SEQUENCE EDIT SOFTWARE

INSTRUCTION MANUAL

NF Corporation

DA00049543-003

SEQUENCE EDIT SOFTWARE

INSTRUCTION MANUAL

- About registered trademarks

Preface

Thank you for purchasing our WF1967/WF1968 Multifanctuion Generator.

To ensure safe use of this product, please first read “Safety Precautions” on the next page.

- This manual consists of the following chapters.

If it is the first time for you to use this product, start with “1. OVERVIEW.”

1. OVERVIEW

   Provides an overview of the functions of the Sequence Edit Software.

2. INSTLLATION

   Describes the environmental requirements for the Sequence Edit Software and the installation method.

3. SEQUENCE EDITING

   Describes the operation procedures for the edit window.

4. SEQUENCE VIEW WINDOW

   Describes the operation procedures for the sequence view window.

5. OTHER FUNCTIONS

   Describes other functions.

6. ERROR MESSAGES

   Describes the error messages.

7. MAINTENANCE

   Describes 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

"Sequence Edit Software" (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.

Contents

Figures and Tables

1. OVERVIEW

1.1 Overview

The Sequence Edit Software is a program that supports the sequence function of the WF1967/WF1968 MULTIFUNCTION GENERATOR.

The Sequence Edit Software operates on Windows on a personal computer (PC), transferring sequence data via USB.

The main functions of the Sequence Edit Software are listed below.

- Creating, editing, and saving sequence data
- Transferring sequence data to the WF1967/WF1968
- Reading sequence data from the WF1967/WF1968
- Transferring arbitrary waveform data to the WF1967/WF1968
- Previewing sequence data
- Controlling the sequence running on the WF1967/WF1968
- Displaying the progress of the currently running sequence on the monitor

For details of the sequence function, see the “WF1967/WF1968 Instruction Manual (Operation).”

1.2 On-line/Off-line

The Sequence Edit Software checks for connected devices at startup.

If a connected device is detected, the software starts in the “on-line” state where devices can be controlled.

If the specified device is not connected, the software starts in the “off-line” state and does not communicate with any device. However, you can change the software to online state in the System Set dialog box.

It is possible to create, edit and save sequence data even in the “off-line” state.

1.3 Conventions Used in This Manual

The following conventions are used in this manual.

- Menu names and button names displayed on the screen, and user-input text

  Block letters enclosed by [ ] Example: **[File(F)]**, **[OK]**

- Press one key while holding down another key

  Two keys are connected by a plus symbol (+). Example: Ctrl+O

- Press one key, release it and press another key

  Two keys are divided by a comma (,). Example: Alt, F

2. INSTLLATION

2.1 Hardware Requirements

Before installing the Sequence Edit Software, check that the system satisfies all the requirements below.

2.1.1 Personal Computer

- CPU： 1 GHz or faster
- Memory： 1 GB for 32-bit or 2 GB for 64-bit
- Free hard disk space： 10MB or more
- Display： 1024 × 768 pixels or higher and 256 colors or more
- OS： Windows 7 32-bit / 64-bit (Microsoft) English
  Windows 8.1 32-bit / 64-bit (Microsoft) English
  Windows 10 or later (Microsoft) English
- Disk drive： CD-ROM drive

The company and product names are trademarks or registered trademarks of their respective owners.
The CD-ROM drive is required only when the software is installed.

2.1.2 USB Interface

- USB 1.1 Full Speed

2.2 Installation Procedure

When installing or uninstalling the SEQ Edit, log on to Windows with administrator privileges.

2.2.1 Installation of USB Driver Software

This software is confirmed to work on NI-VISA Version 2023Q3 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.
For details of NI-VISA, contact National Instruments Corporation or visit the National Instruments Website.

---- Notes ----------

Please set the communication interface of the WF1967/WF1968 to “USB” in advance. For details of the communication interface setting, see the “WF1967/WF1968 Instruction Manual (Remote Control).”

2.2.2 Installation of Sequence Edit Software

1. Insert the WF1967/WF1968 Multifunction Generator's CD-ROM into the CD-ROM drive of your PC.
2. Execute the installer in the folder English\Application\SEQ_EDIT in the CD-ROM.
3. Click the **[Next]** button, following the instructions of the install wizard to install the software.
4. After the installation finishes, remove the CD-ROM from the CD-ROM drive. Now you can use the software. (☞3.3)

2.2.3 Uninstallation of Sequence Edit Software

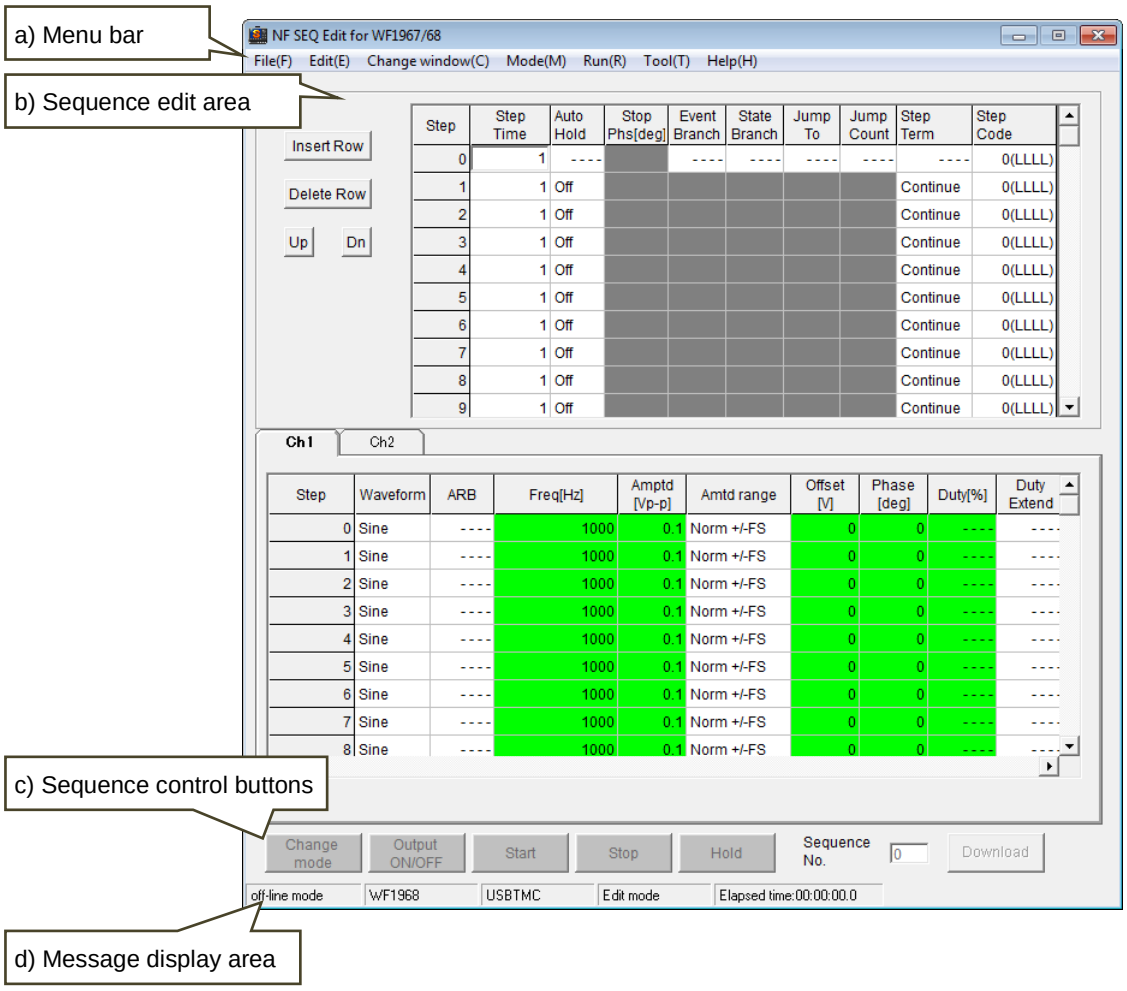
Open Programs and Features from Control Panel. From the list of currently installed programs, select "SEQ Edit for WF1967/WF1968" and click Uninstall.

The folder where the software is installed is not always removed. The files created in the folder remain. If the files and the folder are not needed, remove them after uninstallation.

3. SEQUENCE EDITING

3.1 Component Names

The edit window shown below appears after the Sequence Edit Software (SEQ Edit) is started.



a) Menu bar ☞3.2
b) Sequence edit area ☞3.4
c) Sequence control buttons ☞3.5
d) Message display area ☞3.7

3.2 Menu Bar

The menu of the SEQ Edit is shown below.

