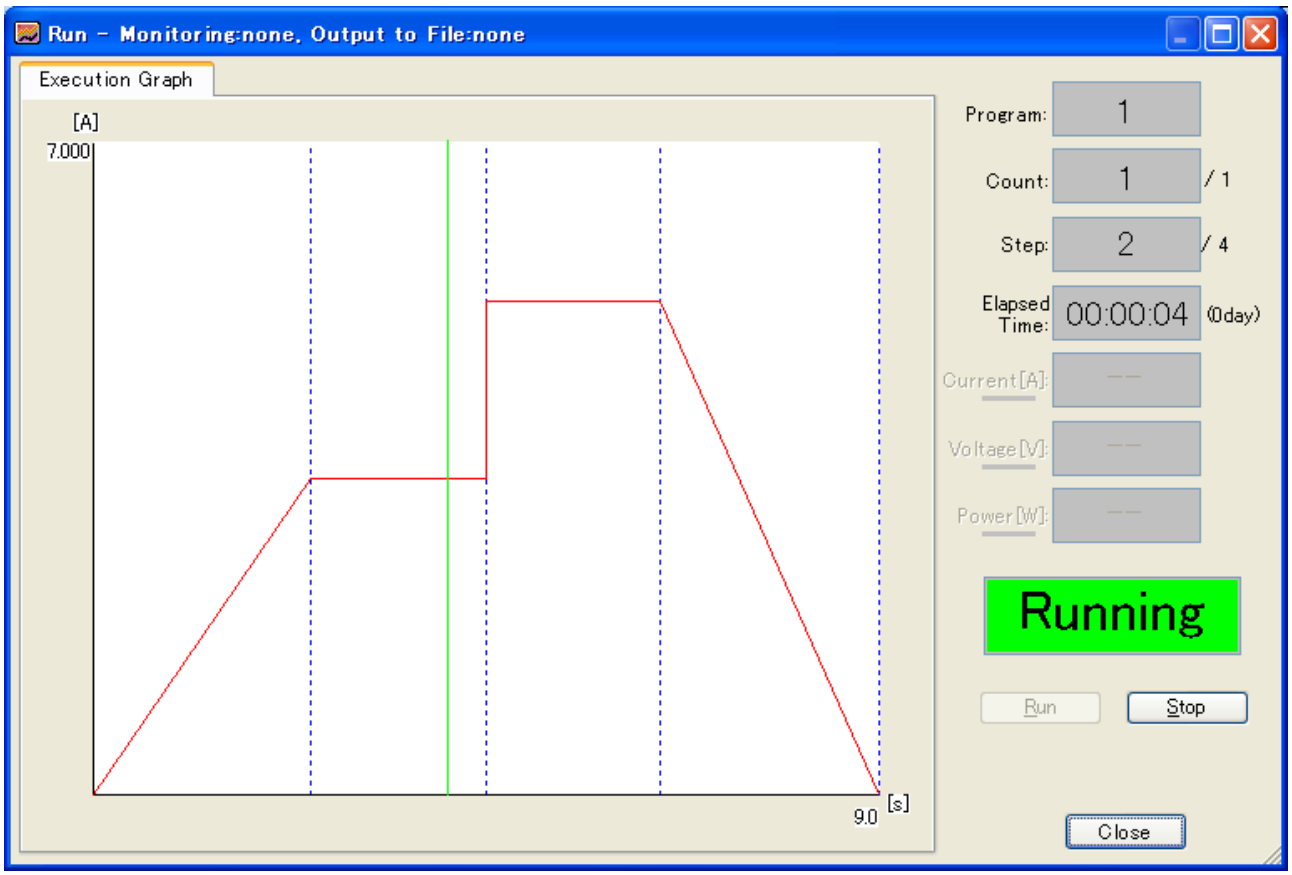


Fig. 6-4 Sequence Being Processed

The screen shows the number of repetitions (counts), step position, and elapsed time.
If current, voltage, and/or power is selected in the monitoring settings, an output current value, output voltage value, and/or output power value will be displayed.
For monitoring settings, see “9 Monitoring Setup.”

* The title of the dialog indicates monitoring and file information.
* The position line (green vertical line in Fig. 6-4) indicates the approximate position of the sequence being processed.

If current and voltage are selected in the monitoring settings, the screen will display the following:

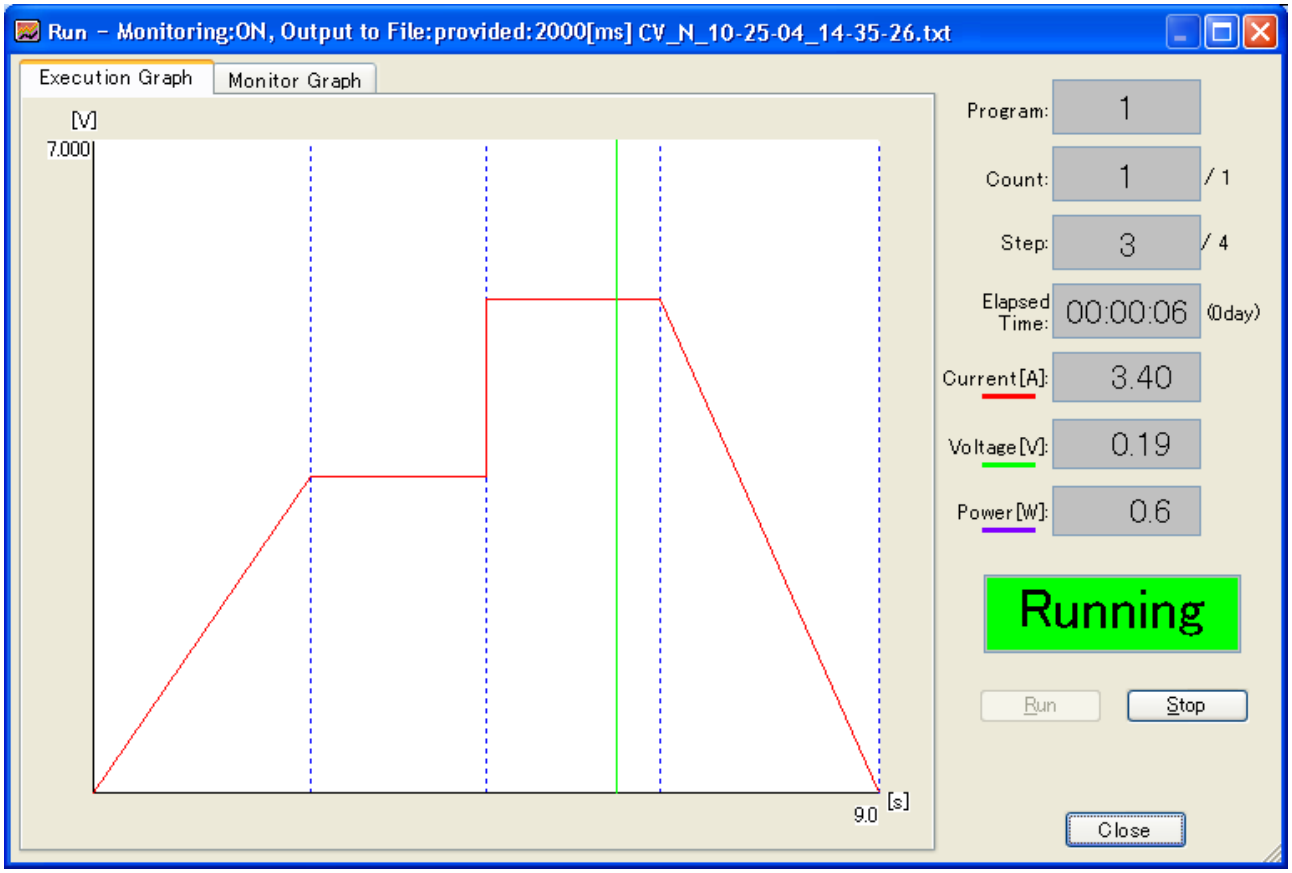


Fig. 6-5 Sequence is being Processed (with Monitoring Activated)

* A power value is supported only for the PCR series, PLZ series, and PWR series.

Right-click on the execution graph (Fig. 6-6) to change the display settings of the execution graph.

