INSTRUCTION MANUAL

NA-42 Management Software

NA-42PB1

RION CO., LTD.

Organization of This Manual

This manual describes the features and operation of the NA-42 Management Software NA-42PB1.

The manual is divided into the following sections.

Outline

Gives basic information on the NA-42PB1 software.

Equipment Connections

Explain how to connect the NA-42 to the computer.

Preparations

Explain how to install and uninstall the NA-42PB1 software.

Main Menu Screen

Describes the functions available from the main menu screen.

Communication Errors

Explain the meaning of communication errors.

Measurement

Explain how to perform measurement using the NA-42PB1 software.

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Precautions

- This software is designed only for use with the sound level measuring amplifier. It cannot be used with any other equipment.

- Be sure to carefully read the documentation to ensure correct operation.

- Store and use the CD-ROM in an environment that is not subject to drastic temperature fluctuations, excessive humidity, or other adverse conditions.

- Items described in this documentation may be changed without prior notice.

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8. Jurisdiction

Any disputes or litigation arising from this agreement will be under the jurisdiction of the Tokyo District Court.

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Outline

The NA-42 Management Software NA-42PB1 is designed for use with the sound level measuring amplifier NA-42. The software allows setting measurement parameters and controlling measurement operation by means of commands sent from the computer. Measurement result data can be read into the computer for display, and the software also allows storing measurement data in CSV format suitable for further processing for example with a spreadsheet application. In conjunction with the optional adapter SC-31M or SC-31S, the software can control up to 16 NA-42 units connected to a single computer.

The Software NA-42PB1 is designed to run under Microsoft Windows 95, or Microsoft Windows 98, Microsoft Windows 98SE, Microsoft Windows NT (Ver.4.0), Microsoft Windows Me, Microsoft Windows 2000, Microsoft Windows XP.

This manual assumes familiarity with the operation of the NA-42, as well as with computers and Windows in general.

Equipment Connections

Connect the sound level measuring amplifier NA-42 to a computer, using a suitable cable as shown below.

Before making any connections, make sure that power to the NA-42 and to the computer is turned off.

One computer, one NA-42

NA-42

Computer

Serial interface connector

D-sub 9-pin female

Cross-wired serial cable
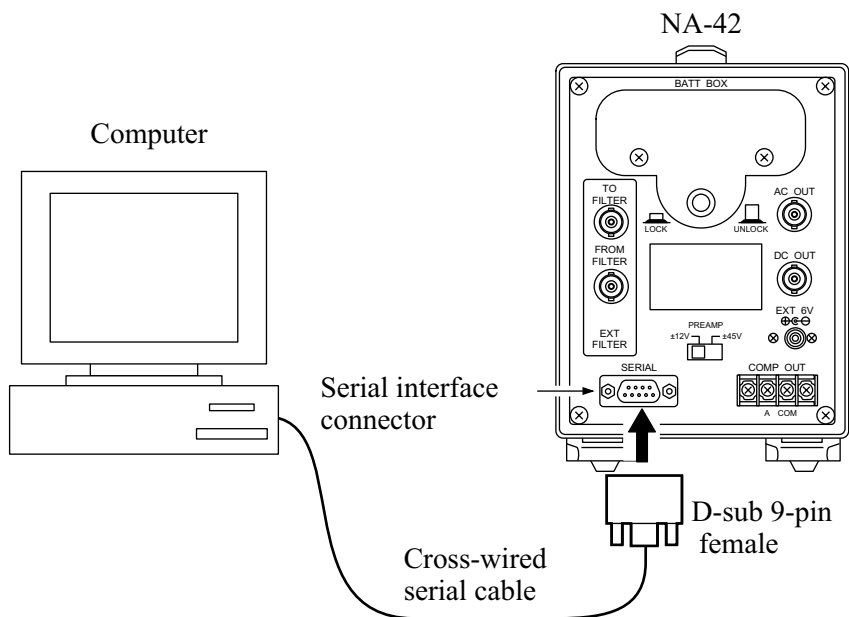
Cable type: Cross-wired serial cable

Type of connector at NA-42: D-sub 9-pin, male

One computer, multiple NA-42 (max. 16 units)