Note that items indicated with an asterisk (*) cannot be used in the sequence view window.

File(F)	New(N)*	Ctrl+N	Creates a new sequence data.
	Open(O)*	Ctrl+O	Opens the sequence data file.
	Save(S)	Ctrl+S	Saves the sequence data by overwriting.
	Save As(A)		Saves the sequence data under the specified file name.
	Exit(X)		Exits this software.
Edit(E)*	Copy(C)*	Ctrl+C	Copies the selected sequence data.
	Paste(P)*	Ctrl+V	Pastes the copied sequence data.
	Select all(L)*		Selects all the sequence data contained in the setting area being edited.
	Initialize(A)*		Initializes the selected sequence data.
	Insert Row(I)*		Adds a new row before the row being edited.
	Delete Row(E)*		Deletes the row being edited.
	RowUP(U)*		Moves the row being edited to one row above.
	RowDOWN(D)*		Moves the row being edited to one row below.
Change window(C)	Edit window(E)		Displays the edit window.
	Sequence view window(V)*		Displays the sequence view window.
	Tile Vertically(T)		Tiles the edit and sequence view windows.
Mode(M)	Edit mode(E)		Changes to the mode in which the sequence data can be edited.
	Execution mode(R)		Changes to the mode in which the sequence can be executed.
Run(R)	Start(S)		Starts execution of the sequence.
	Stop(E)		Stops execution of the sequence.
	Hold(H)		Holds execution of the sequence.
	Output ON(N)		Turns on output of the device.
	Output OFF(F)		Turns off output of the device.
Tool(T)	Arbitrary waveform(A)		Displays the Arbitrary Waveform dialog box.
	Channel setting(C)		Displays the Set Channel dialog box.
	Common sequence settings(S)		Displays the Common Sequence Parameters dialog box.
	System setup(I)		Displays the Set System dialog box.
Help(H)	About(A)		Displays the Version dialog box.

3.3 Start and Exit

3.3.1 Start

To start the SEQ Edit, click **[Start]-[Programs]-[NFTool]-[SEQ_Edit for WF1967_WF1968]-[SEQ_Edit for WF1967_WF1968]**.

If no device is connected at startup, the software starts in the off-line state. If a device is connected, the software stars in the on-line state. If multiple devices of the same model are connected, the message dialog shown in Figure 3-1 appears. Clicking the **[OK]** button shows the System Set dialog box (☞5.7). Select the serial number of the device to be set.

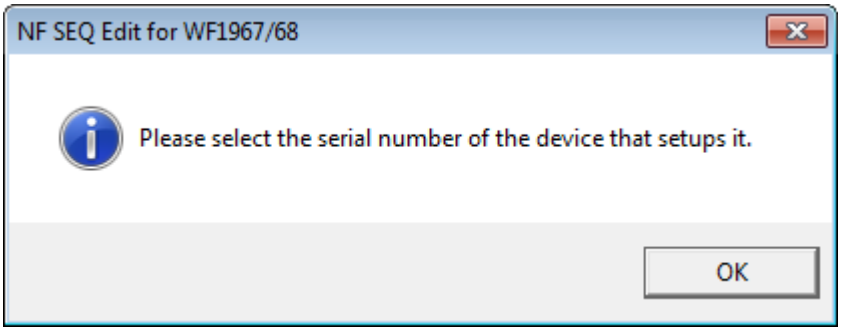


Figure 3-1 Message Dialog at Startup (when multiple devices of the same model are connected)

---- **Notes** ----------

The software starts in the off-line state if the model of the connected device is different from the one used in the previous session. For the first-time startup, it checks whether the WF1967 is connected. The model to be set can be changed in the System Set dialog.

3.3.2 Exit

To exit the SEQ Edit, click the ☒ button in the upper right corner of the edit window or select **[File(F)]-[Exit(X)]** from the menu bar.
The data being edited is saved on exit, and is restored on next startup.

3.4 Sequence Edit Area

The sequence edit area (Figure 3-2) consists of the following two areas.

a) Step control parameters setting area

b) Channel parameters setting area

When the SEQ Edit is started, the previously set values are shown.

If the software is used for the first time, the initial values (☞5.8) are shown.

Figure 3-2 Sequence Edit Area

3.4.1 Setting Parameters

You can set each parameter by entering a value into a selected cell. If the entered value is out of the setting range, an error dialog box opens. Enter a value within the setting range shown in the dialog box.

The channel parameter setting area contains parameters that do not require setting depending on the waveform. **[----]** is displayed for such parameters and no value can be input.

Select **[Edit(E)]-[Initialize(A)]** to reset the values of the selected cells to the defaults.

The parameters that cannot be set by simply entering a value are described below.

a) Setup from combo boxes

To set values for the parameters listed below, click a cell and select a value from the list.

- Auto hold **[AutoHold]**
- Step termination **[StepTerm]**
- Step sync code output **[StepCode]**
- Waveform **[Waveform]**
- Amplitude range **[Amptd Range]**
- Duty extend **[DutyExtend]**

b) Numerical input with on/off setting

For the parameters listed below, you can turn a parameter on or off by switching the radio buttons setting. The value can be set only when the parameter is turned on.

- Stop phase **[StopPhs]**
- Event branch **[EventBranch]**
- State branch **[StateBranch]**
- Jump destination **[JumpTo]**
- Jump count **[JumpCnt]**

A stop phase example is described below.

When you click a **[StopPhs]** cell, the radio buttons with On (enabled)/Off (disabled) are displayed, as shown in Figure 3-3. The stop phase can be enabled or disabled by switching the radio button setting. If **[Off]** is selected, the cell is grayed out and you cannot enter any values. If **[On]** is selected, the setting value is displayed in the cell and you can enter a value.

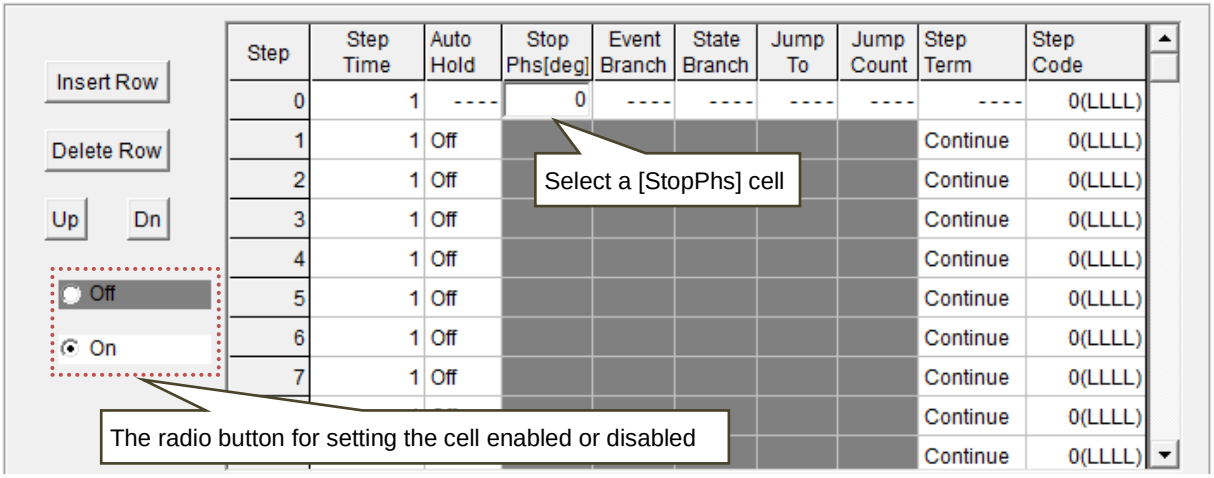


Figure 3-3 Stop Phase Setting

In the case of jump count (**[JumpCnt]**) only, the setting is that of **[Infinity]**/**[On]** and not the **[On]**/**[Off]** setting. Moreover, when the jump destination (**[JumpTo]**) setting is off, the jump count cannot be set.

c) Action setting

The parameters listed below have action settings ([Const], [Keep], [Sweep]) in addition to value settings.

- Frequency
- Amplitude
- Offset
- Start phase
- Duty

Clicking a cell in these parameters to display the radio buttons with which the action can be set, shown in Figure 3-4. The action can be set by selecting one of the radio buttons.

The color of the cell in these parameters is same as the color of the selected radio button.

.