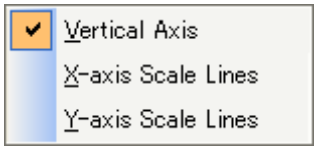


Fig. 6-6 Display settings of the execution graph

6.4 Real-time Monitor Graph

If you click the Monitor Graph tab in the upper left of the screen shown in Fig. 6-5, the monitored values are shown on a graph (Fig. 6-7).

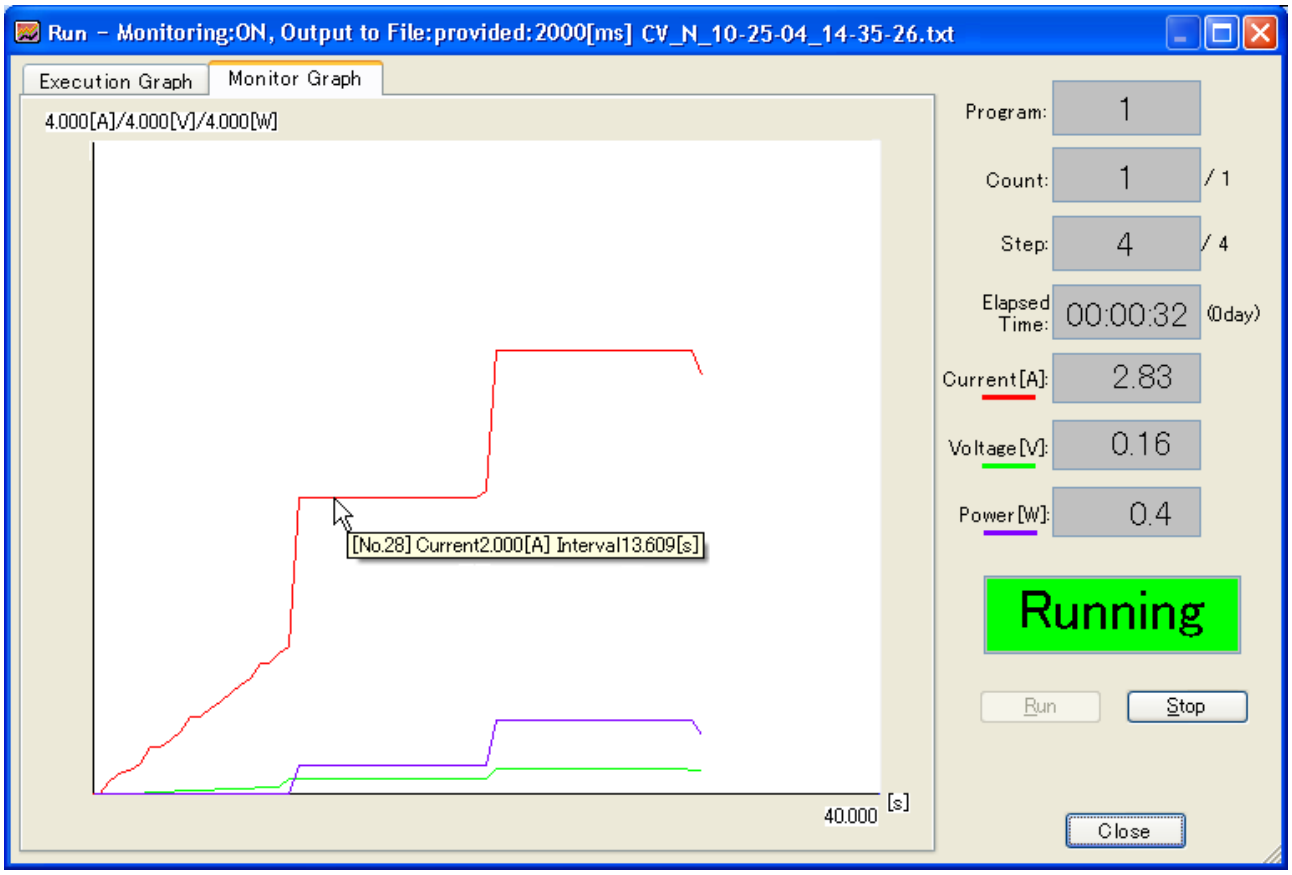


Fig. 6-7 Processing

Right-click on the monitor graph (Fig. 6-8).
You can change the monitor graph settings.
Fig. 6-8 shows an example in which the power monitor display is disabled by clearing the check by Power in the Line Display submenu.

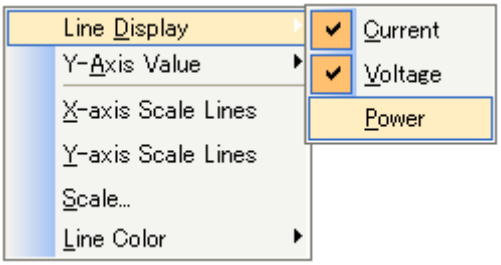


Fig. 6-8 Monitor graph settings

Select Current, Voltage, or Power in the Line Color submenu to change its line color.

If you click scale, the screen shown in Fig. 6-9 appears.

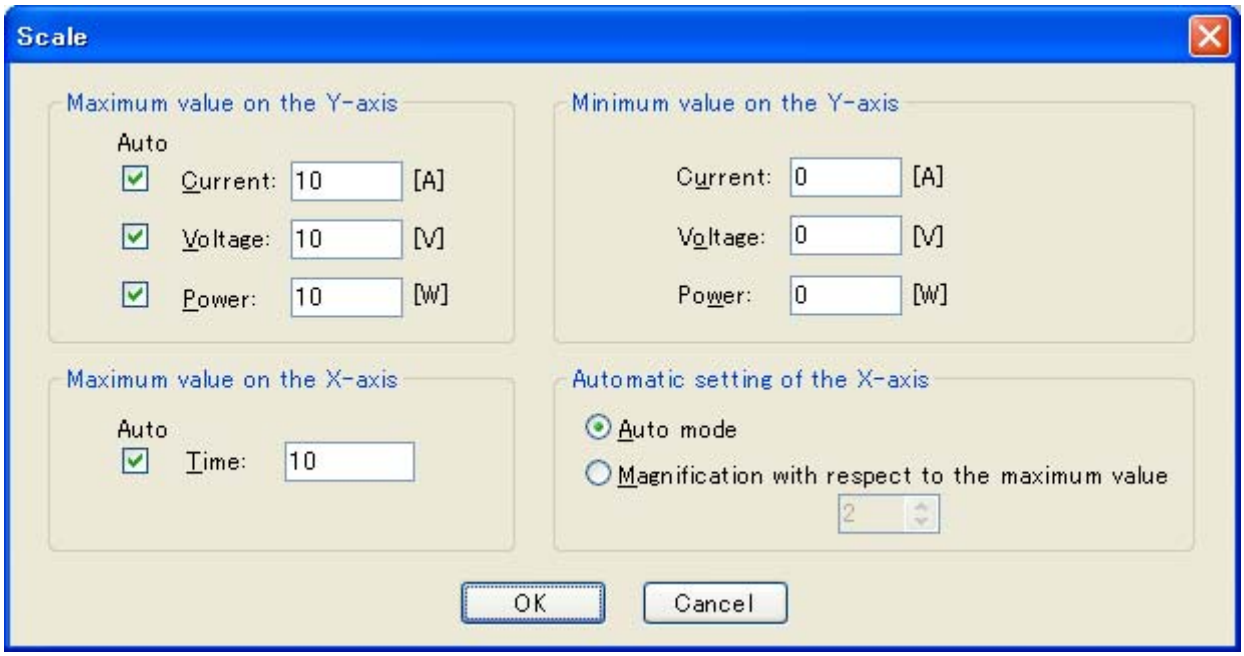


Fig. 6-9 Monitor graph scale settings

You can set the maximum values of the X- and Y-axes of the monitor graph.

If the [Auto] check box is selected and the monitored value exceeds the maximum value, the maximum value is automatically changed to an optimal value.
To prevent the maximum value from being changed automatically, clear the check box.
Note that in this case, the monitored value is not displayed on the graph if it is outside the range.

For the X-axis, you can set the magnification that is changed automatically.
Click the [Magnification with Respect to the Maximum Value] option button, and set the magnification.

7 Setting the Mode

Select [Mode] from the [Sequence] menu. The [Mode] dialog appears (Fig. 7-1).

