CONTROL SOFTWARE FOR DP-G SERIES

INSTRUCTION MANUAL

NF Corporation

DA00027466-001

CONTROL SOFTWARE FOR DP-G SERIES

Instruction Manual

Preface

Thank you for purchasing our Programmable AC Power Source DP-G Series.
For safe and correct use of the electrical product, please first read "Safety Precautions" on the next page.

- Alert symbols in this manual

This manual uses the following alert symbols.

⚠CAUTION

It contains cautions about working with the program.

- This manual consists of the following chapters.

If it is the first time for you to use this product, start with "1. Outline."

1. Outline: Provides an overview of the functions of the Control Software.

2. Installation: Explains the environment required for Control Software to operate and the installation method.

3. Control Software Operation: Explains the basic operations of Control Software, such as starting/exiting, the window configuration, the system setting, and so on.

4. Basic Controller: Explains how to operate the "Basic controller" function, one of the primary functions of the Control Software.

5. Simulation: Explains how to operate the "Simulation" function, one of the primary functions of the Control Software.

6. Sequence: Explains how to operate the "Sequence" function, one of the primary functions of the Control Software.

7. Measurements Logging: Explains how to operate the Measurements Logging.

8. Maintenance: Explains the management of the CD-ROM, and what to do when it is damaged.

——— Safety Precautions ———

For safe use, ensure to obey the following warnings and cautions.
We are not responsible for damage resulting from failure to obey these warnings and cautions.

- Ensure you obey the instructions in this instruction manual.

  This instruction manual contains instructions for safe operation and use of this product.
  Before using the product, please read this manual first.
  All the warning items contained in this instruction manual are intended for preventing risks that may lead to serious accidents. Ensure to obey them.

- If you notice anything strange

  If the power system controlled by this product produces smoke, unusual odor, or strange sound, immediately stop using it.
  Should you encounter any anomaly like above, make sure the system cannot be used until the repair is completed, and immediately contact us or our agent.

Disclaimer

"Control Software for DP-G Series" (hereinafter abbreviated as "this software") is shipped after being tested and inspected sufficiently by NF Corporation.
Should you encounter any failure caused by a manufacturing defect or accident during transportation, contact us or our agent.
We have no responsibility for any damage caused by using this software. We also are not obligated to provide any modifications or support, if you have problems with this software. Use this software on your own responsibility.

About Copyrights

Contact Us

Should you find any fault or any questions, please contact us or our agent from whom you purchased the product.
When you contact us or our agent, tell us the model name (or product name), version number, and more detailed symptom/condition of use.

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1. Outline

1.1 Overview

Control Software for DP-G Series is a program to support the Remote control, Sequence, and Simulation functions of Programmable AC Power Source DP-G Series (hereinafter abbreviated as "DP-G power source"). The Sequence and Simulation functions are optional. This software works on Windows (2000, XP, or Vista) running on a personal computer (PC), and can transfer the output control data, sequence data, and simulation data to the DP-G power source through USB, or perform various functions on the DP-G power source.

The major functions of Control Software for DP-G Series are listed below. For detailed operations of the Sequence and Simulation functions, refer to the instruction manual of Programmable AC Power Source DP-G Series.

■ Basic operation function

- Remote control
- Status monitor
- Measurements Logging

■ Sequence function

- Creating, editing, and saving the Sequence data
- Transferring the Sequence data to the DP-G power source
- Execution control of Sequence function on the DP-G power source
- Monitor display during Sequence execution
- Exporting the file for DP-G power source

■ Simulation function

- Creating, editing, and saving the Simulation data
- Transferring the Simulation data to the DP-G power source
- Execution control of Simulation function on the DP-G power source
- Monitor display during Simulation function execution
- Exporting the file for DP-G power source

1.2 Software Configuration

Control Software for DP-G Series consists of three major functions displayed on the same screen, and two tools.

■ Major functions
- Basic controller
- Sequence function
- Simulation function

■ Tool functions
- Logging function

1.3 Communication with DP-G Power Source at Software Startup

Control Software for DP-G Series checks the communication connection with the DP-G power source when it is started.

When the communication connection with the DP-G power source is established, the software retrieves the parameter settings of Basic controller from the DP-G power source, and displays them on the PC screen.

If the communication connection with the DP-G power source cannot be established, the software starts as it is, and the default settings of the software are used for the parameters of Basic controller. This software can create the setting data of each function without connecting to the DP-G power source.

If the system setting of Control Software for DP-G Series contains different model name and phase configuration from those of the connected DP-G power source, unexpected behavior may result. Make sure that the model name and phase configuration defined in the system setting of the software match with those of the DP-G power source that is connected.

1.4 Conventions Used in This Manual

This manual uses the following conventions to describe the functions of Control Software for DP-G Series.

- Menu names displayed on the screen, and user-input text: Gothic font, enclosed by [ ].
  Example: [Wave], [s=2*pi;]
- Button names displayed on the screen, and keys that user should press: Gothic font, enclosed by [ ].
  Example: Cancel, OK, Alt
- String that represents each function or item of this software: Gothic font, enclosed by " ".
  Example: "Basic controller", "DP-G power source setting file"
- Press one key while holding down another key: Two keys are connected by "+".
  Example: Ctrl + O
- Press one key, release it and press another key: Two keys are connected by ", ".
  Example: Alt, F

2. Installation

2.1 System Requirements

Make sure that your system satisfies the requirements described in Table 2-1, before installing Control Software for DP-G Series.

Table 2-1 System Requirements

Item	Description
CPU	300 MHz or more (1.6 GHz or more is recommended)
Memory	128 MB or more (512 MB or more is recommended)
Free hard disk drive space	64 MB or more
Display	1024 x 768 pixel or higher, 256 colors or more
OS	Windows 2000/XP/Vista English
Disk drive	CD-ROM drive
USB interface	USB 1.1 full-speed
Software component	Microsoft .NET Framework 2.0 Microsoft .NET Framework 2.0 Language Pack English

⚠CAUTION

- Even when the CPU and memory satisfy the above specifications, this software might not operate properly depending on the conditions of your operating system.
- A CD-ROM drive is required only when installing this software.

■ About software component

In most cases, .NET Framework 2.0 component is already installed in Windows XP/Vista. In Windows 2000, if it is not installed, you can download the component from Microsoft's website to install it.

When Control Software for DP-G Series is installed, this software checks whether .NET Framework 2.0 is installed in your computer, and if it is not, it displays a message prompting to install the component. If the computer is connected to Internet, the software automatically downloads .NET Framework 2.0 and installs it.

2.2 Installation Procedure

To install/uninstall Control Software for DP-G Series, log on to Windows with Administrator permissions.

To establish the communication connection between Control Software for DP-G Series and the DP-G power source, the USB driver software must be installed. If the VISA environment is set up in your computer, the USB driver software is already installed. If the VISA environment is not set up, follow the procedure described in 2.2.1 to install the USBTMC driver software we are providing. VISA (Virtual Instrument Software Architecture) is a standard recommended by the IVI Foundation to promote the standardization of instrument software architecture.

2.2.1 Installation of USB Driver Software

This section describes how to install "NFUSBTMC Driver", the USBTMC driver software we are providing.

If NFUSBTMC Driver is installed, it can co-exist with the VISA environment, but VISA cannot be used to communicate with our NFUSBTMC products, including DP-G series.

If you want to use a VISA-compatible USBTMC driver software to communicate with our NFUSBTMC products, uninstall NFUSBTMC Driver.

⚠CAUTION

- NFUSBTMC Driver can work only on our USBTMC products, including DP-G series. It is not compatible with the VISA environment. If you want to communicate with other VISA-compatible USBTMC instruments, use the VISA environment.

■ Installation procedure

1. Insert the CD-ROM into the CD-ROM drive of your computer.
2. Execute English\Application\Driver\setup.exe in CD-ROM. The installer starts up.
3. Follow the instructions to click the Next button to install the driver. In Windows Vista, a warning dialog is displayed by Windows security. When it appears, select install to continue the installation.
4. Connect the DP-G power source to the personal computer with a USB cable, and turn the DP-G power source on. If the communication interface setting of the DP-G power source is set to other than USB, set it to USB in advance. Windows will automatically recognize the DP-G power source, and the USB driver will be set up.

■ Uninstallation procedure

In Windows, select [Control Panel], and then [Add or Remove Programs]. From the list of currently installed programs, select "NFUSBTMC Driver" and delete it.

■ When using the VISA environment

If the VISA environment is set up in your computer, you can use this software in the VISA environment. This software is confirmed to work on NI-VISA Version 4.5 provided by National Instruments Corporation. Please be aware that we do not provide support for problems that occur in the VISA environment provided by other vendor products.

If you want to use this software in the NI-VISA environment, you must obtain the license yourself from National Instruments Corporation. For details of NI-VISA, contact National Instruments Corporation or visit the National Instruments Website.

2.2.2 Installation of Control Software for DP-G Series

■ Installation procedure

1. Insert the CD-ROM into the CD-ROM drive of your computer.
2. Execute English\Application\setup.exe in CD-ROM. The installer starts up.
3. Follow the instructions shown in the dialog box to click the Next and install the software.
4. When the installation is finished, remove the CD-ROM from the CD-ROM drive.

After installation, you can perform this software (☞3.1).

■ Uninstallation procedure

In Windows, select [Control Panel], and then [Add or Remove Programs]. From the list of currently installed programs, select "Control Software for DP-G Series" and delete it.

However, the folder where Control Software for DP-G Series is installed is not removed. The folder still contains the operation setting file of Control Software for DP-G Series, and deleting this folder and its files after uninstallation does not cause any problem.

3. Control Software Operation

3.1 Start and Exit

This section explains how to start and exit the software.

3.1.1 Start

Following two methods are available. The desktop shortcut is automatically created when the software is installed.

- Double-click the shortcut icon on the desktop (Figure 3-1).
- From the Start menu, select [Start] - [All Programs] - [NF] - [Control Software for DP-G Series].

Figure 3-1 Shortcut Icon on Desktop

3.1.2 Exit

Following three methods are available. When you perform the exit operation, the dialog opens as shown in Figure 3-2. To exit, select Yes. To cancel exiting, select No.

- Click the ✕ button in the upper right corner of the window.
- With the window selected, press Alt + F4 on the keyboard.
- From the Menu Bar, select [File] - [Exit].