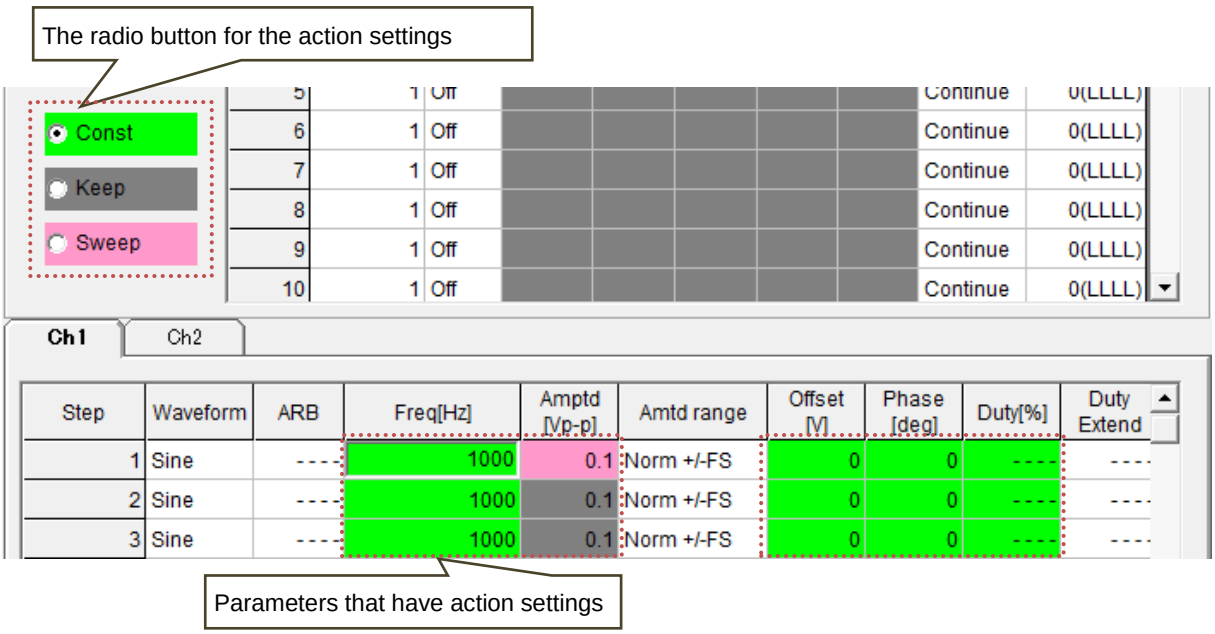


Figure 3-4 Action Setting

d) Setp 0 parameter setting

Some of the parameter cannot be set for step 0. **[----]** is displayed for these parameters.

3.4.2 Step Insertion, Detection, and Moving

A line can be inserted, deleted, or moved for the step line of a selected cell or the step line selected by clicking a step number cell.

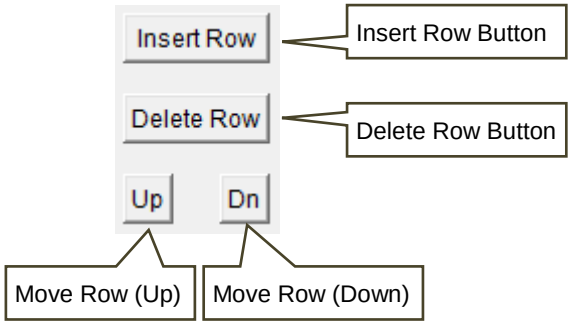


Figure 3-5 Move Row Buttons, Insert Row Button and Delete Row Button

Click the **[Insert Row]** button or select **[Edit (E)]-[Insert Row(I)]** to insert a new line before the selected line. The default setting values are displayed on the inserted line. The line of step 255 is deleted.
Click the **[Delete Row]** button or select **[Edit (E)]-[Delete Row (E)]** to delete the selected line. The default setting values are newly displayed on the line of step 255.
Click the **[Up]** or **[Dn]** move buttons to move the selected line either up or down.
This can also be done by selecting **[Edit (E)]-[RowUP(U)]** or **[Edit (E)]-[RowDown (D)]**.

3.4.3 Copying and Pasting the Sequence Data

The sequence data can be copied in either the step control parameters or channel parameters setting area.

To copy and paste the sequence data:

1. Select the sequence data to be copied.
2. Select **[Edit(E)]-[Copy(C)]**.
3. Select the destination.
4. Select **[Edit(E)]-[Paste(P)]**.

Data can be selected in cell, line, and same row units.
Column items should be matched between the destination data range to be pasted and the source data range that was copied.

3.5 Sequence Control Buttons

The sequence control buttons is shown in Figure 3-6.

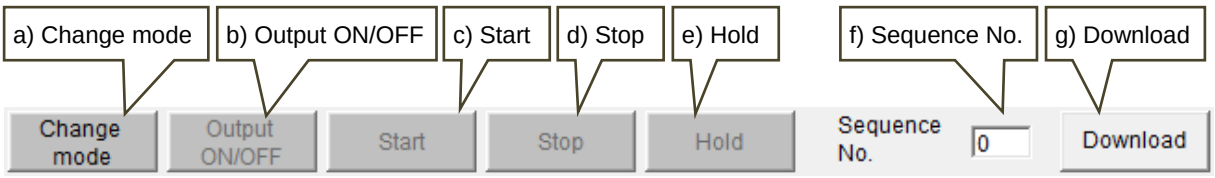


Figure 3-6 Sequence Control Buttons

a) [Change mode] button

This button is used to change modes between edit and execution. When switching from the edit mode to the execution mode, the dialog box for setting a sequence name is displayed. Set a sequence name by entering up to 20 one-byte characters. Clicking the **[Cancel]** button in this dialog box continues edit mode. When the **[OK]** button is clicked, the compatibility of the sequence data is checked. If the compatibility check result is OK, the arbitrary waveform data and the sequence data are transferred to the device. The transfer destination is the sequence memory specified in the **[Sequence No.]** text box.

While the sequence is running, the mode cannot be changed.
Edit mode: Allows the sequence data to be edited. Sequences cannot be run in the edit mode.
Execution mode: Allows the sequence to be executed. Sequences cannot be edited in the execution mode.

b) [Output ON/OFF] button

This button is used to control output of the device. If the output is turned on, this button turns green. While the sequence is running, it is not possible to change between output ON and OFF.

c) [Start] button

This button is used to start the sequence. If the device output is not on when the **[Start]** button is clicked, a message appears prompting that the output will be turned on, followed by the output turning on.
While the sequence is running, it is not possible to turn on or off the output or exit the software. Click the **[Stop]** button before turning on or off the output, or exiting the software.

d) [Stop] button

This button is used to stop the sequence. Clicking the **[Start]** button in this state can restart the sequence, beginning at the start step.

e) [Hold] button

This button is used to stop the sequence temporarily. The output when the sequence is paused is held. Clicking the **[Start]** button can in this state resumes the sequence from a step that has temporally stopped. Click the **[Stop]** button to terminate the sequence.

f) [Sequence No.]

Specifies the sequence number on the device which is used as the destination of the sequence data when clicking the **[Change Mode]** button or the source of the sequence data when clicking the **[Download]** button.

g) [Download] button

Reads the sequene data of the **[Sequence No.]** from the device. At this time, the data being edited with SEQ Edit is discarded and data read out from the device are displayed.
The **[Download]** button is enabled only in the edit mode.

3.6 Monitoring the Sequence Execution

The SEQ Edit window allows monitoring of how the sequence is being executed.

As shown in Figure 3-7, the current step is indicated by a change of color in the step control parameters or channel parameters setting area.

The row of the current step is indicated in a different color.

