



FRA DATA DISPLAY SOFTWARE

Instruction Manual

DA00017117-003

FRA DATA DISPLAY SOFTWARE

Instruction Manual

Registered Trademarks

IBM and AT are registered trademarks of International Business Machines, Inc. in the United States.

Microsoft is a registered trademark of Microsoft Corporation in the United States.

Windows is a trademark of Microsoft Corporation in the United States.

Adobe and Acrobat are trademarks of Adobe Systems, Inc. in the United States.

National Instruments is a registered trademark of National Instruments Corporation in the United States.

Other company names and product names may be trademarks or registered trademarks of their respective companies.

— Preface —

Thank you very much for purchasing our FRA DATA DISPLAY SOFTWARE.
To ensure safe and proper use of this electric equipment, please read first
INSTRUCTIONS FOR SAFE USE on the following pages.

■ Before Reading This Manual

This manual assumes that you are familiar with the basic operations of the operating system (Microsoft Windows XP/ Windows 7) that runs on your computer. For the basic operations of Windows and Windows-related terms such as “click” and “drag”, refer to the user’s guide or other related documents on Windows.

The screen images and messages shown in this manual are from Windows XP. They may be different from those from Windows 7.

■ Caution Symbols Used in This Manual

The following caution symbols are used in this manual. Be sure to follow the instructions maked with this caution symbol.

CAUTION

Cautions on handling the program are described.

● This manual has the following chapter organization.

If reading this manual for the first time, start from "1. OUTLINE".

1. OUTLINE

This chapter outlines the functions of FRA DATA DISPLAY SOFTWARE.

2. INSTALLATION

This chapter lists the system requirements for FRA DATA DISPLAY SOFTWARE and describes how to install the software.

3. GRAPHICAL DISPLAY

This chapter describes the functions for displaying data as graphs.

4. OTHER FUNCTIONS

This chapter describes the functions for remotely controlling the frequency response analyzer.

— INSTRUCTIONS FOR SAFE USE —

To ensure safe use, be sure to observe the following warnings and cautions.

NF Corporation shall not be held liable for damages that arise from a failure to observe these warnings and cautions.

- **Be sure to observe the contents of this instruction manual.**

This instruction manual contains information for the safe operation and use of this product.

Be sure to read this information first before using this product.

All the warnings in the instruction manual must be heeded to prevent hazards that may cause major accidents.

- **In case of suspected anomaly**

If the equipment controlled by this product produces smoke or if you notice a strange noise or smell, turn it off immediately.

If such an anomaly occurs, do not use this product until it has been repaired, and immediately report the problem to the location of purchase (either NF Corporation or your distributor).

————— DISCLAIMER —————

FRA DATA DISPLAY SOFTWARE (hereinafter referred to as “this software”) has been properly tested and inspected by NF Corporation (hereinafter referred to as “we”) before shipment.

Should you have any problems with this software, contact us or our dealer.

We shall assume no responsibility, whatsoever, for any damages resulting from the use of this software. Even if this software is defective, we shall be under no obligation to provide any modification or support. Use this software at your own risk.

Contents

| | Page |
|--|------|
| 1. OUTLINE | 1-1 |
| 1.1 OVERVIEW | 1-2 |
| 1.2 PRODUCT COMPONENTS..... | 1-2 |
| 2. INSTALLATION..... | 2-1 |
| 2.1 NECESSARY DEVICES..... | 2-2 |
| 2.1.1 PC System Requirements | 2-2 |
| 2.2 INSTALLATION STEPS..... | 2-3 |
| 2.2.1 Installing VISA Driver Software | 2-3 |
| 2.2.2 Installing FRA Data Display Software | 2-4 |
| 2.2.3 Uninstalling FRA Data Display Software..... | 2-4 |
| 3. GRAPHICAL DISPLAY..... | 3-1 |
| 3.1 MENU ITEMS | 3-2 |
| 3.2 DISPLAYING DATA AS GRAPHS | 3-3 |
| 3.2.1 Loading Measurement Data from Data Files | 3-4 |
| 3.2.2 Capturing Measurement Data from the FRA | 3-5 |
| 3.2.3 Configuring the Graph Display Settings..... | 3-6 |
| 3.2.4 Displaying a Cursor..... | 3-8 |
| 3.2.5 Saving Measurement Data as CSV Files..... | 3-9 |
| 3.2.6 Printing Graphs or Copying Graph Image to the Clipboard..... | 3-10 |
| 4. OTHER FUNCTIONS..... | 4-1 |
| 4.1 REMOTE CONTROL..... | 4-2 |