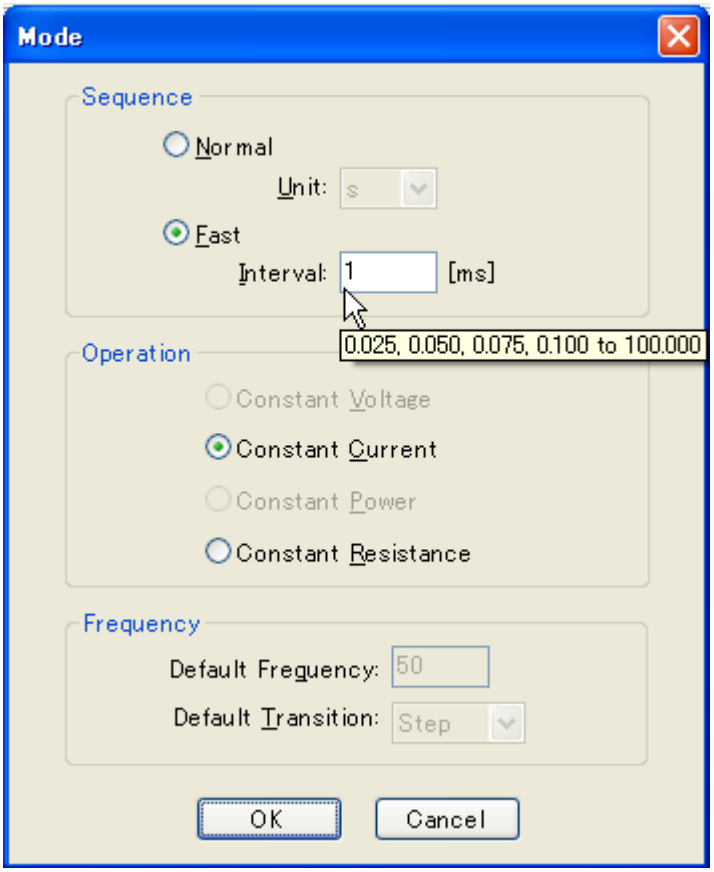


Fig. 7-1 Setting the Mode

The time ranges in the sequence modes are as shown below:

Normal mode	Milliseconds Seconds Minutes Hours	1 to 9999 [ms] 0.100 to 999.999 [s] 0.1 to 999.9 [min] 0.1 to 999.9 [h]
Fast mode	Milliseconds	0.025, 0.050, 0.075, and 0.100 to 100.000 [ms]

Table 7-1 Data Range

For the PCR series, the frequency and transition of AC voltage can be set.
The frequency setting range is 1.0 to 999.9.

To adjust the number of significant digits for the decimal fraction of each set value in line with the operation mode, select [Options] from the [Sequence] menu. The [Options] dialog will appear (Fig. 7-2).

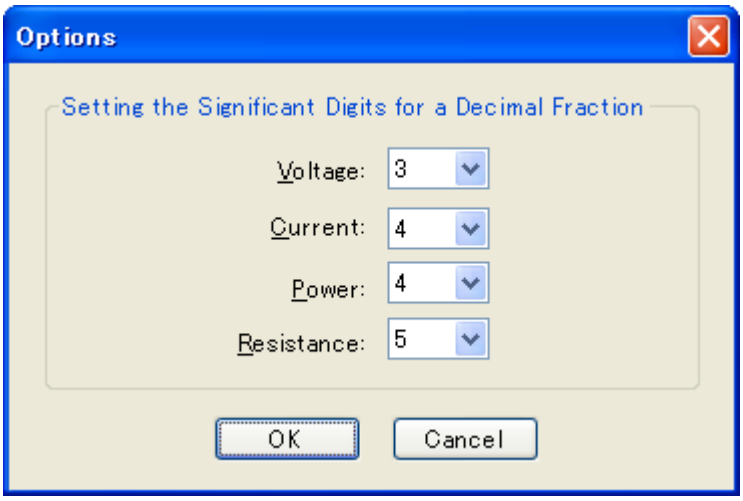


Fig. 7-2 Setting the Number of Significant Digits

The setting ranges of the number of significant digits for decimal fractions are as shown below:

Voltage	2 to 3 digits	(x.xx to x.xxx)
Current	2 to 5 digits	(x.xx to x.xxxxx)
Power	2 to 4 digits	(x.xx to x.xxxx)
Resistance	4 to 5 digits	(x.xxxx to x.xxxxx)

Table 7-2 Number of Significant Digits for a Decimal Fraction

*** The number of significant digits for a decimal fraction varies for each instrument of the PLZ-4W series.**
It also differs depending on the current and voltage ranges.
Note that settings here are for creating and editing sequence data.

8 Initial Settings

Select [Initial Settings] from the [Sequence] menu. The [Initial Settings] dialog will appear (Fig. 8-1).

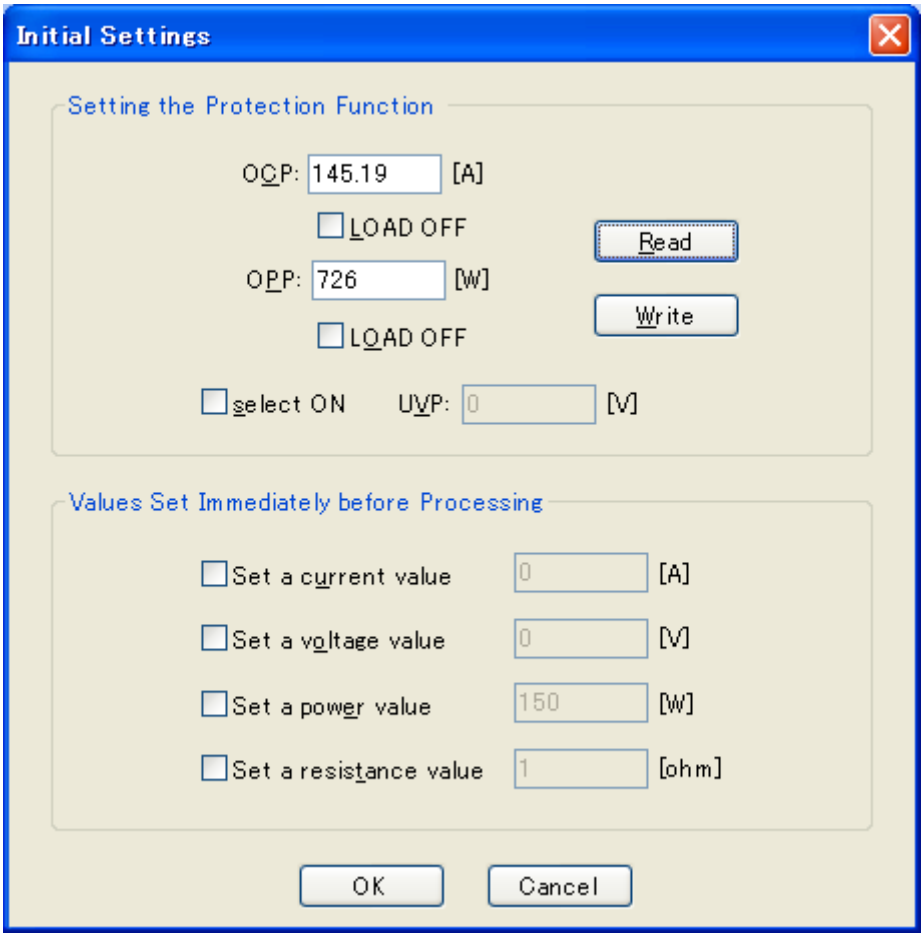


Fig. 8-1 Initial Settings

Click the [Read] button to load the overcurrent, overpower and undervoltage protection values that are set on the instrument. Click the [Write] button to set the overcurrent, overpower and undervoltage protection values on the instrument.

To set the current, voltage, power, and/or resistance values immediately before running a sequence, check the relevant checkboxes and set the values.
If the 1st step of the sequence data is a ramp transition, the ramp transition starts from the value set. If no value has been set, the ramp transition begins from the default value.

* It is recommended that the first step be set as a step transition.

*** When setting a value, note that the operation to be performed differs depending on the sequence and the operation mode.**
Be aware that proper operation cannot be attained if the value set is inappropriate.

* The power and resistance values is supported only for the PCR series, PLZ series, and PWR series.

9 Monitoring Setup

Select [Monitoring Setup] from the [Sequence] menu. Then the [Monitoring Setup] dialog appears (Fig. 9-1).

