# Installation Manual

Waveform Analysis Software

# AS-70

RION CO., LTD.

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https://www.rion.co.jp/english/

# Organization of this manual

This manual describes how to install and uninstall Waveform Analysis Software AS-70, and how to use the online help. See the online help for details about how to use this software. To ensure your safety and the correct use of this software, make sure to read the manual for the computer on which you install this software, as well as the manuals for each of the devices used to perform measurements.
Make sure to read the Software Usage License Agreement on pages ii to iii before using this software.
The section starting on page iv contains important information and precautions about safety. Be sure to read and observe these in full.

This manual contains the following sections.

## Software Usage License Agreement

This section explains the license agreement for this software.

## Overview

This section provides an overview of this software.

## Installation and Uninstallation

This section explains the procedures for installing this software and uninstalling it from your computer.

## Starting the software

This section explains the procedures for starting the software.

## Online Help

This section explains how to use the online help for this software.
Online help is installed automatically when you install this software.

## Specifications

This section explains the specifications for this software.

* Company names and product names mentioned in this manual are usually trademarks or registered trademarks of their respective owners.

# Software Usage License Agreement

| Important |
| --- |
| In order to use this Software, you must agree to the terms of the Software Usage License Agreement (hereinafter “this Agreement”). Please read the following text carefully, and only proceed to use the Software if you agree to be bound by all the terms and conditions of this Agreement. |

## Article 1 Authorized Use

You are authorized to use the Software only in conjunction with the Product, in such a way as stipulated in this Agreement.

## Article 2 Ownership of the Software

All rights to this Software are retained by RION CO., LTD, (hereinafter “RION”) and/or its rightful owners. This Agreement grants you only a limited right to use the Software. This Agreement does not grant you any other rights other than specified herein.

## Article 3 Limitations to Use and Transfer

1. This Agreement does not grant you any rights to copy the Software and any associated documentation.
2. This Agreement does not grant you any rights to alter or modify the Software.
3. This Agreement does not grant you any rights to reverse engineer, decompile, recompile, or disassemble the Software.
4. Unless prior written permission from RION has been obtained, this Agreement does not grant you any rights to lend the Software to any third parties, regardless of whether this is done for payment or free of charge.
5. This Agreement does not grant you any rights to transfer the rights specified in this Agreement to any third parties.

## Article 4 Warranty Scope

1. RION does not make any representation or promise that this Software will be able to perform without problems under any and all conditions. If a problem occurs while the Software is being used under normal conditions, contact RION using the information provided in the instruction manual. As far as possible based on the information provided by you about the problem, RION will provide guidance and information about possible errors, improved operation procedures and similar.

2. RION (including any affiliated companies or subsidiaries) does not assume any liability for any damage caused by alteration or loss of data stored in the Product, even if this is due to a defect or other problem with the Software.
3. In no event does RION assume liability for any kind of direct or indirect damage, loss of profit or anticipated gain, or any other damage caused by the use of the Software, or the inability to use the Software.
4. In no event does RION assume liability for any problem caused by an alteration or modification of the Software by you. RION also does not assume liability for any damage caused to yourself by such an alteration or modification.
5. Liability of RION for any damages will not exceed the actual price that was paid for the license to use the Software. This limitation does not apply in the case of intentional faults or gross negligence.

## Article 5 Remedy

1. RION guarantees that the Software as supplied contains the functions that are explicitly listed in the specifications.
2. If the software does not operate according to specifications, and the cause is the responsibility of RION, and if this is detected and RION is informed of this fact within 90 days from the purchase date of the Software, RION will undertake to remedy the problem free of charge.
3. In cases other than above, RION will undertake to remedy the problem against charge.

## Article 6 Duration of this Agreement

1. You can terminate this Agreement at any time by stopping to use the Software and destroying the Software and all associated documentation.
2. If you violate any of the conditions of this Agreement, RION can cancel this Agreement and terminate the usage of the Software. In such a case, you are obligated to destroy the Software and all associated documentation (including any unauthorized copies).

## Article 7 Other Items

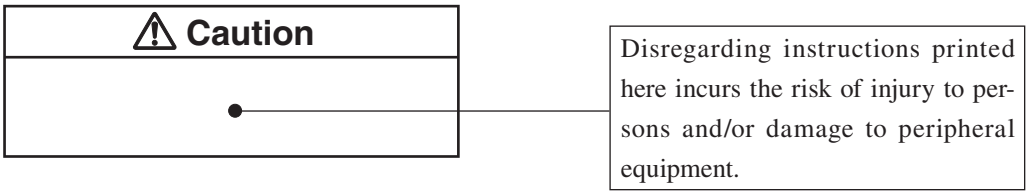
If the Software and the Product are taken from Japan to any other country, the Japanese Foreign Exchange and Foreign Trade Law, the United States Export Administration Act, and all other applicable laws and regulations must be strictly observed. This Agreement shall be exclusively governed by the laws of Japan.

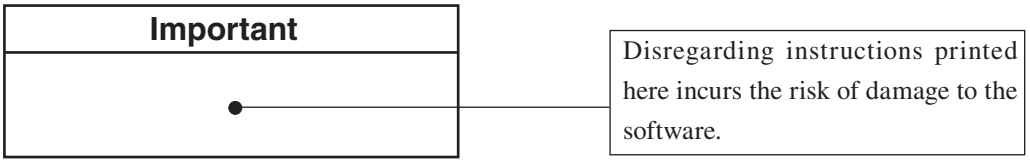
## Article 8 Third Party Beneficiaries

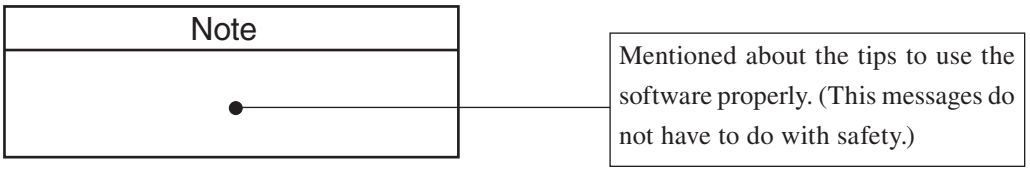
This Software includes components for which the rights are held by other parties except RION. In the case of a violation of this Agreement, in addition to RION, such third parties shall also have the right to demand compensation for damages.

# FOR SAFETY

This manual presents warnings such as the following, calling for caution where necessary to prevent accidents. The content of these warnings concerns protection of your life and personal safety, and prevention of damage to the unit on which the software is installed and other equipment nearby.





# ⚠ Caution

## Do not play in a music CD player

The CD-ROM containing this software is not a music CD. Inserting the disc in a CD player poses the risk of excessive volume levels.
This could cause hearing damage and damage to the CD player.

## Pay attention to the volume

This software is capable of playing back waveform data (WAVE files).
The playback volume can be controlled by settings in Windows and in this software, but some WAVE files may contain data that result in sudden loud sounds.
Before starting playback, be sure to check the settings in this software and in Windows and make sure that the volume is set to a suitably low level. Otherwise there is a risk of hearing damage and/or damage to the speakers.

# Important

## Check the installation disc before installation

Before inserting the installation disc into the CD-ROM drive of the computer, be sure to visually check the disc.

If you notice that the disc is scratched or deformed, do not insert it into the CD-ROM drive. Otherwise the drive may be damaged.

# Precautions

## Note about the descriptions in this manual and the online help

- The descriptions in this manual and the online help assume that users possess a certain level of knowledge regarding standards related to measuring quantities and actual measurement methods. If the explanations given in this manual or the online help prove to be insufficient and you require more information, please read the other corresponding documents, such as standards documents or the manuals for measuring instrument.
- Information related to the descriptions and detailed explanations are noted by the corresponding page number. The reference format is as follows:

  …Sentence … (⇒ page xxx)

  …Sentence … (⇒ page xxx: heading)

  …Sentence … (Details ⇒ page xxx: heading)
- The actual GUI items may vary, depending on the version of Microsoft Windows you are using and the environment of your computer.
- This manual does not describe the Microsoft Windows OS.
  For details about how to select commands and use the dialog boxes in Microsoft Windows, see the respective manuals and help documents.

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# Overview

The Waveform Analysis Software AS-70 allows importing waveform data from Rion sound level meters, vibration meters, data recorders and similar to a computer as WAVE files, enabling functions such as data display, frequency analysis, and statistics calculation.

Analysis results can be shown as a graph, with the capability to calculate statistical values for a specified interval. Calculation results can be displayed in list format. Analysis and calculation results can be exported as text files, and it is also possible to export waveform processing results as WAVE files.

A digital volume control lets the user adjust the playback level of waveform data. A user marker function allows assigning markers to a specified range of waveform data, with support for optional comments.