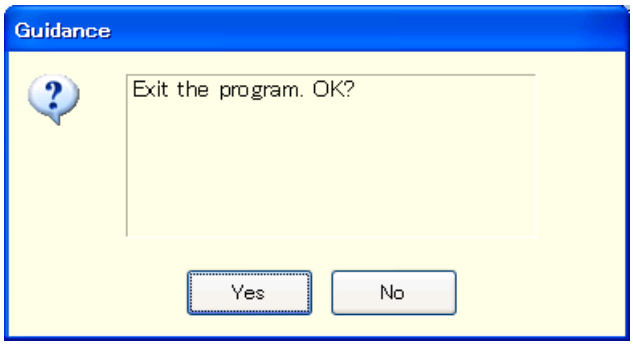

Figure 3-2 Exit Confirmation Dialog

3.2 Communication with DP-G Power Source

This software can set and control the DP-G power source connected via USB, by communicating with it. To distinguish from the state in which the computer and DP-G power source are just connected physically using a USB cable, "communication online state" is used to describe that the communication is established between the software and a DP-G power source. The state in which the communication is not established between them is called "communication offline state".

■ Start in the communication offline state

When the software is started, it attempts to communicate with the DP-G power source. If the communication cannot be established, it starts in the communication offline state. In this case, a dialog opens as shown in Figure 3-3.

In the communication offline state, the DP-G power source cannot be controlled from the computer. The setting data and sequence data can still be created and saved to file. However, even when the software is used in the communication offline state, the system setting should be adjusted in advance for the DP-G power source to which this is to be connected (☞3.6).

Figure 3-3 Dialog that Opens when the Software was Started in Communication Offline State

3.3 Composition of Main Window

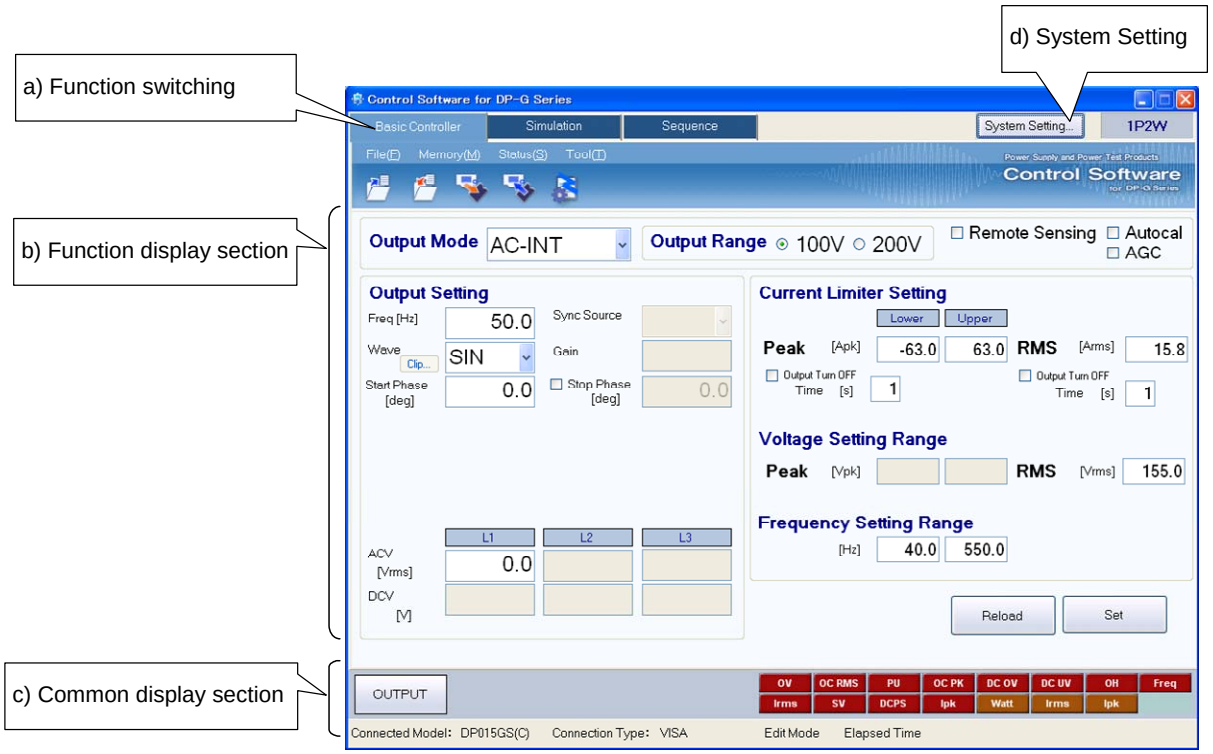

Figure 3-4 Composition of Main Window

a)	Function switching	☞3.4
b)	Function display section	☞3.4
c)	Common display section	☞3.5
d)	System Setting	☞3.6

3.4 Function Switching and Function Display Section

With this software, you can use three types of functions by switching among them.
When you click a function switching tab, items corresponding to that function are displayed in the function display section.

- Basic controller (☞4)
- Simulation (☞5)
- Sequence (☞6)

3.5 Common Display Section

The common display section is shown commonly to all functions.

3.5.1 Operation Bar

The Operation Bar has the output ON/OFF switching button and other buttons for various function operations.

Figure 3-5 Operation Bar

3.5.2 Status Monitor

The status monitor indicates the status of the currently connected DP-G power source.

Figure 3-6 Status Monitor

3.5.3 Status Bar

The status bar indicates the states of the DP-G power source connection and the software.

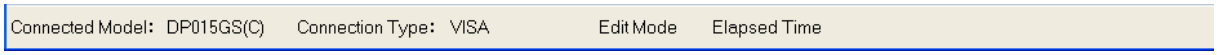

Figure 3-7 Status Bar

- Connected Model
  Shows the model name of the DP-G power source set in the System Settings.
- Connection Type
  Shows the connection mode with the DP-G power source set in the System Settings.
- Edit Mode/Control Mode
  Shows the execution mode for the sequence or simulation (☞5.4.5, 6.4.7).
- Elapsed Time
  Shows the time elapsed after the sequence or simulation was started.

3.6 System Setting

When you first use this software, system setting is needed. Click the System Setting button in the upper right corner of the window to open the System Setting dialog as shown in Figure 3-8.
You can change the system setting whenever the software is up and running. However, changing the system setting clears parameters and other settings that are being edited.

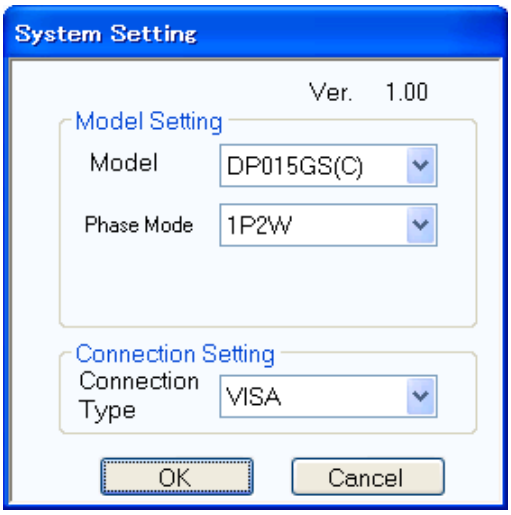

Figure 3-8 System Setting Dialog

3.6.1 Phase Mode

Set the phase configuration of the DP-G power source to connect. The phase configuration you have set is shown in the upper right of the main window. The range of parameters you can set in the function display section is changed based on the phase configuration specified here.

3.6.2 Connection Type

Specify the type of communication with the DP-G power source to connect. Select the driver software to use (either VISA or NFUSBTMC). The set communication type is shown in the status bar (☞ 3.5.3).

3.7 Error Message

You might see some error message in the dialog while using the software. In that case, handle the error according to the instruction described in the message.

4. Basic Controller

4.1 Name of Each Component in the Window

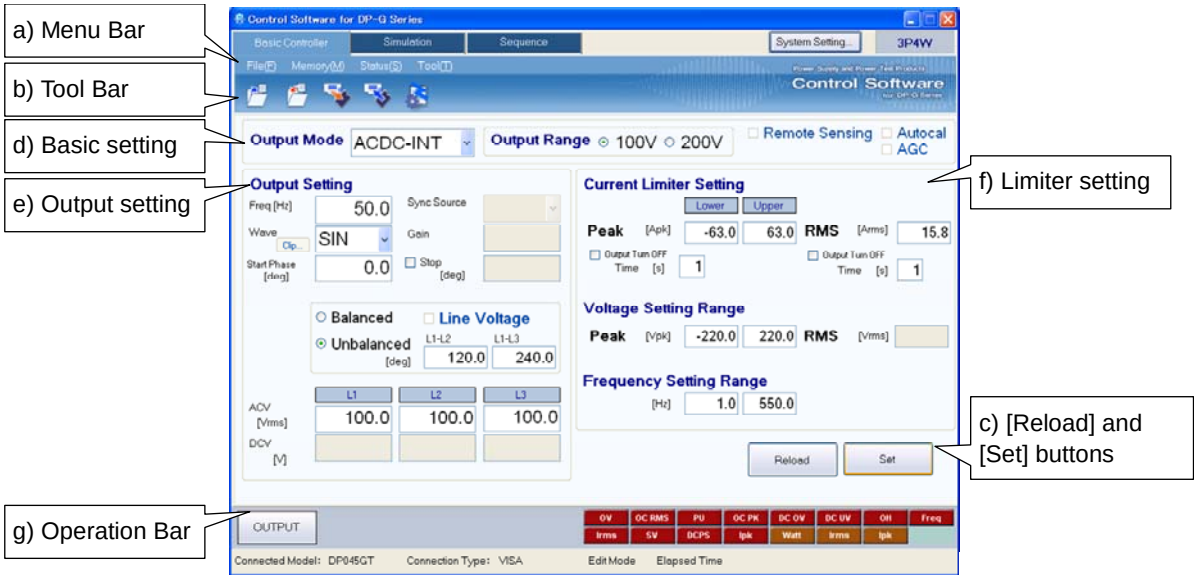

Figure 4-1 Basic Controller Window

a)	Menu Bar	☞ 4.2.1
b)	Tool Bar	☞ 4.2.2
c)	[Reload] and [Set] buttons	☞ 4.2.3
d)	Basic setting	☞ 4.2.4
e)	Output setting	☞ 4.2.5
f)	Limiter setting	☞ 4.2.6
g)	Operation Bar	☞ 4.2.7

4.2 Operations on Each Section

This section explains how to operate each section assuming that the operation is performed in the communication online state. In the communication offline state, some functions are restricted because the DP-G power source status cannot be obtained (☞ 4.7).
Based on the DP-G power source status, you may encounter an error message when setting an item. In that case, handle the error according to the message content.

4.2.1 Menu Bar

The menu composition of [Basic Controller] is shown in Figure 4-2.