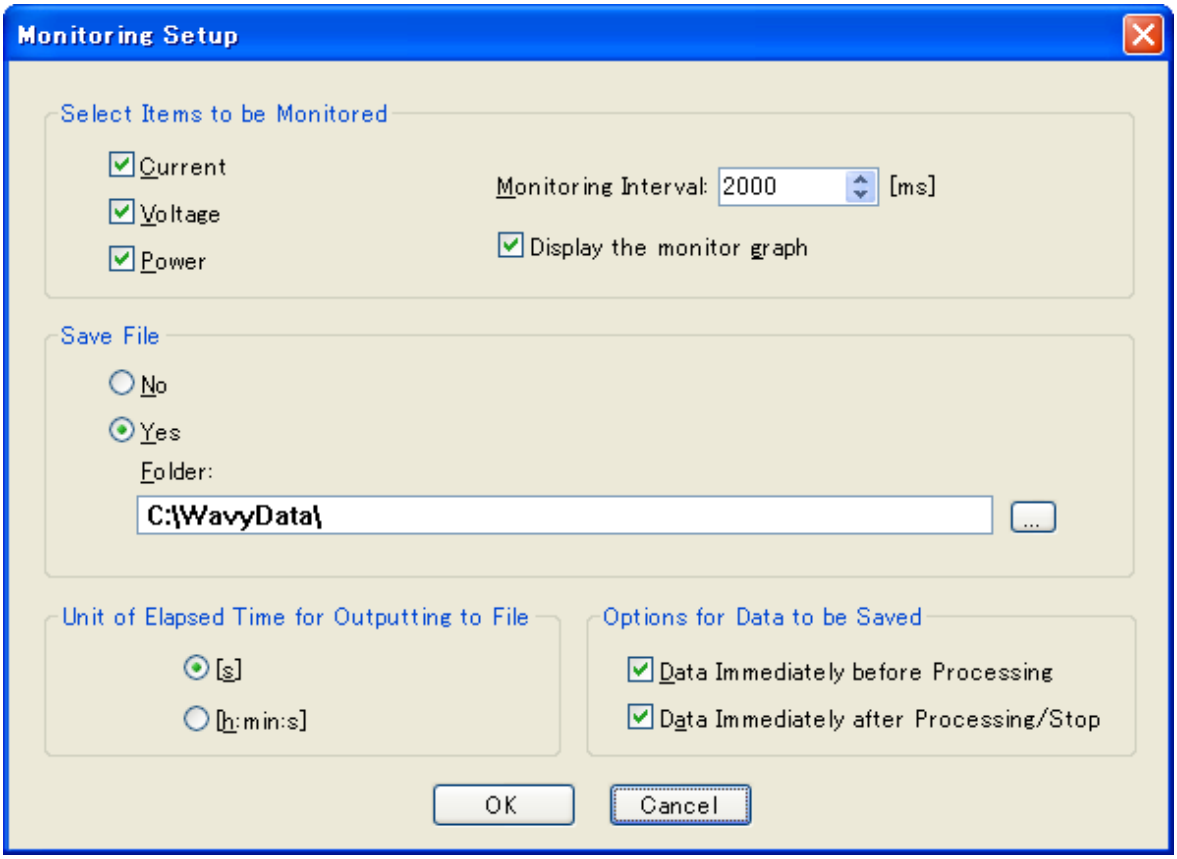


Fig. 9-1 Monitoring Setup

If the Current checkbox has been checked, the “input current value” will be displayed during processing of the sequence.
If the Voltage checkbox has been checked, the “input voltage value” will be displayed during processing of the sequence.
If the Power checkbox has been checked, the “input power value” will be displayed during processing of the sequence.

The monitoring interval range is 500 to 600,000 [ms] (0.5 to 600 [s]).

If the “Save” checkbox has been checked in the Save File section, monitored data will be output to a file in the folder specified.Fig. 9-2 shows a monitored-data output file.

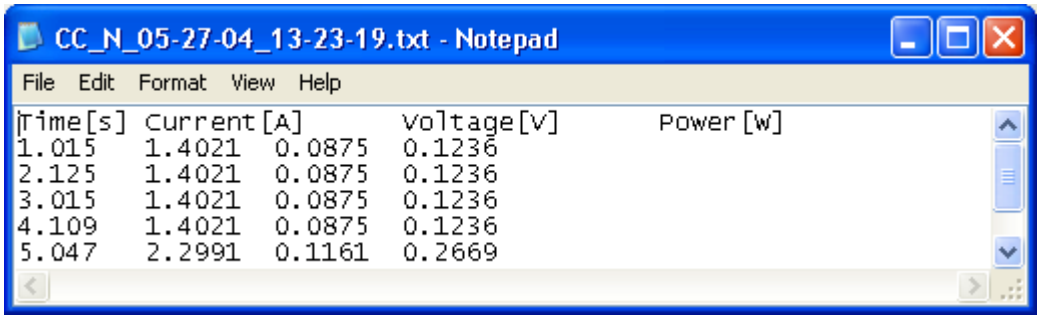
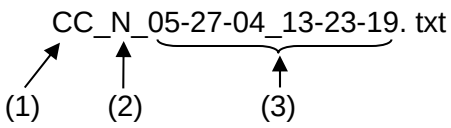


Fig. 9-2 Monitored-data Output File

In the example in Fig. 9-2, the monitored data file name is as shown below (Table 9-1).



(1) CV: Constant Voltage mode, CC: Constant Current mode,
CP: constant power mode, and CR: constant resistance mode
(2) N: normal mode, F: fast mode
(3) Date and time of the start of sequence processing

Table 9-1 File Name Format

The time interval for output of monitored data to file may be selected using either the [second] or [hour: minute: second] format.

* The accuracy of time measurement (for the monitoring interval) depends on the PC environment in use.
* Pieces of data are **separated by tabs**. Note that they are not separated by spaces. Tab separation can be changed to comma separation (see 12 Environment Settings).

If the “Data Immediately before Processing” checkbox has been checked, the monitored values applied immediately before load is activated (that is, during OFF status) are output to file as 0 [s]. If the “Data Immediately after Processing Completion/Stop” checkbox has been checked, the monitored values obtained immediately after processing is completed or stopped (that is, during OFF status) are output to file at that time (actual data acquisition is done within a range of 0 to 2 seconds).

The monitor graph is displayed only when the [Display the monitor graph] check box is selected.

* The performance of the monitor graph is affected by your PC environment. If adverse effects occur, clear the check box.

* A power value is supported only for the PCR series, PLZ series, and PWR series.

10 Setting up the Interface

Select [Interface] from the [Sequence] menu. The [Interface] dialog appears (Fig. 10-1).

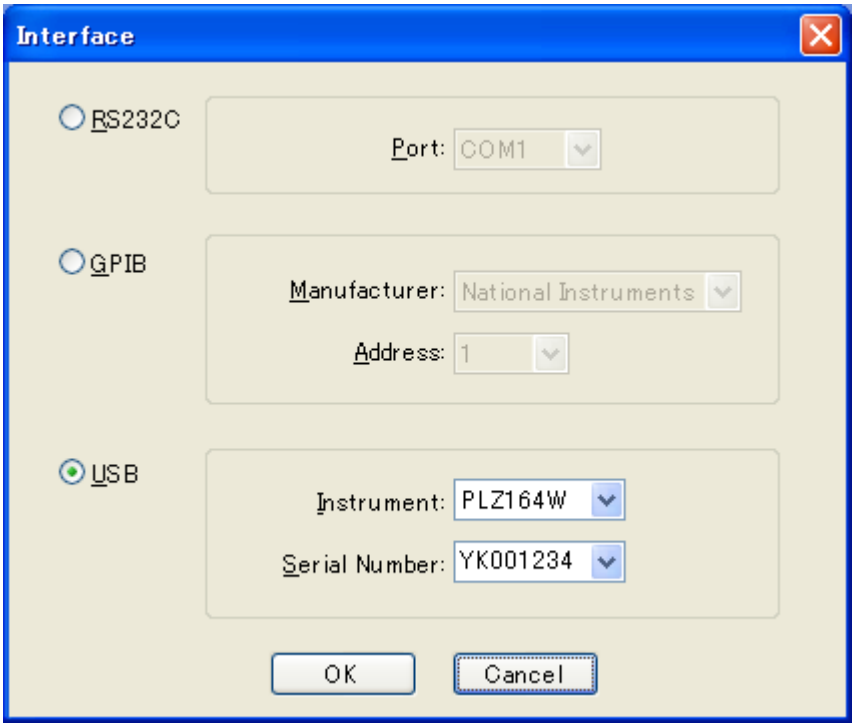


Fig. 10-1 Setting up the Interface

- For the RS-232C, the communications protocol settings are set and fixed at factory shipment of the respective instruments.
  If these settings have been changed on the instrument side, change the settings to the factory default settings.