Attached figures

| | Page |
|--|------|
| Figure 3-1 [Target select] dialog box | 3-4 |
| Figure 3-2 [Connection setting] dialog box | 3-5 |
| Figure 3-3 [Display Setting] dialog box | 3-7 |
| Figure 3-4 Hairline Cursor | 3-8 |
| Figure 3-5 Data Cursor..... | 3-8 |
| Figure 4-1 [Remote control] dialog box..... | 4-3 |

1. OUTLINE

| | |
|------------------------------|-----|
| 1.1 Overview | 1-2 |
| 1.2 Product Components | 1-2 |

1.1 Overview

FRA DATA DISPLAY SOFTWARE is a program that supports the functionality of frequency response analyzers (FRA), FRA5095/FRA5096/FRA5097/FRA5087.

FRA DATA DISPLAY SOFTWARE runs on Windows-based PCs to capture measurement data from the FRA via USB or GPIB or save data in FD or USB memory and to display the data as graphs.

Major functions of FRA DATA DISPLAY SOFTWARE are to:

- Capture measurement data from the frequency response analyzer via USB or GPIB
- Load the measurement data from data files (FD or USB memory)
- Save the measurement data as CSV files
- Display the measurement data as graphs
- Print the measurement data graphs
- Remotely control FRA

For more information on the remote control function, refer to the instruction manual of your frequency response analyzer.

1.2 Product Components

FRA DATA DISPLAY SOFTWARE consists of the following components:

- Instruction Manual
- Installer

2. INSTALLATION

| | | |
|-------|--|-----|
| 2.1 | Necessary Devices | 2-2 |
| 2.1.1 | PC System Requirements | 2-2 |
| 2.2 | Installation Steps | 2-3 |
| 2.2.1 | Installing Visa Driver Software | 2-3 |
| 2.2.2 | Installing FRA Data Display Software | 2-4 |
| 2.2.3 | Uninstalling FRA Data Display Software | 2-4 |

2.1 Necessary Devices

Before installing FRA DATA DISPLAY SOFTWARE, make sure that your system meets the following requirements.

2.1.1 PC System Requirements

- Processor: 300 MHz or more (1.6GHz or more is recommended)
- Memory: 128MB or more (512MB or more is recommended)
- Hard disk: 50 MB, minimum
- Monitor resolution: 1024 × 768 pixels or higher
- Operating System: Windows XP(32-bit) / Windows 7(32-bit/64-bit)
English and .NET Framework 2.0 must be installed.
- USB interface: USB 1.1 full-speed

2.2 Installation Steps

To install or uninstall this software, log on to Windows with an administrator privilege.

2.2.1 Installing VISA Driver Software

Perform the following steps to download the USB driver software from the Internet and to install the software:

1. Visit the National Instruments Corporation website and find the VISA Run-time Engine web page.
2. Download VISA Run-time Engine 4.6.2 or higher. User registration must be complete before downloading the software.
3. The downloaded file is a self-extracting file. Extract the file and install the software.
4. When the installation process is successfully complete, the USB driver software is installed.

For more information, refer to the National Instruments Corporation website.

2.2.2 Installing FRA Data Display Software

Make sure that .NET Framework 2.0 is installed on your system.

If you attempt to run setup.exe without .NET Framework 2.0 installed on your system, a warning message appears stating that .NET Framework must be installed.

It is necessary to uninstall the previous version before installing the new version of FRA Data Display Software according to Chapter 2.2.3.

- (a) Run Setup.msi.
- (b) Following the instructions on the screen, click the [Next] button to install FRA Data Display Software.
- (c) When the installation is complete, FRA DATA DISPLAY SOFTWARE is ready for operation.
To start the software, select **Start** - [All Programs] - [FRA Data Display Software] and click [DataDspl].

For more information, refer to Microsoft Corporation website.