It is possible to connect multiple NA-42 units (max. 16) to a single computer. In this case, the optional SC-31M / SC-31S adapters and LAN cables (10Base-T cable) are required.
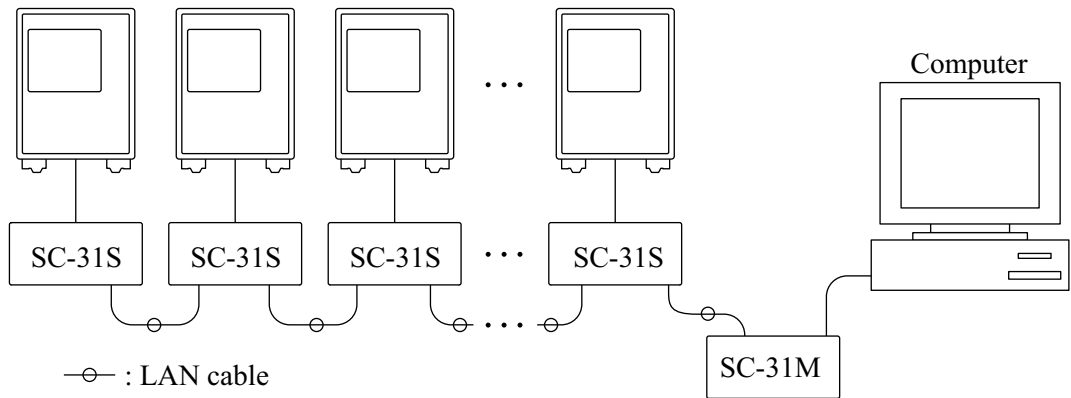
Maximum communication distance: 400 m

Preparations

Installing the NA-42PB1 Software

The NA-42PB1 software is contained on one CD-ROM. Install the software as described below.

NA-42PB1 installation
1. Start up Windows.
2. Insert the NA-42PB1 CD-ROM into the CD-ROM drive of the computer.
3. Perform setup using "Add/Remove Programs" in the Control Panel to execute the Setup.exe program.

Uninstalling the NA-42PB1 Software

To delete the installed NA-42PB1 software, use "Add/Remove Programs".

Main Menu Screen

First, make sure that the internal clock of the computer (year, month, day, hour, minute, second) is correct.

Before using the NA-42PB1, disable any screen saver software and shut down other applications.

Starting the NA-42PB1 software

Use the Windows Start menu to select the NA-42 program. This brings up the NA-42PB1 main screen, as shown below.

Before you perform measurement for the first time, you must set the communication port and communication speed using the "Communication Settings" option at top left.
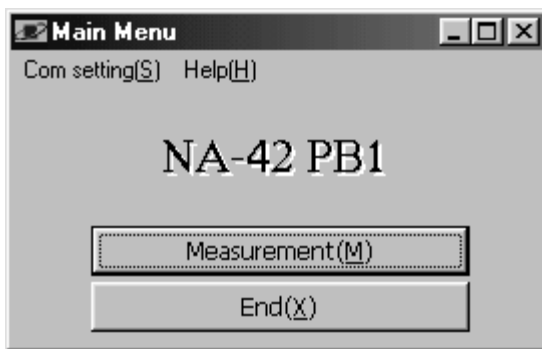
Main menu screen

Actual screen size and font appearance may differ.

Communication Settings

Calls up the communication settings screen shown on the page 6.

Help

Calls up help information as shown on page 7, or version information.

[Measurement]

Brings up a window for setting measurement parameters from the computer and controlling the measurement.

[End], ⊠

Shuts down the software application.

Communication Settings screen
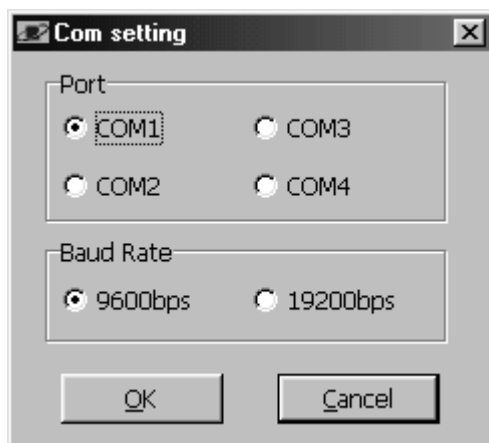
Communication Settings screen

Serves for setting the communication port and communication speed.