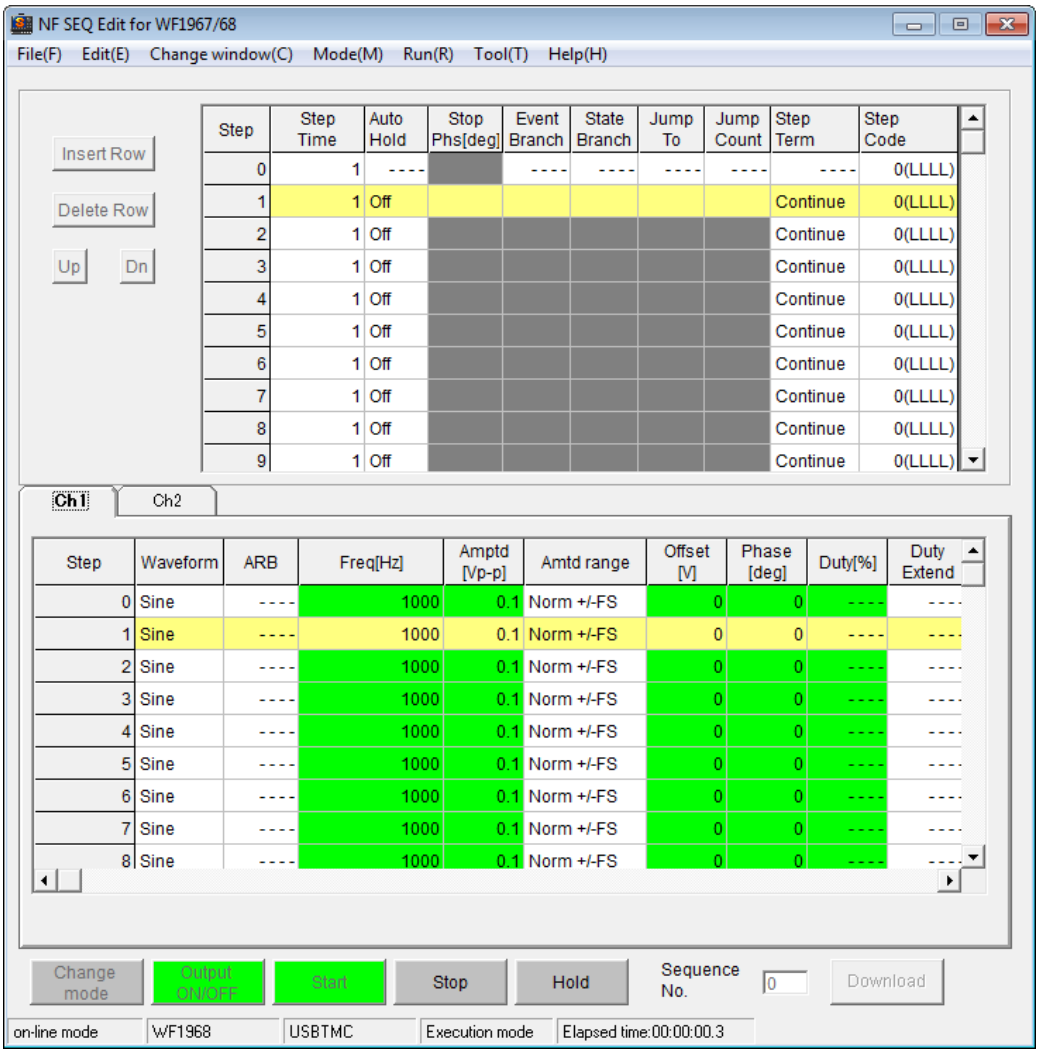


Figure 3-7 Monitoring the Sequence Execution

Once the sequence execution stops, the sequence execution monitor stops automatically.

---- Notes ----------

This software monitors the device output condition when the sequence is being executed. If the device output goes off while the sequence is being executed, this software displays a message, stopping the sequence execution.

3.7 Message Display Area

The details the message display area is shown in Figure 3-8.

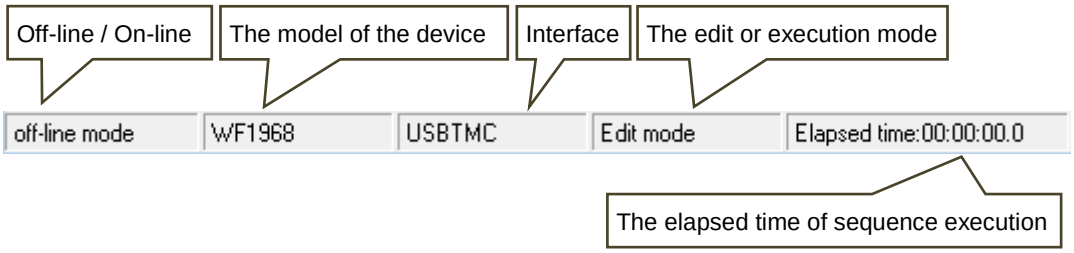


Figure 3-8 Message Display Area

When the sequence execution starts, the elapsed time of the sequence execution is incremented.

---- **Notes** ----------

A slight error may occur in the elapsed time of the sequence. Interpret it as a reference value.

3.8 Sequence Data File

The following data is saved to a sequence data file.

- Step control parameters (☞3.4)
- Channel parameters (☞3.4)
- Sequence common parameters (☞5.6)
- Arbitrary waveform file names (☞5.4)
- Channel settings (☞5.5)
- Model (☞5.7)

To save a sequence data file, select **[File(F)]-[Save(S)]** or **[File(F)]-[Save As(A)…]** in the edit window or the sequence view window.
To load a sequence data file, select **[File(F)]-[Open(O)…]** in the edit window.

---- **Notes** ----------

The sequence data files created with the Sequence Edit Software for WF1973/WF1974 can be loaded.

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4. SEQUENCE VIEW WINDOW

4.1 Sequence View Window

When **[Change window(C)]-[Sequence view window(V)]** is selected, the sequence view window shown in Figure 4-1 will be displayed. The created sequence data can be previewed in the sequence view window.

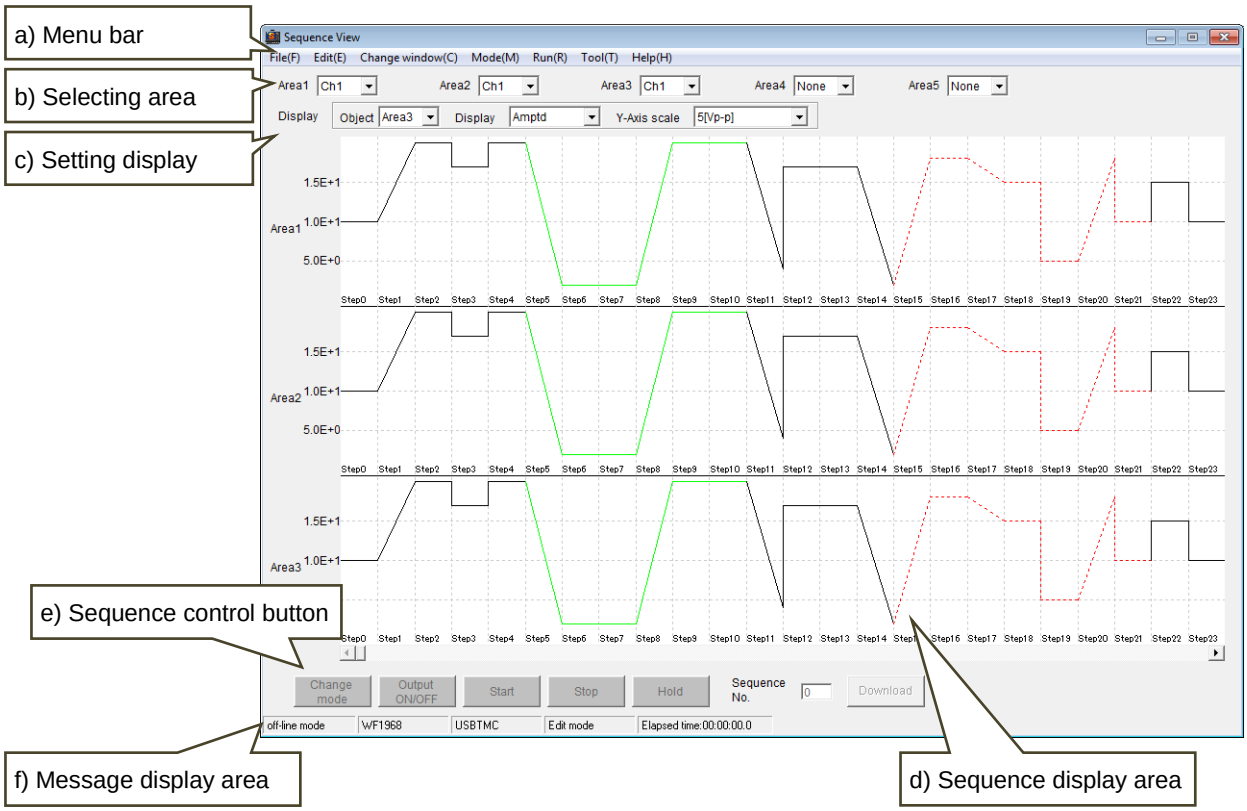

Figure 4-1 Sequence View Window

a) Menu bar ☞3.2
b) Selecting area ☞4.2.1
c) Setting display ☞4.2.2
d) Sequence display area ☞4.2.3
e) Sequence control button ☞4.4
f) Message display area ☞4.5

4.2 Sequence Preview

4.2.1 Selecting Display Area

Select the channel to be displayed in the sequence view window from the combo box. Up to five sequence graphs can be displayed in the sequence display area.