2.2.3 Uninstalling FRA Data Display Software

To remove FRA DATA DISPLAY SOFTWARE from Windows XP, select [Set Program Access and Defaults] from the Start menu and click [Change or Remove Programs]. Select [DataDspl] and then click the [Remove] button.

To remove FRA DATA DISPLAY SOFTWARE from Windows 7, click [Uninstall a program] in the Control Panel. Select [DataDspl] and then click the [Uninstall] button.

3. GRAPHICAL DISPLAY

| | | |
|-------|--|------|
| 3.1 | Menu Items | 3-2 |
| 3.2 | Displaying Data as Graphs | 3-3 |
| 3.2.1 | Loading Measurement Data from Data Files | 3-4 |
| 3.2.2 | Capturing Measurement Data from the FRA | 3-5 |
| 3.2.3 | Configuring the Graph Display Settings | 3-6 |
| 3.2.4 | Displaying a Cursor | 3-8 |
| 3.2.5 | Saving Measurement Data as CSV Files | 3-9 |
| 3.2.6 | Printing Graphs or Copying Graph Image to the Clipboard | 3-10 |

3.1 Menu Items

This section lists the FRA DATA DISPLAY SOFTWARE menu items. Please note that the items marked with an asterisk (*) are available only when one or more graphs are displayed.

[File]

[Open from file]: Loads measurement data from the selected DAT file and displays the data as a graph.

[Open from device]: Captures measurement data from the FRA and displays the data as a graph.

[Save active plot to csv] (*): Saves the measurement data in the active graph as a CSV file.

[Page set up]: Select this to configure print settings.

[Preview] (*): Previews the print output.

[Print] (*): Prints the active graph.

[Copy to clipboard] (*): Copies the bitmap image of the active graph to the clipboard.

[Exit]: Exits the software.

[Device]

[Remote control]: Select this to remotely control the FRA.

[Connection setting]: Select this to change the settings of connection to the FRA.

[Graph]

[Display setting] (*): Select this to configure graph display settings.

[Cursor]

[None]: Select this to hide the cursor in the graph.

[Hairline cursor]: Select this to display the hairline cursor in the graph.

[Data cursor]: Select this to display the data cursor in the graph.

[Window] (*): Select this to select which graph window is displayed in the foreground.

[Help]: Using help and displays version also.

3.2 Displaying Data as Graphs

With FRA DATA DISPLAY SOFTWARE, measurement data loaded from data files or captured from the FRA can be displayed as graphs. A graph type, for example, Bode diagram and Nicols Chart, can be selected by modifying graph settings. Graphs can be printed out or copied to the clipboard as bitmap images.

3.2.1 Loading Measurement Data from Data Files

To load measurement data from a selected data file and display the data as a graph, select the [File] - [Open from file] menu.

When you select a data file, the [Display Setting] dialog box appears, where you can configure graph display settings (refer to 3.2.3 Configuring Graph Display Settings). If more than one set of measurement data is loaded, the [Target select] dialog box appears. In this dialog box, you must decide whether to superimpose the graphs or to create a new graph window.

To superimpose an additional graph on the current graph window, select the graph window name (the name of the data file for which the first graph window was created), and click the [OK] or [Setting] button. Clicking the [Setting] button displays a window where you can modify graph display settings.

To create a new graph window, select [(New graph)] and click the [Setting] button.

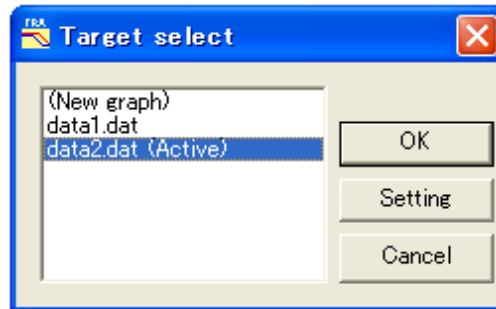


Figure 3-1 [Target select] dialog box

3.2.2 Capturing Measurement Data from the FRA

To capture measurement data from the FRA that is connected to your PC via USB or GPIB, select [File] - [Open from device]. Please note that the measurement data to be captured is the data of current TAG of the FRA.

To display more than one set of data as graphs, you can decide whether to superimpose the graphs or to create a new graph window, as is the case with loading measurement data from data files.