## System Requirements

| | |
|---|---|
| OS | Microsoft Windows 10 Pro 64 bit (English)<br>Microsoft Windows 11 Pro 64 bit (English) |
| CPU | Intel Core i5 2 GHz or higher |
| RAM | 2 GB or more (4 GB recommended) |
| HDD | Free space 20 GB or more (100 GB or more recommended) |
| Display | XGA (1024 × 768 pixels) resolution or higher |
| USB port | 1. Port for connecting to the hardware protection key (HASP)<br>2. Port for connecting to the SD/CF card reader |
| CD drive | Required to install this software |
| Sound board | Required to audio playback |

| Note |
|---|
| To use all features of this software, make sure to connect the hardware protect key (HASP) supplied with this software to the USB port. When there is no HASP key and the license activation has not been verified, the limited version (AS-70 Viewer) will be launched. |

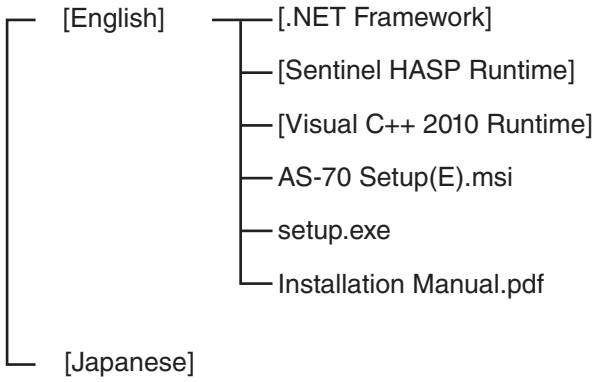
# Installation and Uninstallation

The following items are described in this chapter:

Contents of the CD-ROM
Installing the Visual C++ Runtime
Installing the hardware protect key (HASP)
Installing the .NET Framework
Installing and uninstalling the software

## Contents of the CD-ROM

The CD-ROM for Waveform Analysis Software AS-70 contains the following folders:




The Visual C++ Runtime, hardware protect key (HASP), and .NET Framework must be installed separately from this software. Please install all in the following sequence before starting this software.

Sequence:

1. Visual C++ Runtime
2. Hardware protect key (HASP)
3. .NET Framework
4. This software

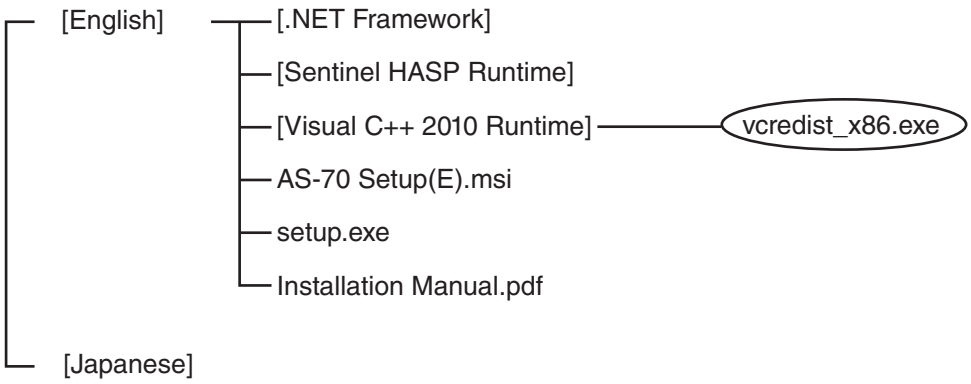
For more information, see the section about Visual C++ Runtime, as well as the section about installing the hardware protect key (HASP), .NET Framework and installing and uninstalling the software.

| **Important** |
| --- |
| Before installing the software, you must first log on as an administrator-level account (such as Administrator). You cannot correctly install the software if you attempt to log on as a different level account. |

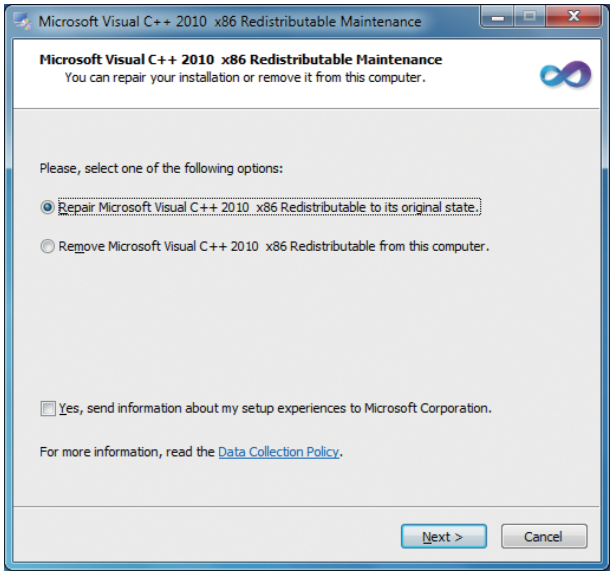
| Note |
| --- |
| During installation, a security warning screen may appear according to the OS version. Check the warning and click the [Execute] button. |
| If you are using a Windows 10 Pro 64 bit / Windows 11 Pro 64 bit, installing ".NET Framework" is not needed. |

## Installing the Visual C++ Runtime

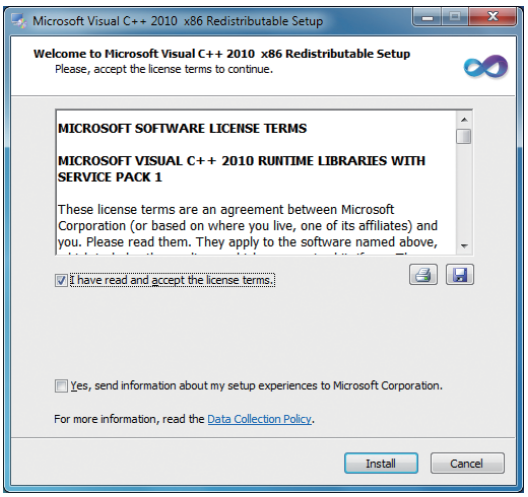
1. Insert the supplied CD-ROM into the CD drive of your computer.
2. From the [Start] menu, open [(My) Computer] and then double-click the CD drive.
3. The contents of the CD-ROM are displayed.
4. The CD-ROM contains the following folders and files. Double-click [vcredist_x86.exe] in the [Visual C++ 2010 Runtime] folder.



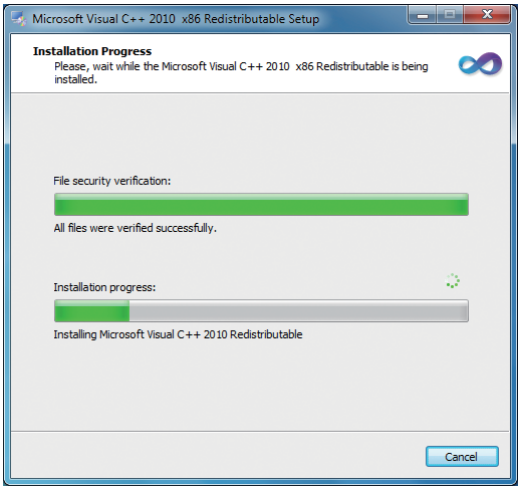

| Note |
| --- |
| If the "Visual C++ 2010 Runtime" is already installed, the screen as shown in the figure below will be displayed. Click the cancel button to stop the installation. |



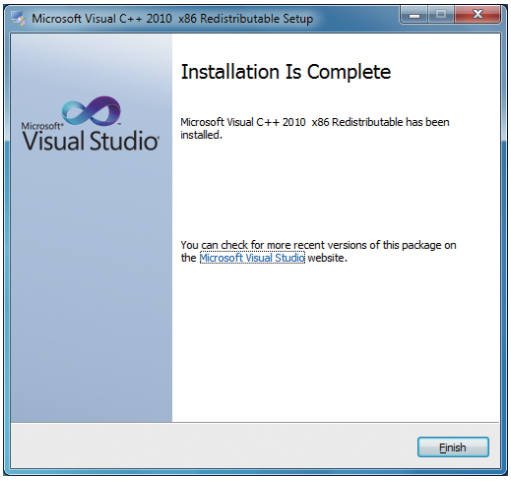
5. The installation wizard starts and the window displaying the License Agreement appears.
   Read the description, check [I have read and accept the license terms.], and then click the [Install] button.




6. A window that indicates the installation progress appears, and the installation begins.

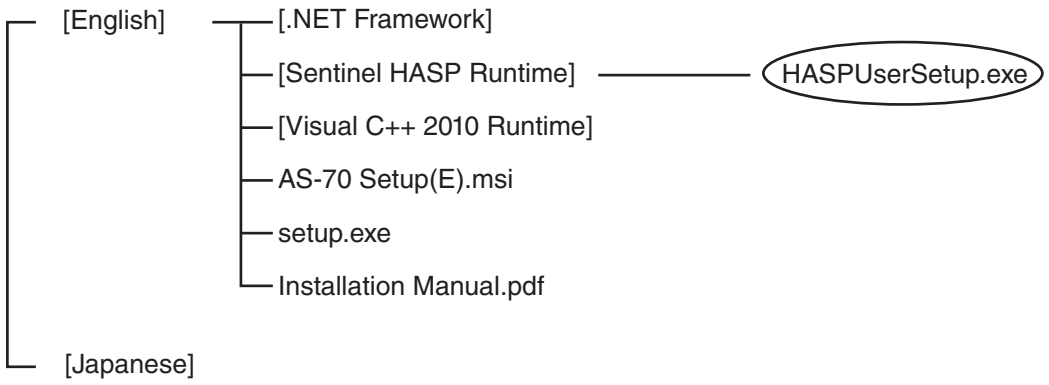



7. When the installation finishes, a message window appears to indicate the installation is complete.
   Click the [Finish] button to finish and exit the installation procedure.