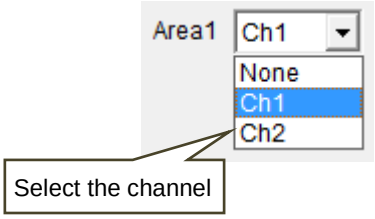

Figure 4-2 Select Display Area

If **[None]** is selected, the sequence graph will not be displayed in the display area.

4.2.2 Display Settings

For each display area, set the content to be displayed and the vertical axis scale. The settings of these parameters will be accepted only in the Edit mode.

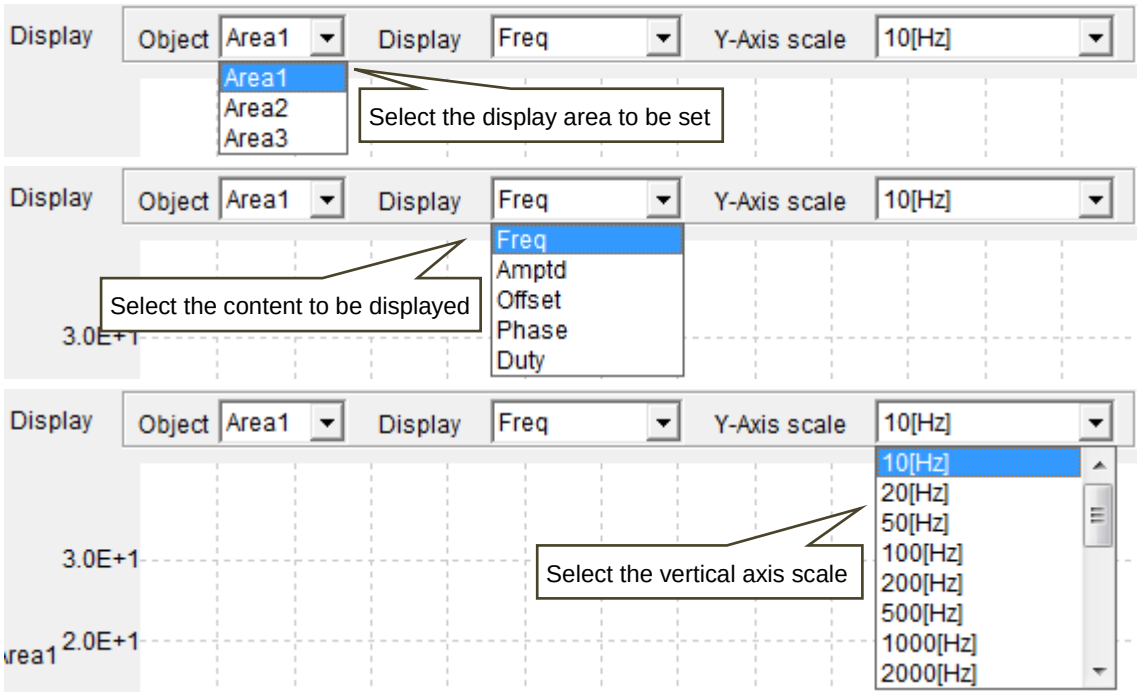

Figure 4-3 Display Area Setting

4.2.3 Sequence Display Area

The sequence graph is displayed as shown in Figure 4-4.

Use the horizontal scroll bar to scroll the display to see the portions that are not in the sequence display area. Any looping step is displayed only once by a green solid line. Any infinite looping step is displayed only once by a red dashed line.

If the number of steps is 24 or less, the sequence graph view will be enlarged according to the number of steps. If the number of steps is 25 or more, the width of displayed steps is fixed.

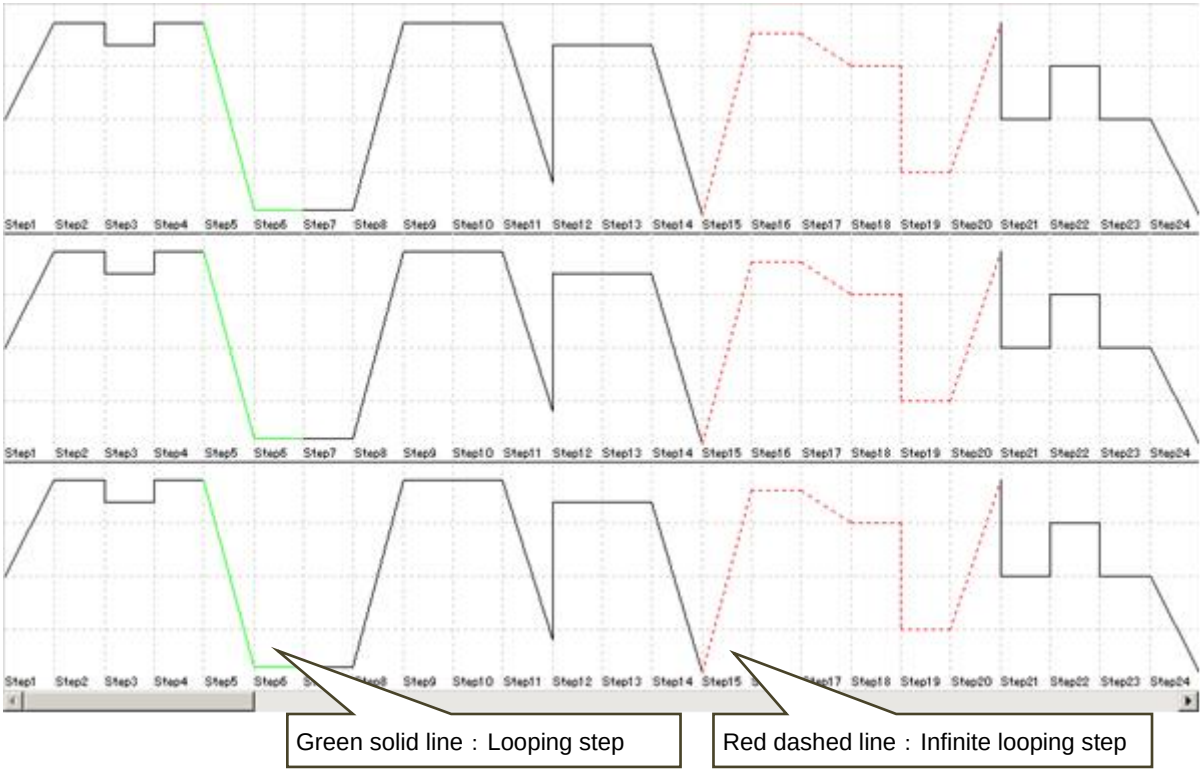

Figure 4-4　Sequence Display Area

4.3 Monitoring the Sequence Execution

When the Start button is clicked, sequence run monitoring starts as shown in Figure 4-5. While the sequence is being monitored, the window cannot be horizontally scrolled.

The current step area is displayed in a different color to indicate the progress of the sequence. The progress in each step is indicated by the sweep pointer.