To modify the settings of connection between your PC and the FRA, select [Device] - [Connection setting]. If you use USB to connect your FRA, select the [USB] radio button. Then, select the type of your FRA from the [Product] drop-down list and type the serial number in the [Serial No.] field. When entering the serial number, please do not omit the leading zeros. If you use GPIB to connect your FRA, select the [GPIB] radio button. Then, select the address assigned to your FRA.

Refer to the instruction manual of the FRA and verify the USB serial number or GPIB address.

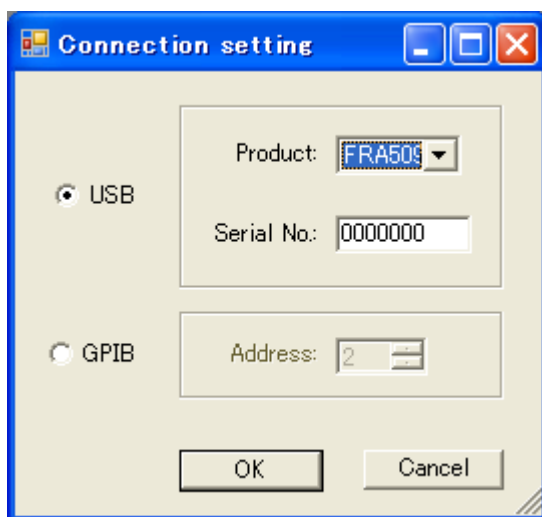


Figure 3-2 [Connection setting] dialog box

3.2.3 Configuring the Graph Display Settings

You can configure the graph display settings when measurement data is loaded from data files or captured from the FRA or by using the [Graph] - [Display setting] menu.

The following table lists the available setting items:

| On tab | Select the item | To |
|------------|------------------|---|
| General | Title | Name the graph. |
| | Background color | Specify the background color of the graph. |
| | Template | Configure the X and Y axes. |
| | Units | Select the displayed unit: [Gain], or [Impedance]. |
| | Graph size[mm] | Specify the length and width of the graph. |
| | Font | Format the file name and graph title. |
| Data | Delete | Delete the data for the selected file name from the graph. |
| Horizontal | Data | Select the type of data to be displayed on the X axis: [Frequency], [Re] (the real part), or [Phase]. |
| | Caption | Edit the X-axis caption. |
| | Use default | Use the X-axis default setting with this checkbox selected. Edit the X-axis caption with this checkbox unselected. |
| | Scale | Select an X-axis scale: [Linear], [Linear(dB)], or [Log] (logarithm). |
| | Format | Specify the display digits of the X-axis scale. |
| | Grid | Specify the color and width of the X-axis grid and whether or not the grid is displayed. |
| | Margin[mm] | Specify the right and left margin widths. |
| | Scale option | Specify the maximum and minimum values and step width of the X-axis scale. For [Step], no option other than [Auto] can be selected if [Scale] is set to [Log]. |
| | Font | Format the X-axis caption and scale. |
| Vertical1 | Data | Select the type of data to be displayed on the Y1 axis: [R] (absolute value), [Re] (the real part), [-Re] (the negative real part), [Im] (the imaginary part), [-Im] (the negative imaginary part), or [Phase]. |
| | Caption | Edit the Y1-axis caption. |
| | Use default | Use the Y1-axis default setting with this checkbox selected. Edit the Y1-axis caption with this checkbox unselected. |
| | Scale | Select a Y1-axis scale: [Linear], [Linear(dB)], or [Log] (logarithm). |
| | Format | Specify the display digits of the Y1-axis scale. |
| | Plot | Specify the color and width of the Y1-axis data. |
| | Grid | Specify the color and width of the Y1-axis grid and whether or not the grid is displayed. |
| | Margin[mm] | Specify the top and bottom margin widths. |
| | Scale option | Specify the maximum and minimum values and step width of the Y1-axis scale. For [Step], no option other than [Auto] can be selected if [Scale] is set to [Log]. |
| | Font | Format the Y1-axis caption and scale. |
| Vertical2 | Data | Select the type of data to be displayed on the Y2 axis: [R] (absolute value), [Re] (the real part), [-Re] (the negative real part), [Im] (the imaginary part), [-Im] (the negative imaginary part), or [Phase]. |
| | Caption | Edit the Y2-axis caption. |
| | Use default | Use the Y2-axis default setting with this checkbox selected. Edit the Y2-axis caption with this checkbox unselected. |
| | Scale | Select a Y2-axis scale: [Linear], [Linear(dB)], or [Log] (logarithm). |
| | Format | Specify the display digits of the Y2-axis scale. |
| | Plot | Specify the color and width of the Y2-axis data. |
| | Grid | Specify the color and width of the Y2-axis grid and whether or not the grid is displayed. |
| | Margin[mm] | Specify the top and bottom margin widths. |
| | Scale option | Specify the maximum and minimum values and step width of the Y2-axis scale. For [Step], no option other than [Auto] can be selected if [Scale] is set to [Log]. |
| | Font | Format the Y2-axis caption and scale. |
| Item | | Select the items to be displayed in the graph. |