PLZ-4W series	Transfer rate	19,200 bps
	Data bit length	8 bits
	Stop bit length	2 bits
	Parity bits	None
	ACK	OFF

Table 10-1

To conduct a connection test, execute “*IDN?” using the “Hyper Terminal” communication software provided as standard in Windows.

* Use a cross cable as the RS-232C connection cable.

- For GPIB, select the manufacturer and set the Address to the GPIB address of the interface in use.
  The delimiter setting is fixed to LF + EOI.
  As for operating conditions, check that the GPIB driver provided by the relevant manufacturer has been installed and is operable. For this, conduct a connection test by executing “*IDN?” using the utility provided by the relevant manufacturer.

National Instruments	NI-488.2 driver
CONTEC	GPIB communications driver API-GPIB (98/PC) W95, NT Ver. 3.50 or later
Interface	GPF-4301 for Windows Ver. 1.13-05 or later

Table 1-2

* For setup of a GPIB driver, see the operation manual of the relevant manufacturer.

- For USB, select the model number and enter the product’s serial number.
  As for operating conditions, check that the USB driver has been installed and that the instrument in use is identified.

  * From the [Start] menu at the lower left of the Windows screen, select [Settings], click on [Control Panel], and double click on [System]. Then click on the [Hardware] tab and click the [Device Manager] button. The “USB Test and Measurement Devices” item is indicated in the displayed dialog if the USB driver has been properly installed. Double click on this item to bring up “Kikusui PLZxx-4W Electronic Load.” Confirm that it operates properly.

11 Setting the Graph Scale

Select [Scale] from the [Graph] menu. The [Scale] dialog will appear (Fig. 11-1).

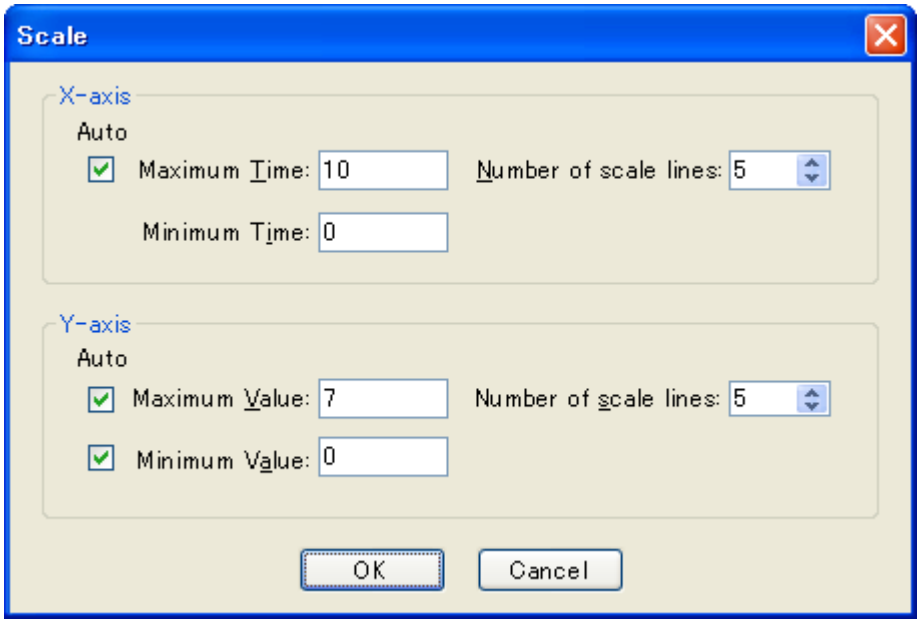


Fig. 11-1 Setting the Graph Scale

If the Auto checkbox has been selected (checked), the scale will change automatically.
Whenever a file is loaded into Wavy or sequence data is entered, the maximum or minimum value of the X- or Y-axis of a graph will automatically be changed to an optimum value.

If you do not wish to have the value changed automatically, uncheck the Auto checkbox.
Note that if you uncheck the Auto checkbox, nothing will be displayed on the graph if one of the data values is out of range.

The number of scale lines under X-axis and Y-axis is the number of grid lines that are shown in the background of the graph.
If this value is set to 1, only the frame line is displayed.
If you wish to hide the scale lines on the graph, choose [X-axis Scale Lines] or [Y-axis Scale Lines] from the [Graph] menu to remove the check mark.

12 Environment Settings

Select [Environment Settings] from the [Sequence] menu. The [Set Environment] dialog will appear (Fig. 12-1).

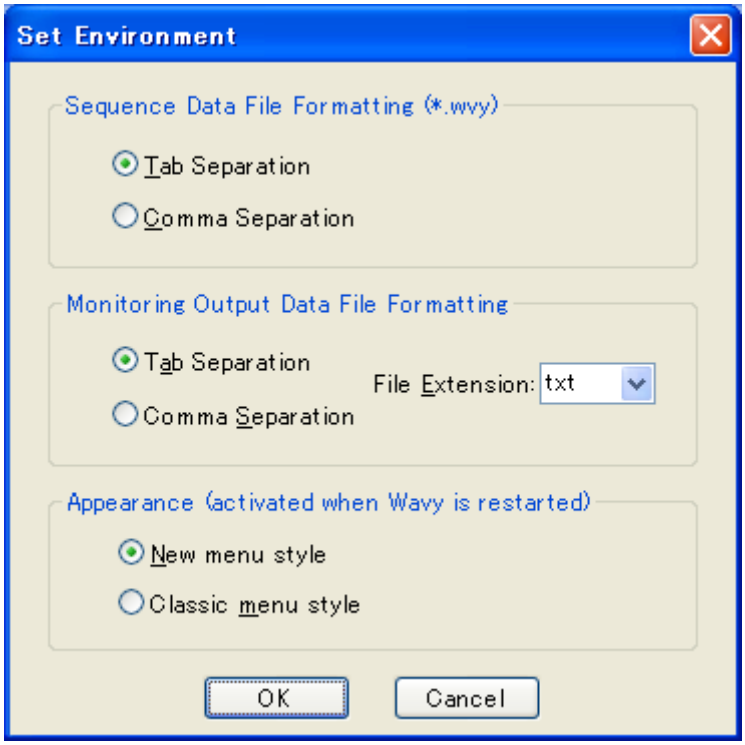


Fig. 12-1 Environment Settings

By default, the Sequence Data File Formatting is set at **Tab Separation** for separating data. When Comma Separation is selected, data will be **separated by commas**.

The Monitoring Output Data File Format section functions the same way as the Sequence Data File Format section. The File Extension can be set by the user.

* For sequence data files, see “5 Sequence Data File.”
* For monitoring output data files, see “9 Monitoring Setup.”

The Appearance settings change the appearance of the menu bar and tool bar.
The settings are applied when you restart Wavy.

13 Other Settings

The colors of graph items such as the background color can be changed (Fig. 13-1).