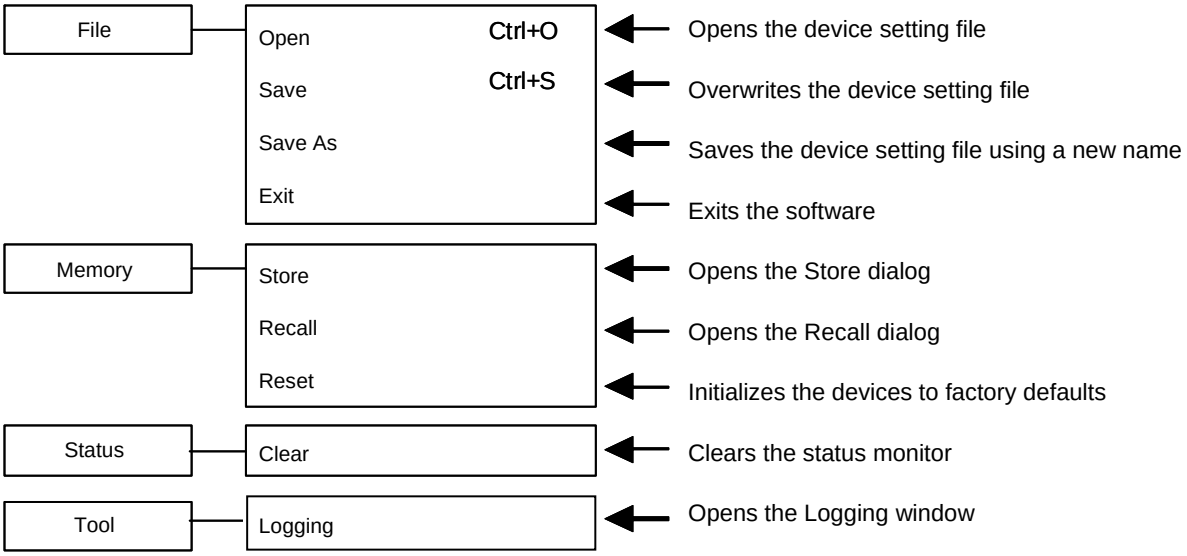

Figure 4-2 Menu Composition of Basic Controller

4.2.2 Tool Bar

On the [Basic Controller] Tool Bar, you just click each icon shown in Figure 4-3 to execute the corresponding function.

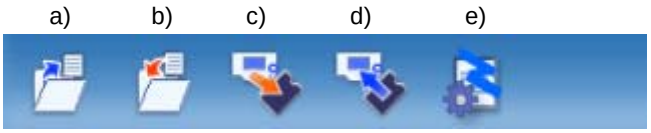

Figure 4-3 Basic Controller Tool Bar

a)	Open	Opens the DP-G power source setting file.
b)	Save	Overwrites and saves the DP-G power source setting file.
c)	Store	Opens the Store window.
d)	Recall	Opens the Recall window.
e)	Logging	Opens the Logging window.

4.2.3 Reload and Set Buttons

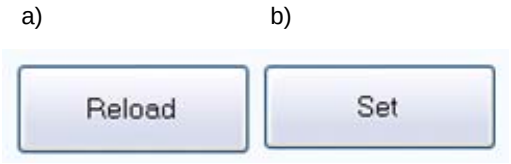

Figure 4-4 Reload and Set Buttons

a) [Reload] button — Obtains the basic, output, and limiter settings from the connected DP-G power source, and updates the setting values for the windows of the software.

b) [Set] button — Sets the basic, output, and limiter settings entered in the windows of the software to the connected DP-G power source.

4.2.4 Basic Setting

Figure 4-5 Basic Setting

a) Output mode — Click ▼, and select from the output mode list that opens.

b) Output range — Click the radio button to switch the selection.

c) Remote Sensing/Autocal/AGC — Select the check box to enable each function.

When the output mode or output range setting is changed, the confirmation dialog opens as shown in Figure 4-6. In the communication online state, if Yes is selected, the software asks the DP-G power source for each setting value after the change process of output mode or output range of the connected DP-G power source is completed, then updates the setting values displayed in the window. In the communication offline state, each setting value is cleared to the default value held by the software. When you select No, the change to the output mode or output range is canceled.

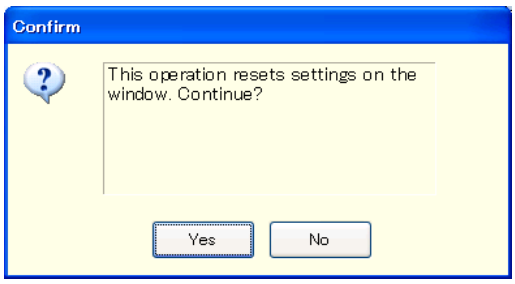

Figure 4-6 Confirmation Dialog for Clearing the Setting

When you change the output mode or output range setting, it may take some time until the setting is switched depending on the settings of the connected DP-G power source.

4.2.5 Output Setting

Set the output-related items. A grayed item is not available in this output mode.

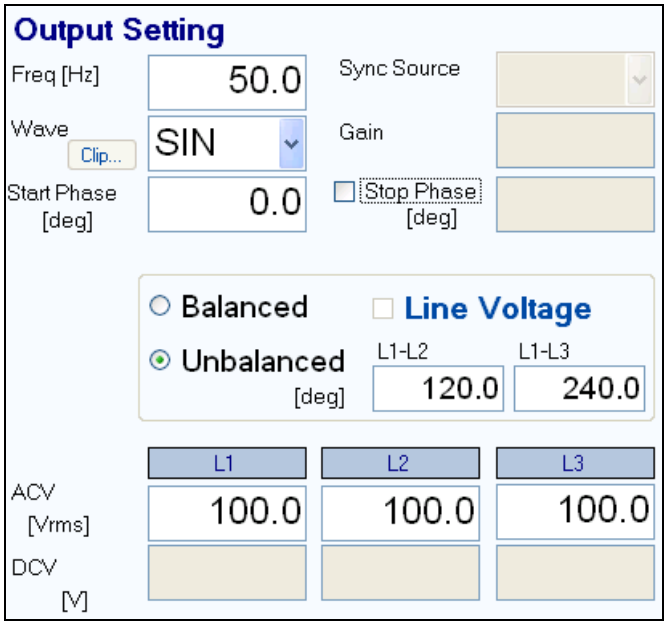

Figure 4-7 Output Setting

In a numerical entry box, if the entered value is out of the setting range, the error dialog opens as shown in Figure 4-8. Enter a value within the setting range shown in the dialog. For details of the setting range, see the instruction manual of the DP-G series programmable AC power source.

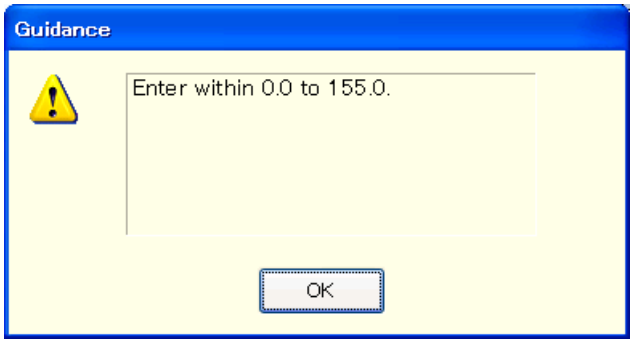

Figure 4-8 Example of Setting Range Error Dialog

4.2.6 Limiter Setting

In the limiter setting, you set the current limiters and the restriction on the setting ranges. The default limiter values held by this software are determined by the model setting in the [System Setting].

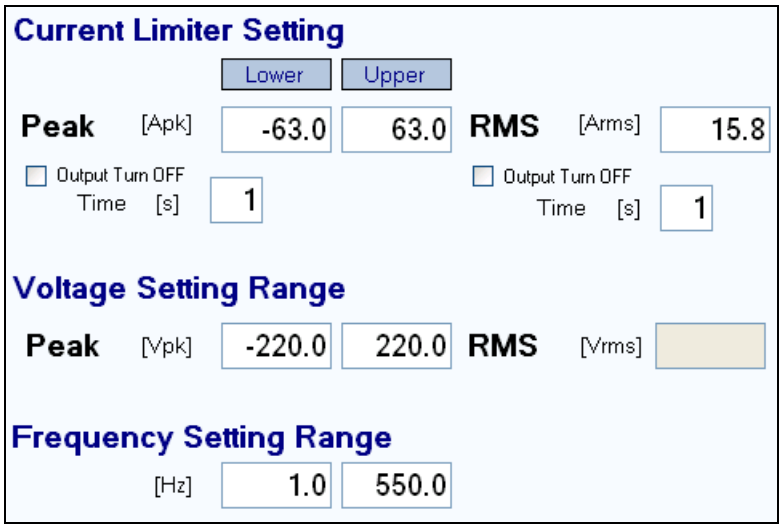

Figure 4-9 Limiter Setting

In a numerical entry box of the limiter setting, if the entered value is out of the setting range, the error dialog opens as shown in Figure 4-8. For details of the setting range, see the instruction manual of the DP-G series programmable AC power source.

4.2.7 Operation Bar

In the Operation Bar, clicking OUTPUT toggles between output on and off of the connected DP-G power source. The indication of the OUTPUT button changes as shown in Figure 4-10.

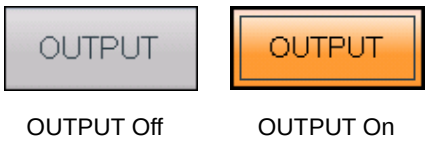

Figure 4-10 The Indication of OUTPUT Button

4.3 DP-G Power Source Setting File

Control Software for DP-G Series handles the following one type of file format as the Basic controller setting file.

■ DP-G power source setting file (extension is RMT)

This file stores the Basic controller settings except the output ON/OFF setting. This file can be read and saved by Control Software for DP-G Series. It cannot be read by the DP-G power source.

4.3.1 Save As

Saves the DP-G power source setting file as a new file. The [Save As] dialog can be opened by any of the following two methods. For newly created data, the Save operation works as "Save As."

- From the Menu Bar, select [File] - [Save As].
- On the keyboard, press Alt, F, A.

4.3.2 Save

Overwrites and saves to the existing DP-G power source setting file. Following four methods are available. For newly created data, the Save operation works as "Save As."

- From the Menu Bar, select [File] - [Save].
- On the keyboard, press Alt, F, S.
- On the keyboard, press Ctrl + S.
- On the Tool Bar, click the [Save] icon (☞4.2.2).

4.3.3 File Reading

Opens the DP-G power source setting file. The Open File dialog can be opened by any of the following three methods.

- From the Menu Bar, select [File] - [Open].
- On the keyboard, press Alt, F, O.
- On the keyboard, press Ctrl + O.

4.4 Memory

This section explains the method to communicate with the DP-G power source and access or reset the basic setting memory (internal memory).