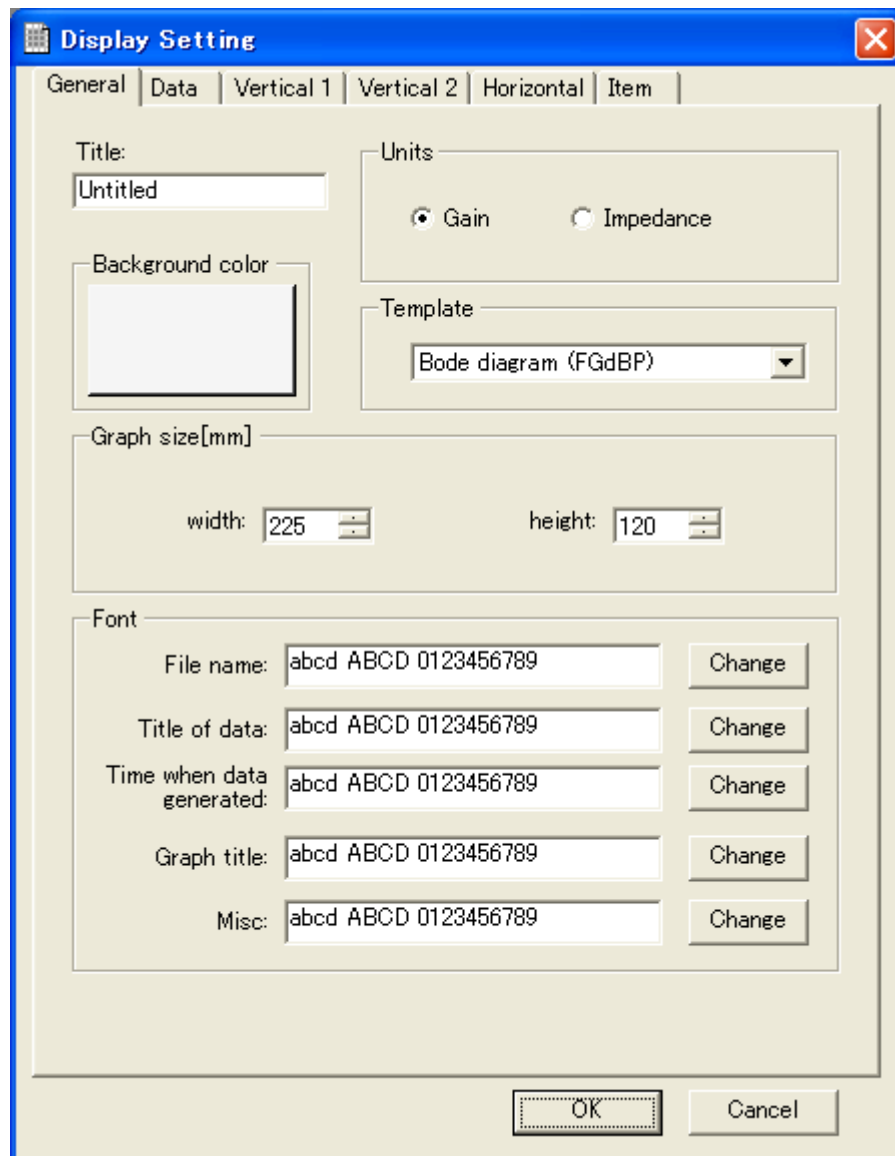


Figure 3-3 [Display Setting] dialog box

3.2.4 Displaying a Cursor

By using the [Cursor] menu, a cursor can be displayed in the graph to facilitate value reading. To read the value of a given point in the graph window, select [Cursor] - [Hairline cursor] to display a hairline cursor. To read the value of a given point on the measurement data, select [Cursor] - [Data cursor]. In both cases, the value is displayed in the lower left-hand corner of the graph window.