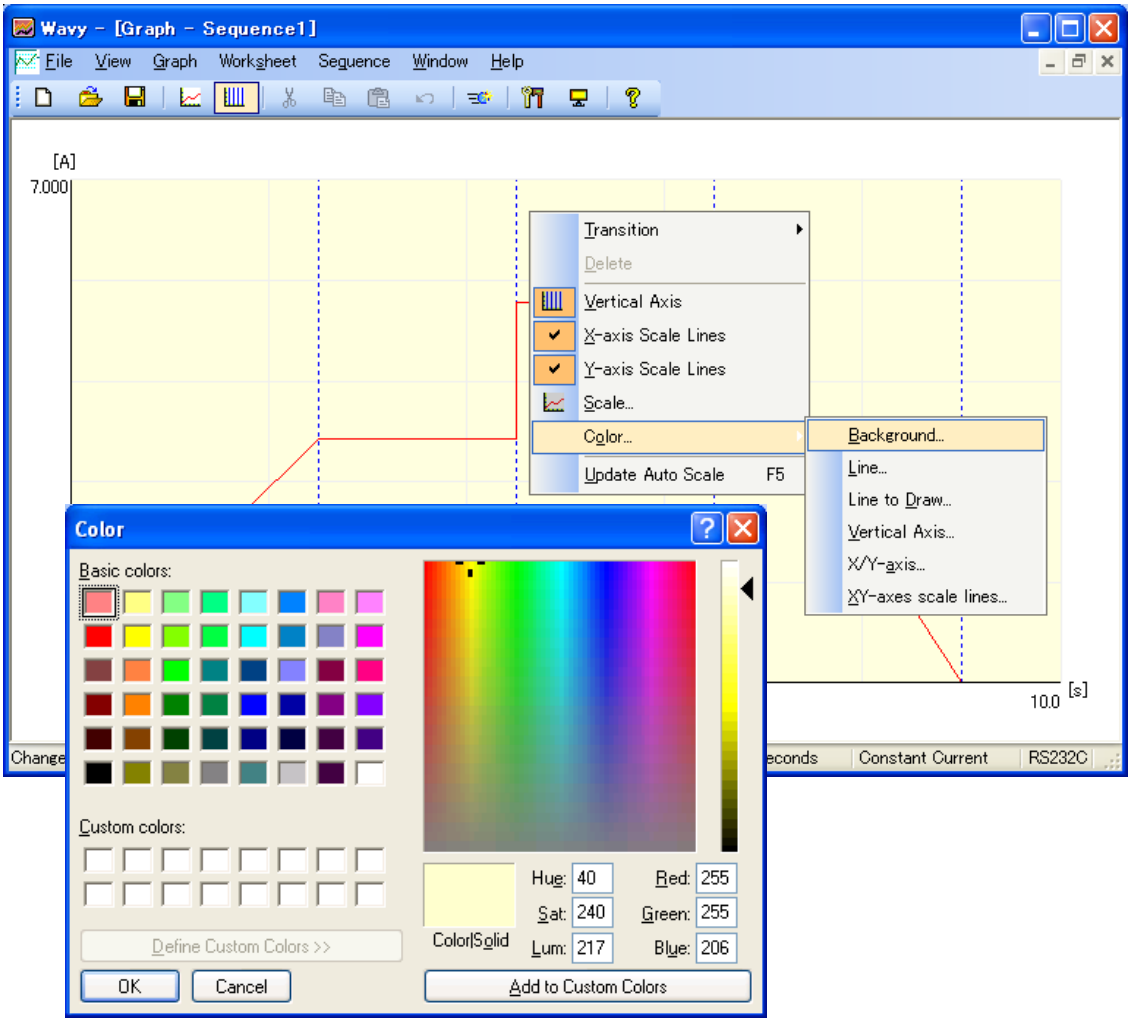


Fig. 13-1 Changing the Colors of a Graph

* [Line to Draw] applies to both the line color of mouse movement (Fig. 4-2) when a graph is drawn and the color of the line showing processing status (Fig. 6-4) when a sequence is processed.

14 Remote Control Panel

Select [Direct Control] from the [Tool] menu. The following window will be displayed. (Fig. 14-1)

Fig. 14-1 Remote Control Panel

This function is to conduct independently besides the sequence function for setting the voltage, current, voltage range, current range, slew rate, operation mode, output ON/OFF, and the monitor (read back).
At first, set all of the maximum and the minimum value in accordance with the specification of the model to be used.

Enter the value in the box of each voltage and current and press “Enter” key to set.
The “Step setting” can be set by clicking arrows of [Up] or [Down] for which setting value consists of the setting value with “±” of step value.
If the setting is specified as shown in Fig. 14-1, then clicking the arrow “Up” of the step value in the current setting, it is set for the total of 4 A, the setting current of 3 A plus the step value of 1 A (3 A + 1 A = 4 A).

The scale of the bar graph is synchronized to be set with the step value.
When “Save to file” is selected by the check box, the monitor will be saved to the file.
In this case, select the [Folder] button to assign the folder to be saved.
The file name will be “Wavy_08-06-14_19-12-44.txt”.
*The file format and the extensions are subject to depend on “12. Environment Setup”.

15 Command Control

Select [Command Control] from the [Tool] menu. The following window will be displayed. (Fig. 15-1)

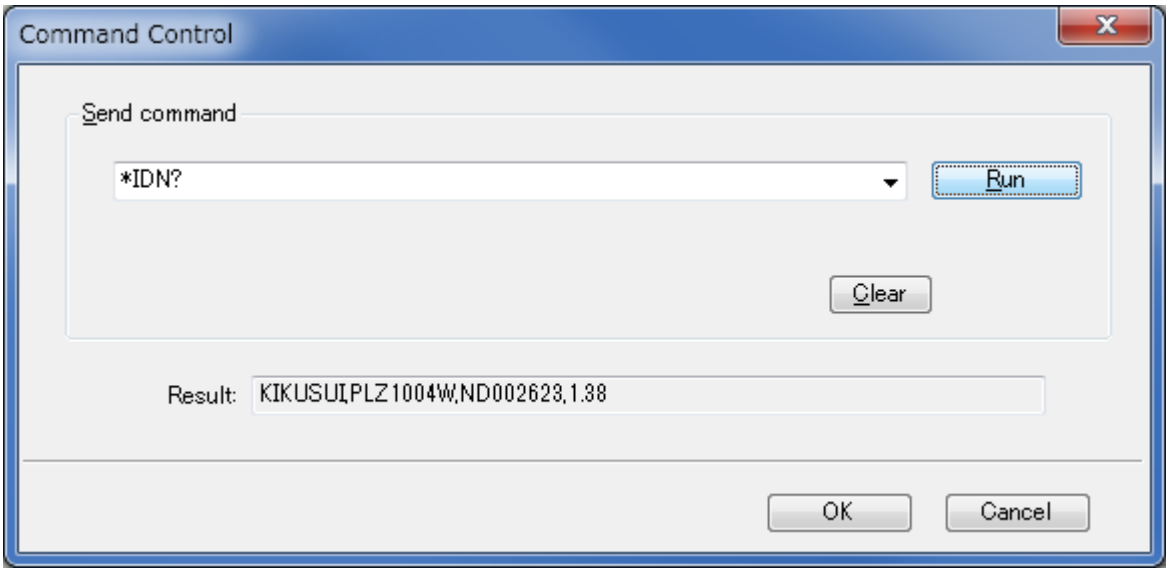


Fig. 15-1 Command Control

This function is to conduct independently besides the sequence function for command execution.

When the commands transmit/receive is conducted properly, it will be registered in the “drop down list” (maximum 10 records).
To clear the history of the “drop down list”, select the [Clear] button.

*Does not support for the coupling command.
*For details of commands, refer to the operation manual of the used equipment.