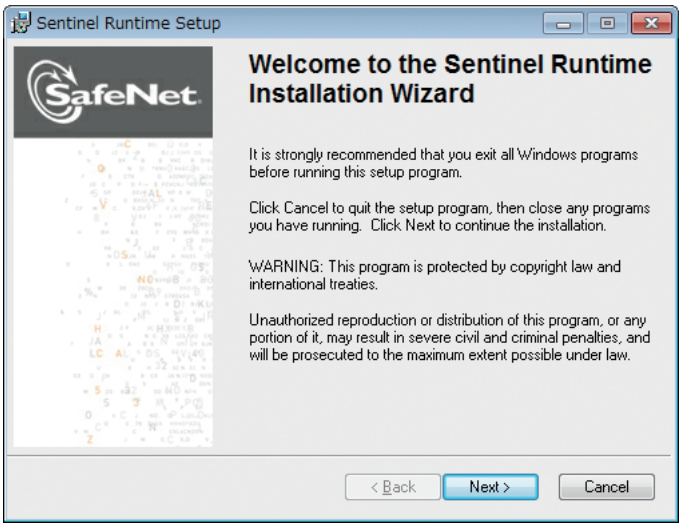


## Installing the hardware protect key (HASP)

1. Insert the supplied CD-ROM into the CD-ROM drive of your computer.
2. From the [Start] menu, open [(My) Computer] and then click the CD drive.
3. The contents of the CD-ROM are displayed.
4. The CD-ROM contains the following folders and files. Double-click [HASPUser-Setup.exe] in the [Sentinel HASP Runtime] folder.

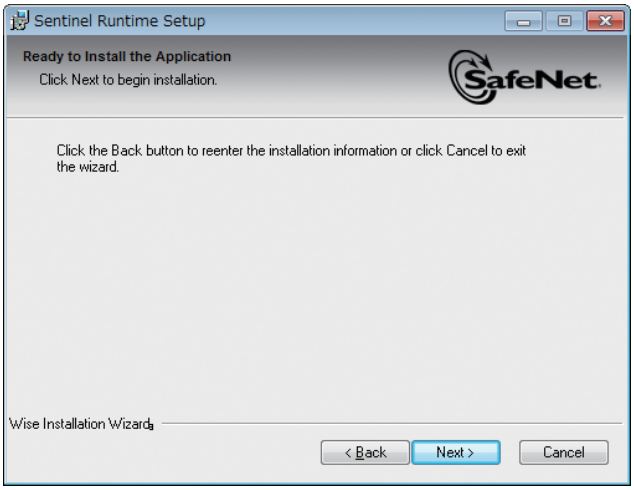



5. The installation wizard starts and the following window appears. Read the descriptions and then click the [Next>] button.

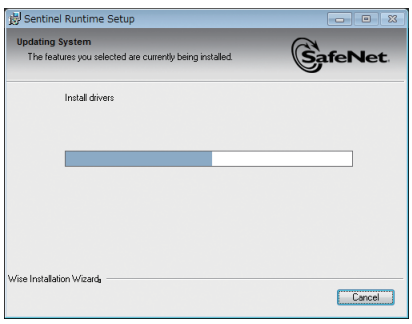


6. A window displaying the License Agreement appears.
   Read the description, select [I accept the license agreement], and then click the [Next>] button.

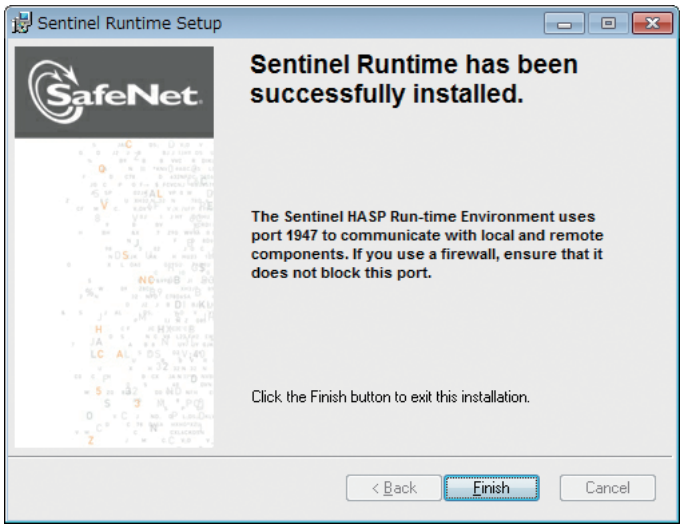
7. A window to confirm the installation appears. Click the [Next>] button.




8. A window that indicates the installation progress appears, and the installation begins.



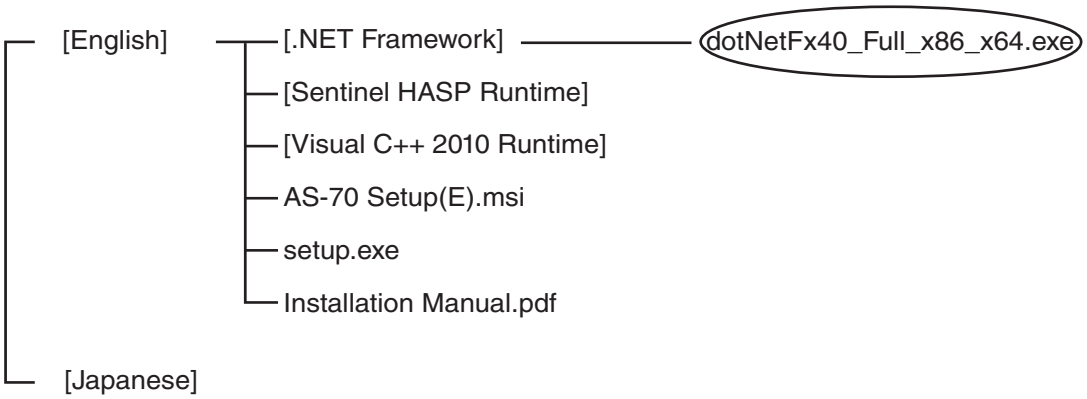
9. When the installation finishes, a message window appears to indicate the installation is complete.
   Click the [Finish] button to finish and exit the installation procedure.



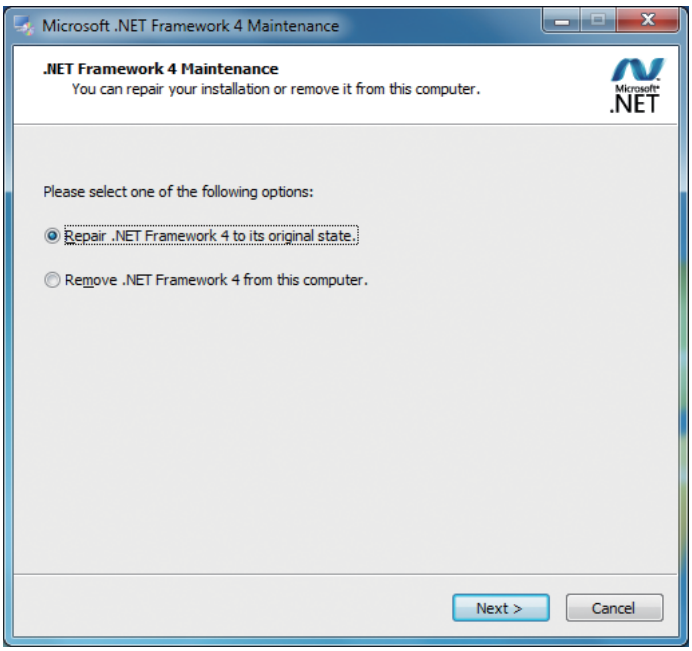
# Installing the .NET Framework

| Note |
| --- |
| If you are using a Windows 10 Pro 64 bit / Windows 11 Pro 64 bit, installing ".NET Framework" is not needed. |

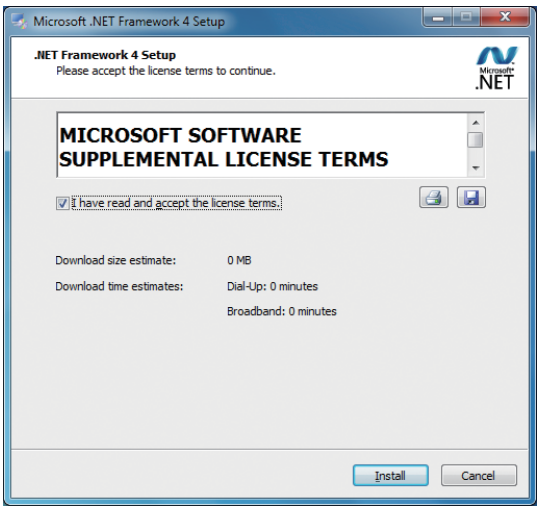
1. Insert the supplied CD-ROM into the CD-ROM drive of your computer.
2. From the [Start] menu, open [(My) Computer] and then double-click the CD drive.
3. The contents of the CD-ROM are displayed.
4. The CD-ROM contains the following folders and files. Double-click [dotNetFx40_Full_x86_x64.exe] in the [.NET Framework] folder.



