App.by M.Nojiri '12・2・20 Rev.by watanabe '12・1・6

Operation Manual

Sequence Creation Software

Wavy for PCR-M Ver. 5

SPEC70598

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 PAT-T 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.

This manual applies to Wavy for PCR-M Version 5.xx.

Contents

1 Preface

1.1 Summary of the Product

The sequence-creation software “Wavy” is application software supporting the sequence function incorporated in the PBZ, PCR-LA, PLZ-U and PLZ-4W series from Kikusui Electronics. For PAT-T series, PAS & PWR series, and PCR-M 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 PCR-M series only.

1.2 System Requirements

- Personal computer

CPU	Pentium 4HT or better (Core 2 or better recommended)
OS	Windows 7 (32bit ver.), Windows Vista (32bit ver.), Windows XP SP3 (32bit ver.)
CD-ROM	Required to install Wavy
Mouse	Required
Display	1024 x 768 or higher (96 dpi display)
Memory	Windows 7 and Windows Vista: 2GB or more Windows XP: 1GB or more
Hard disk capacity	Free disk space of 10GB or more 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 (recommended 2 GB or more for 7 and Vista, 1 GB or more for XP).

- Interface

USB or RS-232C or GPIB

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 communication driver API-GPIB (98/PC) W95, NT Ver. 3.50 or later
Interface	GPC-4301 for Windows Ver.1.10-06 or later
Agilent 82357B USB/GPIB	Agilent IO Libraries Suite Version 15.0

Table1-2

* To activate the software on Windows 7 and Vista, 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 RS232C, use the cross cable.
* For USB, it is necessary to install the USB driver (available in the CD-ROM).
* When using a USB serial converter for connecting RS232C, it may not be functioned properly.

1.3 Software Specifications

● Sequence Modes

Table 1-3 shows the time setting range.

Mode	Seconds	0.5 to 999.5 [s]	(minimum unit: 0.5)
	Minutes	0.1 to 999.9 [min]	
	Hours	0.1 to 999.9 [h]	

Table 1-3

* If you set Wavy so that the sequence is entered in unit of seconds for a ramp transition, the value settings for the ramp are at 0.5 second step. If you set Wavy so that the sequence is entered in unit of minutes or hours, the value settings for the ramp are at 1 second step.
* The maximum number of step is 2048.
* The accuracy of setting time for the step depends on the PC environment in use.

● Operation Mode

There are three operation modes: AC, DC, and AC+DC.

The ranges of the number of significant digits for decimal fractions for these modes are indicated below:

Voltage value	1 degit (x.x)
Current value	1 degit (x.x)

Table 1-4

* The actual number of significant digits for a decimal fraction varies depending on differences in the instrument series or instrument's setting range.

● Monitor

Readback of the output current value, the output voltage value, and the output power value can be done.

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

*The accuracy of setting time for the monitoring step depends on the PC environment in use.

2 Setup

The Wavy for PCR-M 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 driver 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 “AutoRun.exe” file on the CD-ROM.

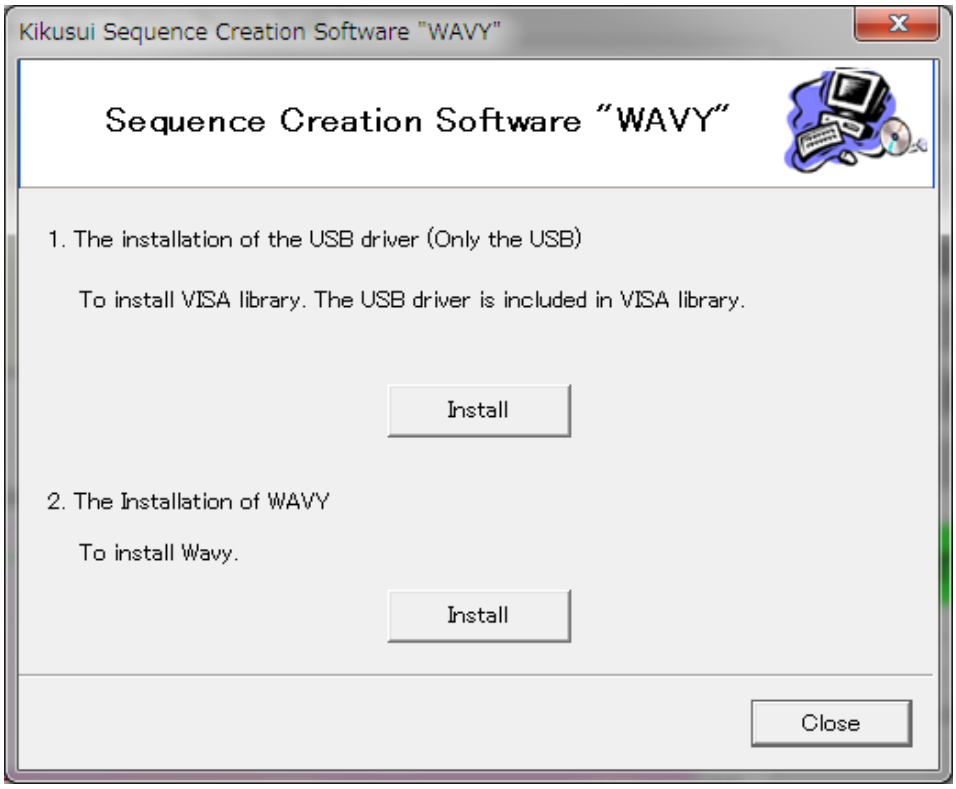


Fig. 2-1 Setup Start Screen

Install USB driver for USB connection.
***** Do not connect PCR-M with USB before completing the installation of Wavy.

Click to “Install” button to install Wavy.
Follow the prompts displayed on-screen 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 SPEC70598 Wavy for PCR-M Ver.5” and click the [Remove] button. Follow the prompts displayed on-screen to complete the uninstallation.

3 Starting up Wavy

From the [Start] menu at the left of the Windows screen, click [Program], [Kikusui], “SPEC70598 Wavy for PCR-M”, and the Wavy for PCR-M. The Startup screen shown in Fig. 3-1 should appear.

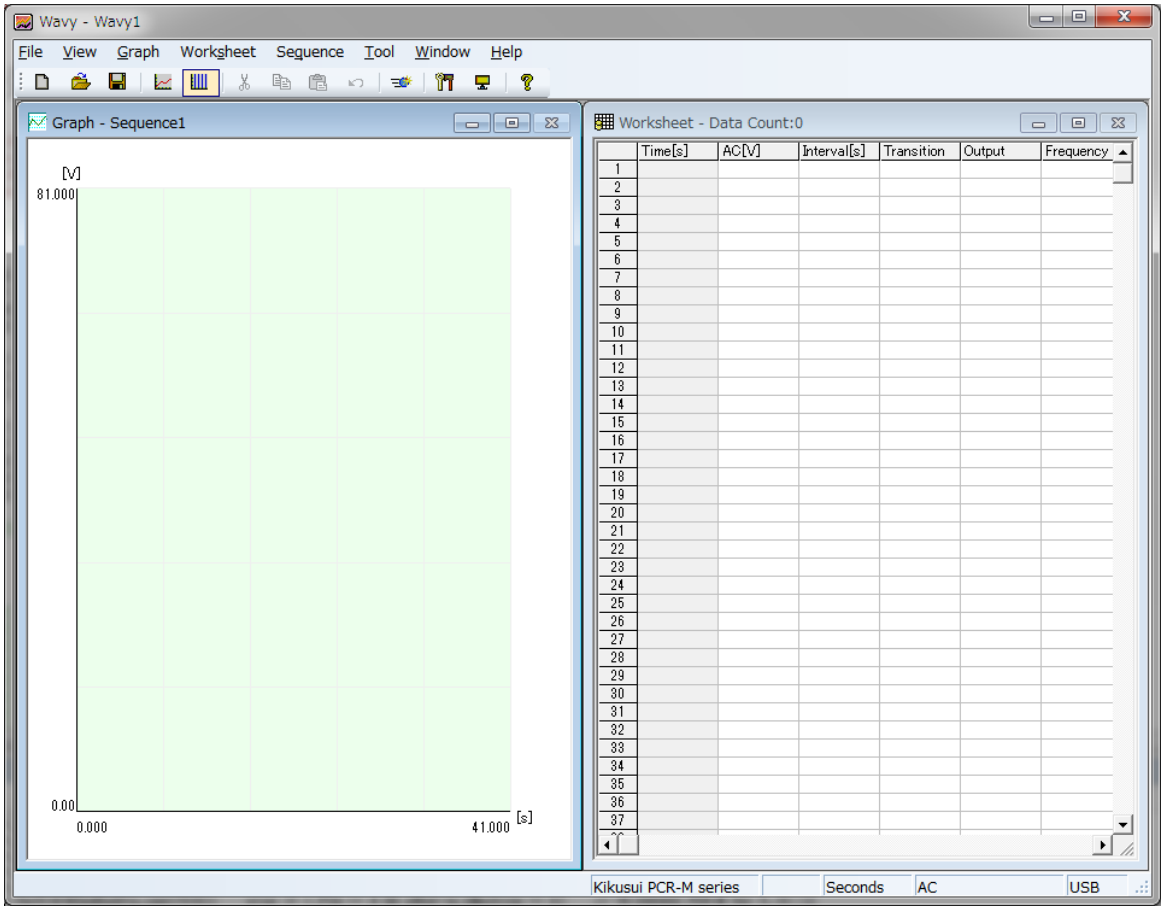


Fig. 3-1 Startup Screen

The Wavy operation procedure is:

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

* Before executing the sequence, be sure to set the interface and node.

Fig. 3-2 shows the screen displayed when the “PcrmTestData.wvy” file has been loaded intot Wavy. “PcrmTestData.wvy” is located in the folder which Wavy has been installed (*1).