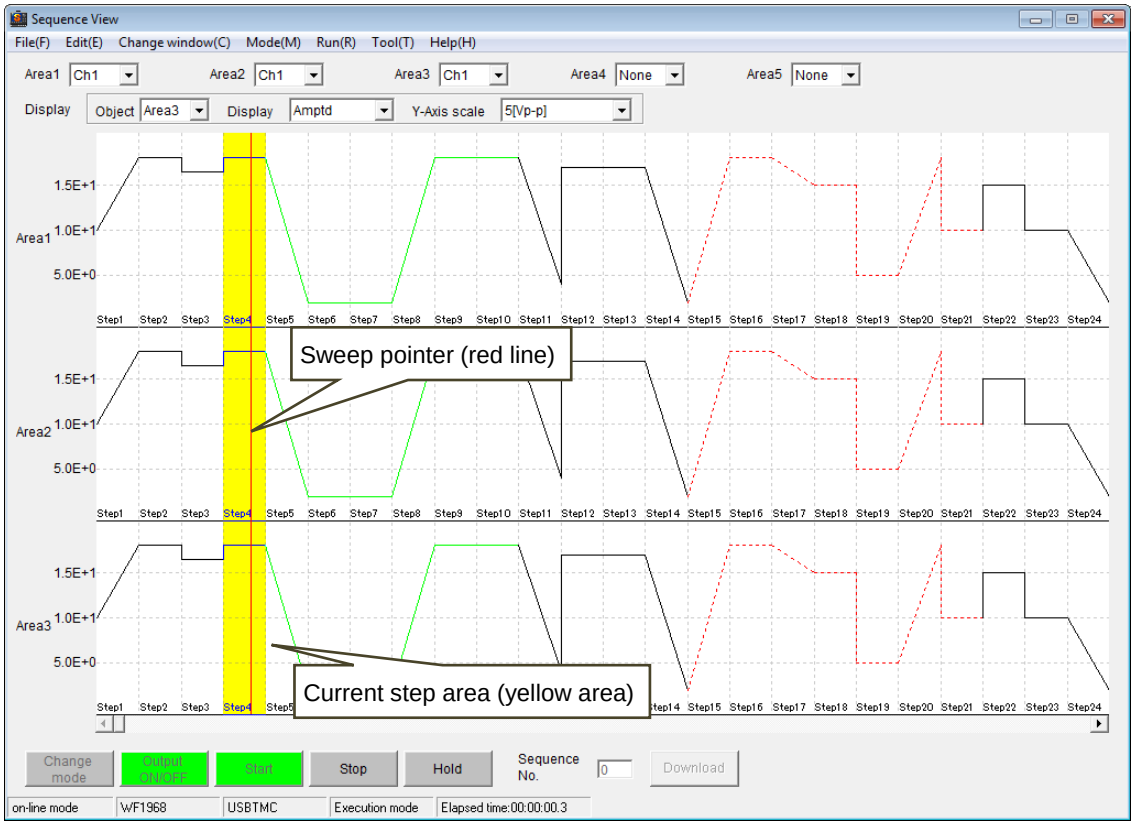

Figure 4-5 Display of the Sequence Progress

4.4 Sequence Control Buttons

The functions of the sequence control buttons are the same as those of the edit window. (☞3.5)

4.5 Message Display Area

The message display function is the same as that of the edit window. (☞3.7)

5. OTHER FUNCTIONS

5.1 Vertical Tiling

Select **[Change window(C)]-[Tile Vertically(T)]** to tile the edit window and the sequence view window, as shown in Figure 5-1.

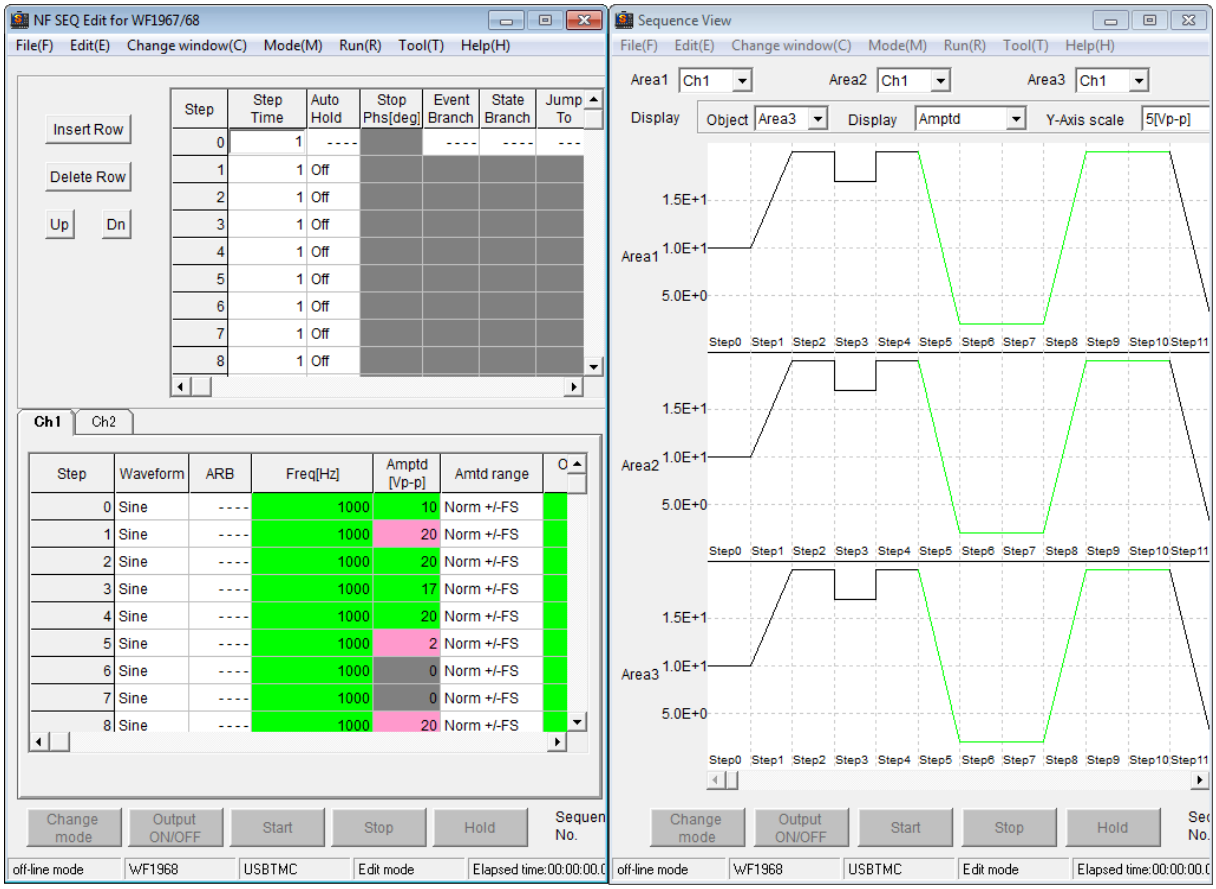

Figure 5-1 Vertically Tiling

The results of editing or modifying the sequence data in the edit window on the left are automatically reflected in the sequence view window on the right.

5.2 Off-line State

This software checks whether a device is connected at every startup. If the software cannot find the connected device, the software starts up in the off-line state.

---- Notes ----------

In the off-line mode, the software operates only in the Edit mode. It is not possible to change the mode to the Execution mode and read the sequence data.

5.3 Changes Between the Edit and Execution Modes

The Edit mode and the Execution mode can be switched in two ways.

- Select **[Mode(M)]-[Edit mode(E)]** or **[Mode(M)]-[Execution mode(R)]**.
- Click the **[Change mode]** button.

When switching from the Edit mode to the Execution mode, the software transfers the created sequence data to the device. The progress of transfer is displayed with the progress bar appearing in the center of the window.

---- Notes ----------

Although the functions related to sequence execution can be executed in the execution mode, functions related to edit cannot be executed.

5.4 Arbitrary Waveform

Select **[Tool(T)]-[Arbitrary waveform(A)]** to display the Arbitrary Waveform dialog box, shown in Figure 5-2.

In the Arbitrary Waveform dialog box, it is possible to specify in advance waveform data files created with ARB Edit, send waveform data when the execution mode is changed, and individually transfer and clear arbitrary waveform data.

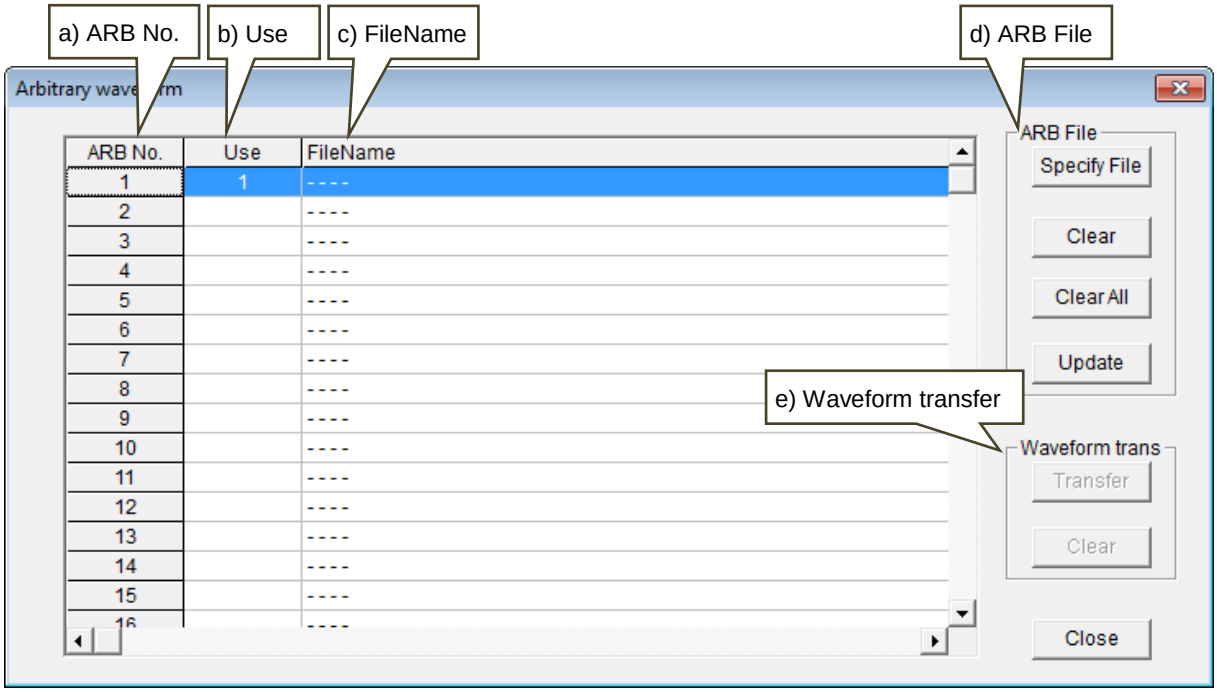

Figure 5-2 Transfer Arbitrary Wave Data Dialog Box

a)	ARB No.	Arbitrary waveform number of the device（1 to 128）
b)	Use	"1" is displayed for the arbitrary waveform which is used in the sequence data being edited.
c)	FileName	Specifies the arbitrary waveform data file to be used in the sequence for each arbitrary waveform number. **[----]** is displayed for items that have not been specified. The specified files are transferred to the device when the execution mode changes.
d)	ARB File	☞5.4.1
e)	Waveform transfer	☞5.4.2

The settings of the Arbitrary Waveform dialog box are reflected also the next time the software is started. They are also saved to a data file.