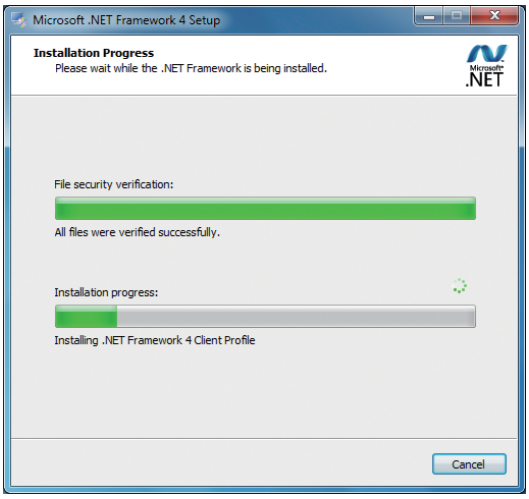

| Note |
| --- |
| If the ". NET Framework" is already installed, the screen as shown in the figure below will be displayed. Click the [Cancel] button to stop the installation. |



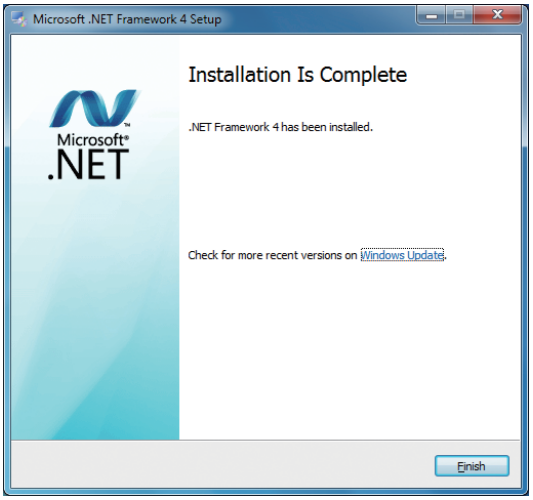
5. The installation wizard starts and the window displaying the License Agreement appears.
   Read the description, check [I have read and accept the license terms.], and then click the [Install] button.




6. A window that indicates the installation progress appears, and the installation begins.



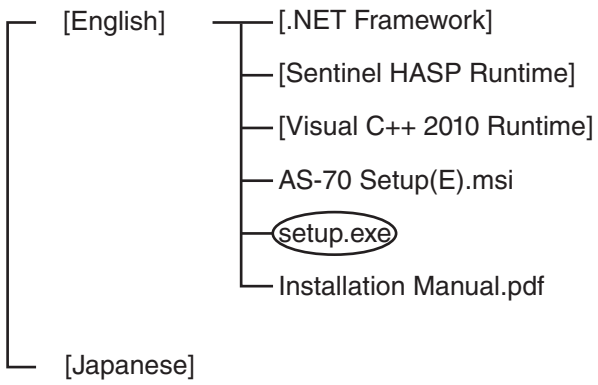

7. When the installation finishes, a message window appears to indicate the installation is complete.
   Click the [Finish] button to finish and exit the installation procedure.



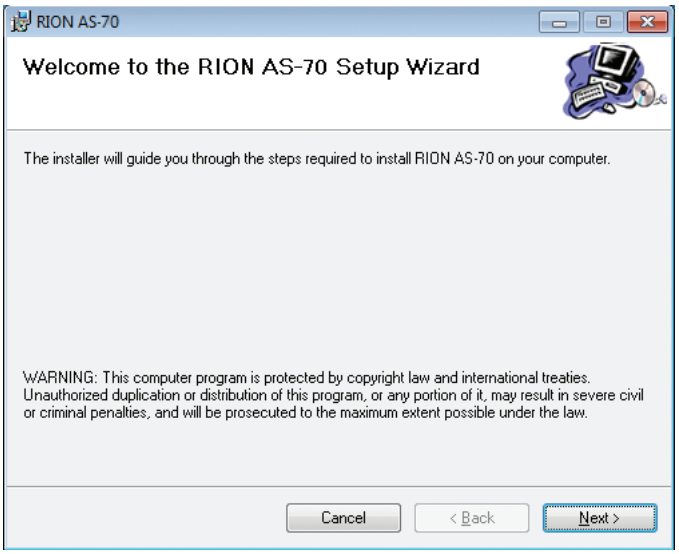
## Installing the software

| Note |
| --- |
| Before installing this software, .NET Framework must be installed. But if you are using a Windows 10 Pro 64 bit / Windows 11 Pro 64 bit, installing ".NET Framework" is not needed. |

1. Insert the supplied CD-ROM into the CD drive of your computer.
2. From the [Start] menu, open [(My) Computer] and then double-click the CD drive.
3. The contents of the CD-ROM are displayed.
4. The CD-ROM contains the following folders and files. Select [setup.exe] in the [English] folder and double-click it.



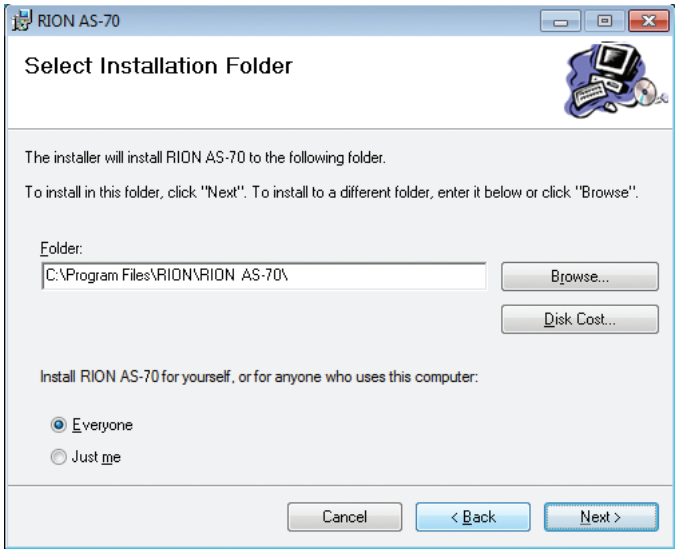
5. The setup wizard starts and the following window appears.
   Read the descriptions and then click the [Next>] button.




6. The License Agreement is displayed. If you agree with the terms of the agreement, select [I Agree] and then click [Next>] button.

| **Important** |
| --- |
| If you do not agree with the terms of the License Agreement, you cannot install the software.<br>Click the [Cancel] button and quit the installation. |

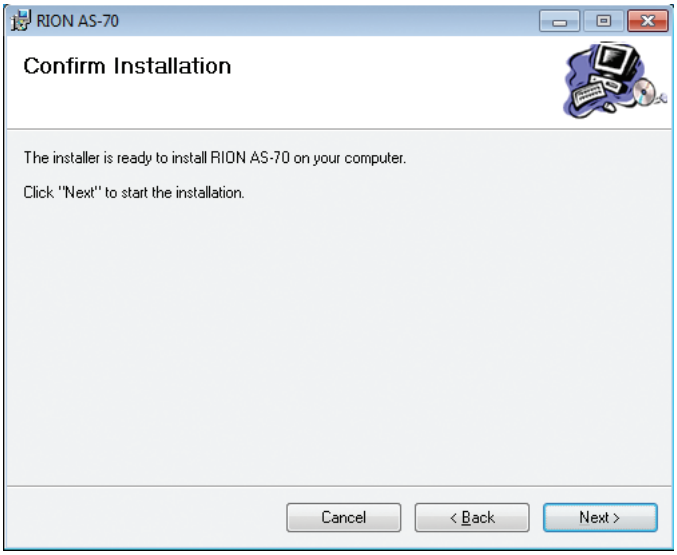
7. A window appears allowing you to select the folder in which to install the software.
   Enter the installation destination path in the folder name field.
   The default path is [C:\Program Files\RION\RION AS-70\].



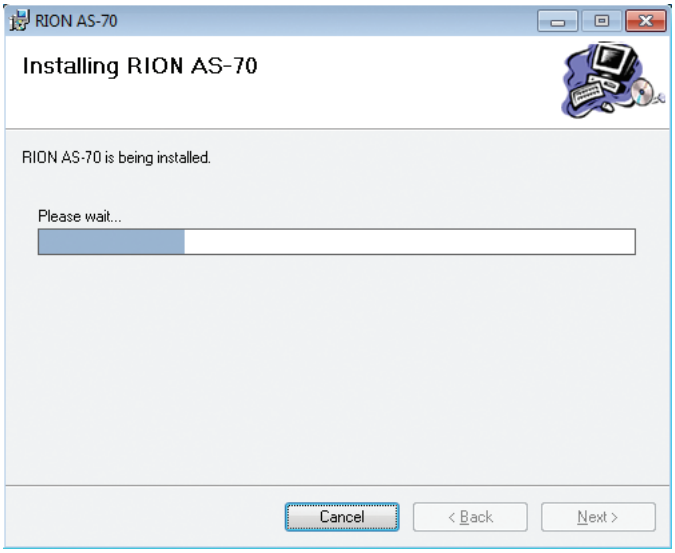

| Note |
| --- |
| The default path may be [C:\Program Files (x86)\RION\RION AS-70\] according to the OS version. |
| Clicking the [Browse...] button displays the [Browse for Folder] window. This window allows you to specify the folder in which to install the software. |

   Enter the installation destination path and then click the [Next>] button.

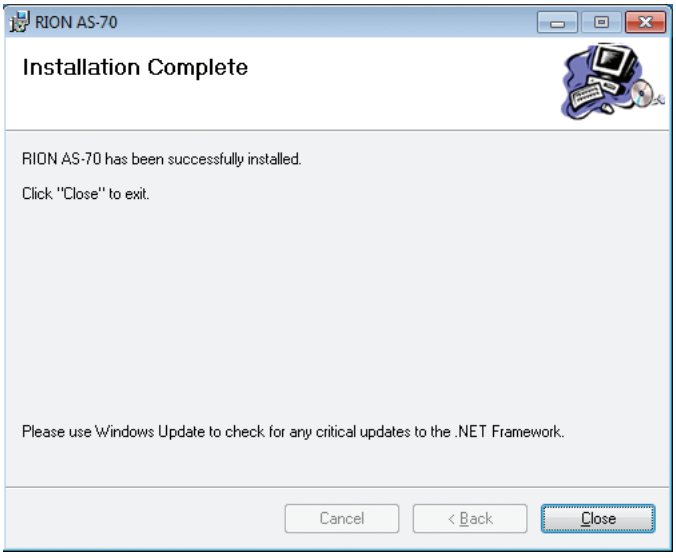
8. A window to confirm the installation appears. Click the [Next>] button.