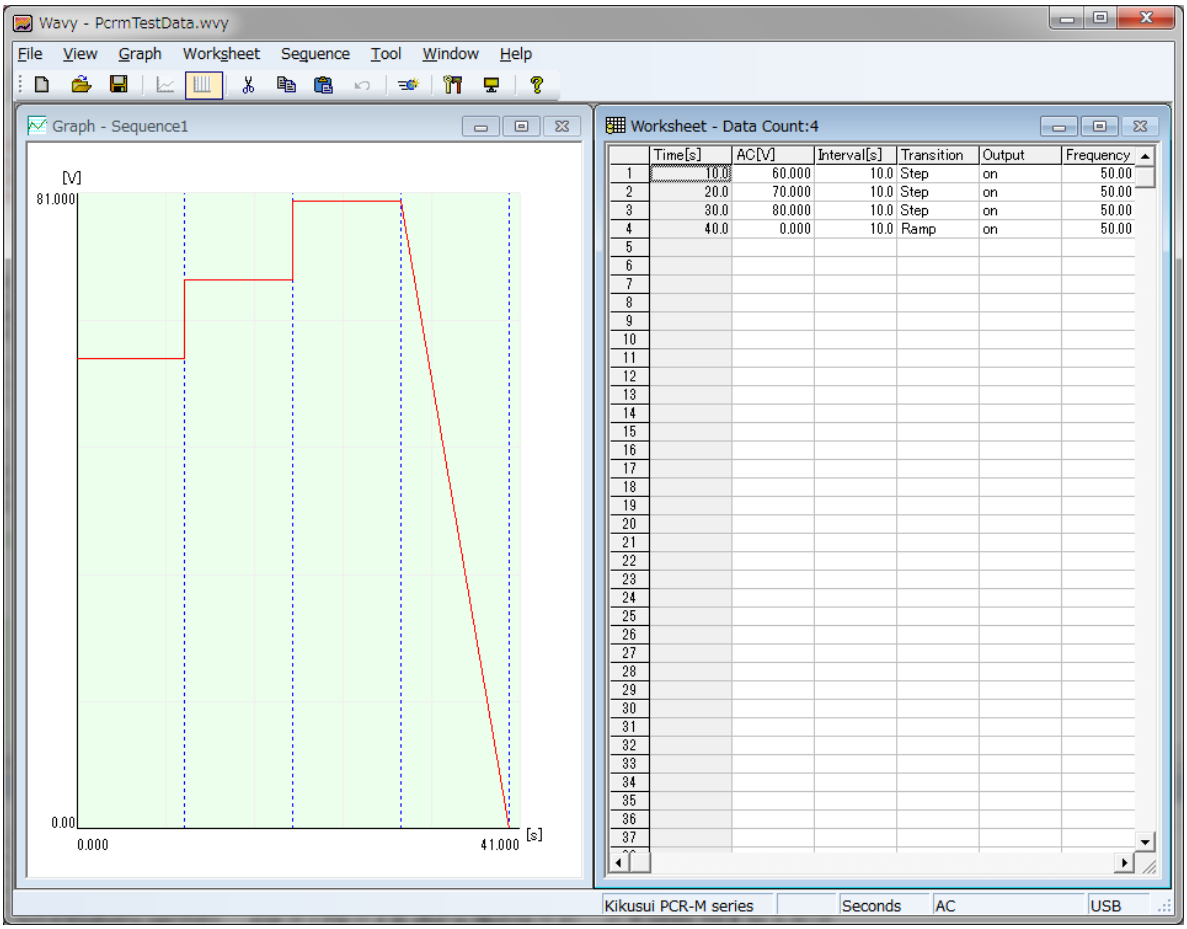


Fig. 3-2 Test Data Screen

(*1) In Windows 7 and Vista, the ”WavyPcrm” folder is made for “Users/Public/Documents”.

4 Setting up the Interface

Select [Interface] from the [Sequence] menu. The [Interface] dialog appears (Fig. 4-1).

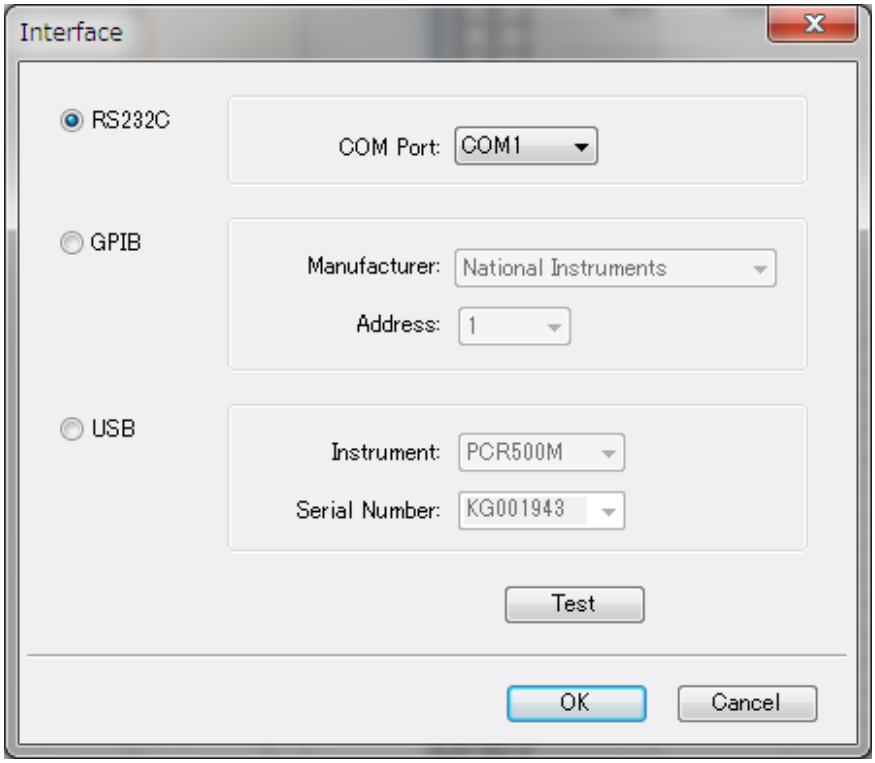


Fig. 4-1 Setting up the Interface

Conduct the interface setting for connecting the PCR-M series.
After the setting is completed, click the button [Test] to confirm the status whether communication with the equipment properly.
If it works properly, the model name and the serial number will be displayed in the message box.

● In case of RS232C interface, the communication protocol setting is set to the default setting. When the setting was changed, please return the setting to the default setting.

PCR-M series	Transfer rate	19,200 bps
	Data bit length	8 bit
	Stop bit length	1bit
	Parity bits	None

Table 4-1

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

***** For RS232C, use the cross cable.

* When using a USB serial converter for connecting RS232C, it may not be functioned properly.

- When connecting to GPIB, select the used name of manufacturer and agree the setting GPIB address. 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 communication driver API-GPIB (98/PC) W95, NT Ver. 3.50 or later
Interface	GPC-4301 for Windows Ver.1.10-06 or later
Agilent 82357B USB/GPIB	Agilent IO Libraries Suite Version 15.0

Table 4-2

* For setup of a GPIB driver, see the operation manual of the relevant manufacturer.
* To activate the software on Windows 7 and Vista, the latest GPIB driver is required to be installed. Please download the latest driver from the web site respectively.

● For USB connection, enter the serial number of the PCR-M series. 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 (*1).

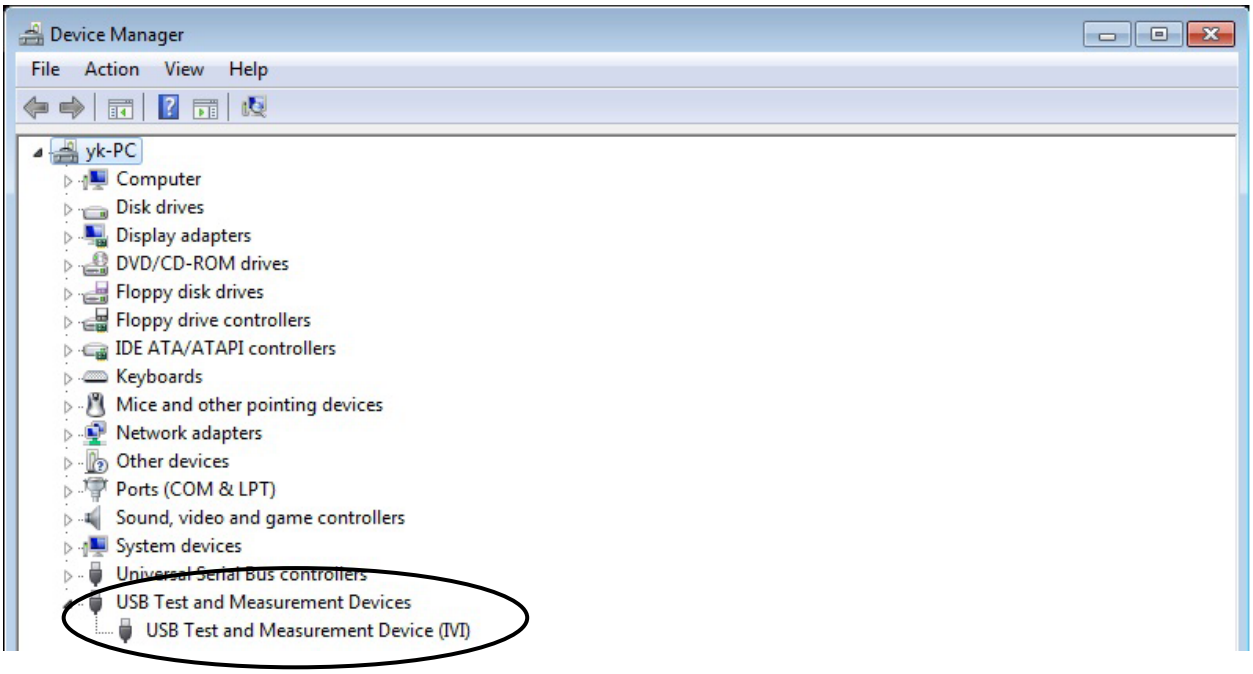


Fig. 4-2 USB connection (properly connected)

(*1) Depending the USB driver, model or series name may be shown.

5 Setting the Mode

Select [Mode] from the [Sequence] menu. The [Mode] dialog appears (Fig. 5-1).

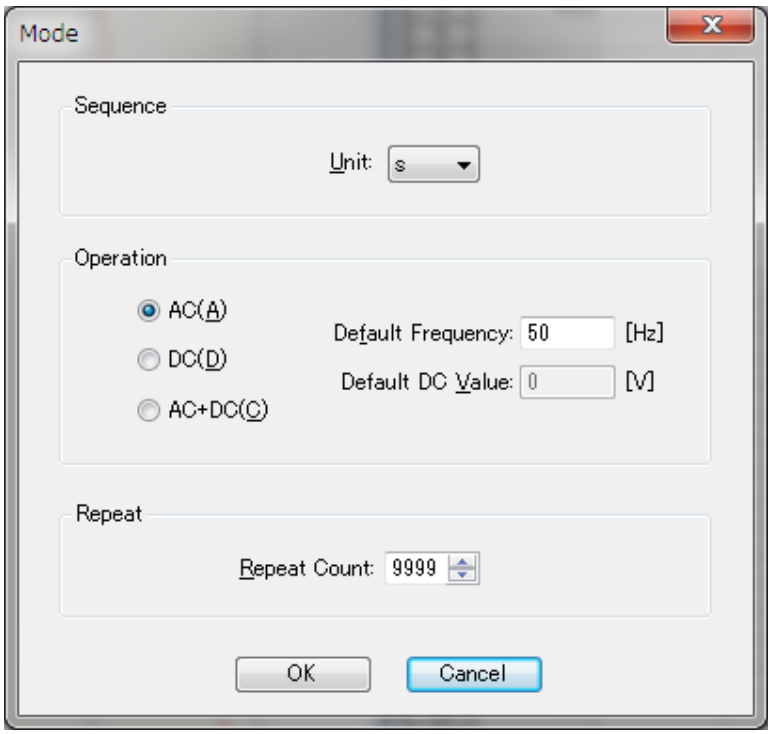


Fig. 5-1 Setting the Mode

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

Mode	Seconds	0.5 ～ 999.5 [s]
	Minutes	0.1 ～ 999.9 [min]
	Hours	0.1 ～ 999.9 [h]

Table 5-1 Data Range

The setting interval of the ramp transition is 0.5 s for Second Mode and 1 s for Minute and Hour Modes.

Table 5-2 shows the operation modes.

AC Voltage
DC Voltage
AC + DC Voltage

Table 5-2 Operation Modes

The default frequency and DC values are the values that are automatically filled in the the cell of the sequence creation sheet when a new sequence data is created.

The range of the repeat count is 1 to 9999.

6 Protection Setup

Select [Protection Setup] from the [Sequence] menu. The [Protection Setup] dialog appears (Fig. 6-1).