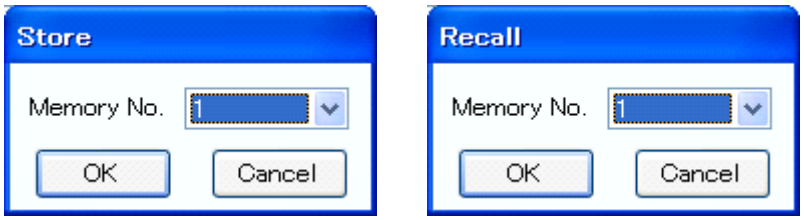

Figure 4-11 Store and Recall Dialogs

4.4.1 Store

The Store dialog can be opened by any of the following two methods. In the Store dialog, specify the internal memory number from the [Memory No.] list, and then click OK to execute the store processing on the DP-G power source.

- From the Menu Bar, click [Memory] - [Store].
- On the Tool Bar, click the [Store] icon (☞4.2.2).

4.4.2 Recall

The Recall dialog can be opened by any of the following two methods. In the Recall dialog, specify the memory number from the [Memory No.] list, and then click OK to execute the recall processing on the DP-G power source. After the DP-G power source finishes the recall processing, the software inquires the DP-G power source, and updates each setting value in the windows of the software to the recalled value.

- From the Menu Bar, click [Memory] - [Recall].
- On the Tool Bar, click the [Recall] icon (☞4.2.2).

⚠CAUTION

- Performing the recall operation with the output on results in an error.

4.4.3 Reset

From the Menu Bar, click [Memory] - [Reset]. The connected DP-G power source is reset to the factory defaults.

⚠CAUTION

- Performing the reset operation with the output on results in an error.

4.5 Status

4.5.1 Status Monitor

The software inquires the connected DP-G power source for the statuses with the interval of about two seconds, and refreshes the display of the status monitor while the output of the DP-G Power Source is on. Table 4-1 shows the list of statuses to be monitored.

After the DP-G power source status inquiry, the applicable status (i.e., the status is ON) illuminates in red or orange. Figure 4-12 shows the example of status display.

When a red status is ON, the protection function is activated on the DP-G power source main unit, causing an error. Under this situation, if you try to change the output setting (☞ 4.2.5) or limiter setting (☞ 4.2.6) without clearing the status (☞ 4.5.2), an error occurs.

Table 4-1 Status Display List

Notation	Description	Display color when it is ON
OV	Output overvoltage	Red
OC RMS	Output overcurrent [RMS]	
PU	Power unit internal anomaly	
OC PK	Output overcurrent [peak]	
DC OV	Power unit DC power supply overvoltage	
DC UV	Power unit DC power supply undervoltage	
OH	Overheat	
Freq	Synchronization frequency anomaly	
Irms	Output OFF after RMS current limiter is activated	
SV	Sensing voltage anomaly	
DCPS	Power unit DC power supply anomaly	
Ipk	Output OFF after peak current limiter is activated	
Watt	Wattage limiter is operating	Orange
Irms	RMS current limiter is operating	
Ipk	Peak current limiter is operating	

OUTPUT Off OUTPUT On

Figure 4-12 Status Display Example (Sensing Voltage Anomaly)

4.5.2 Clear

From the Menu Bar, click [Status] - [Clear]. This makes the status monitor display to go off in the windows of the software and clears the DP-G power source error (equivalent to pressing the ENTER key for an error message window).

4.6 Logging

- Open the [Logging] window (☞ 7). Following two methods are available.
- From the Menu Bar, click [Tool] - [Logging].
- On the Tool Bar, click the [Logging] icon (☞ 4.2.2).

4.7 Restrictions in the Communication Offline State

In the Basic controller, when you perform an operation that needs communication (e.g., clicking Set, Reload, or OUTPUT), communication with the connected DP-G power source is attempted. When the communication is established, the software inquires the DP-G power source about the settings, and updates each setting values in the window.

In the communication offline state, each setting value cannot be obtained from the DP-G power source. So, when an operation requiring the communication like shown above was performed, each setting value in the window is populated with the default value held by the software.

5. Simulation

5.1 Name of Each Component in the Window

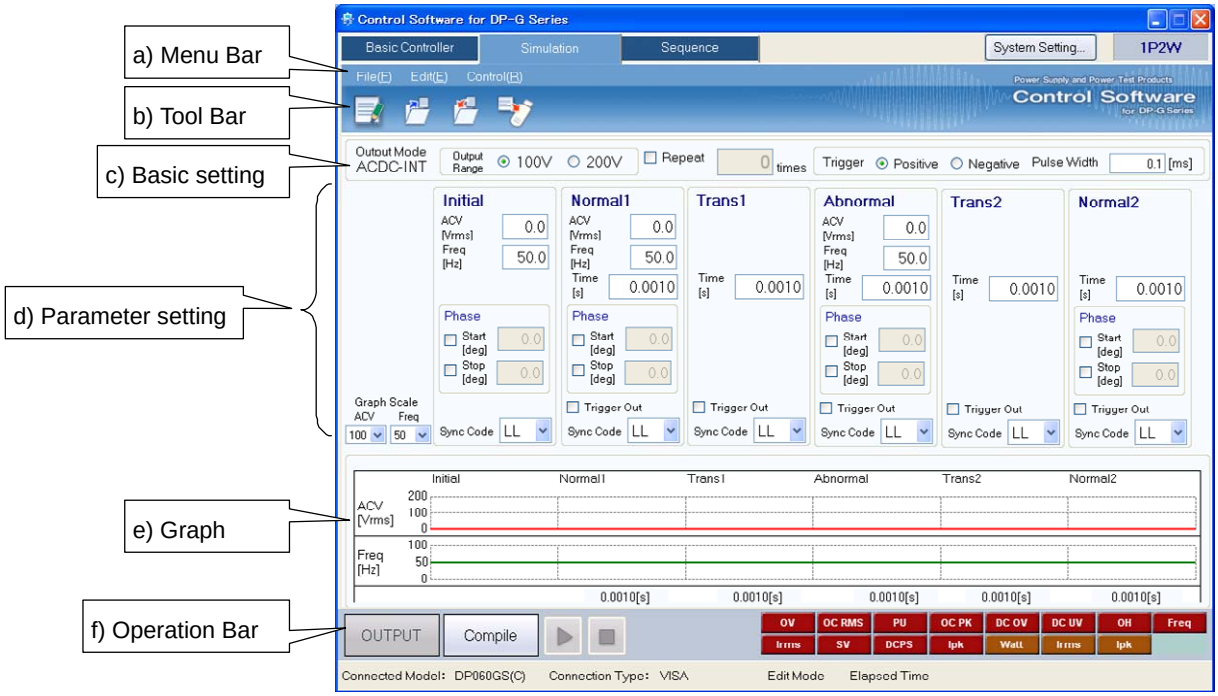

Figure 5-1 Simulation Window

a)	Menu Bar	☞5.2.1
b)	Tool Bar	☞5.2.2
c)	Basic setting	☞5.2.3
d)	Parameter setting	☞5.2.4
e)	Graph	☞5.2.5
f)	Operation Bar	☞5.2.6

5.2 Operations on Each Section

This section explains how to operate each section assuming that the operation is performed in the communication online state. In the communication offline state, some functions are restricted because the DP-G power source status cannot be obtained (☞ 4.7).
Based on the DP-G power source status, you may encounter an error message when setting an item. In that case, handle the error according to the message content.

5.2.1 Menu Bar

The menu composition of [Simulation] is shown in Figure 5-2.

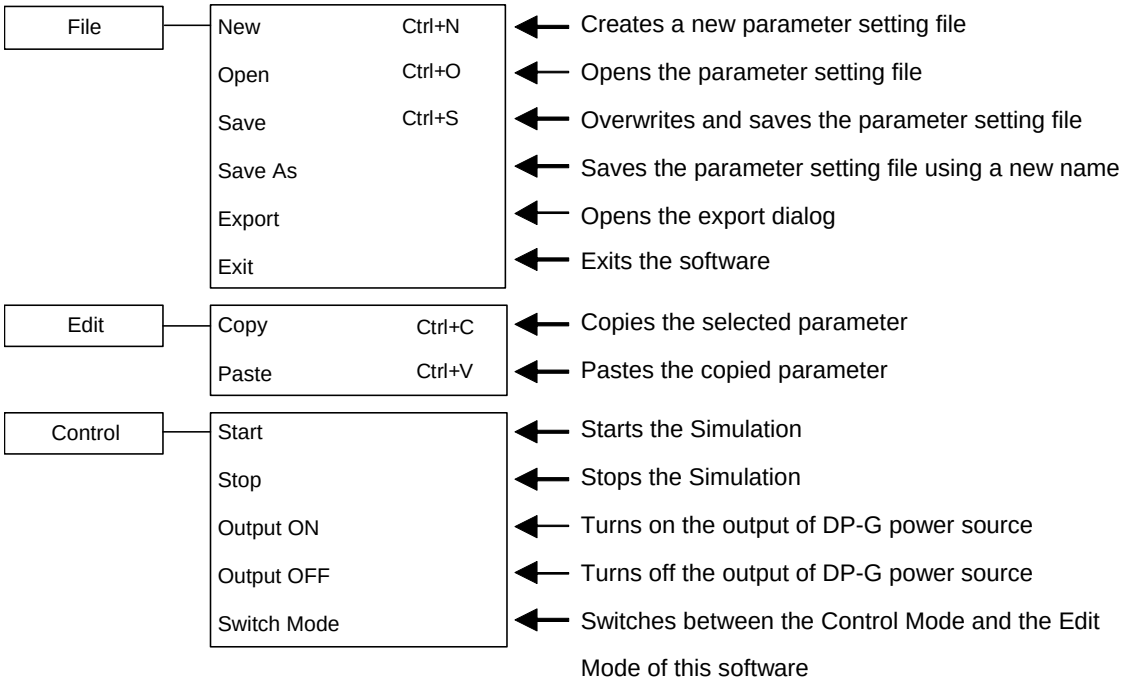

Figure 5-2 Menu Composition of the Simulation

5.2.2 Tool Bar

On the Simulation Tool Bar, you just click each icon shown in Figure 5-3 to execute the corresponding function.

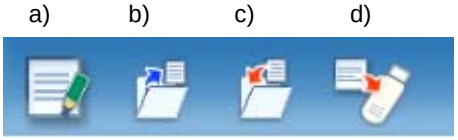

Figure 5-3 Simulation Tool Bar

a) New Creates a new simulation setting.
b) Open Opens the simulation setting file.
c) Save Overwrites and saves the simulation setting file.
d) Export Writes a simulation data file for the USB memory to the USB memory.