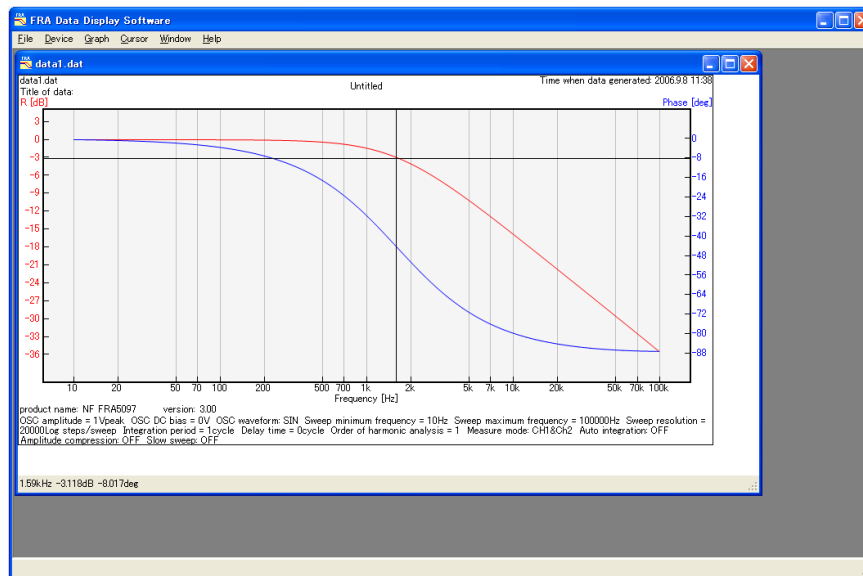


Figure 3-4 Hairline Cursor

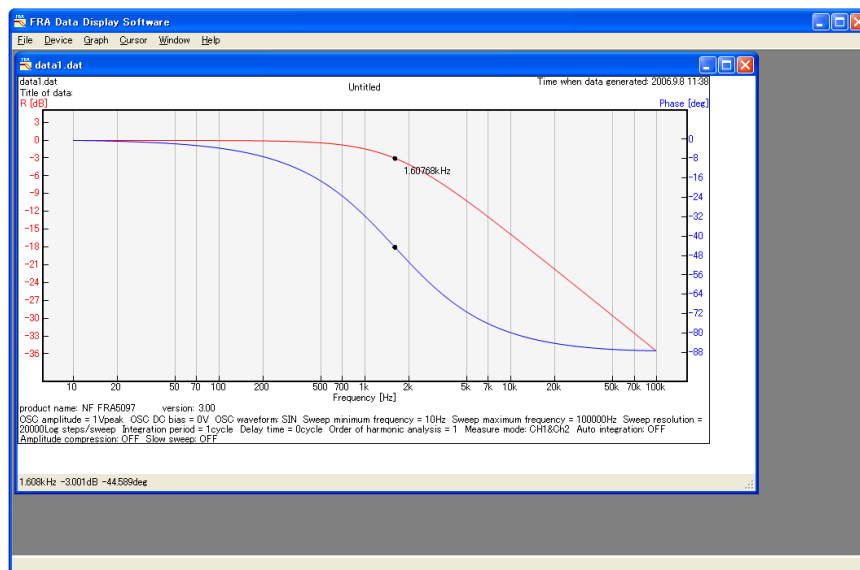


Figure 3-5 Data Cursor

3.2.5 Saving Measurement Data as CSV Files

Measurement data on the active graph can be saved as CSV files by using the [File] - [Save active plot to csv] menu.

The file format is as follows.

- Line 1: header only
- Line 2 or later: measurement data

The first item represents frequency (Hz), the second item gain (no units) or impedance (Ω), and the third item phase ($^{\circ}$) in each line.