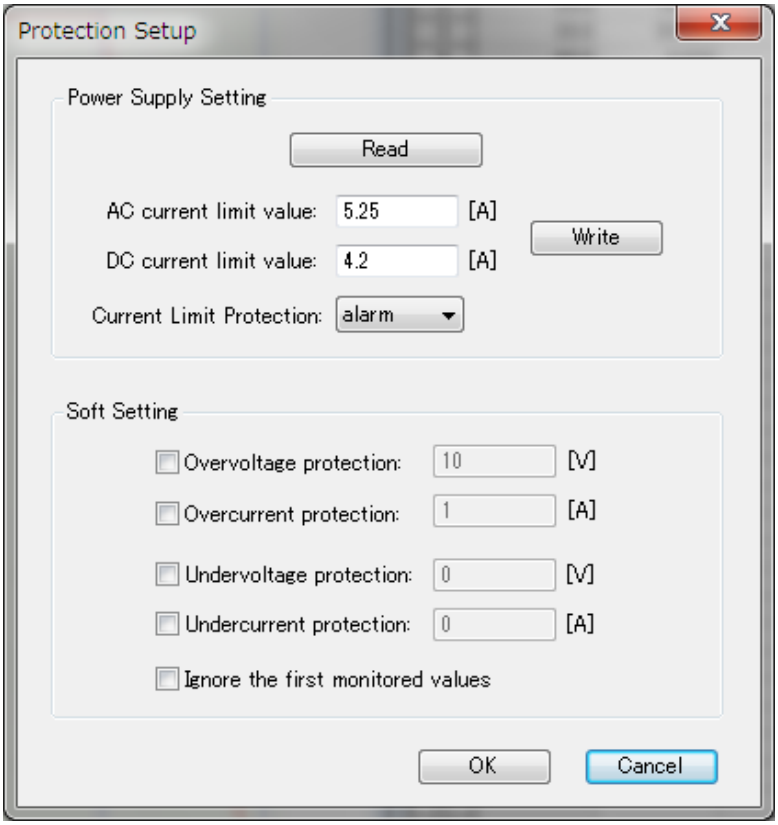


Fig. 6-1 Protection Setup

The hardware settings deal with the internal protective features of the PCR-M.
The software settings deal with how the software uses the monitored data to protect the hardware.

● Hardware Settings

If you click “Read” button, the software loads the AC current limit value, DC current limit value, and the current limit settings from PCR-M. If you click “Write” button, the software writes the specified AC current limit value, DC current limit value, and current limit settings to the PCR-M. The current limit protection consists of two types of operations: alarm operation and CC limit operation.

● Software Settings

When the overvoltage or undervoltage protection or overcurrent or undercurrent protection check box is selected, the software stops sequence execution when the monitored value exceeds or goes below the specified value. This protection feature only functions when monitoring is taking place.

If you select “Ignore first monitored value” check box, the first monitored value after sequence execution is ignored.

7 Creating and Editing Sequence Data

(1) Move the mouse pointer to the Y-axis. This causes the pointer to change to a crosshair (Fig. 7-1). At that location, hold down the left mouse button and drag the mouse with the crosshair (Fig. 7-2). Release the left button at any location to establish that data point (Fig. 7-3).

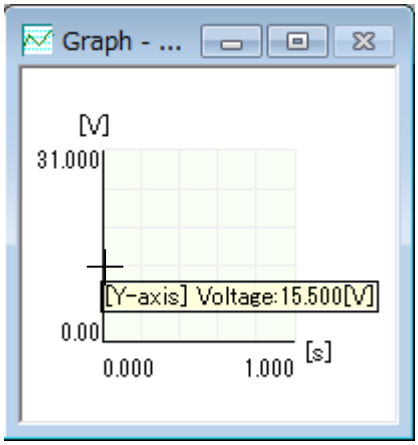


Fig. 7-1 Start Point of the Mouse

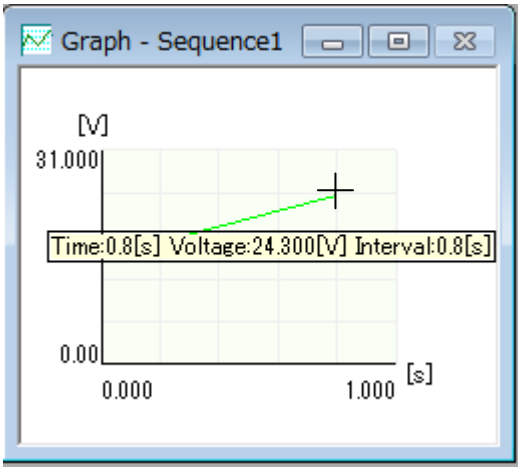


Fig. 7-2 Moving the Mouse

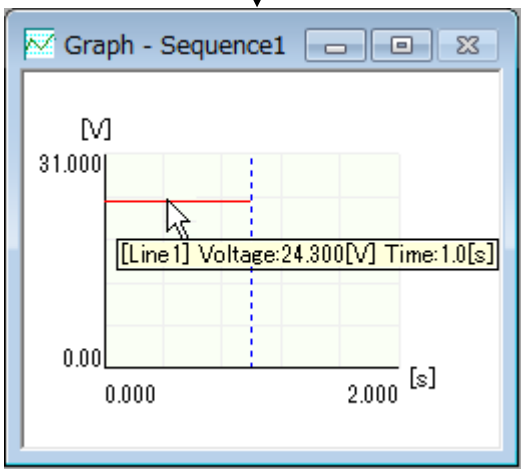
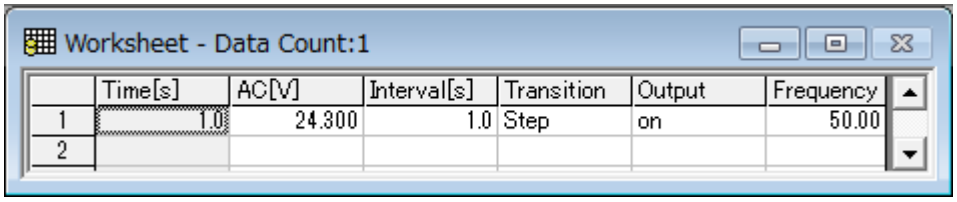


Fig. 7-3 End Point of the Mouse

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



	Time[s]	AC[V]	Interval[s]	Transition	Output	Frequency
1	1.0	24.300	1.0	Step	on	50.00
2						

Fig. 7-4 Display of Data in Cells

* Frequency is the default frequency value (Fig. 5-1).

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. 7-5). After editing, press the [Enter] key to confirm the change.

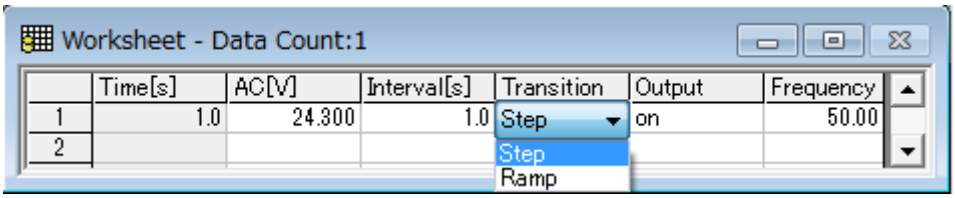


Fig. 7-5 Editing Data in a Cell

(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 7-6).
Move the mouse pointer over the black point, and, when the pointer changes to an arrow (Fig. 7-7), hold down the left mouse button to select that point and drag the mouse up or down (Fig. 7-8). Release the left button at any location to establish that data point.

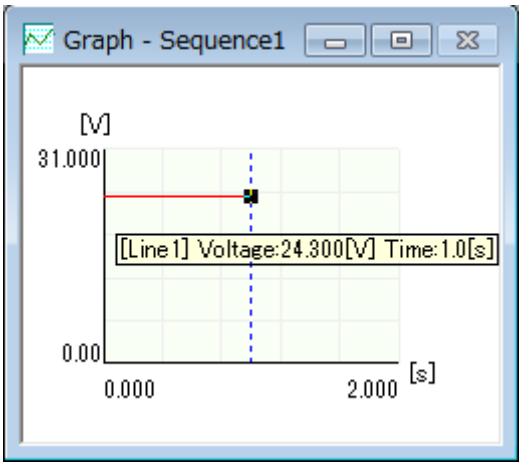


Fig. 7-6 Selecting the Line to be Changed

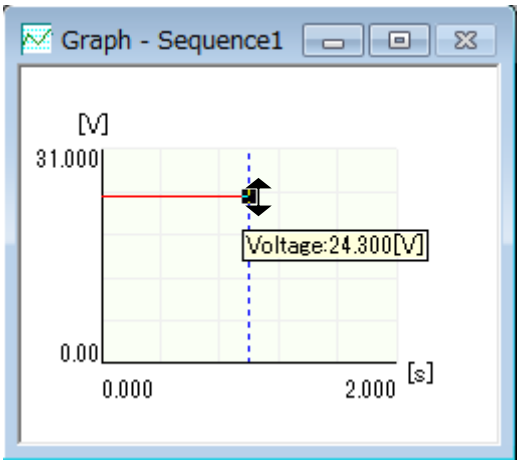


Fig.7-7 Start Changing the Data

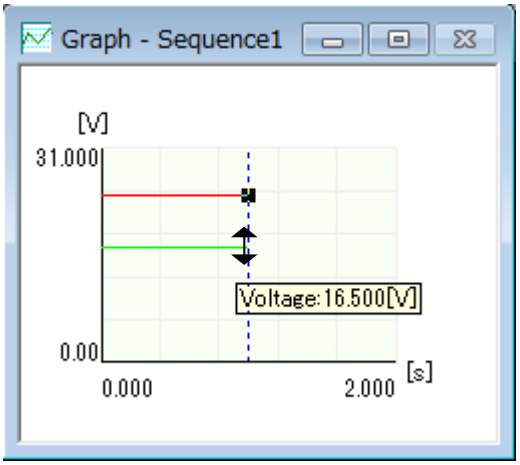


Fig. 7-8 Moving to the Desired Position

* 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.

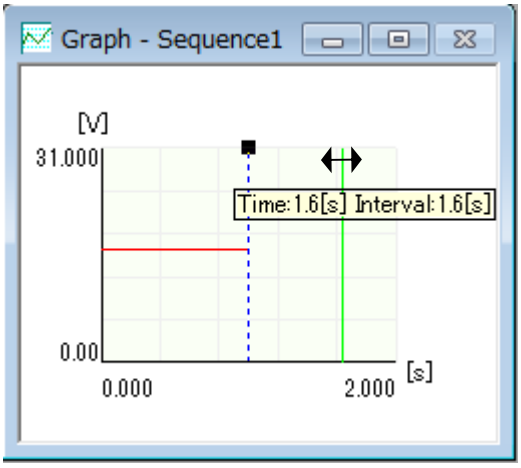


Fig. 7-9 Moving to the Desired Position (time)

* 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. 7-10). At this stage, press the right mouse button (Fig. 7-10).