9. A window that indicates the installation progress appears, and the installation begins.




10. When the installation finishes, a message window appears to indicate the installation is complete.



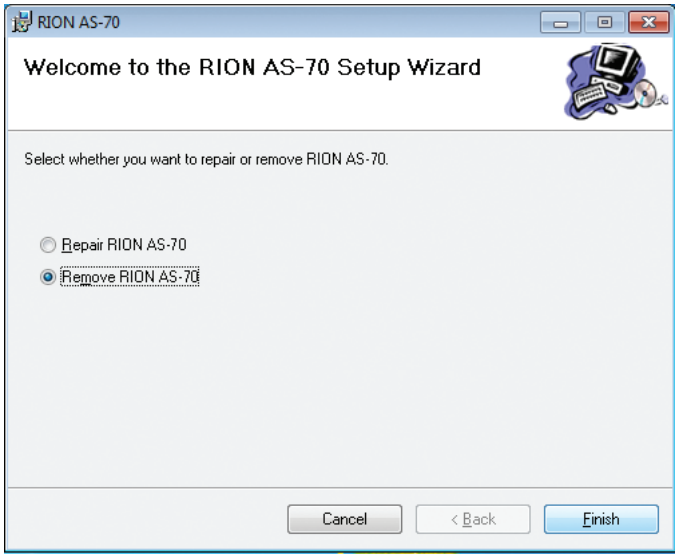

Click the [Close] button to finish and exit the installation procedure.
When installation is finished, the shortcut “AS-70” is created on your computer’s desktop.

## Uninstalling the software

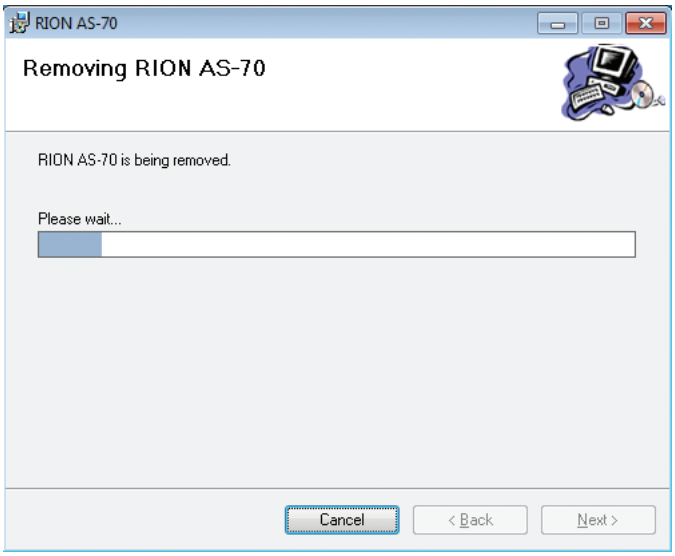
To uninstall (remove) the software, use [Programs and Features] listed in [Control Panel] of Microsoft Windows OS.

| Note |
| --- |
| For information on how to use [Programs and Features] or [Add or Remove Programs] in [Control Panel] of Microsoft Windows OS, see the help for the Microsoft Windows OS. |

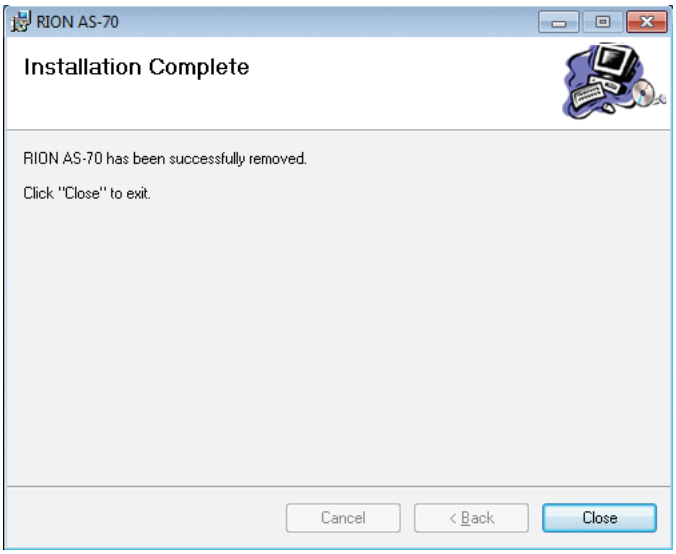
1. Open [Programs and Features] in [Control Panel].
   Select [RION AS-70] and then click [Uninstall].
   When [Change] is clicked, the following window appears.




2. Select [Remove RION AS-70] and then click [Finish] button.
   The uninstallation begins.



3. When the uninstallation is complete, the following window appears:



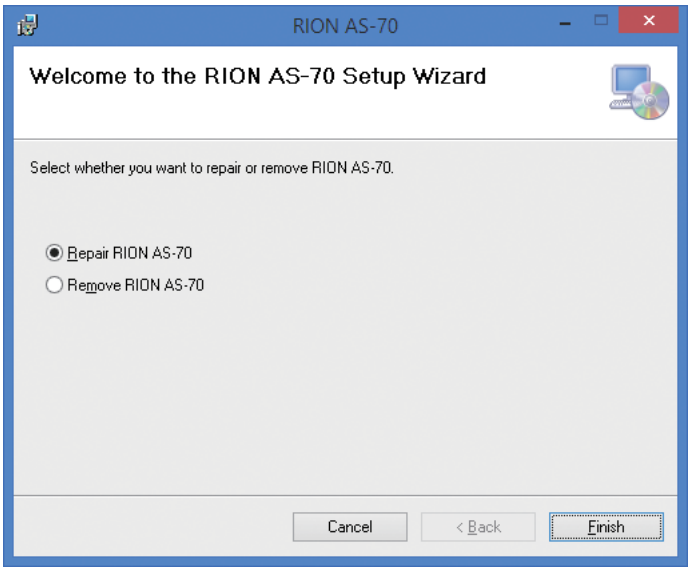

4. Click the [Close] button to finish the uninstallation.

## To reinstall the software

If you want to update the software or reinstall it to fix problems, follow the procedure described on page 10 to overwrite the software.

**Note**

Overwriting the software with the same version is a recovery installation. The following window appears.




Select [Repair RION AS-70] and then click [Finish] button.

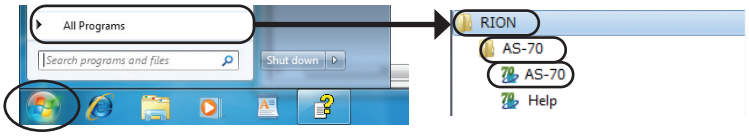
# Starting the software

Use one of the following methods to start the software:

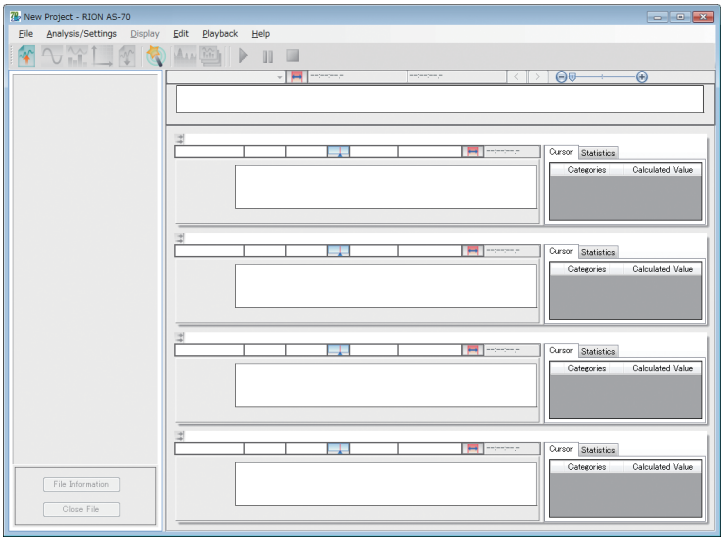
Method 1 – Select the [Start] menu. Next select [All Programs], [RION], [AS-70], and then [AS-70].

Method 2 – Double-click the [AS-70] shortcut on the desktop.

| Note |
| --- |
| To use all features of this software, make sure to connect the hardware protect key (HASP) supplied with this software to the USB port. When there is no HASP key and the license activation has not been verified, the limited version (AS-70 Viewer) will be launched. |



Selecting [AS-70] in Method 1 or double-clicking the [AS-70] shortcut in Method 2 starts the program. The program window opens, as shown below:




| Note |
| --- |
| See the online help for information about how to use this software. For information about how to use the online help, see the next chapter “Online Help”. |

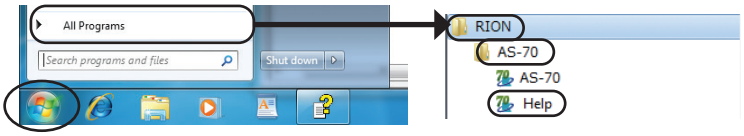
# Online Help

## Starting the online help

The online help is installed automatically when you install the software. It describes how to use the software and its functions.