3.2.6 Printing Graphs or Copying Graph Image to the Clipboard

A graph in the active graph window can be printed by using the [File] - [Print] menu. Print settings including paper size and print direction can be modified by using the [File] - [Page setup] menu. Printed image can be previewed with the [File] - [Preview] menu. Selecting the [File] - [Copy to clipboard] menu copies the bitmap image of the active graph window to the clipboard. Paste the graph to an appropriate software.

4. OTHER FUNCTIONS

| | |
|--------------------------|-----|
| 4.1 Remote Control | 4-2 |
|--------------------------|-----|

4.1 Remote Control

Your FRA can be remotely controlled with the [Device] - [Remote control] menu.

Available setting items are as follows:

[Basic Parameter]: Basic parameters can be modified here. Enter a value in a field and press the Enter key to activate the modification.

[Sweep Max Frequency]: Allows you to set the sweep maximum frequency

[Sweep Min Frequency]: Allows you to set the sweep minimum frequency

[OSC Amplitude]: Allows you to set the AC amplitude

[Integration]: Allows you to set the number of integration

[Osc]

[OFF]: To turn off both the AC and DC oscillator output, press the [AC/DC] button. To turn off the AC oscillator output alone, press the [AC] button.

[ON]: To turn on both the AC and DC oscillator output, press the [AC/DC] button.

[File]

[Reload]: Allows you to obtain the saving status in memory.

[Delete]: Allows you to delete the selected memory.

[Load to Tag]: Allows you to load the memory to the specified tag.

[Measure]

[Sweep]: Pressing the [Down] or [Up] button starts sweep measurement.

[Stop]: Pressing the [Hold] button suspends the ongoing sweep measurement. Pressing the [End] button stops the measurement.

[Single]: Pressing the [Measure] button starts single measurement. To configure whether to repeat single measurement, press the [Repeat] button.

[Command]: You can execute a command by entering the command and then pressing the Enter key.

[Log]: Displays the log of the executed command.