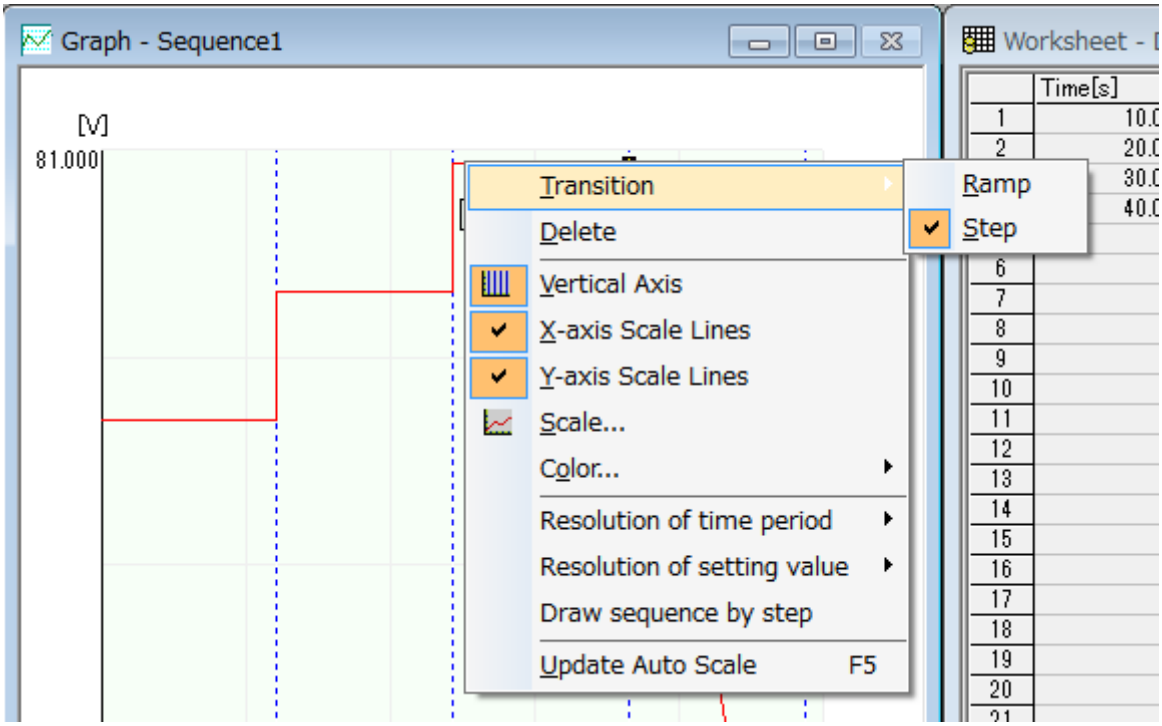


Fig. 7-10 Transition Change

* When creating the sequence by a mouse, decimal point can be selected by setting [Resolution of time period] and [Resolution of setting value]. Selecting [Draw sequence by step] allows you to create the sequence transition by step at all times, instead of ramp transition. (Fig. 7-10)

* You can also delete, copy, or insert multiple lines. To perform these actions, press the right mouse button (Fig. 7-11).

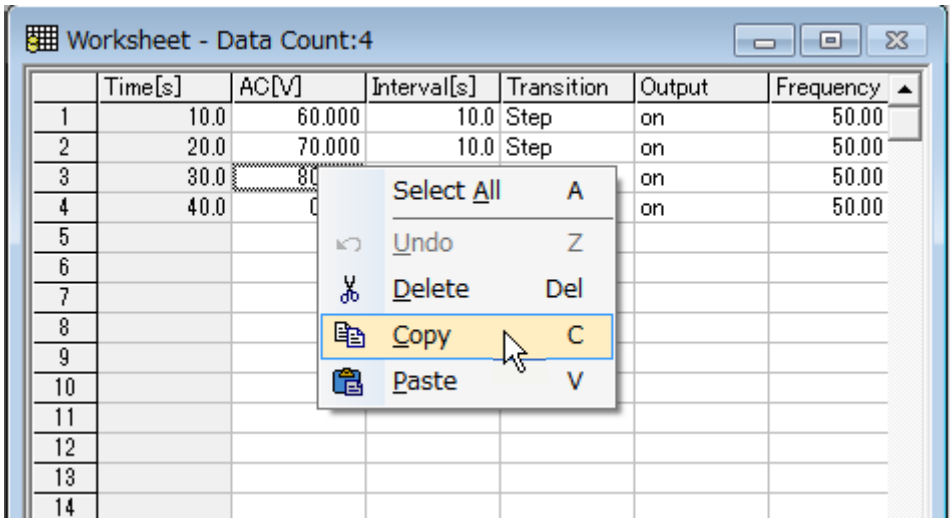


Fig. 7-11 Delete, Copy, and Paste

* 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.

* The shortcut keys in Fig. 7-11 work by themselves and in combination with the CTRL key.
* If you want to insert a new line, copy a line, insert it where you want to insert a new line, and then change the inserted data.

* When AC+DC mode is selected, DC[V] is added. (Fig. 7-12)

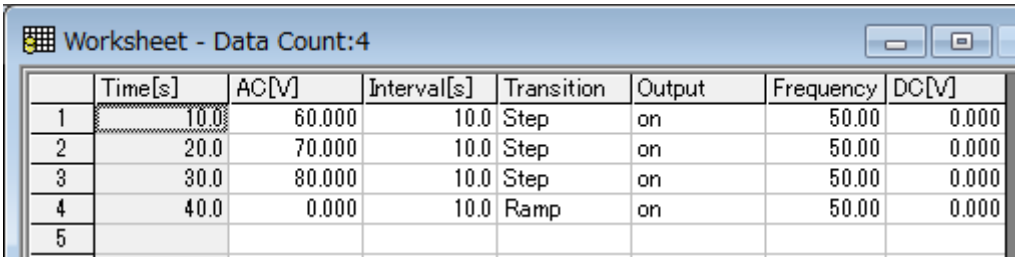
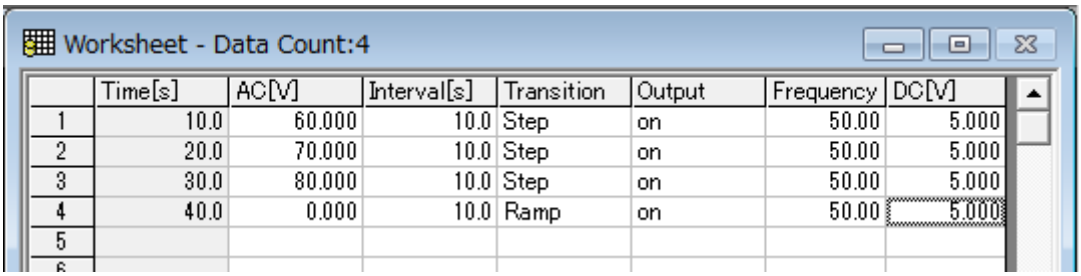


Fig. 7-12 AC+DC

8 Saving Sequence Data as a File

(1) Create sequence data as shown in Fig. 8-1 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]	AC[V]	Interval[s]	Transition	Output	Frequency	DC[V]
1	10.0	60.000	10.0	Step	on	50.00	5.000
2	20.0	70.000	10.0	Step	on	50.00	5.000
3	30.0	80.000	10.0	Step	on	50.00	5.000
4	40.0	0.000	10.0	Ramp	on	50.00	5.000
5							

Fig. 8-1 Data in Cells

(2) Open the “Wavy1.wvy” file in Notepad (Fig. 8-2).

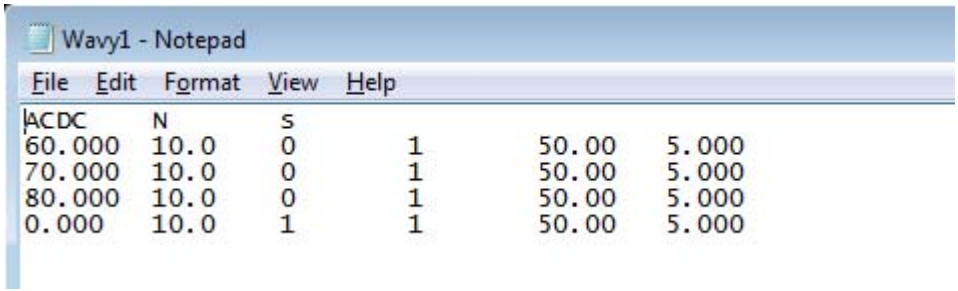


Fig. 8-2 Opening the File in Notepad

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

1st item	CV CC	Constant voltage mode Constant current mode
2nd item	N	Always specify N
3rd item	s min h	In seconds In minutes In hours

Table 8-1 File Format

The 2nd and 6th lines are sequence data. The contents are as shown below:

1st data	AC Voltage [V], DC Voltage [V] in DC mode.
2nd data	Time interval. The units are [s], [min], or [h].
3rd data	Transition. “0” represents step, while “1” denotes ramp.
4th data	Output. “0” represents off, while “1” denotes on.
5th data	Frequency
6th data	DC Voltage [V]. Only for AC+DC mode.

Table 8-2 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 Setup).

9 Processing Sequence Data

9.1 Processing

To process the sequence data input, select [Run] from the [Sequence] menu. The [Run] dialog will appear (Fig. 9-1).

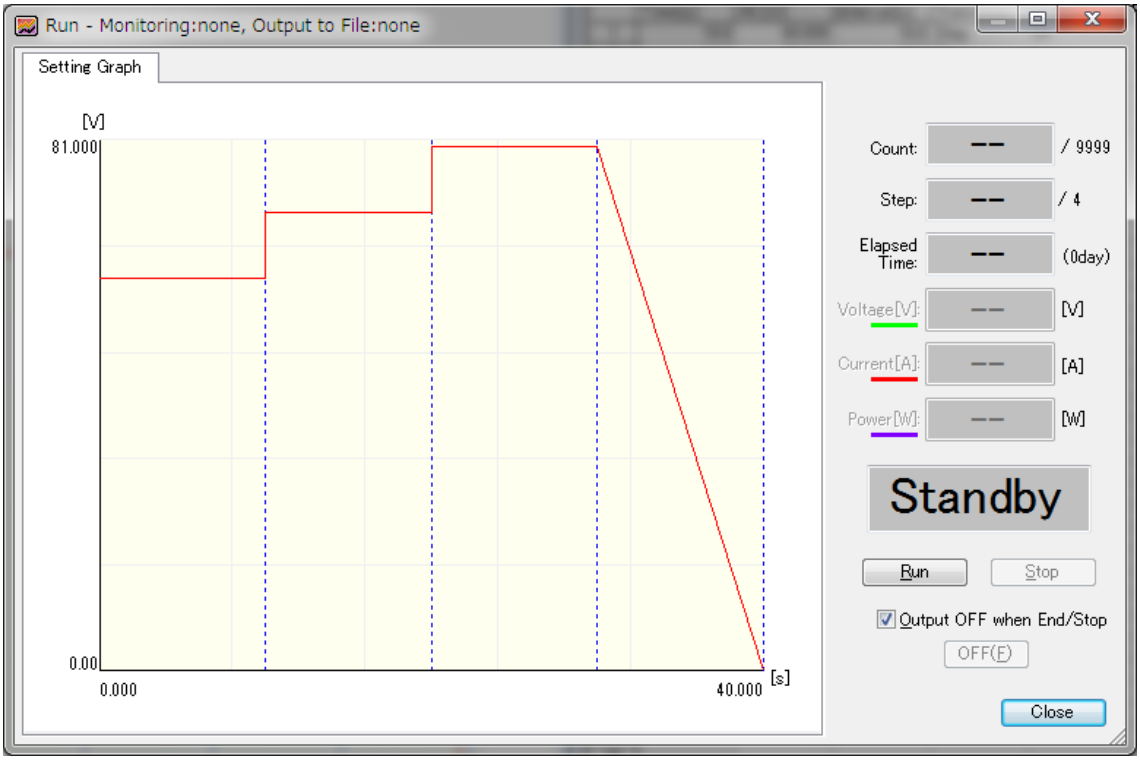


Fig. 9-1 Processing

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 has occurred. Confirm that the interface settings are correct.
OVP, OCP, UVP, UCP	Yellow	Overvoltage, overcurrent, undervoltage, or undercurrent protection was activated. (software protection function)
OVP, OCP, UVP	Orange	Overvoltage, Overcurrent, or undervotage protection was activated. (Hardware protection function)

Table 9-1 Status

If the [Output OFF when End/Stop] checkbox has been selected (checked), Output is turned OFF when Sequence operation is completed or is stopped during processing. If the check box is not selected, the [OFF] button becomes valid, and you can turn off the output by clicking it.