5.2.3 Basic Setting

■ Output mode and Output range

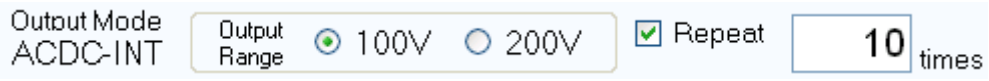

Figure 5-4 Basic Setting (Mode, Range, and Repeat)

In a simulation, the output mode is always fixed as "ACDC-INT" and cannot be changed.

The output range setting can be changed using the radio button. Switch the radio button to display the dialog shown in Figure 5-5. Select Yes to clear each of the current setting values (reset to the default values). The cleared setting cannot be undone. If you want to save the current setting before clearing it, select No to cancel the change of the output range and then save the setting to a file (☞5.3).

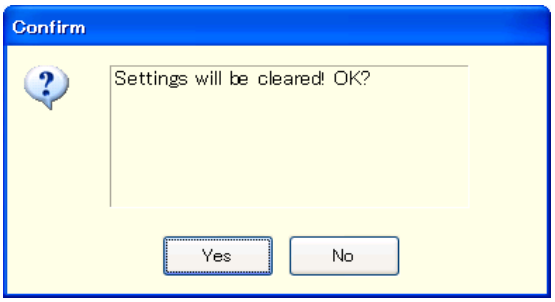

Figure 5-5 Confirmation Dialog for Clearing the Setting

■ Repeat

To enable the repeat of the simulation, select the check box and enter a repeat count. When you enter the repeat count, the software checks if the entered value is within the range. If the entered value is out of the range, the error dialog appears. Enter a value according to the dialog.

■ Trigger setting

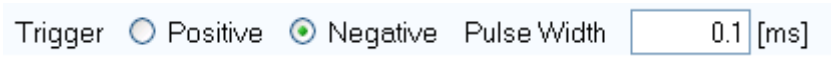

Figure 5-6 Basic Setting (Trigger Setting)

Select a polarity from [Positive] or [Negative] and then enter a pulse width. When you enter the pulse width, the software checks if the entered value is within the range. If the entered value is out of the range, the error dialog appears. Enter a value according to the dialog.

5.2.4 Parameter Setting

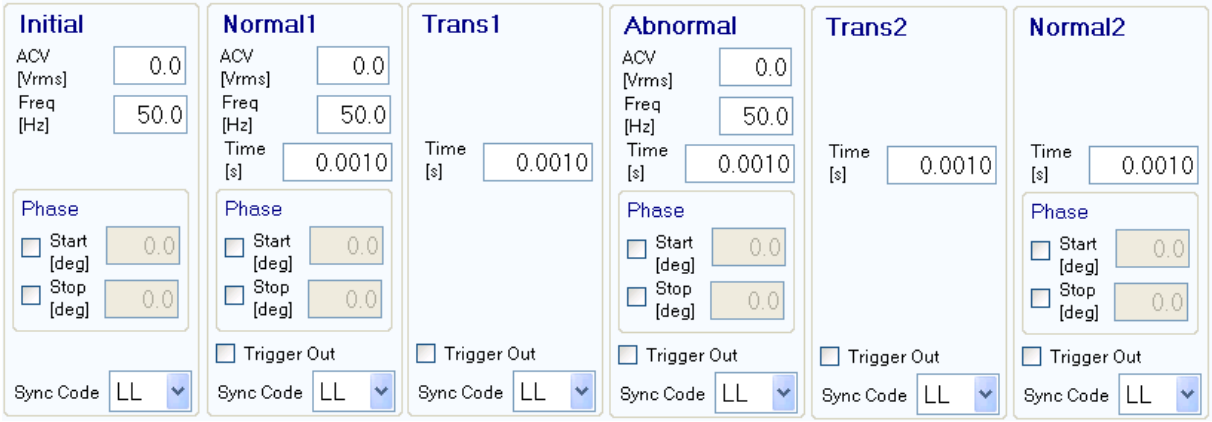

Figure 5-7 Parameter Setting

For a numerical entry box, the error dialog opens if the entered value is out of the setting range. Enter a value according to the dialog.

To enable the Start Phase or Stop Phase, select the [Start] or [Exit] check box in the [Phase] box and then enter a value as shown in Figure 5-8.

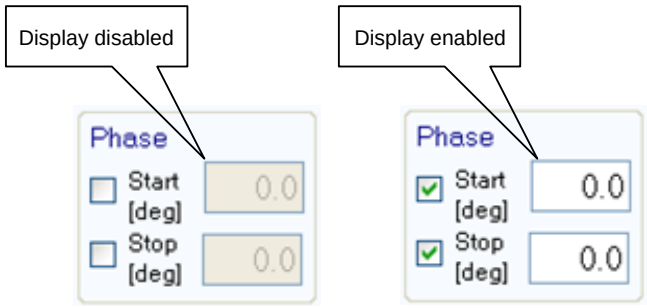

Figure 5-8 Setting of Start Phase and Stop Phase

To enable the trigger output, select the [Trigger Out] check box.

Select a combination of High and Low from the [Sync Code] combo box, which consists of 2 bits.

5.2.5 Graph

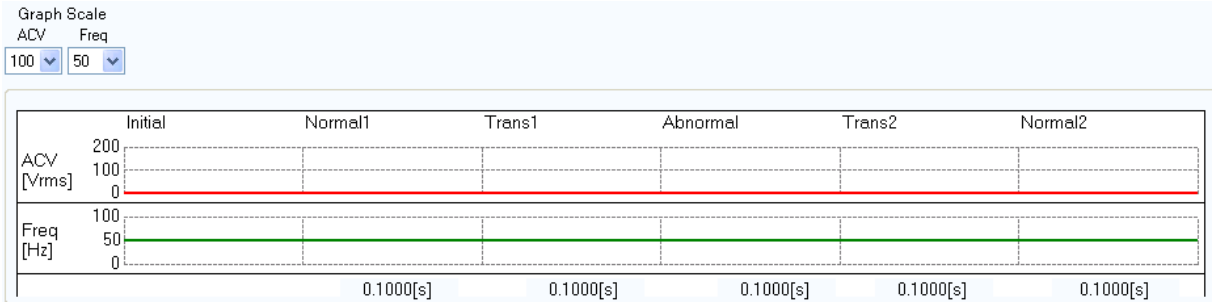

Figure 5-9 Graph

In the graph area, the setting value and variation of the AC voltage (ACV) and the frequency (Freq) are displayed as a graph. Select an appropriate scale from the [Graph Scale] drop-down list, depending on the setting values. A step time is displayed at the bottom of the graph.

5.2.6 Operation Bar

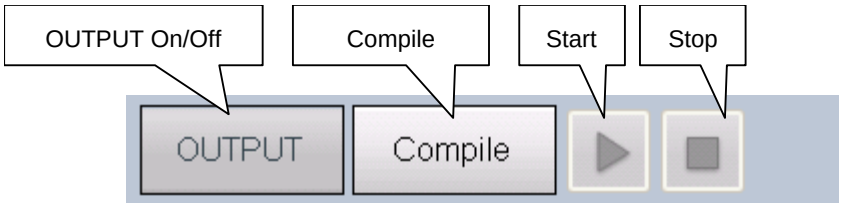

Figure 5-10 Operation Bar of the Simulation

In the Operation Bar of the simulation, you can operate Compile, Start, and Stop of the simulation in addition to switching the output on and off.

5.3 Simulation Setting File

There are the following two types of file format for the simulation data used by the Control Software for DP-G Series:

- Simulation setting file (extension is .sid)

  This file can be read and saved by Control Software for DP-G Series. It cannot be read by the DP-G power source.

- Simulation data file for the USB memory (extension is .sim)

  It can be written (exported) by the Control Software for DP-G Series. After writing it to the dedicated folder for the USB memory, it can be read by the panel operation on the DP-G power source. It cannot be read by Control Software for DP-G Series.

5.3.1 Save As

Saves the simulation setting file as a new file. The [Save As] dialog can be opened by any of the following two methods. For newly created data, the Save operation works as "Save As."

- From the Menu Bar, select [File] - [Save As].
- On the keyboard, press Alt, F, A.

5.3.2 Save

Overwrites and saves to the existing simulation setting file. Following four methods are available. For newly created data, the Save operation works as "Save As."

- From the Menu Bar, select [File] - [Save].
- On the keyboard, press Alt, F, S.
- On the keyboard, press Ctrl + S.
- On the Tool Bar, click the [Save] icon (☞ 5.2.2).

5.3.3 File Reading

Opens the simulation setting file. The Open File dialog can be opened by any of the following three methods.

- From the Menu Bar, select [File] - [Open].
- On the keyboard, press Alt, F, O.
- On the keyboard, press Ctrl + O.

5.3.4 Write to USB Memory (Export)

Writes a simulation data file for the USB memory. In this software, a data file is written to the appropriate level under the dedicated folder (NF_TOOLS) to allow the DP-G power source to read it by simply specifying a USB memory drive. If the dedicated folder (NF_TOOLS) does not exist in the USB memory, it is automatically created by this software upon writing a data file.

■ Operation procedure

1. From the Menu Bar, select [File] - [Export]. The [Export] dialog appears.
2. In [USB Memory Drive], specify the drive to which the USB memory is connected.
3. In [File Name], specify the file name to be saved.
4. Select OK.

⚠CAUTION

- A data file in the USB memory cannot be read from the DP-G power source whose configuration of model and phase is different from that of the system setting of this software that has been selected upon writing to the USB memory.

5.4 Control

This section describes how to control a start, stop, etc. of the simulation.

5.4.1 Start

Enabled only in the execution mode and with the output on. Following three methods are available.

- From the Menu Bar, select [Control] - [Start].
- On the keyboard, press Alt, R, S.
- In the Operation Bar, click [Start] button(☞5.2.6).

5.4.2 Stop

Following three methods are available.

- From the Menu Bar, select [Control] - [Stop].
- On the keyboard, press Alt, R, E.
- In the Operation Bar, click [Stop] button (☞5.2.6).

5.4.3 Output On

It is enabled only in the execution mode. Following three methods are available.

- From the Menu Bar, select [Control] - [Output ON].
- On the keyboard, press Alt, R, N.
- In the Operation Bar, click OUTPUT (☞5.2.6).

5.4.4 Output Off

Following three methods are available.

- From the Menu Bar, select [Control] - [Output OFF].
- On the keyboard, press Alt, R, F.
- In the Operation Bar, click OUTPUT (☞5.2.6).

5.4.5 Switch Execution Mode

Switches between the Edit mode and Execution mode. Switching the Edit mode to the Execution mode corresponds to the compile on the panel operation of the DP-G power source. Following two methods are available.

- From the Menu Bar, select [Control] - [Switch Mode].
- In the Operation Bar, click Compile/Edit (☞5.2.6).