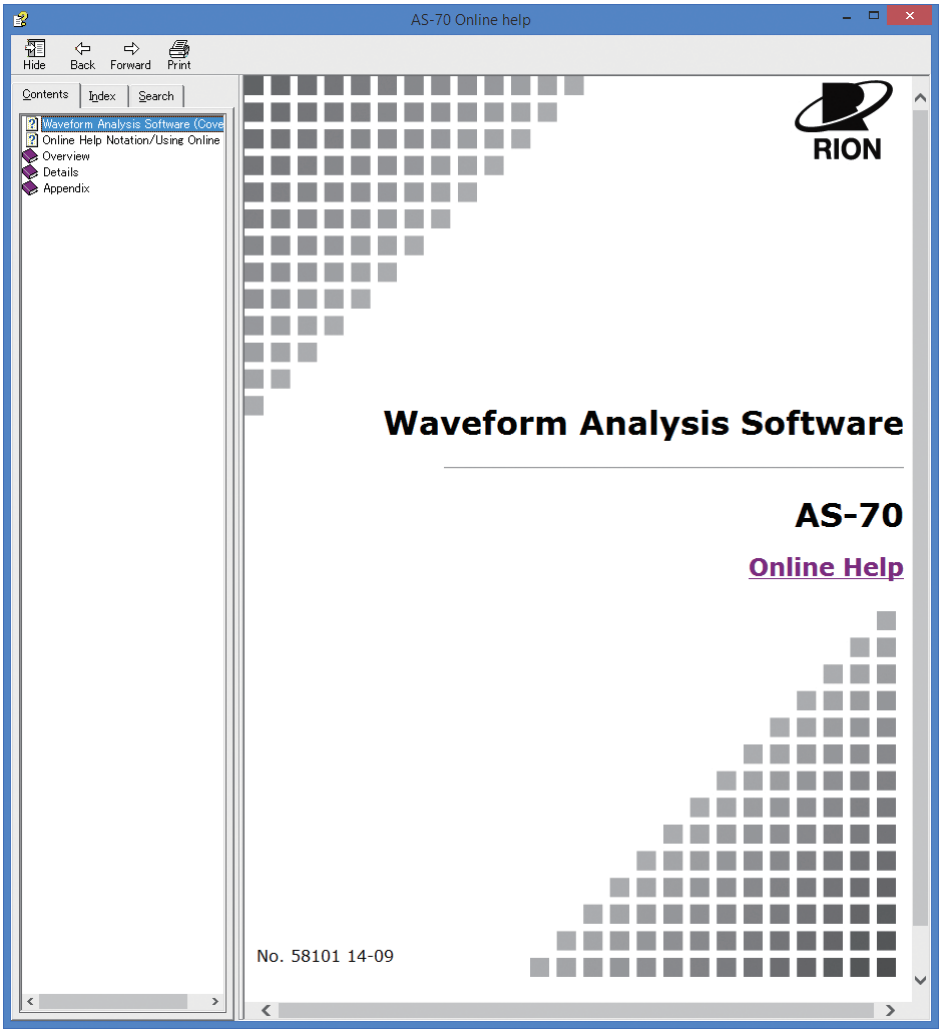
Use one of the following methods to start the online help:

- Select [Help] from the [Help] menu if the software is already running.
- Select [All Programs] from the [Start] menu, then select [RION], [AS-70], and [Help].




The online help starts and the following window appears.

The window comes up, with the [Contents] tab selected.

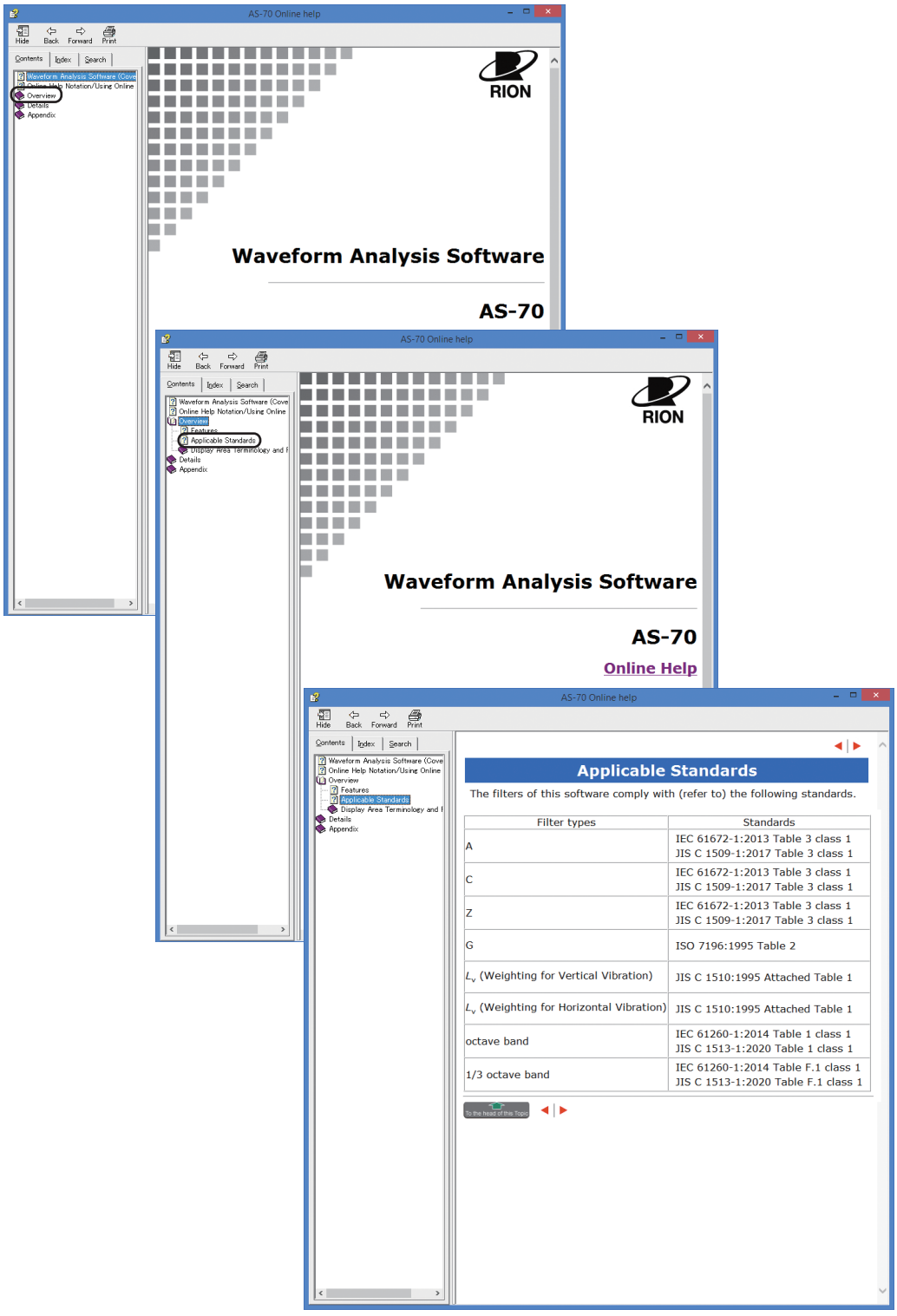


## Displaying topics from the table of contents

Click the [Contents] tab to display the table of contents. The table of contents is displayed when the online help starts.

Each book icon in the [Contents] pane represents a category of related topics. Double-clicking the book icon of a category displays a list of topics for that category. Select and then click the topic you want to see.

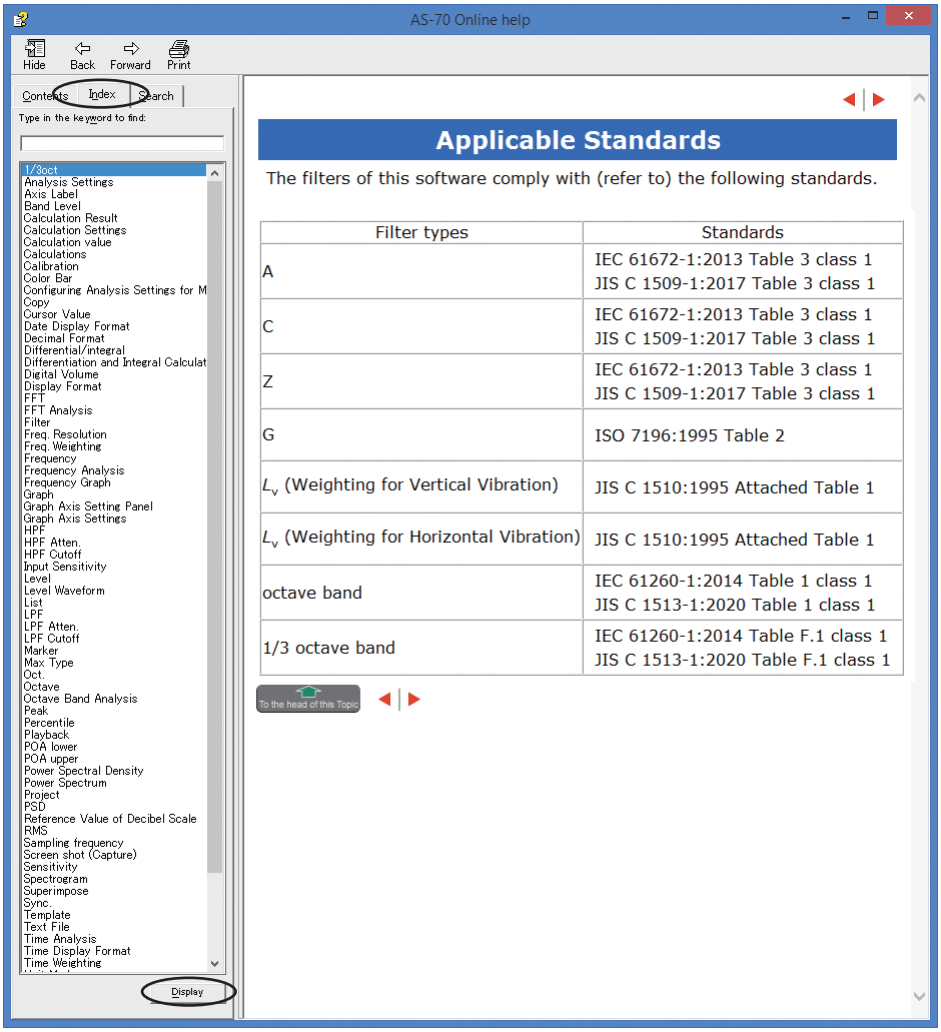
The following illustration shows how to display the topic [Applicable Standards] in the category [Overview].