Fig. 9-2 shows the screen displayed during processing of a sequence.

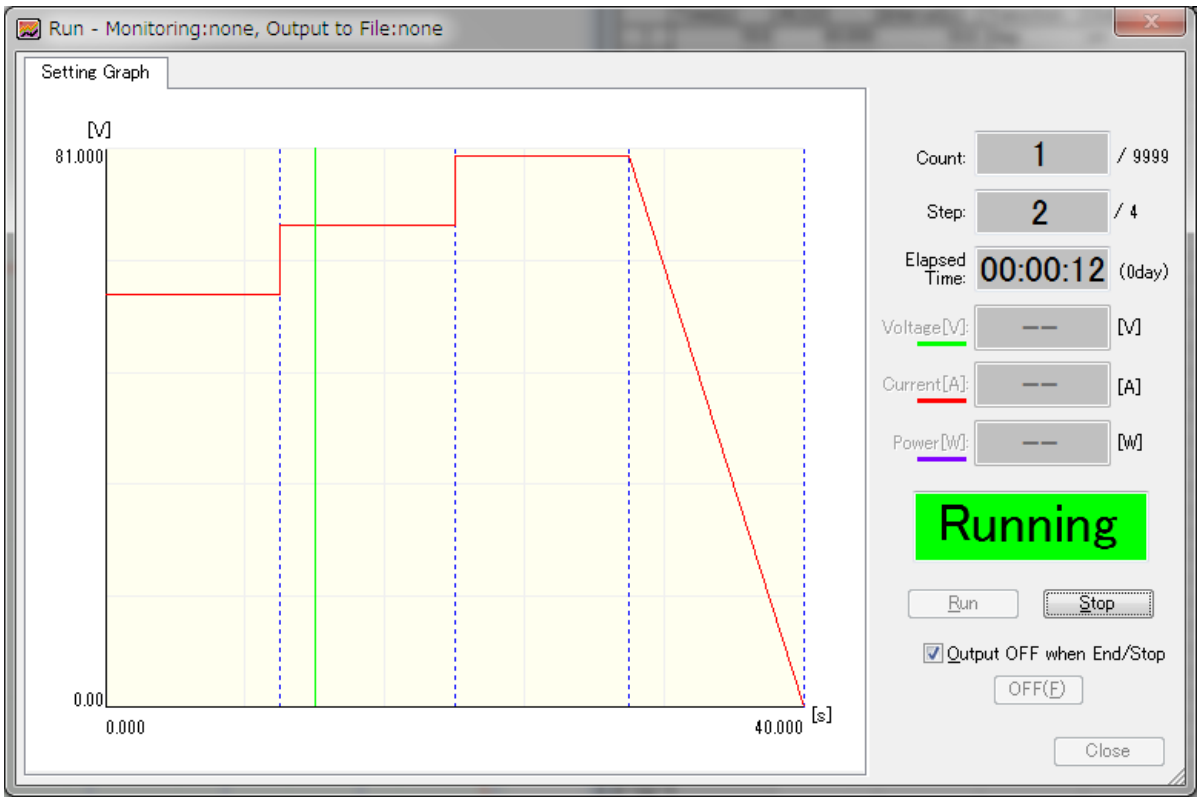


Fig. 9-2 Sequence Being Processed

The screen shows the number of repetitions (counts), step position, and elapsed time. If current, voltage, or/and power is/are selected in the monitoring settings, the output current value, output voltage value, or/and output power value will be displayed. For monitoring setting, see “10 Monitoring Setup.

* The title of the dialog indicates monitoring and file information.
* The position line (green vertical line in Fig. 9-2) indicates the approximate position of the sequence being processed.
* During sequence execution, you cannot maximize or resize the [Run] window.

[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.**

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

Fig. 9-3 Sequence is being processed (with monitoring activated)

Right-click on the execution graph (Fig. 9-4) to change the display settings of the execution graph.

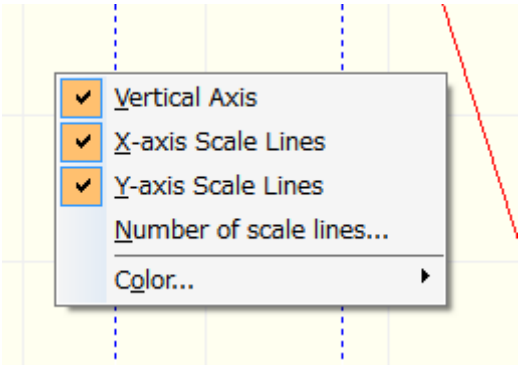


Fig. 9-4 Display settings of the execution graph

9.2 Real-time Monitor Graph

If you click the Monitor Graph tab in the upper left of the screen shown in Fig. 9-3, the monitored values are shown on a graph (Fig. 9-5).

Fig. 9-5 Monitor Graph

Right-click on the monitor graph (Fig. 9-6). You can change the monitor graph settings.

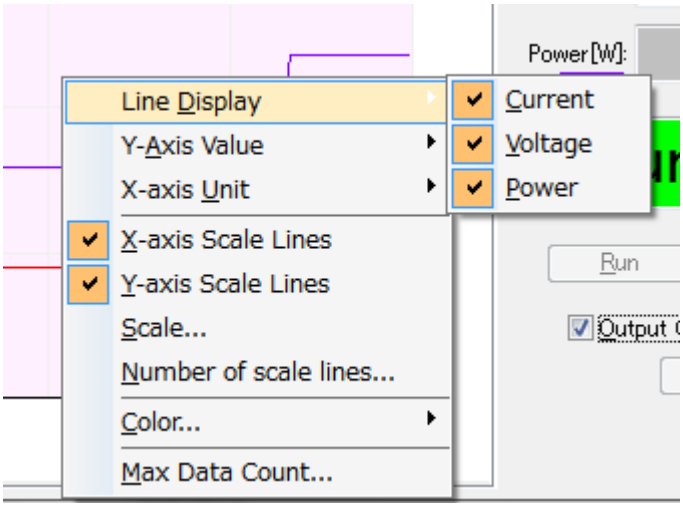


Fig. 9-6 Monitor graph settings

If you click on the tab [Setting/Monitor graph] above on the left of window, it shows both the setting graph and the real time monitor graph on the display. (Fig.9-7)

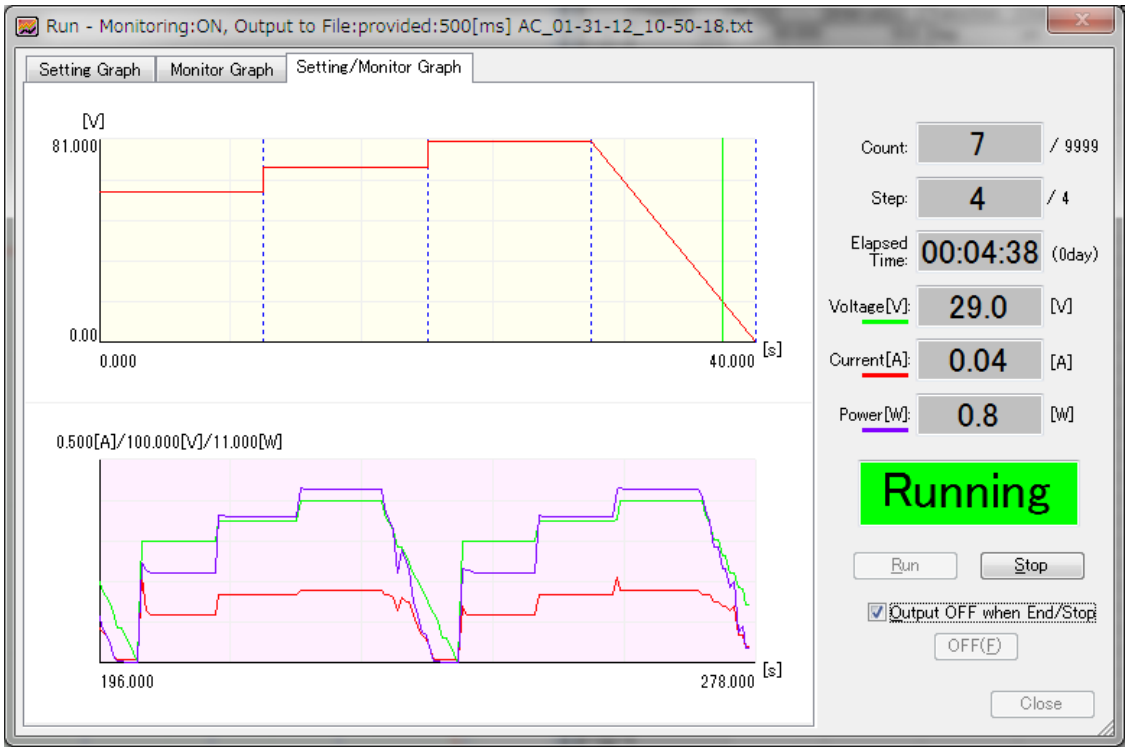


Fig. 9-7 Setting Graph and Monitor Graph (Roll mode)

The time axis (X axis) of the monitor graph (Fig. 9-7) is roll mode. It is like an image of oscilloscope. The time axis (X axis) of the monitor graph (Fig. 9-8) is normal mode. The starting point is fixed.

Fig. 9-8 Setting Graph and Monitor Graph (Normal Mode)

When [Scale] is selected in Fig. 9-6, the Fig.9-9 will be displayed.

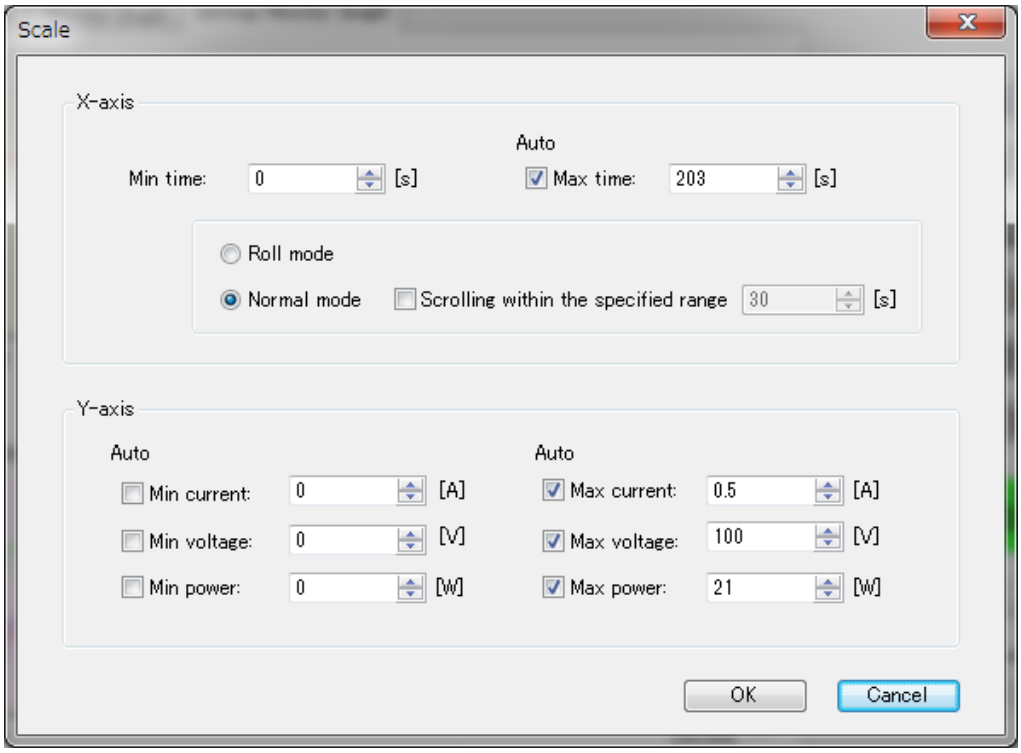


Fig. 9-9 Monitor graph scale settings

In case the [AUTO] is selected (Checked in the box), the value will be automatically changed to the most reasonable value when the maximum value exceeds the monitor value. (Auto scale function) It works the same for the minimum value. If you wish not to change the setting value, remove the check mark from its check box. In such case, pay attention that it may not be displayed in the graph if the monitor value is out of specified range.