6. Sequence

6.1 Name of Each Component in the Window

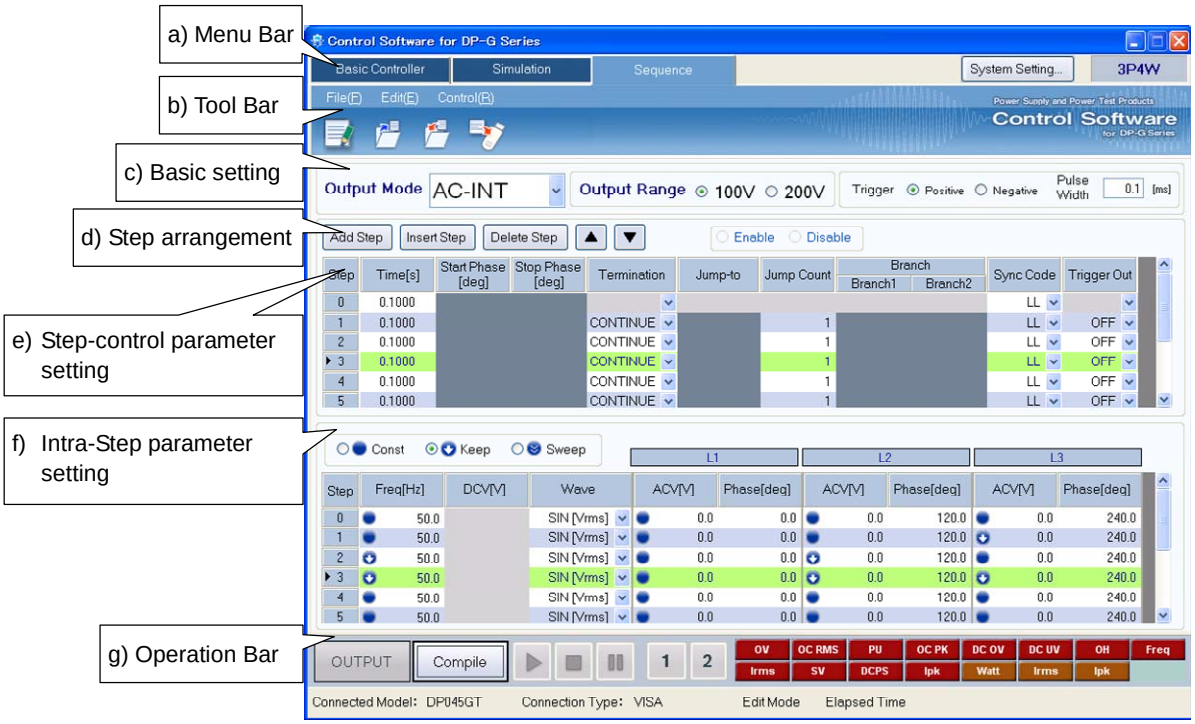

Figure 6-1 Sequence Window

a)	Menu Bar	☞6.2.1
b)	Tool Bar	☞6.2.2
c)	Basic setting	☞6.2.3
d)	Step arrangement	☞6.2.4
e)	Step-control parameter setting	☞6.2.5
f)	Intra-Step parameter setting	☞6.2.6
g)	Operation Bar	☞6.2.7

6.2 Operations on Each Section

6.2.1 Menu Bar

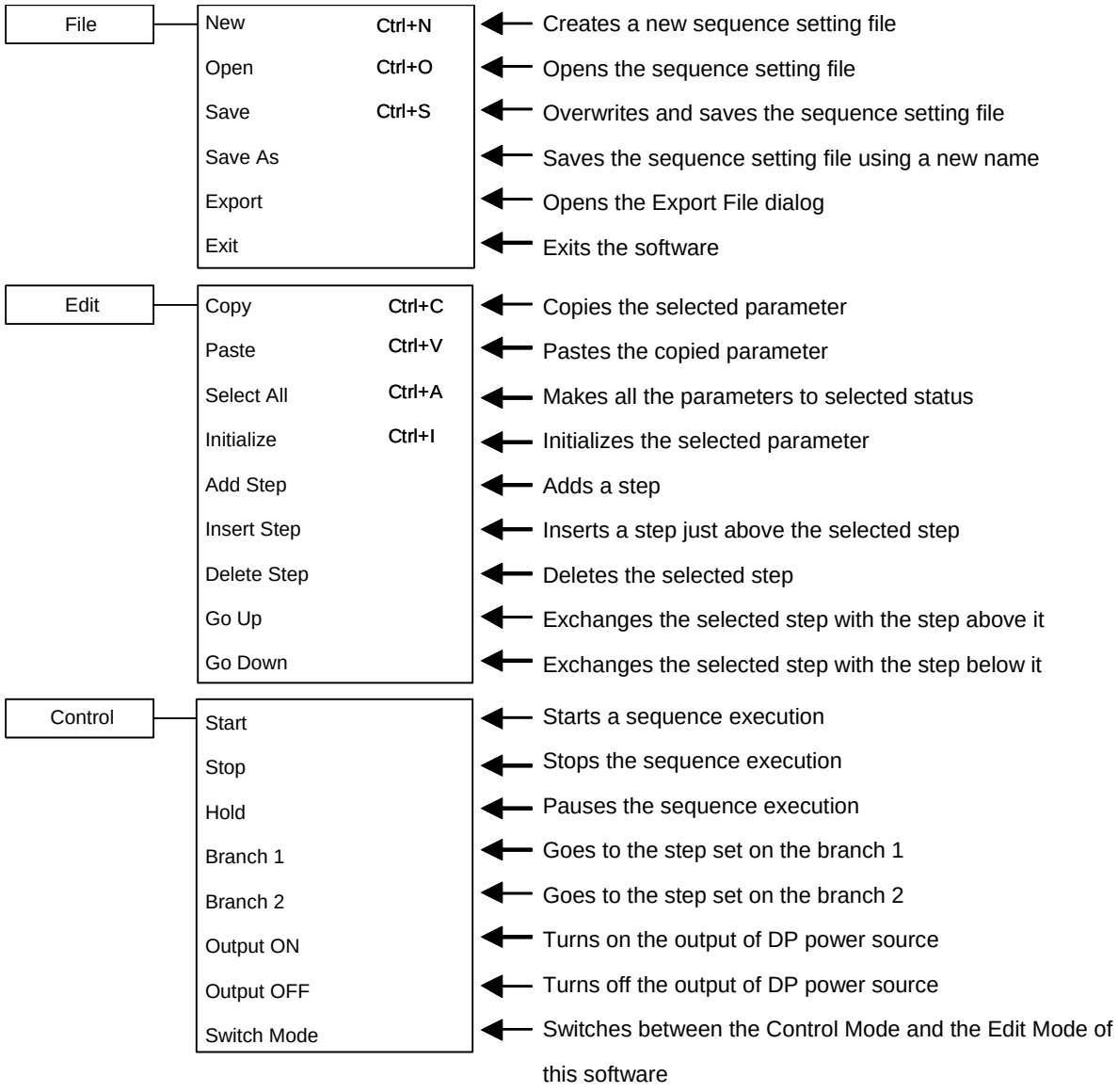

Figure 6-2 Menu Composition of Sequence

6.2.2 Tool Bar

On the Sequence Tool Bar, you just click each icon shown in Figure 6-3 to execute the corresponding function.

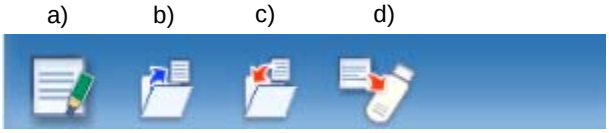

Figure 6-3 Sequence Tool Bar

a)	New	Creates a new sequence setting.
b)	Open	Opens the sequence setting file.
c)	Save	Overwrites and saves the sequence setting file.
d)	Export	Writes a sequence data file for the USB memory to the USB memory.

6.2.3 Basic Setting

■ Output mode and Output range

Figure 6-4 Basic Setting (Output Mode and Output Range)

When the output mode or output range is changed, the dialog opens as shown in Figure 6-5. Select Yes to clear each of the current setting values (reset to the default values). The cleared setting cannot be undone. If you want to save the current setting before clearing it, select No to cancel the change and then save the setting to a file (☞ 6.3).

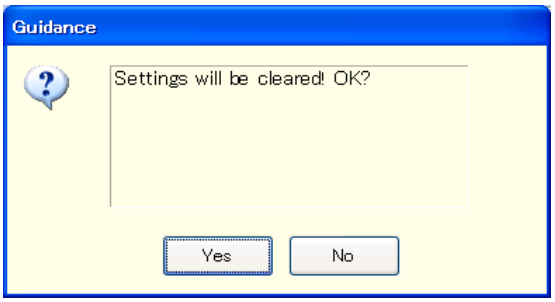

Figure 6-5 Confirmation Dialog for Clearing the Setting

When you change the output mode or output range setting, it may take some time until the setting is switched depending on the settings of the DP-G power source.

■ Trigger setting

Figure 6-6 Basic Setting (Trigger Setting)

Select a polarity from [Positive] or [Negative] and then enter a pulse width. When you enter the pulse width, the software checks if the entered value is within the range. If the entered value is out of the range, the error dialog appears. Enter a value according to the dialog.

6.2.4 Step Arrangement

This section describes how to add, insert, delete, move, and copy a step (line).

Figure 6-7 Step Arrangement Buttons

⚠CAUTION

- When the step number is changed for a step that is set as a jump-to step or branch step, the step number is automatically changed on the calling side of the jump or branching also, preserving the dependency between steps.
- When a step that is set as the destination of any jump-to step or branch step is deleted, the dialog as shown in Figure 6-8 appears. When you select Yes, the step is deleted and then the step number of the jump-to or branch step is automatically updated to the step number 0. If you select No, deletion of the step is canceled.

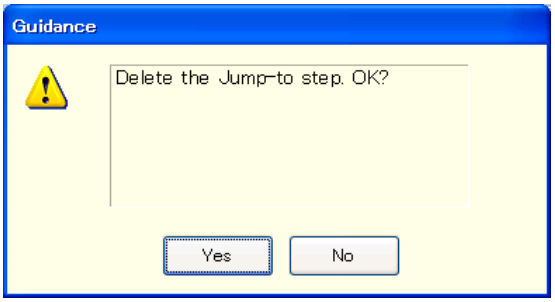

Figure 6-8 Confirmation Dialog for Deleting a Step

■ Add Step

Adds a new step after the last step (line). Following three methods are available.

- From the Menu Bar, select [Edit] - [Add Step].
- On the keyboard, press Alt, E, S.
- Click [Add Step] button of the step arrangement.

■ Insert Step

Adds a new step just above the current cursor step (line). Following three methods are available.