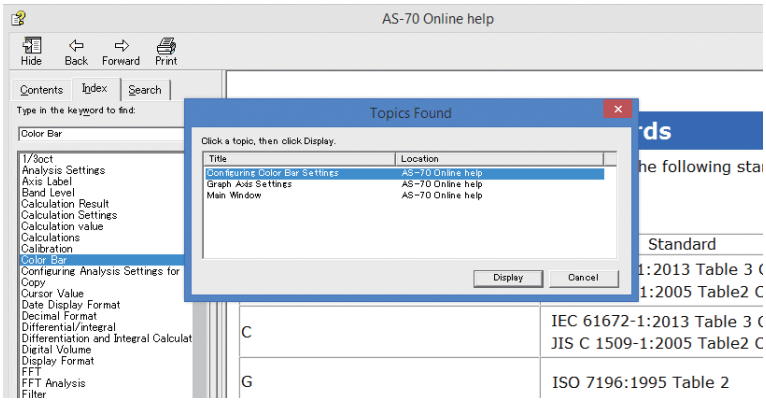
## Displaying topics by keyword

Clicking the [Index] tab displays a list of keywords.

You can display the topics related to a particular keyword by selecting the keyword from the list and clicking the [Display] button, or by double-clicking the keyword.



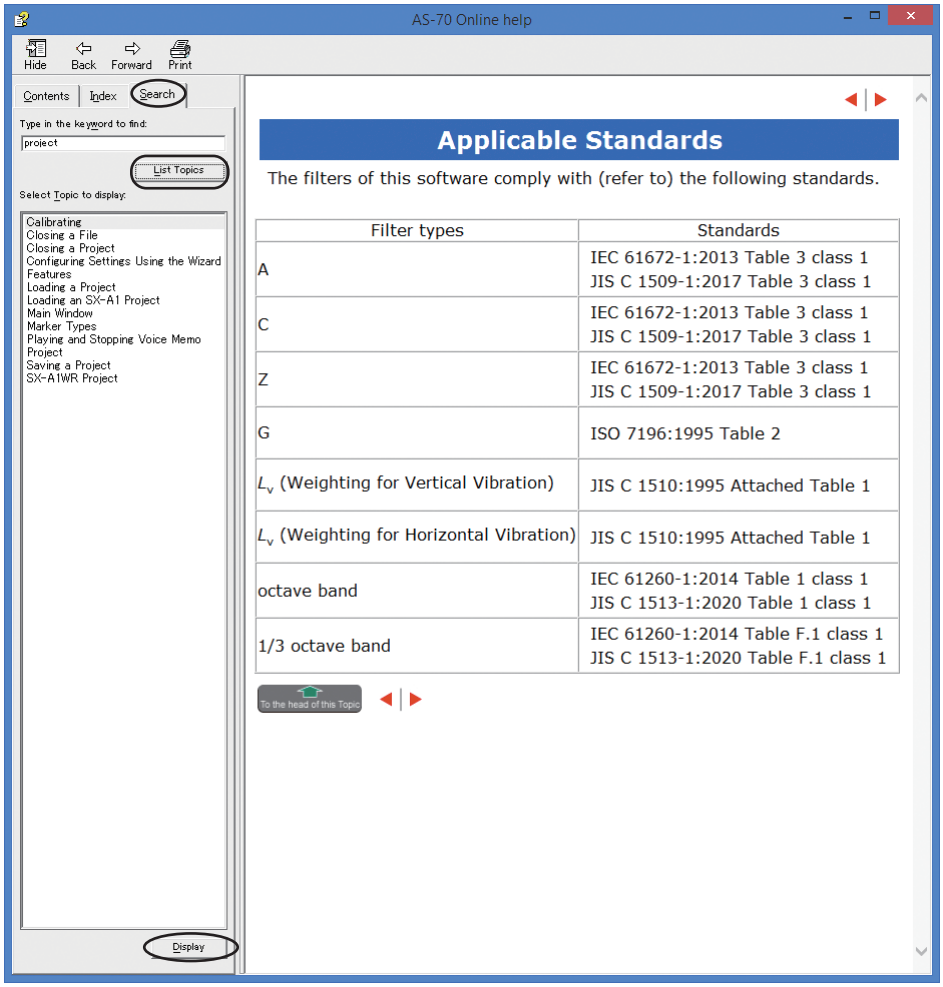

When there is more than one related topics, “Topics Found” appears.



## Using the search function to display topics

Clicking the [Search] tab allows you to use the search function.

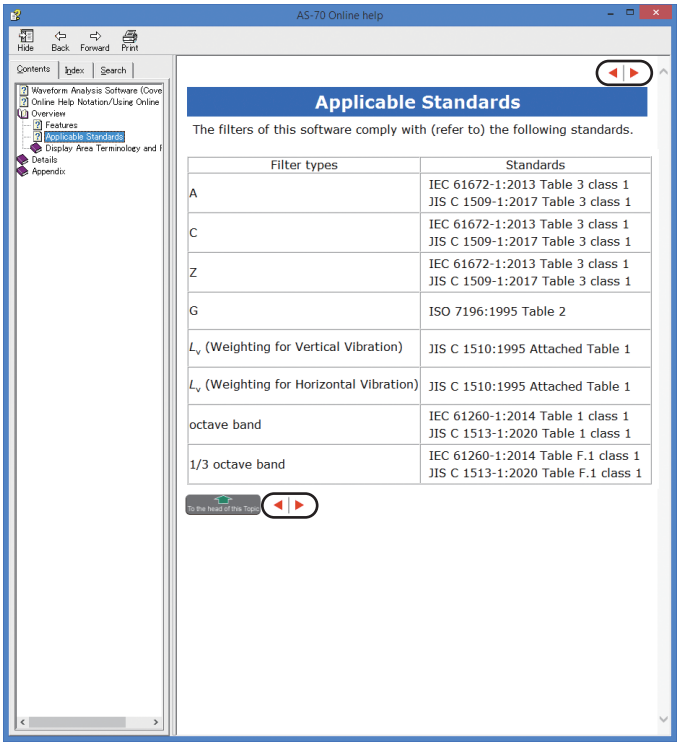
Enter the keyword you want to search in the keyword field, and then click the [List Topics] button. A list of topics related to that keyword appears. Select a topic from the list, and then click the [Display] button or double-click the topic to display the description.



## Browsing the table of contents

Use the " ◀ | ▶ " arrows at the upper right or lower left of the topic.

Click "◀" to move to the previous topic, and "▶" to move to the next topic.

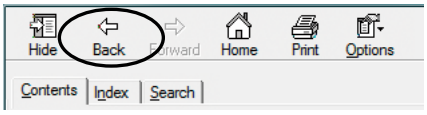



## Move to the top of the current topic

Click the "To the head of this Topic" icon at the lower left of the topic.

## Move back to the previously displayed topic

Click the "Back" icon in the main menu of the online help.