5.4.1 Arbitrary Waveform Management

The following operations can be done for the waveforms of **[ARB No.]**. Selection of the waveform number is done by clicking an item in the arbitrary wave file list.

a) Specify the arbitrary waveform file

Click the **[Specify File]** button to display a dialog box for opening a file. There, specify the arbitrary waveform data file (☞5.4.3) to be transferred.
When the Arbitrary Waveform dialog box is displayed but the specified file cannot be found, the information of the corresponding portion is cleared.
The specified arbitrary waveform data file is transferred to the device when the execution mode is entered. However, transfer is not done to numbers for which "1" is not displayed for **[Use]**.

b) Clear

Click the **[Clear]** button to delete the selected arbitrary waveform data file specification.

c) Clear all

Click the **[Clear All]** button to delete all the arbitrary waveform data file specifications (ARB No.1 to 128).

d) Update

Click the **[Update]** button to update all the file information. If the arbitrary waveform data file specification was changed, be sure to update.
The information that has been updated is also reflected at the next startup. It is also saved to a data file.

---- **Notes** ----------

To output different arbitrary waveforms from CH1 and CH2 on the WF1968, transfer the waveform data to the waveform memory of the different numbers, because the waveform memory is shared between CH1 and CH2.

5.4.2 Arbitrary Waveform Transfer/Clear

The waveform of the selected **[ARB No.]** can be transferred or cleared. This is convenient for sequence execution by changing the contents of individual arbitrary waveforms.
These operations are not possible in the Execution mode, and must be performed in the Edit mode.

a) Transfer

When the **[Transfer]** button is clicked, the arbitrary wave data of the selected is transferred to the device.

b) Clear

When the **[Clear]** button is clicked, the arbitrary wave data is cleared from the device.

5.4.3 Arbitrary Waveform Data File

The arbitrary waveform file types that can be read with SEQ Edit are as follows.

- Binary file output from Arbitrary Waveform Editor (ARB Edit) (extension: ".WDB")
- Text file (extension: ".txt")
  Range of data: -32767 to 32767
  Contents of file: One data entry (no comma, left-justified) per line

5.5 Channel Setup

Select **[Tool(T)]-[Channel setting(C)]** to display the Set Channel dialog box as shown in Figure 5-3.
This dialog box is used to set the load impedance and the user defined units for each channel of the device. The setting contents of the Set Channel dialog box affect the various setting values of the sequence editing screen. For example, when 50 is set as the **[Output Load]** (load impedance), the amplitude and offset setting ranges are reduced by half.
Click the **[OK]** button to change the channel setting data and close the dialog box. Alternatively, click the **[Cancel]** button to close the dialog box without updating the channel setting data.
In the execution mode, the channel settings cannot be changed.

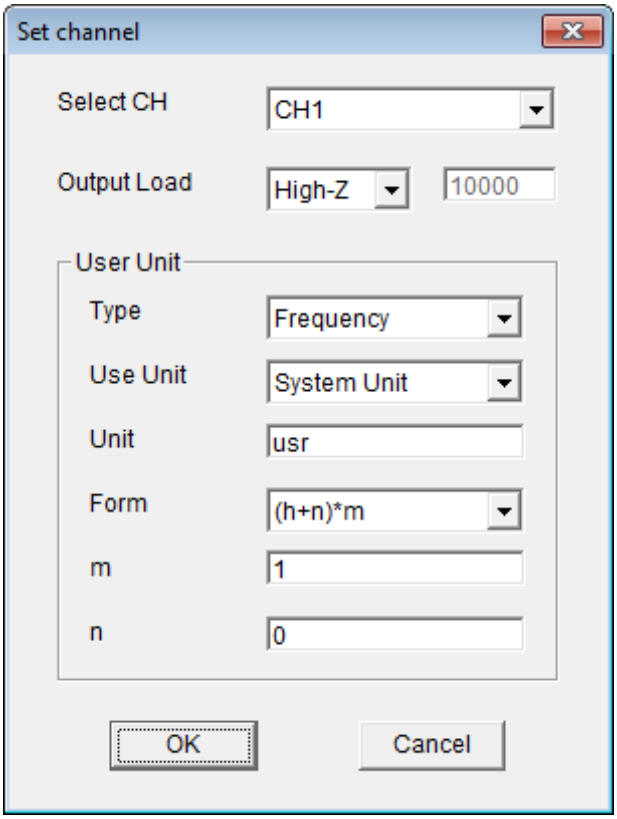

Figure 5-3 Set Channel Dialog Box

The settings of the Set Channel dialog box are also reflected at the next startup. They are also saved to a data file.

5.5.1 Load Impedance

Set the impedance of the load connected to the signal output of the device, for the channel selected with **[Select CH]**.

Set the **[Output Load]** box to **[Variable]** to allow setting of the load impedance in the range of 1 to 10000 ohm.

The amplitude and offset setting ranges of the channel parameter setting area change according to the load impedance setting.

5.5.2 User-defined Units

User-defined units can be set individually for the frequency, amplitude, offset, phase, and duty in the channel parameter setting area, for the channel specified with **[Select CH]**.

In **[Type]**, select the parameter to be set (frequency, amplitude, offset, phase, or duty).

In **[Use Unit]**, select either **[System Unit]** (original unit system) or **[User Unit]** (user-defined unit system) for the setting unit of each parameter.

In **[Unit]**, specify the unit character string (up to 4 characters) for each user-defined unit.

In **[Form]**, select the calculation formula. “h” in the selection item is the original system unit value.

In **[m]**, specify the multiplier of the calculation formula. When “0” is input, an error results.

In **[n]**, specify calculation formula offset.

When the user-defined unit is set for usage, the setting range of the corresponding parameter in the channel parameter setting area changes.

---- **Notes** ----------

When **[Form]** is set to **[(Log(h)+n)*m]** for a parameter for which a negative value can be set, such as offset, 0 and lower values cannot be set.

If the original value is 0 and **[(Log(h)+n)*m]** is specified, the corresponding parameter is displayed as **[Inf]**.

If the original value is negative and **[(Log(h)+n)*m]** is specified, the corresponding parameter is displayed as **[Over]**.

5.6 Common Sequence Parameter Settings

Select **[Tool(T)]-[Common sequence settings(S)]** to display the Common Sequence Parameters dialog box as shown in Figure 5-4.

This dialog box is used to set the common setting items in one sequence:

- Start step **[Start Step]**
- External trigger polarity **[Trig]**
- Noise bandwidth **[Noise BW]**
- External control **[ExtCtrl]**
- Multi I/O connector pin 14 allocation **[Multi I/O pin14]**
- Sync output **[SyncOut]**

Click the **[OK]** button to change the channel setting data and close the dialog box. Alternatively, click the **[Cancel]** button to close the dialog box without updating the channel setting data.