The auto scale function on the X axis has two types of mode, roll mode and normal mode. The roll mode is to scroll the minimum and the maximum of the X axis at the same time. (Fig.9-7) The roll range is the width of between "the maximum time to the minimum time". The normal mode is fixed at the minimum value of the X axis, and only the maximum value can be changed. (Fig.9-8) Furthermore, when the [scrolling within the specified range] is selected in the normal mode, the data of setting time (data just prior the auto scale function is activated) will be displayed and scrolled. (It is like an image of a pre-trigger data)

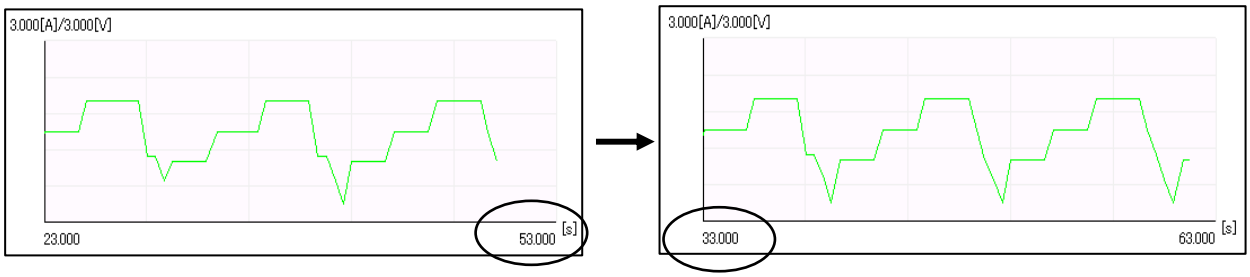


Fig. 9-10 Example of scrolling specified area

Fig. 9-10 shows an example for setting the specified area at 20[s]. When the data exceeds the maximum value of X axis, the minimum value of X axis is 53-20=33[s].

By specifying [X axis unit display] on the Fig 9-6, the unit display of X axis on the monitor graph can display the unit of either “[s]” or “[h:m:s]”.

If the [Maximum number of data] on the Fig.9-6 is selected, the Fig. 9-11 will be displayed.

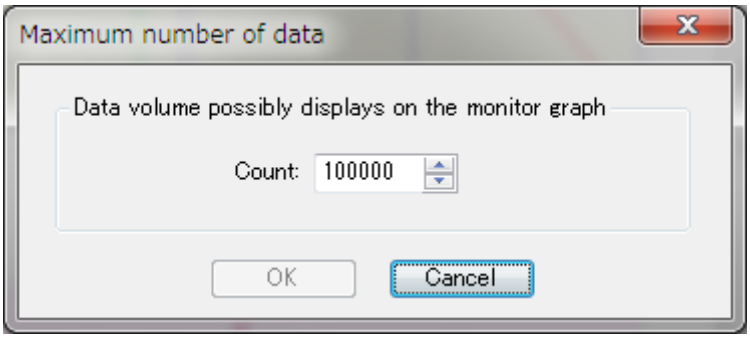


Fig. 9-11 Maximum number of data

When the test is conducted for long term period of time, the data volume of monitor graph will be increased and it reflects to suppress the memory capacity. Once the memory capacity becomes insufficient, considerable amount of load will apply to the PC and it may lead to possible malfunction of the operation. At this stage, set the maximum number of data that displays on the monitor graph. The setting range of the number of data is between 10,000 to 1,000,000. The default setting is 100,000. If the monitor graph data exceeds the setting number of data, it will delete from the oldest monitor data.

* It is roughly estimate that the one monitor data will consume approximately 200 byte. (It depends on the PC environment) If the monitor data is acquired every one second, it will be 86,400 units in 24 hours.

86,400 unit x 200B = approx.16.5MB

Please adjust to the most reasonable setting value according to the capacity of physical memory. (It depends on the PC environment)

* The setting for the maximum number of data does not affect to the generated monitor data file.
* The managing process for drawing the monitor graph on the display depends on the data volume and the display range will cause the load to the PC.
* If the long term test is conducted, it is recommended to monitor the status of physical memory using such the “Windows Task Manager”.

10 Monitoring Setup

Select [Monitoring Setup] from the [Sequence] menu. Then the [Monitoring Setup] dialog appears (Fig. 10-1).

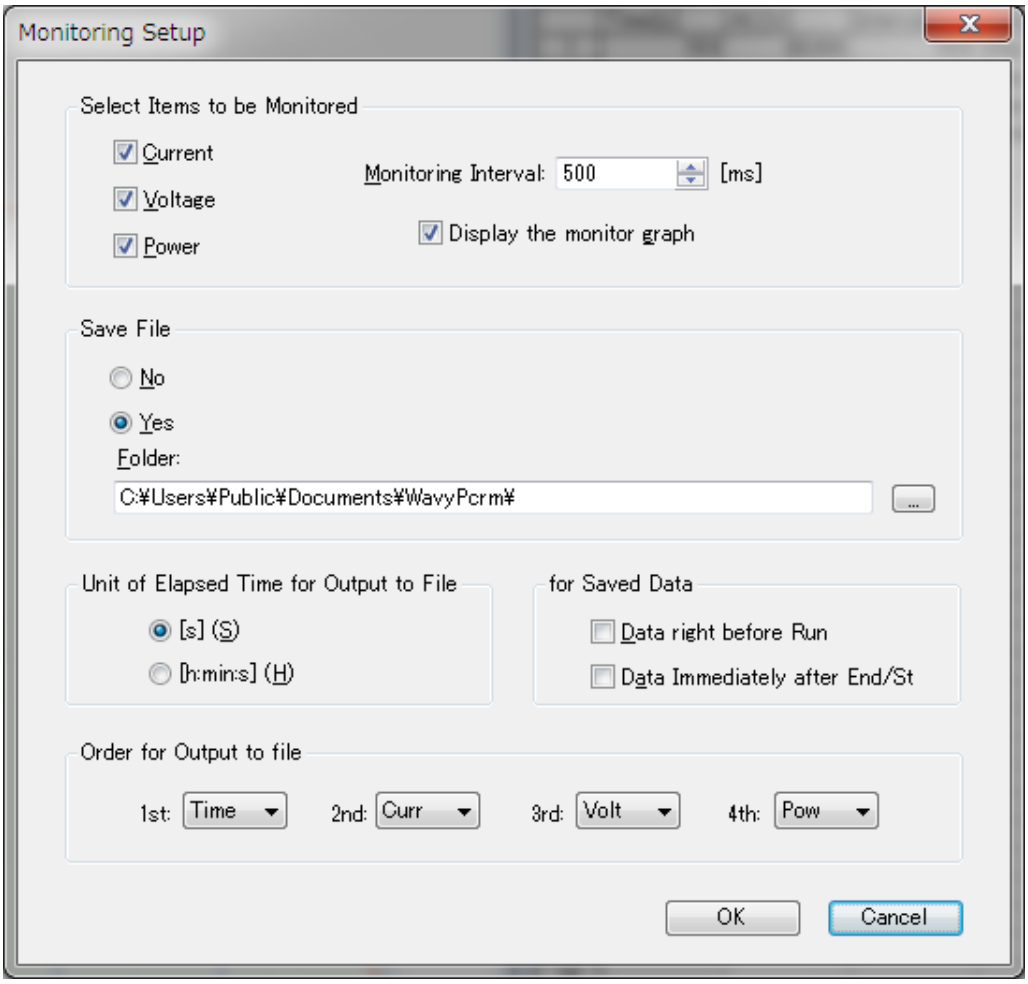


Fig. 10-1 Monitoring Setup

If the Current checkbox has been checked, the “output current value” will be displayed during processing of the sequence.
If the Voltage checkbox has been checked, the “output voltage value” will be displayed during processing of the sequence.
If the Power checkbox has been checked, the “output 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. 10-2 shows a monitored-data output file.

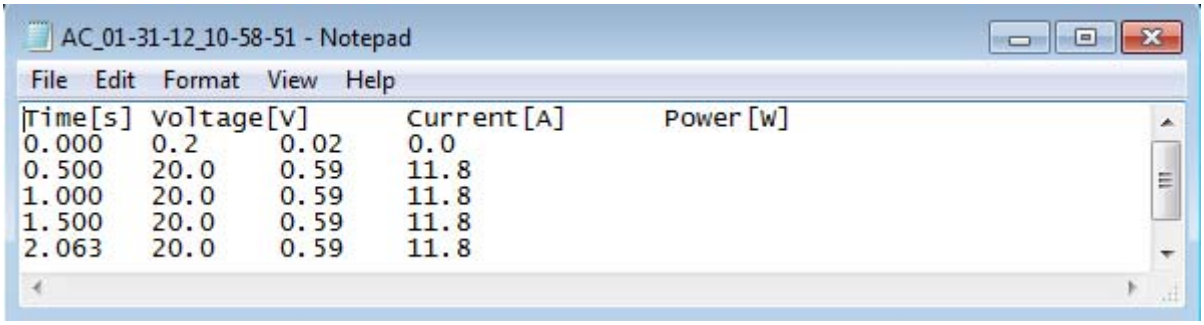


Fig. 10-2 Monitored-data Output File

In the example in Fig. 10-2, the monitored data file name is as shown below (Table 10-1).

AC_01-31-12 _10-58-51.txt

(1) (2)

(1) AC: AC mode, DC: DC mode, ACDC: AC+DC mode
(2) Date and time of the start of sequence processing

Table 10-1 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 Setup”).

If the [Data right before Run] 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 End/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.

11 Graph Scale Setup

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

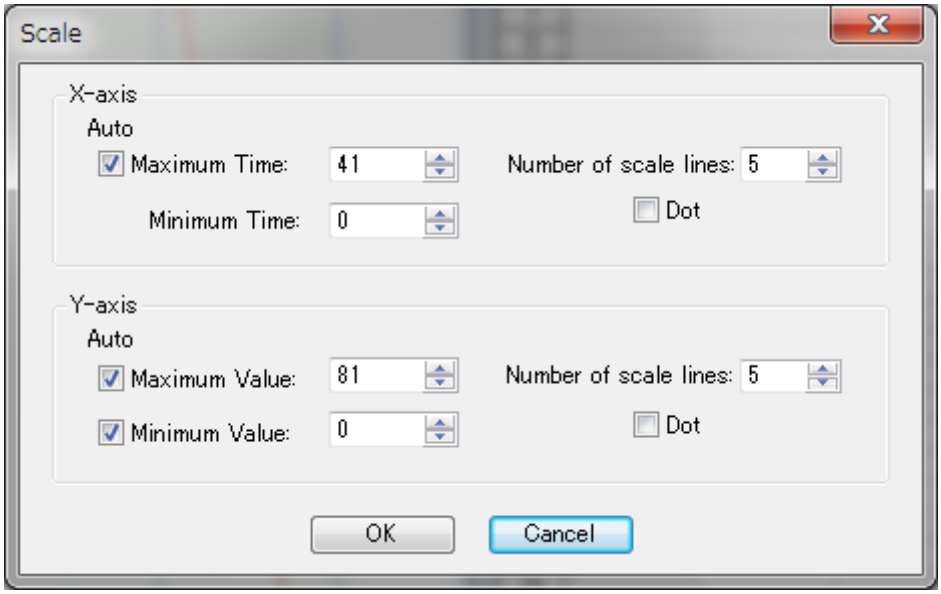


Fig. 11-1 Setting the Graph Scale

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.