- From the Menu Bar, select [Edit] - [Insert Step].
- On the keyboard, press Alt, E, I.
- Click [Insert Step] button of the step arrangement.

■ Delete Step

Deletes the current cursor step (line). Following three methods are available.

- From the Menu Bar, select [Edit] - [Delete Step].
- On the keyboard, press Alt, E, E.
- Click [Delete Step] button of the step arrangement.

■ Go Up

Exchanges the current cursor step (line) with the step above it. Following three methods are available.

- From the Menu Bar, select [Edit] - [Go Up].
- On the keyboard, press Alt, E, U.
- Click [▲] button of the step arrangement.

■ Go Down

Exchanges the current cursor step (line) with the step below it. Following three methods are available.

- From the Menu Bar, select [Edit] - [Go Down].
- On the keyboard, press Alt, E, D.
- Click [▼] button of the step arrangement.

■ Copy

Copies the setting data in the selected line range or cell range to the Clip Board. Following three methods are available.

- From the Menu Bar, select [Edit] - [Copy].
- On the keyboard, press Alt, E, C.
- On the keyboard, press Ctrl + C.

■ Paste

Pastes the setting data on the clip board to the selected line range or cell range. Following three methods are available.

- From the Menu Bar, select [Edit] - [Paste].
- On the keyboard, press Alt, E, P.
- On the keyboard, press Ctrl + V.

⚠CAUTION

- Row numbers and column items should be matched between the destination data range to be pasted and the source data range that was copied to the clip board. If the data ranges do not match, the error dialog shown in Figure 6-9 appears.

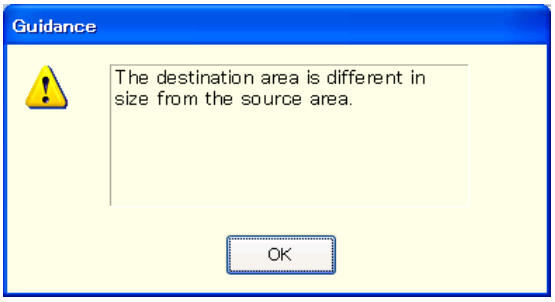

Figure 6-9 Error Dialog for Copying Data

6.2.5 Step-control Parameter Setting

■ Enter a setting value

Select a cell and then enter a value. If the entered value is out of the setting range, the error dialog appears. Enter a value according to the dialog.

Select [Termination], [Sync Code], or [Trigger Out] from the combo box opened by clicking a cell.

■ Entry of start phase and stop phase

When a cell of [Start Phase] or [Stop Phase] is selected, enable and disable radio buttons become enabled. If you select the [Enable] radio button, you can set a phase as shown in Figure 6-10.

■ Clear setting values

Restores a setting value to the default value. Following two methods are available.

- From the Menu Bar, select [Edit] - [Initialize].
- On the keyboard, press Ctrl + I.

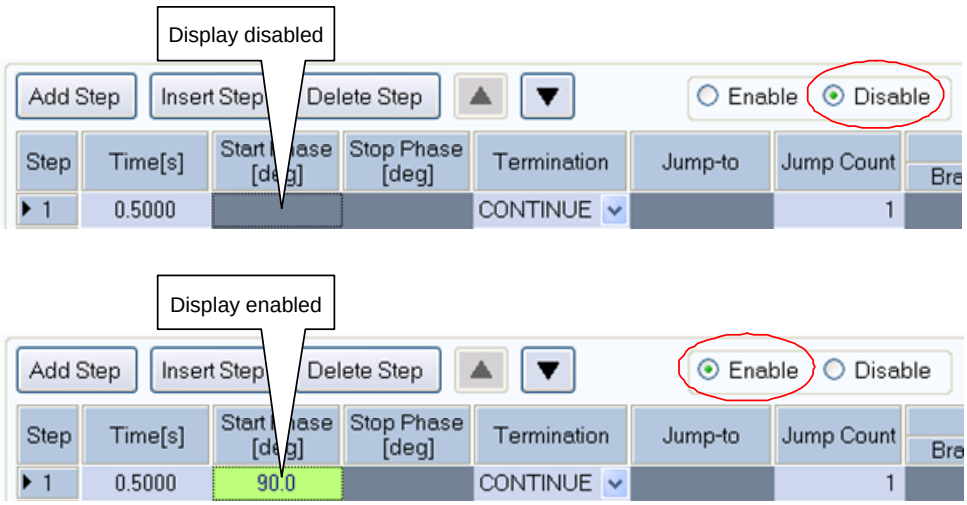

Figure 6-10 Enabling or Disabling Start Phase and Stop Phase

6.2.6 Intra-Step Parameter setting

■ Enter a setting value

Select a cell and then enter a value. If the entered value is out of the setting range, the error dialog appears. Enter a value according to the dialog.

■ Enter behavior type

When a cell of the setting value in which you can set a behavior type is selected, radio buttons for the behavior type (Const, Keep, and Sweep) are enabled. A behavior type can be set by selecting the radio buttons (Figure 6-11). In the cell, the icon corresponding to the setting behavior type is displayed.

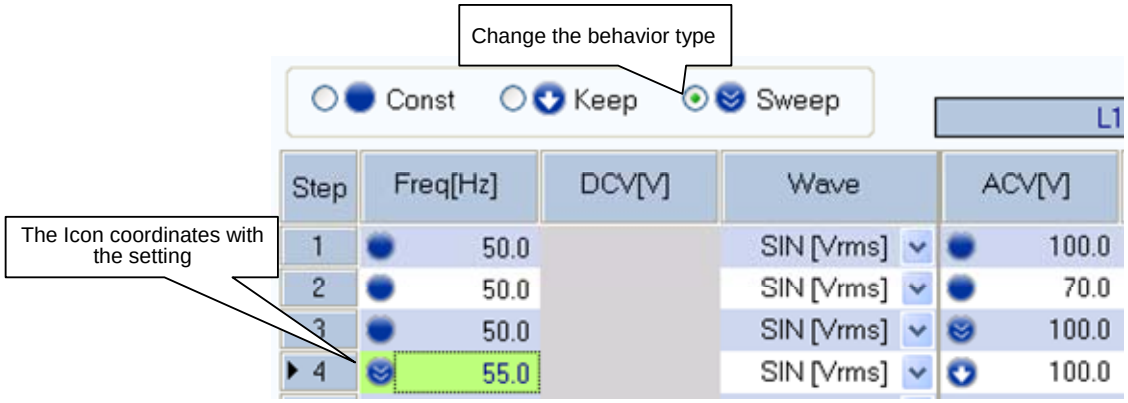

Figure 6-11 Set Behavior Type

6.2.7 Operation Bar

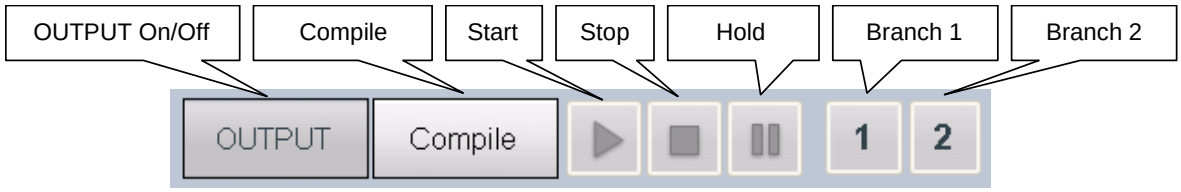

Figure 6-12 Operation Bar of Sequence

In the Operation Bar of the sequence, you can perform Compile, Start, Stop, Hold, Branch 1, and Branch 2 of the sequence in addition to switching the on/off of the output.

6.3 Sequence Setting File

There are the following two types of file format for the sequence data used by the Control Software for DP-G Series:

- Sequence setting file (extension is .sqd)
  This file can be read and saved by Control Software for DP-G Series. It cannot be read by the DP-G power source.

- Sequence data file for the USB memory (extension is .seq)
  It can be written (exported) by the Control Software for DP-G Series. After writing it to the dedicated folder for the USB memory, it can be read by the panel operation on the DP-G power source. It cannot be read by Control Software for DP-G Series.

6.3.1 Save As

Saves the sequence setting file as a new file. The [Save As] dialog can be opened by any of the following two methods. For newly created data, the Save operation works as "Save As."

- From the Menu Bar, select [File] - [Save As].
- On the keyboard, press Alt, F, A.

6.3.2 Save

Overwrites and saves to the existing sequence setting file. Following four methods are available. For newly created data, the Save operation works as "Save As."

- From the Menu Bar, select [File] - [Save].
- On the keyboard, press Alt, F, S.
- On the keyboard, press Ctrl + S.
- On the Tool Bar, click the [Save] icon (☞ 6.2.2).

6.3.3 File Reading

Opens the sequence setting file. The Open File dialog can be opened by any of the following three methods.

- From the Menu Bar, select [File] - [Open].
- On the keyboard, press Alt, F, O.
- On the keyboard, press Ctrl + O.

6.3.4 Write to USB Memory (Export)

Writes a sequence data file for the USB memory. In this software, a data file is written to the appropriate level under the dedicated folder (NF_TOOLS) to allow the DP-G power source to read it by simply specifying a USB memory drive. If the dedicated folder (NF_TOOLS) does not exist in the USB memory, it is automatically created by this software upon writing a data file.

■ Operation procedure

1. From the Menu Bar, select [File] - [Export]. The [Export] dialog appears.
2. In [USB Memory Drive], specify the drive to which the USB memory is connected.
3. In [File Name], specify the file name to be saved.
4. Select OK.

⚠CAUTION

- A data file in the USB memory cannot be read from the DP-G power source whose configuration of model and phase is different from that of the system setting of this software that has been selected upon writing to the USB memory.

6.4 Control

This section describes how to control a start, stop, etc. of the sequence.

6.4.1 Start

Enabled only in the execution mode and with the output on. Following three methods are available.

- From the Menu Bar, select [Control] - [Start].
- On the keyboard, press Alt, R, S.
- In the Operation Bar, click [Start] button (☞6.2.7).

6.4.2 Stop

Following three methods are available.

- From the Menu Bar, select [Control] - [Stop].
- On the keyboard, press Alt, R, E.
- In the Operation Bar, click [Stop] button (☞6.2.7).

6.4.3 Hold

Following three methods are available.

- From the Menu Bar, select [Control] - [Hold].
- On the keyboard, press Alt, R, H.
- In the Operation Bar, click [Hold] button (☞6.2.7).

6.4.4 Branch

Describes the branch 1. The branch 2 is similar to the branch 1. Following two methods are available.

- From the Menu Bar, select [Control] - [Branch 1].
- In the Operation Bar, click [Branch 1] button (☞6.2.7).

6.4.5 Output On

It is enabled only in the execution mode. Following three methods are available.