16 Menu Items

16.1 File

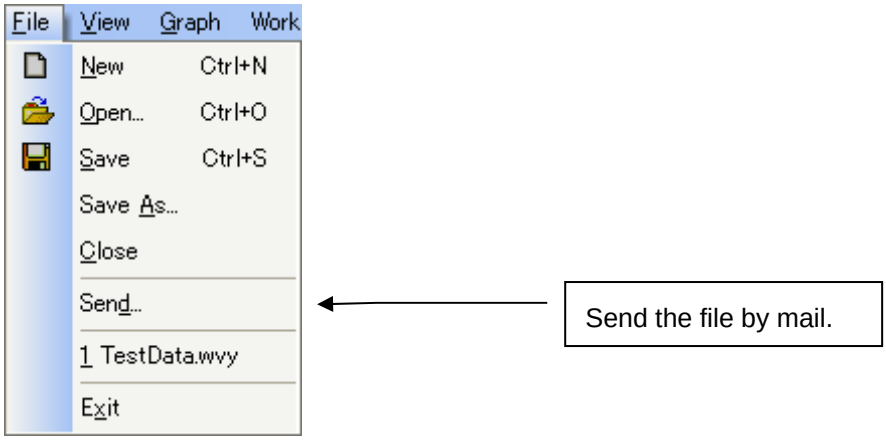


Fig 16-1

16.2 View

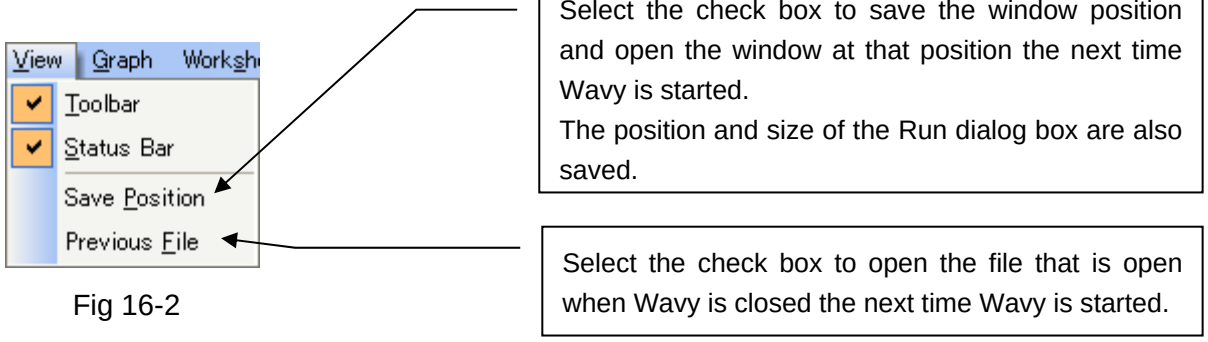


Fig 16-2

16.3 Graphs

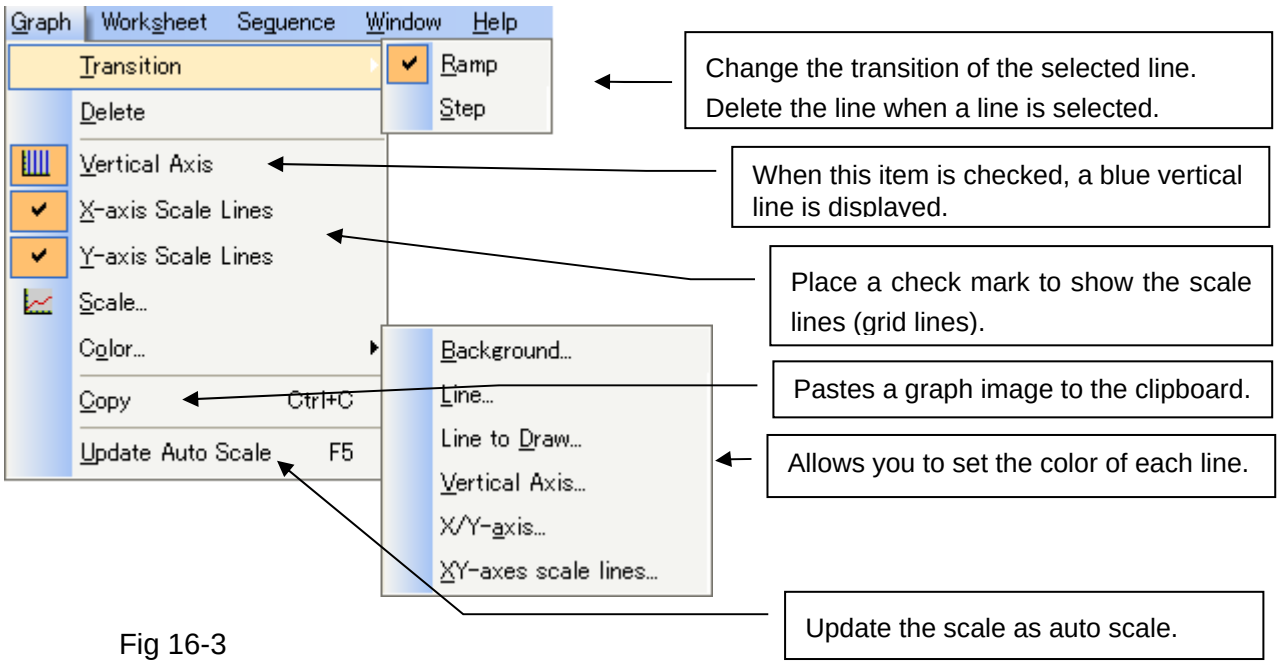
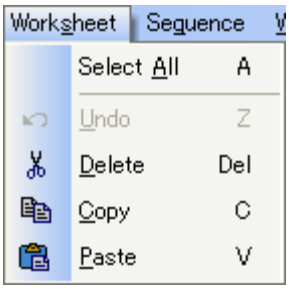


Fig 16-3

16.4 Worksheet



Copy, paste, or delete multiple lines of sequence data (step data) that is entered on the

Fig 16-4

16.5 Sequence

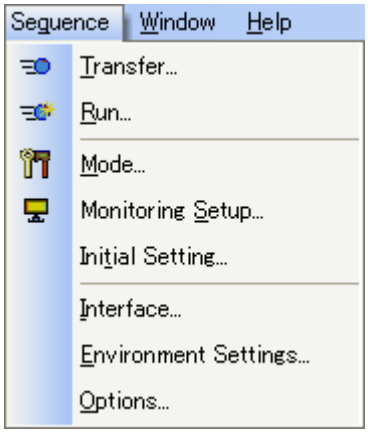


Fig 16-5

16.6 Tool

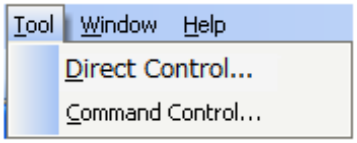


Fig 16-6

16.7 Windows

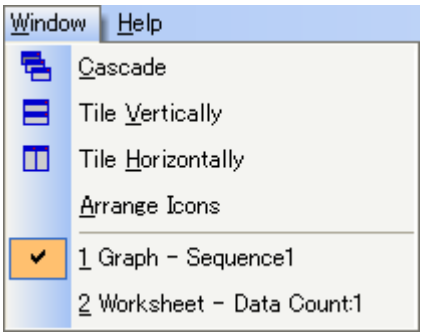


Fig 16-7

16.8 Help

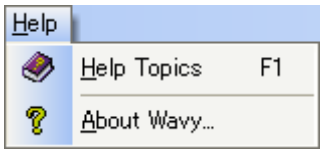


Fig 16-8

17 Toolbar and Status Bar

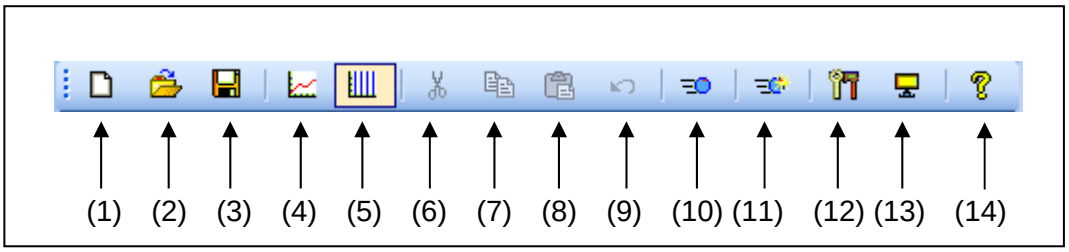


Fig. 15-1 Toolbar

(1) New (Ctrl + N)
(2) Open (Ctrl + O)
(3) Save (Ctrl + S)
(4) Scale
(5) Switch Vertical Line Display
(6) Delete
(7) Copy (C)
(8) Insert (V)
(9) Return (Z)
(10) Transfer
(11) Run
(12) Mode
(13) Monitoring Setup
(14) About Wavy

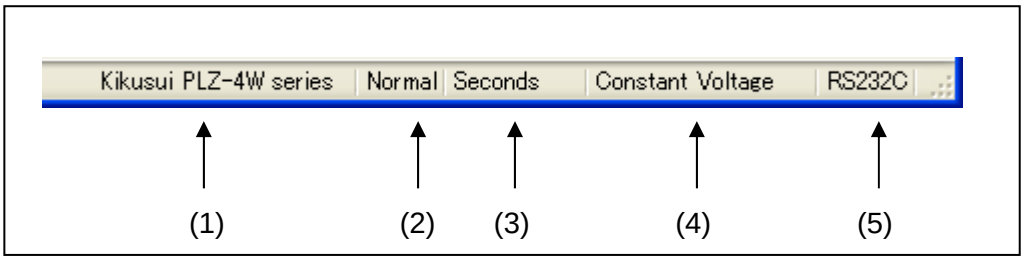


Fig. 15-2 Status Bar

(1) Instrument name
(2) Sequence mode Normal, Fast
(3) Time units Milliseconds, seconds, minutes, or hours
(4) Operation mode Constant Voltage or Constant Current or Constant Power, or Constant Resistance
(5) Interface RS-232C or GPIB or USB

Appendix

A.1 Sine Wave Editing Example

The folder in which Wavy has been installed contains the file “SinSetp256.wvy.
Fig. A-1 shows the screen displayed when “SinStep256.wvy” has been loaded into Wavy.