If [dot-line] check box is selected, the scale lines become dot-line.

12 Environment Setup

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

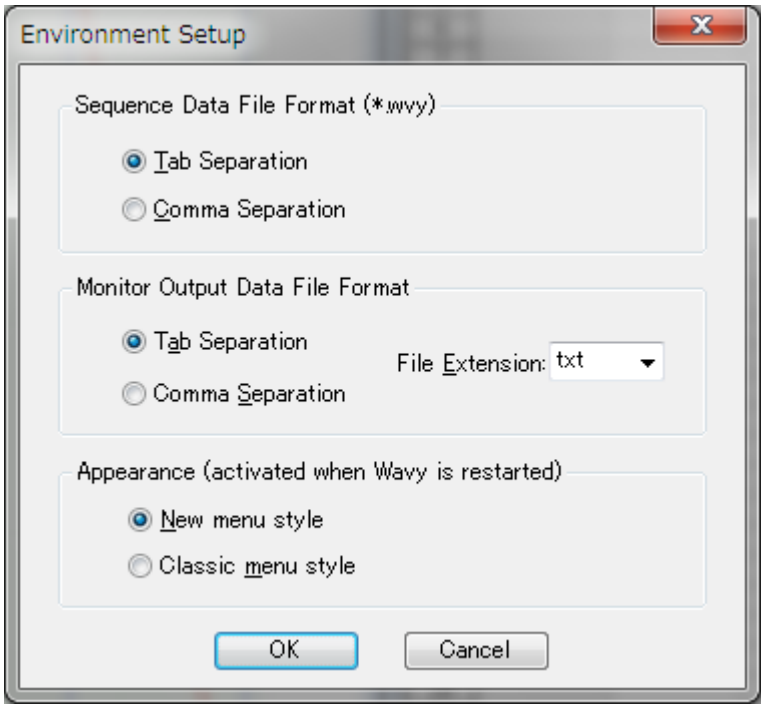


Fig. 12-1 Environment Setup

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 “8 Sequence Data File.”
* For monitoring output data files, see “10 Monitoring Setup.”

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

* The Monitoring Output Data File can be easily opened on Excel by changing to csv file format.

13 Other Settings

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

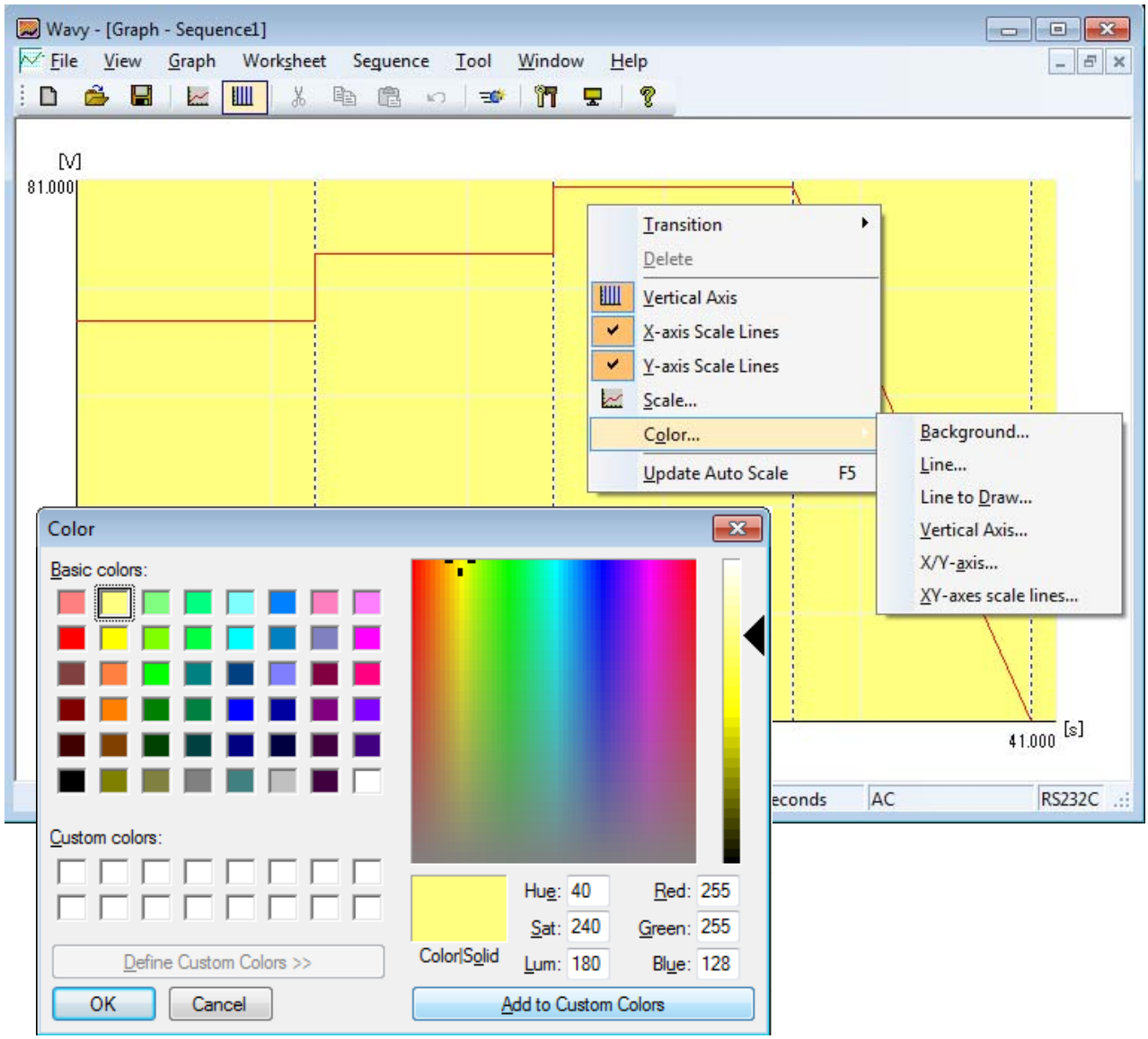


Fig. 13-1 Changing the Colors of a Graph

* [Line to Draw] applies to both the line color of mouse movement (Fig. 7-2)

14 Remote Control Panel

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

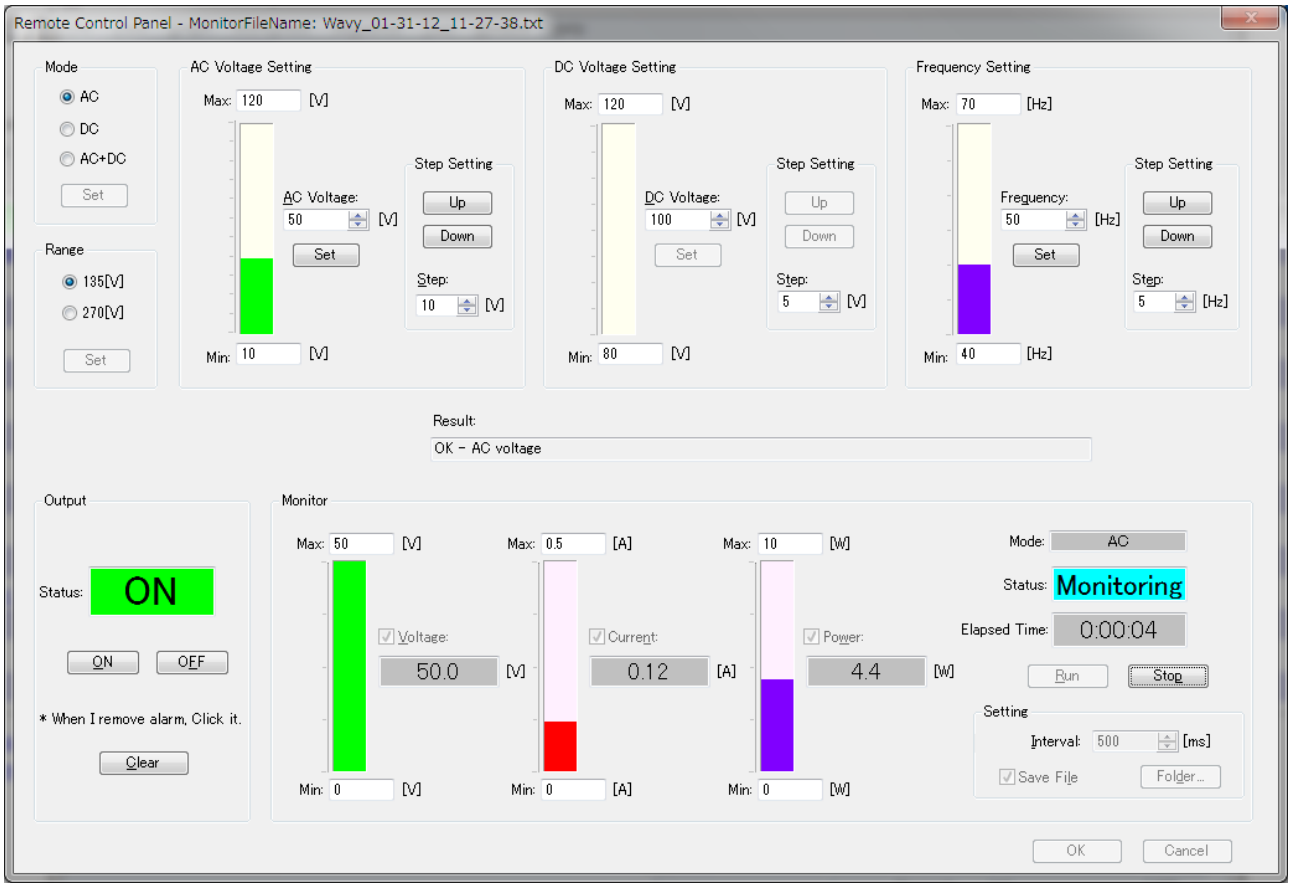


Fig. 14-1 Remote Control Panel

This function is to conduct independently besides the sequence function for setting the AC voltage, DC voltage, frequency, 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 AC voltage, DC voltage, and frequency 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 AC voltage setting, it is set for the total of 85 V, the setting voltage of 80 V plus the step value of 2 V (80 V + 2 V = 14 V).