- From the Menu Bar, select [Control] - [Output ON].
- On the keyboard, press Alt, R, N.
- In the Operation Bar, click OUTPUT (☞ 6.2.7).

6.4.6 Output Off

Following three methods are available.

- From the Menu Bar, select [Control] - [Output OFF].
- On the keyboard, press Alt, R, F.
- In the Operation Bar, click OUTPUT (☞ 6.2.7).

6.4.7 Switch Execution Mode

Switches between the Edit mode and Execution mode. Switching the Edit mode to the Execution mode corresponds to the compile on the panel operation of the DP-G power source. Following two methods are available.

- From the Menu Bar, select [Control] - [Switch Mode].
- In the Operation Bar, click Compile/Edit (☞ 5.2.6).

7. Measurements Logging

7.1 Open or Close the Measurements Logging Window

7.1.1 Open the Measurements Logging Window

Following two methods are available.

- In the [Basic Controller] Menu Bar, select [Tool] - [Logging].
- Click [Logging] icon (☞ 4.2.2) on the [Basic Controller] Tool Bar.

7.1.2 Close the Measurements Logging Window

Click the ☒ in the upper right corner of the [Logging] window.

⚠CAUTION

- Close the main window to also close the [Logging] window.

7.2 Name of Each Component in the Window

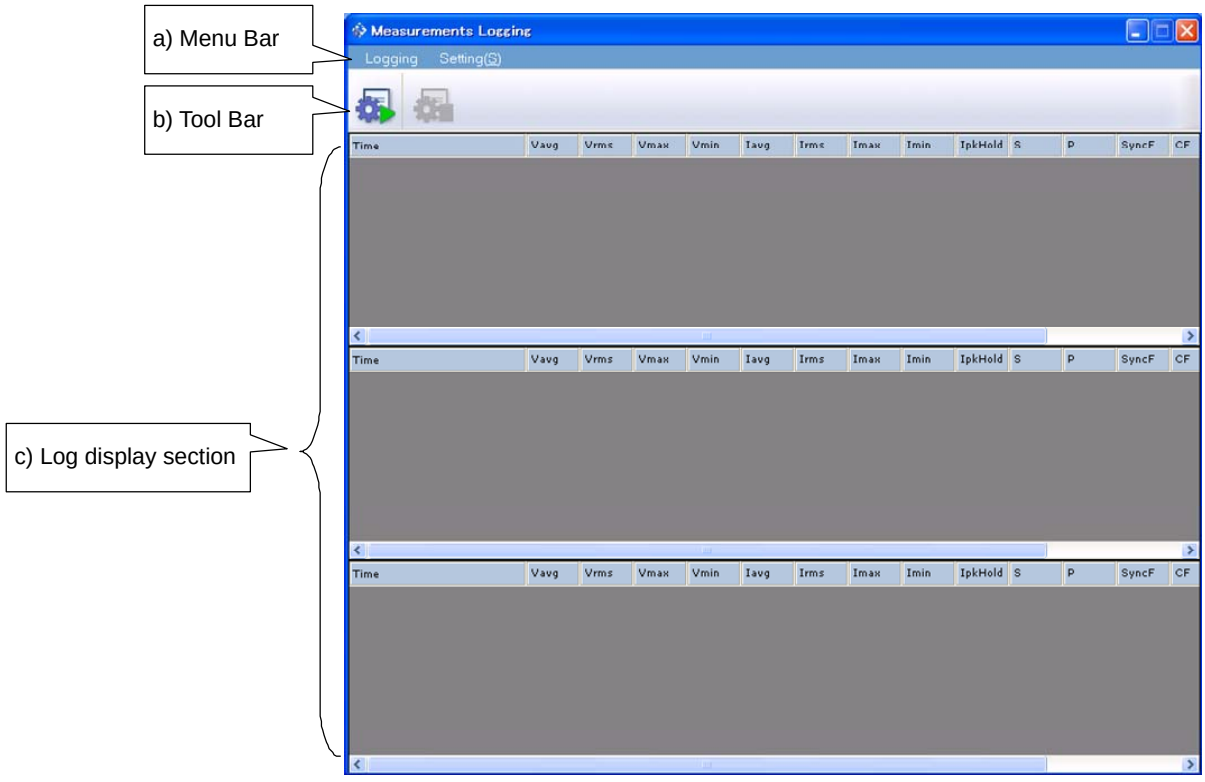

Figure 7-1 Measurements Logging Window

a)	Menu Bar	☞ 7.3.1
b)	Tool Bar	☞ 7.3.2
c)	Log display section	☞ 7.4

7.3 Operations on Each Section

7.3.1 Menu Bar

The menu composition of [Measurements Logging] is shown in Figure 7-2.

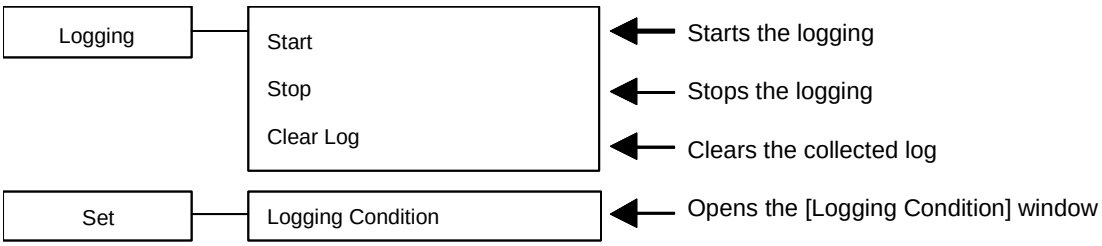

Figure 7-2 Menu Composition of the Measurements Logging

7.3.2 Tool Bar

On the [Measurements Logging] Tool Bar, you just click the icon shown in Figure 7-3 to execute the corresponding function.

Figure 7-3 Measurements Logging Tool Bar

a) Start Logging Starts the logging.
b) Stop Logging Stops the logging.

7.3.3 Start, Stop, and Clear

■ Start

Following two methods are available.

- From the Menu Bar, select [Logging] - [Start].
- From the Tool Bar, select [Start Logging] icon.

⚠CAUTION

- Collection of the line voltage measurements is not supported.
- Collection of the harmonic current measurements is not supported.

■ Stop

Following two methods are available.

- From the Menu Bar, select [Logging] - [Stop].
- From the Tool Bar, select [Stop Logging] icon.

■ Clear Log

From the Menu Bar, select [Logging] - [Clear Log] to clear logs in the [Measurements Logging] window. The logged data in the logging file are not cleared.

7.3.4 Logging Conditions

Sets the measurements log file and a logging interval. From the Menu Bar, select [Set] - [Logging Condition] to display the [Logging Setting] dialog.

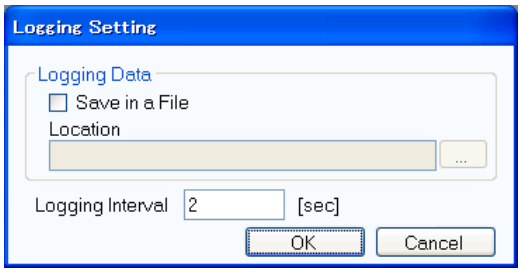

Figure 7-4 Logging Setting Dialog

■ Save in a File

When the [Save in a File] check box is selected, the measurements log file is created and saved to the folder specified in [Location] (☞7.5).

■ Location

Specifies a folder to save the measurements log file.

■ Logging Interval

Specifies the interval of measurements logging in seconds. The range of the value is between 1 to 60.

⚠CAUTION

- The accuracy of the logging interval is not guaranteed.

7.4 Log Display Section

When the logging is started, a log for each line is created in the log display section with the specified interval. The log display section can display up to 3000 lines of logs. If the logs exceed the 3000 lines, the logging stops. Clear Log operation (☞7.3.3) clears the logs in the log display section.

⚠CAUTION

- Data in the log display section cannot be copied to the clip board or saved to a file. If you need to keep the log in a file, select the [Save in a File] check box in the [Logging Setting] dialog (☞7.3.4) and use the measurements log file.

7.5 Measurements Log File

When the [Save in a File] check box is selected in the [Logging Setting] dialog (☞7.3.4), starting a logging creates a measurements log file in the folder specified in [Location] and appends a log to the log file. The format of the measurements log file is described below.

■ File name

The file is created with the name of YYYYMMDD_HH_MM_SS.txt based on the time when the logging is started.

■ File format

Text file delimited by comma. The first line includes the item names and the subsequent lines represent measurements logs.

8. Maintenance

8.1 CD-ROM Management

CD-ROM should be handled carefully paying attention to the followings.

Do not store your CD-ROM under direct sunlight or in high temperature or humidity.

- Store and use the CD-ROM avoiding dusty environment.
- Do not touch the recording surface. It may cause damage or error.
- When the recording surface gets dirty, wipe the surface with dry soft cloth. Do not use solvent such as benzene.
- Store the CD-ROM horizontally and vertically to avoid twisting or curving.
- Use a felt pen when you write letters to the label surface of the CD-ROM (do not use a pen such as ball-point pen or pencil of which tip is hard).

8.2 Replace Damaged CD-ROM

If your CD-ROM has been damaged, contact NF Corporation or our agent.

For a fee, we will replace it with new one.

8.3 Check Version

The version of this software is displayed in the upper right of the dialog window which appears when you press [System Setting].

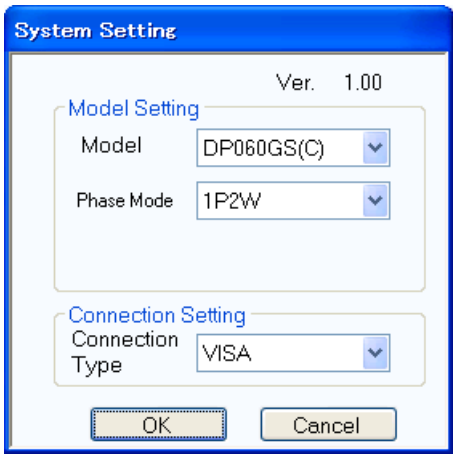

Figure 8-1 System Setting Dialog Window

NOTES

- No part of the contents of this instruction manual may be reprinted or reproduced without prior permission from us.
- The information in this instruction manual is subject to change without notice.
- We have taken enough care upon creating this instruction manual. However, should you notice any doubtful or wrong statement, or lack of description, please contact us or our agent.

Control Software for DP-G Series Instruction Manual

NF Corporation

6-3-20 Tsunashima Higashi, Kohoku-ku, Yokohama 223-8508, Japan
Phone: +81-45-545-8128 (Main)
http://www.nfcorp.co.jp/

http://www.nfcorp.co.jp/

NF Corporation

6-3-20, Tsunashima Higashi, Kohoku-ku, Yokohama 223-8508 JAPAN