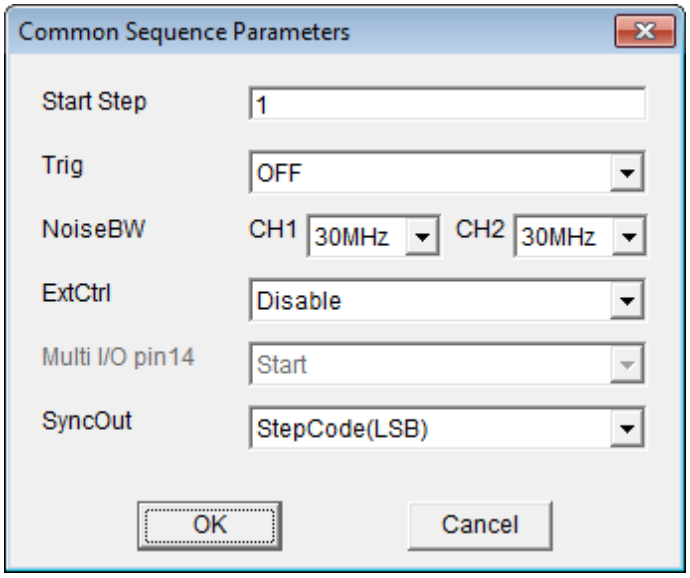

Figure 5-4 Common Sequence Parameter Setting Dialog Box

The settings of the Common Sequence Parameters dialog box are also reflected at the next startup. They are also saved to a data file.

5.7 System Settings

Select **[Tool(T)]-[System setup(I)]** to display the Set System dialog box, shown in Figure 5-5.
The Set System dialog box is used to select the device whose settings are to be performed.

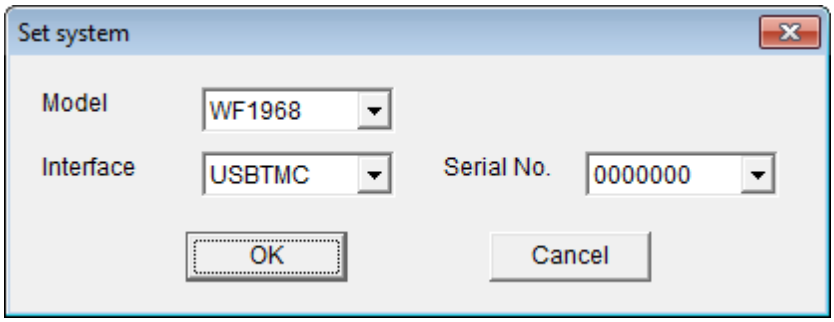

Figure 5-5 System Setting Dialog Box

Each time **[Model]** is selected, whether the specified model is connected is checked, and the serial number of devices that are found are list in **[Serial No.]** box. Select the serial number of the model whose settings are to be performed. If no device is connected, **[None]** is displayed.
The information of the **[Model]** selected in the Set System dialog box is also reflected at the next startup.

5.8 List of Initial Setting Values

5.8.1 Initial Values of Sequence Data Parameters

The initial values of the sequence data are shown in Table 5-1.

Table 5-1 Initial Values of Sequence Data Parameters

	Parameter Name		Initial Vaue	Remark
Common parameter	Start step	[Start Step]	1	
	External trigger polarity	[Trig]	Off	
	Noise bandwidth	[NoiseBW]	30MHz	
	External control	[ExtCtrl]	Disable	
	Multi I/O connector pin14 allocation	[Multi I/O pin14]	Start	
	Sync output	[SyncOut]	StepCode	
Setp control parameter	Step time	[Time]	1	
	Auto hold	[AutoHold]	Off	
	Stop phase	[StopPhs]	Off	*1
	Event branch	[EventBranch]	Off	*1
	State branch	[StateBranch]	Off	*1
	Jump destination	[JumpTo]	Off	*1
	Jump count	[JumpCnt]	Infinity	*2
	Step termination	[StepTerm]	Continue	
	Step sync code output	[StepCode]	0(LLLL)	
Channel parameter	Waveform		Sine	
	ARB		1	*3
	Frequency		1000	
	Action		Const	
	Amplitude		0.1	
	Action		Const	
	Amplitude range		Norm +/-FS	
	Offset		0	
	Action		Const	
	Start phase		0	
	Action		Const	
	Duty		50	*4
	Action		Const	
	DutyExtend		Off	*4

*1) 1 when changed from Off to On

*2) 1 when changed from Infinity to On

*3) Value when waveform is changed to ARB

*4) Value when waveform is changed to Square

5.8.2 Initial Values of Other Parameters

Initial values related to other than sequence data are shown Table 5-2.

Table 5-2 Other Parameter Initial Values

	Parameter Name		**Initial Vaue**	**Remark**
Channel parameter	Load impedance	**[Output Load]**	High-Z	
	Unit for use	**[Use Unit]**	System Unit	
	Unit name	**[Unit]**	usr	
	Calculation formula	**[Form]**	(h+n)*m	
	Multiplier	**[m]**	1	
	Offset	**[n]**	0	
Arbitrary waveform	Arbitrary waveform data file	**[FileName]**	Not specified	Common ARB No.1～128
System settings	Model		WF1967	
	Interface		USBTMC	
Sequence view settings	Display area 1		Ch1	
	Display areas 2 to 5		None	
	Display contents of display settings		Frequency	
	Vertical axis scale of display settings		1000[Hz]	

6. ERROR MESSAGES

6.1 Sequence Edit Software Errors

Table 6-1 summarizes the error specifications of Sequence Edit Software.

Table 6-1 Error Messages

Message	Description
Initialization file doesn't exit.	The files required to start the software was not found in the application folder. Reinstall the software.
The sequence data file error.	The format in the sequence data file is illegal. Do not use this file.
Input value Error!	Enter the parameter within the range indicated with the error message. If a range is not shown, enter a valid numeric value.
The input value error. The value of [amplitude + offset] exceeds the maximum output level.	Check the input range of the amplitude and offset, and set them again as required.
The form of copy origin and copy destination is different.	Copying a cell or column to a different cell or column in the step control parameters or channel parameters setting area.
Can not access arbitrary waveform data. Please specify a correct file name.	Specify the correct arbitrary wave data file.
The specified arbitrary wave data file doesn't exist.	Specify the correct arbitrary wave data file.
The model information in the arbitrary wave data file is invalid.	Model information other than WF1973, WF1974, WF1967 or WF1968 is saved in the arbitrary waveform data file of the WDB extension format. This file cannot be used in this software.
The arbitrary wave data size is illegal.	The data count of the arbitrary waveform data file of TXT extension format is not a power of two within the range of 4096 to 1048576. Check the data file.
A communication error occurred.	The communication during data transfer for the specified WF1967 or WF1968 was interrupted, or the USB cable was disconnected.
An error occurred during check of the sequence data on the main unit side.	When entering the Execution Mode, an error occurred during the sequence data check on the main unit side. Check the sequence data again.
The sequence data contains an error. Check Step: n, parameter: prm.	Review parameter prm of step n in the step control parameter area.
The sequence data contains an error. Check CH: ch, step: n, parameter: prm.	Review the setting of parameter prm of channel ch, step n in the channel setting area.

The arbitrary waveform data cannot be transferred because the total size exceeds the limit.	The total WF1967/WF1968 arbitrary waveform data size exceeds the limit. Clear un-used waveforms or specify a waveform data file with a smaller data size, in the Arbitrary Waveform dialog box.
An arbitrary waveform that does not exist in the file is specified.	The arbitrary waveform number specified in the sequence data is blank data. Perform either of the following. - Specify a file in the Arbitrary Waveform dialog box. - Specify a sequence number on the unit side that has waveform data.
The waveforms used in the sequence are too numerous (too large).	Either use fewer types of arbitrary waveforms or specify a waveform data file with a smaller data size in the Arbitrary Waveform dialog box.
The Arbitrary Waveform Editor is running. Terminate the Arbitrary Waveform Editor and restart.	After terminating the Arbitrary Waveform Editor, start up the Sequence Edit Software.

7. MAINTENANCE

7.1 CD-ROM Management

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

- Do not store the 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).

7.2 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.

7.3 Check Version

The version of this software is displayed in the Version dialog box which appears when you click **[Help(H)]-[About(A)]**.

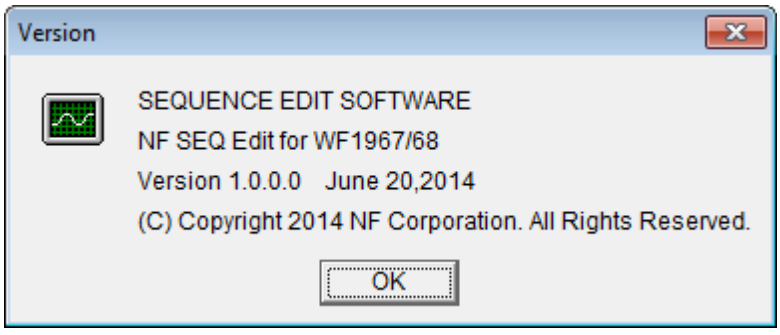

Figure 7-1 Version Dialog Box

WABUN: (DA00046808-003)

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SEQUENCE EDIT SOFTWARE Instruction Manual

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