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_04-22-09_11-02-04.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)

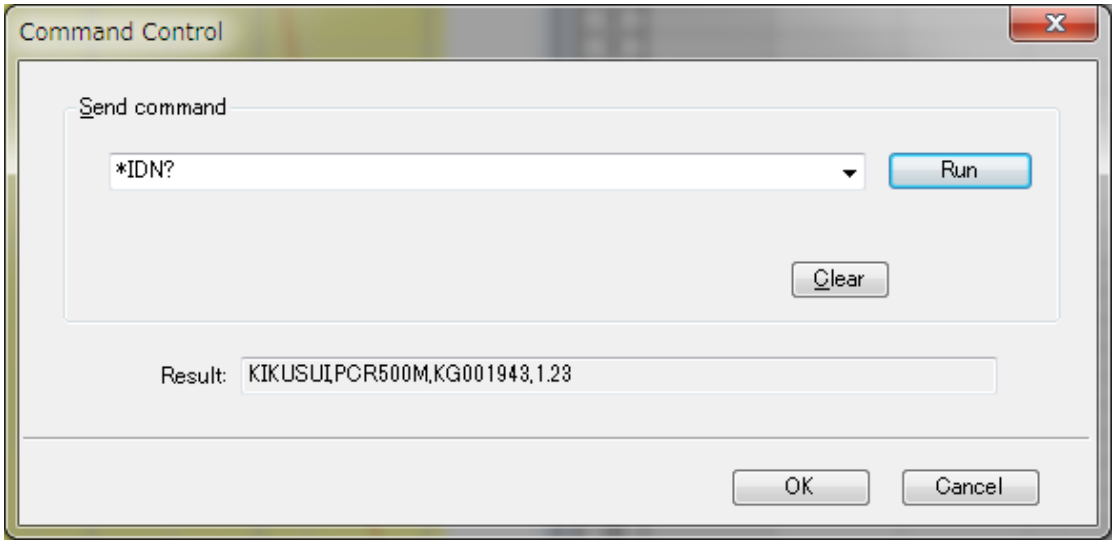


Fig. 15-1 Command Control

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

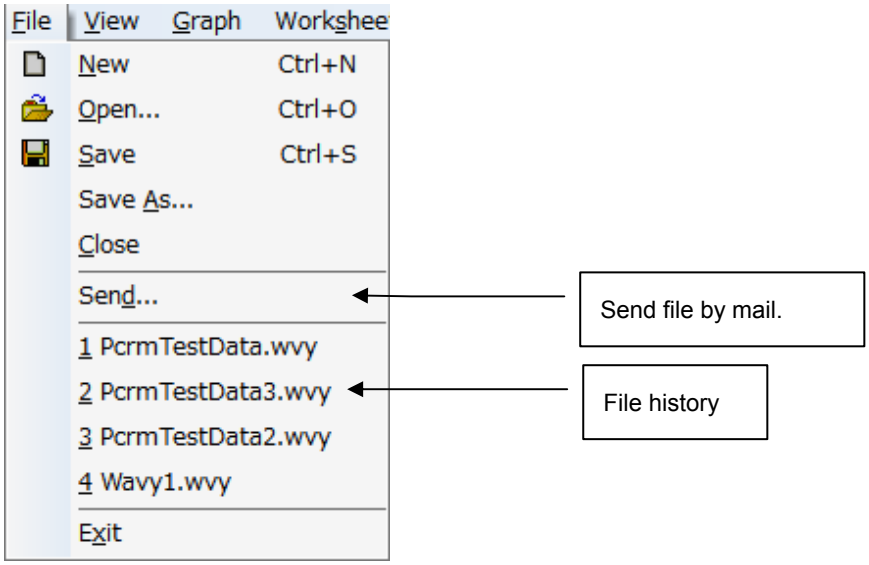


Fig. 16-1

16.2 View

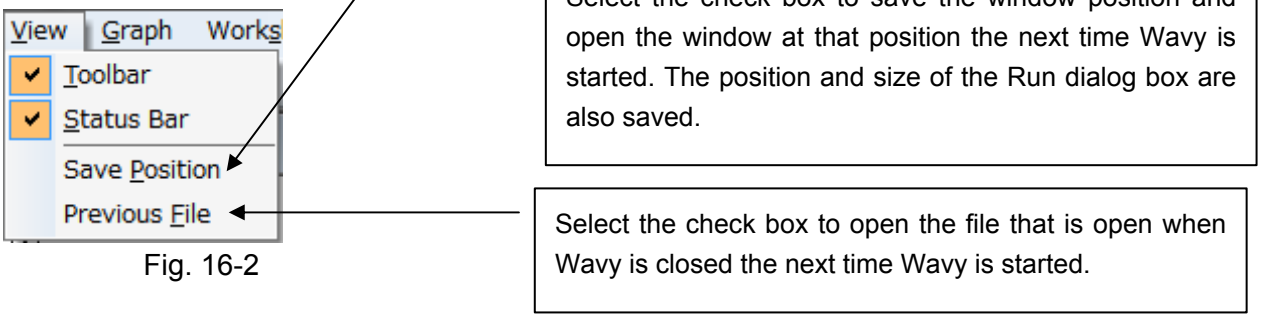


Fig. 16-2

16.3 Graph

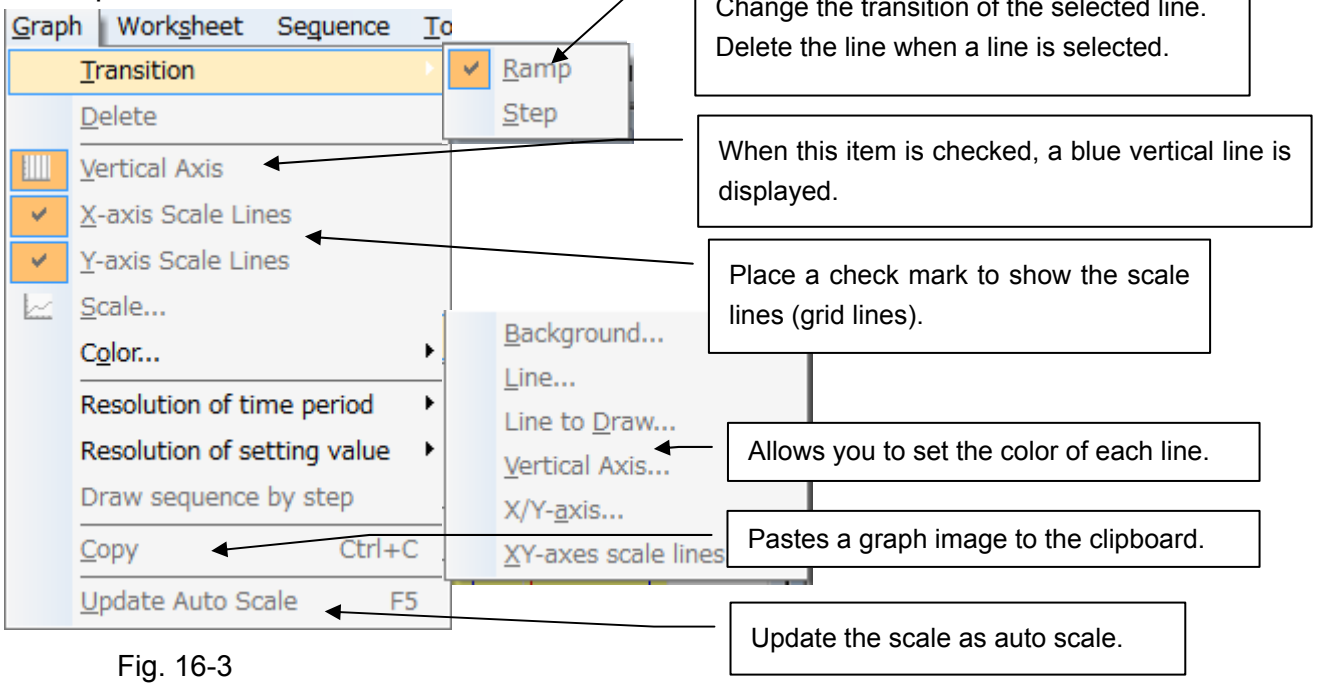
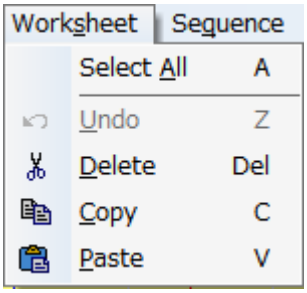


Fig. 16-3

16.4 Worksheet



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

Fig. 16-4

16.5 Sequence

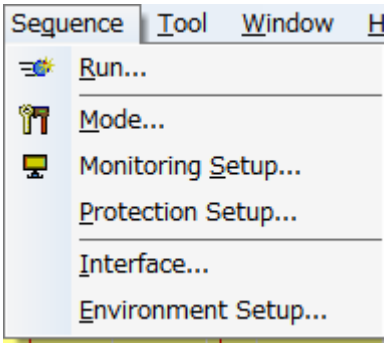


Fig. 16-5

16.6 Tool

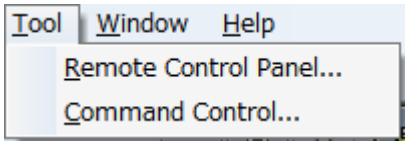


Fig. 16-6

16.7 Windows

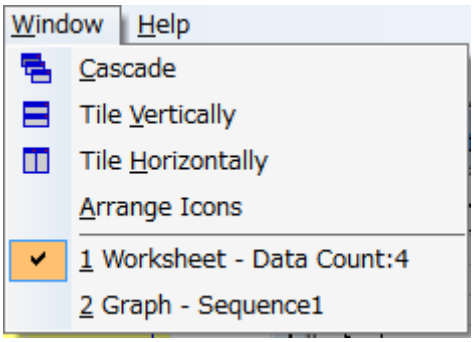


Fig. 16-7

17 Toolbar and Status bar

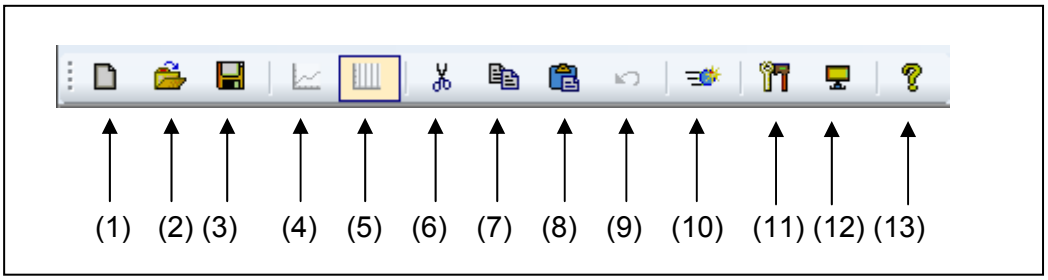


Fig.17-1 Toolbar

(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) Run
(11) Mode
(12) Monitoring Setup
(13) About Wavy

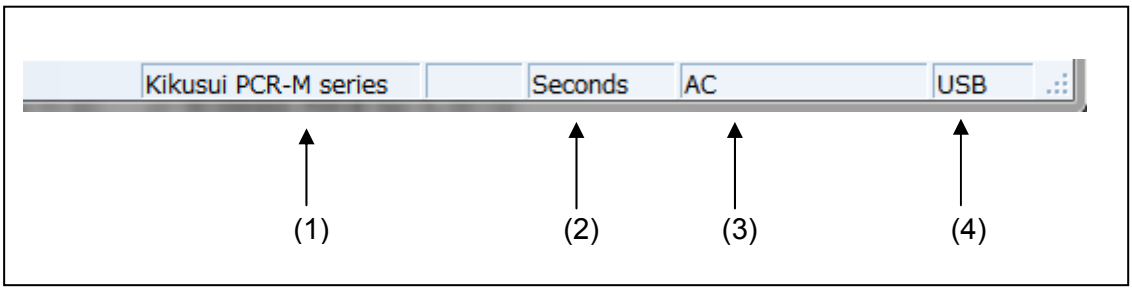


Fig.17-2 Status bar

(1) Instrument name
(2) Time units seconds, minutes, or hours
(3) Operation mode AC, DC, or AC+DC
(4) Interface RS232C, GPIB, or USB