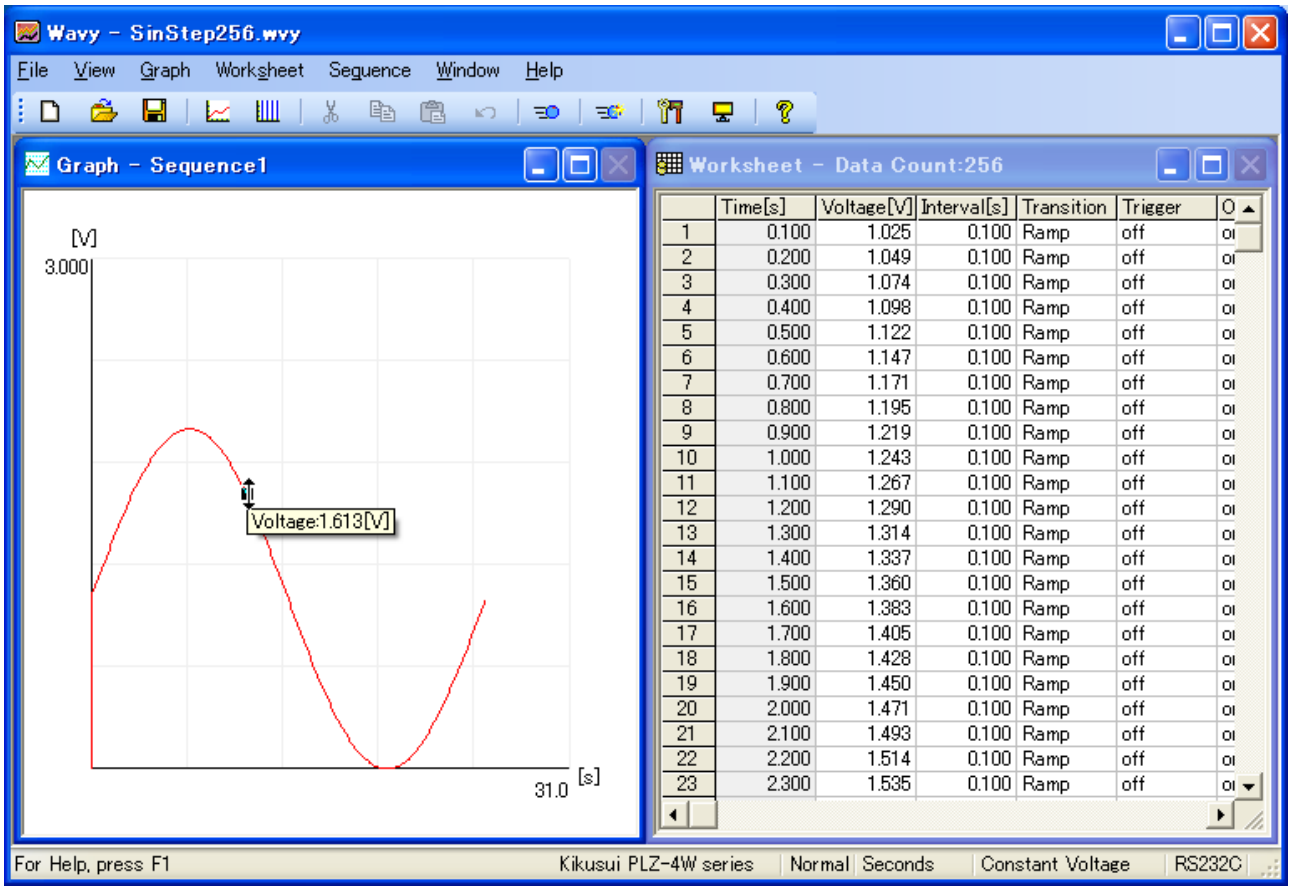


Fig. A-1 Sine Wave

This “SinStep256.wvy” file is data in which a sine wave is divided into 256 portions and the Interval is set to 0.1 sec.
Double click the mouse button on any point of the line to grab the black point with the mouse, then drag the point up or down. This allows you to easily create the waveform diagram shown in Fig. A-2.

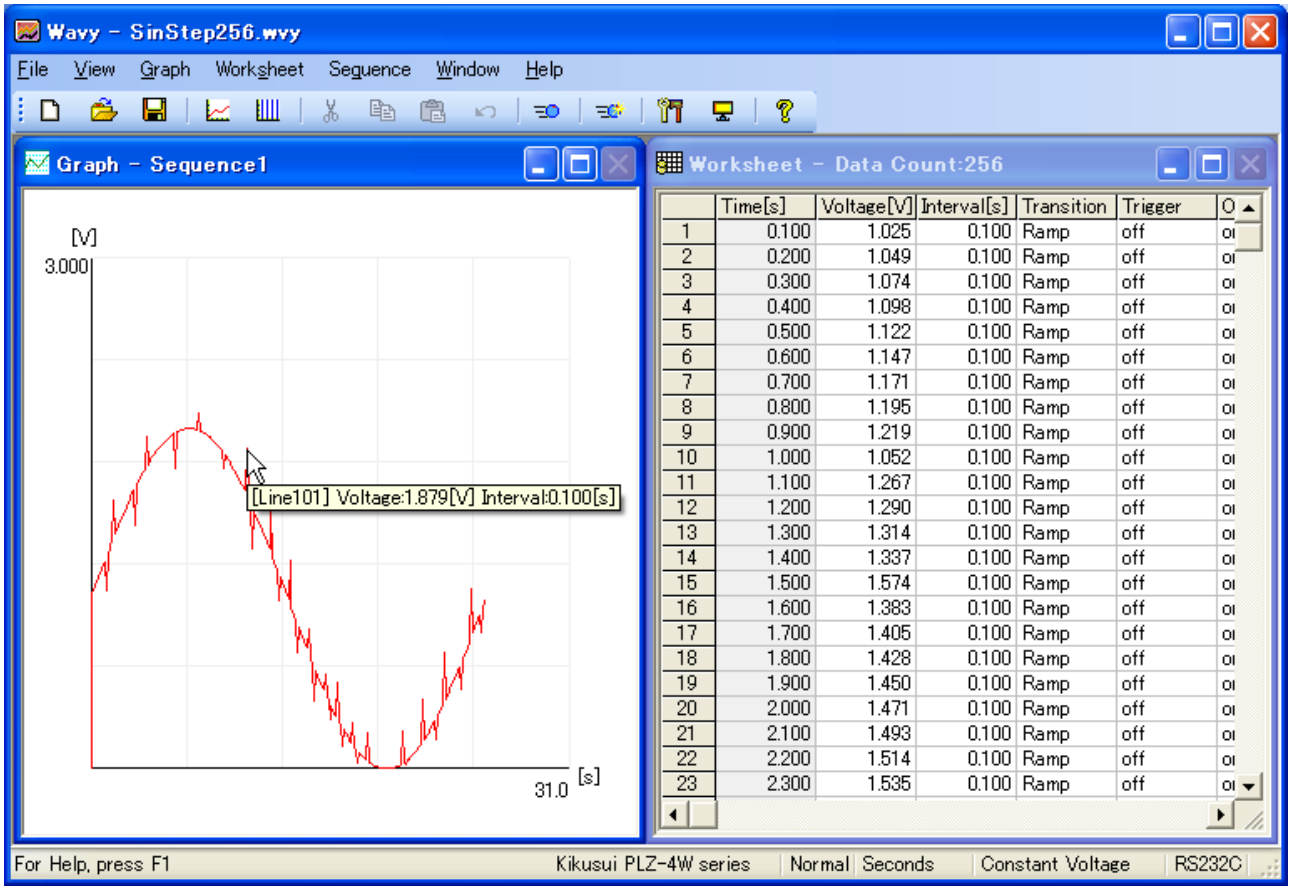


Fig. A-2 Editing the Sine Wave

In this way, Wavy allows you to easily create a waveform in which noise is superimposed on the sine wave.