# Specifications

System Requirements

| | |
|---|---|
| OS | Microsoft Windows 10 Pro 64 bit (English) |
| | Microsoft Windows 11 Pro 64 bit (English) |
| CPU | Intel Core i5 2 GHz or higher |
| Memory | 2 GB or more (4 GB recommended) |
| HDD | Free space 20 GB or more (100 GB or more recommended) |
| Display | XGA (1024 × 768) resolution or higher |
| USB port | Port for connecting to the hardware protection key (HASP) |
| | Port for connecting to the SD/CF card reader |
| CD drive | Required to install this software |
| Sound board | Required to audio playback |

Applicable standards

IEC 61672-1:2013, JIS C 1509-1:2017 (Frequency weightings A, C, Z; class 1)
IEC 61260-1:2014, JIS C 1513-1:2020 (Octave-band and 1/3 octave-band filters, class 1)
ISO 7196:1995 (Frequency weighting characteristic G)
JIS C 1510:1995 (Frequency weightings for vertical and horizontal vibration)

Functions

File input/output

Input

WAVE file

Supported file formats are as follows

Linear PCM encoding

Sampling frequency (frequency ratio)

| | |
|---|---|
| 2.56 series | 64 kHz, 51.2 kHz, 32 kHz, 25.6 kHz, 16 kHz, 12.8 kHz, 5120 Hz, 2560 Hz, 1280 Hz, 512 Hz, 256 Hz |
| 2.5 series | 1000 Hz |
| 2.4 series | 48 kHz, 24 kHz, 12 kHz, 2400 Hz, 1200 Hz, 240 Hz |

The frequency range is calculated as sampling frequency / 2.56 for the 2.56 series, as sampling frequency / 2.5 for the 2.5 series and as sampling frequency / 2.4 for the 2.4 series

Depends on the equipment used to create the WAVE file

| | |
|---|---|
| Bit length | 24 bit, 16 bit |
| Number of channels | Max. 16 |

Supported Rion products for import of recorded data

NX-43WR, NX-42WR, NX-28WR, VA-12, SA-78WR, DA-20, DA-40, DA-21, SX-A1FT, SX-A1VA, SX-A1WR, VX-57WR, VX-55WR

Simultaneous reading of files with different sampling frequency possible

The same file can be loaded multiple times

Total recording files of the NX-43WR, NX-42WR or the NX-28WR can be imported and merged into a single graph

The multiple waveform files recorded and divided by the DA-21, the SX-A1WR, VX-57WR and the VX-55WR can be imported and merged into a single graph for each channel

The tachometer data files recorded by the DA-21 and the SX-A1WR can be imported and displayed as a waveform (waveform analysis not possible)

The extra DC files recorded by the SX-A1WR can be imported and displayed as a waveform (waveform analysis not possible)

Partial loading

5 minutes at start, 5 minutes at end

Project file Project files including software settings can be saved and loaded

SX-A1WR project file

Project files created by the SX-A1WR can be loaded

Output

WAVE files Selected range of overall waveform display can be saved and output together with calibration information file (.inf)

Normalization process possible

Text files

Analysis and calculation results for selected range of overall waveform display can be saved

Saved contents

Waveform and statistic calculation results

Level waveform instantaneous values and statistic calculation results

Octave band level waveform instantaneous values and statistic calculation results

Power spectrum of each frame and statistic calculation results

Analysis results for selected range of overall waveform display can be successively operated and saved

Saved contents

Successive operation results for level waveform

Successive operation results for octave band level waveform

Successive operation types

$L_p$, $L_{eq}$, $L_E$, $L_{max}$, $L_{min}$, $L_N$

* Up to five time ratio *N* settings from 1% to 99% (1.0% to 99.9% for single setting) can be specified

Successive operation intervals

The settable range depends on the thinning setting of the level analysis and octave band analysis

100 ms to 24 h (Applies default thinning rate)

1 ms to 24 h (No thinning)

Text save format

CSV (comma delimited), TSV (tab delimited)

Switching the character code

ASCII, UTF-8

Project files: Allow save and restore of the current condition of the software

Display: Multiple files and different type analysis results can be displayed simultaneously

Waveform display

Shows entire waveform with indication of current analysis range

Analysis result display

Time series variation of analysis results and corresponding frequency analysis results can be shown simultaneously as graphs

Calibration: Measurement values on Y-axis are also shown as physical quantity units

Calibration information contained in files recorded with Rion products can be used for conversion coefficient

Sensor sensitivity information input in the software can be used to determine conversion coefficient

Calibration signal waveform selected in the software can be used to determine conversion coefficient

Convert using the calibration information file produced by this software

Time series graph display

Time – waveform, level waveform, octave band level waveform

Time – spectrum (spectrogram)

* Amplitude in spectrogram is color coded, using a color pattern selectable from presets

Frequency analysis result graph display

Frequency – octave band and one-third octave band level

Frequency – spectrum

* Display of frequency analysis results comprises both graph display corresponding to time series variation and graph display of statistical calculation results

Axis settings Y-axis Auto, Full, Manual
Y-axis display can be set to linear or dB
Frequency axis can be set to linear or logarithmic scale
Frequency range selection
Octave band and one-third octave band analysis
ALL
Low Octave band: 0.5 Hz to 500 Hz
1/3 octave band: 0.4 Hz to 630 Hz
Middle Octave band: 16 Hz to 16 kHz
1/3 octave band: 12.5 Hz to 20 kHz
FFT analysis ALL, Manual

Numeric list display
Numeric list display available for waveform, level waveform, octave band level waveform, and spectrogram for specified time
Numeric list display of frequency analysis results

Superimposed display
Two frequency analysis results of the same settings can be shown as a superimposed (overlay) graph, with optional difference indication

Analysis and statistic calculation

Waveform analysis

Frequency weighting
Z, A, C, G, Lv (horizontal), Lv (vertical), C to A

Statistic calculation
About specified time range, and the following calculations can be carried out simultaneously
Maximum value, Maximum value time, Minimum value, Minimum value time, Average value, Variance, RMS value

Level analysis

Frequency weighting
Z, A, C, G, Lv (horizontal), Lv (vertical), C to A

Time weighting
10 ms, F (125 ms), 630 ms, S (1 s), 10 s
* Numbers express the time constant

Data thinning
Applies default thinning rate or no thinning

Statistic calculation
About specified time range, and the following calculations can be carried out simultaneously
$L_p$, $L_{eq}$, $L_E$, $L_{max}$, $L_{min}$, $L_N$
* Up to five time ratio $N$ settings from 1% to 99% (1.0% to 99.9% for single setting) can be specified

Octave band and one-third octave band analysis

Octave band level waveform can be displayed when performing octave band analysis

Simultaneous display of All Pass (AP) and Partial Over All (POA) possible

Bandwidth

Octave band 0.5 Hz to 16 kHz (16 bands)

1/3 octave band 0.4 Hz to 20 kHz (48 bands)

Frequency weighting

Z, A, C, G, Lv (horizontal), Lv (vertical), C to A

Time weighting

10 ms, F (125 ms), 630 ms, S (1 s), 10 s

* Numbers express the time constant

Data thinning

Applies default thinning rate or no thinning

Statistic calculation

About specified time range, and the following calculations can be carried out simultaneously

$L_p$, $L_{eq}$, $L_E$, $L_{max}$, $L_{min}$, $L_N$

* Up to five time ratio $N$ settings from 1% to 99% (1.0% to 99.9% for single setting) can be specified

Maximum value types

AP, Band maximum

FFT analysis

Spectrogram can be shown by FFT analysis

Simultaneous display of Over All (OA) and Partial Over All (POA) possible

Analysis points

32 to 65536 points (base-2)

* Frequency resolution (Hz) display possible

Overlap 0% to 99%

Window functions

Rectangular, Hanning, Flat-top, Hamming

Power spectrum dimensions

Power spectrum (Power) / Power spectrum density (PSD)

Power/Amplitude

Peak/RMS

Frequency weighting

Z, A, C, G, Lv (horizontal), Lv (vertical), C to A

Statistic calculation

About specified time range, and the following calculations can be carried out simultaneously

Linear average, Maximum value

From the results of the linear average, tonal audibility can be calculated based on the ISO 1996-2:2007 Annex C

Maximum value types

OA, Spectrum maximum

Filter processing

High-pass filter (HPF), Low-pass filter (LPF)

Cutoff frequencies

0.1 Hz to sampling frequency / 2

Slope 6 dB/oct., 12 dB/oct., 18 dB/oct., 24 dB/oct.

Differential and integral filter

1st order differential, 2nd order differential (-10% at top limit of frequency range)

1st order integration, 2nd order integration (-10% at 1 Hz)

Additional processing

Filter characteristics added numerically for each frequency in frequency analysis results

Frequency weighting

OFF, A, C, G, Lv (horizontal), Lv (vertical), C to A

Differentiation and integration

1st order differential, 2nd order differential, 1st order integration, 2nd order integration

Other items

Playback

Playback of loaded WAVE files possible

Operations Playback, Stop, Pause, Cursor based jump to playback position

Digital volume control

-40 dB to 40 dB

Marker function with comment support

A marker with optional comment can be placed on graph

Quick jump from the marker list data to a corresponding marker cursor position is possible

Graph synching Analysis range and some graph operations can be synched across graphs

Graph settings Calibration, analysis settings, and axis settings can each be made separately for a single graph, or for multiple graphs together

Graph duplicating Duplicates the graph, and displays the same data so it can be analyzed under different conditions.

Templates Analysis settings can be saved as templates

By applying a template when loading a WAVE file, analysis results can be automatically obtained without having to make individual settings

Clipboard copy — Entire screen, graph, and list numerals can be copied to the clipboard

Display switching

Graph display size settings

Large, medium, small

Time indication format

Elapsed time, absolute time

Date formats

yyyy/mm/dd, dd/mm/yyyy, mm/dd/yyyy

Decimal point format

Dot or comma

Enable/disable display components

Graph

Toolbar

Settings area

List area

File information display

WAVE file recording information indication

Wizards — Step-by-step instructions available for file loading, calibration, analysis setup, graph axis setup, and file saving

Unit marker display

Markers or voice memos inputted by the DA-20, DA-40 and DA-21 can be displayed as markers

Markers inputted by the SX-A1WR can be displayed as markers when the SX-A1WR project is loaded

Voice memo playback

Voice memo can be displayed as markers and played back when the SX-A1WR project is loaded

Supplied accessories

| | |
|---|---|
| CD-ROM | 1 |
| AS-70 installation software | |
| Installation Manual | |
| HASP key for AS-70 | 1 |
| Inspection certificate | 1 |

No. 58087 24-04