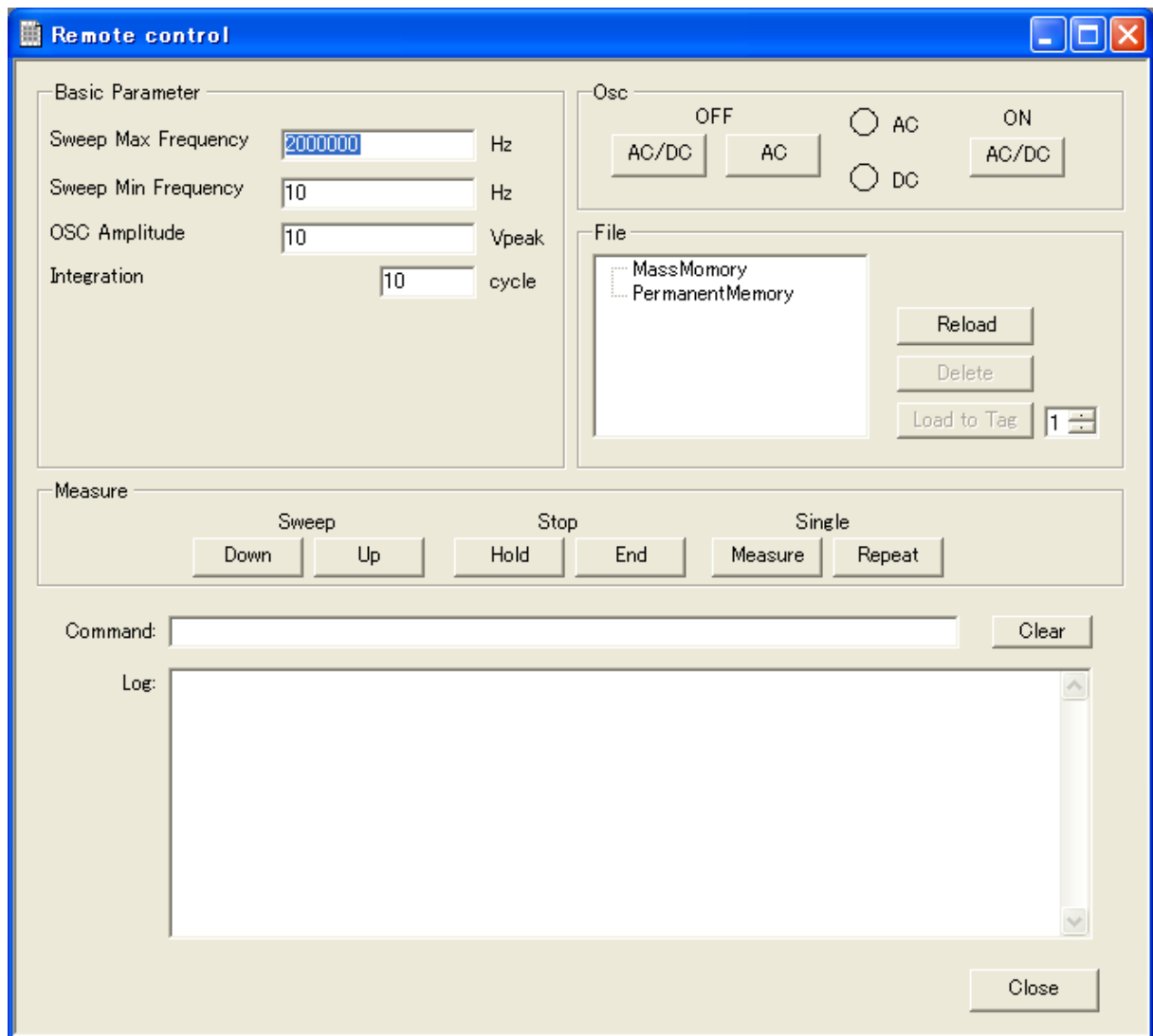


Figure 4-1 [Remote control] dialog box

— WARRANTY —

The FRA Data Display Software (hereafter referred to as “this software”) is shipped after having undergone full testing and inspection of the NF Corporation.

Should this software fail due to a manufacturing flaw or due to a mishap during shipping, contact NF Corporation or an NF Corporation sales representative.

NF Corporation does not guarantee that the quality and function of this software adopt your intended purpose of use. NF Corporation does not guarantee that this software will operate without discontinuation or it is free of defects.

NF Corporation has no responsibility for any damage (loss of business interests, discontinuation of business, loss of business information, or other damage including but not limited to pecuniary damage) caused by use or nonuse of this software. Responsibility of NF Corporation is limited up to the amount that you have actually paid for this software.

This warranty is valid only in Japan.

In the following cases, exchange will be charged even if the warranty is still valid.

- Failure caused by handling or storage that goes against the usage methods and/or cautions described in the instruction manual of the product
- Failure or damage caused by dropping of the product or exposure to shocks by the customer during transportation
- Modification of the product by the customer
- Failure or damage caused by natural disaster such as fire, earthquake, flood, lightning, explosion, or war

— COPYRIGHT —

NF Corporation retains the copyright of this software that is protected under the copyright law of Japan and related international conventions.

You may either make one copy of this software for backup or storage purposes only, or install it on a hard disk while keeping the original of this software for backup or storage purposes only.

Reproduction of this instruction manual without permission, either in part or in whole, is prohibited.

— ABOUT CONTACT —

If a problem occurs or if you have questions, contact NF Corporation or an NF Corporation sales representative where you purchased this software.

When contacting NF Corporation or an NF Corporation sales representative, provide the model name (or product name), the manufacturing number (serial number shown on the CD case), version number, and information as detailed as possible about the nature of the problem, conditions of use, etc.

NOTE

1. Reproducing or copying all or any part of this program or this manual without permission from NF Corporation is strictly prohibited.
 2. The contents of this manual may be revised without notice.
 3. Information provided in this manual is intended to be accurate and reliable. Should you have any questions or notice any errors or omissions in this manual, please contact us or our dealer.
 4. Notwithstanding the above-mentioned NOTE 3, we assume no responsibility for the results of using this program or manual.
-

FRA DATA DISPLAY SOFTWARE Instruction Manual

NF Corporation

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

Phone +81-45-545-8111 Fax +81-45-545-8191

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

© Copyright 2007-2014, NF Corporation