Port

The communication port can be set to COM1 to COM4. Select the port to which the serial cable is connected.

Baud Rate

Selects the communication speed (9600/19200) for the link between the computer and the NA-42. Select the same setting here as selected at the NA-42.

When you click on [OK], the selected settings become active, and the display returns to the main menu screen.

When you click on [Cancel] or ☒, any changes are discarded, and the display returns to the main menu screen.

Note
If the Port and Baud Rate settings are not correct, a communication error will occur and normal operation is not possible.
When using the SC-31M / SC-31S, set the Baud Rate to 19200.

NA-42 Help screen
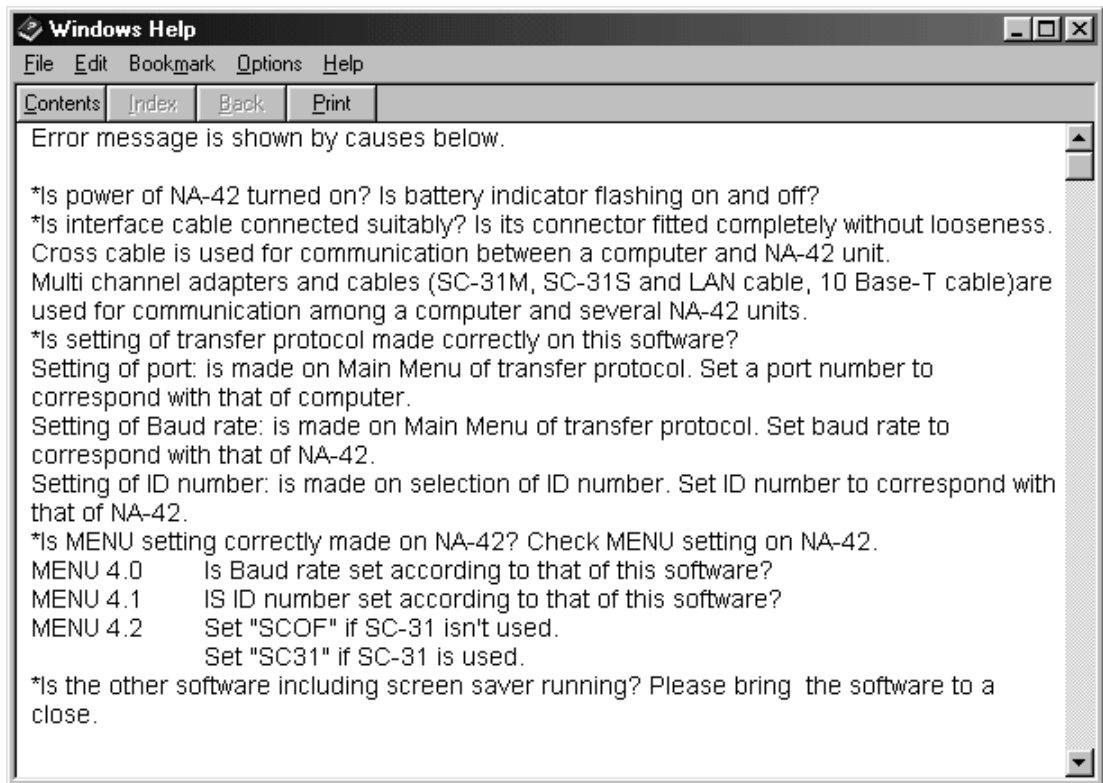
Help screen

The help screen shows information about communication errors that have occurred. Use the information for solving any problems.

Version information screen

The version number and date of the software are shown here.


Version information screen

Communication Errors

When a communication error has occurred while using the software, one of the following error messages is shown.

Check for a possible fault in the cable connection or a mismatch in the Port and Baud Rate settings. Also check the settings at the NA-42.

Measurement

Using the NA-42PB1 software, you can set the various measurement parameters of the NA-42 from the computer and control the measurement.
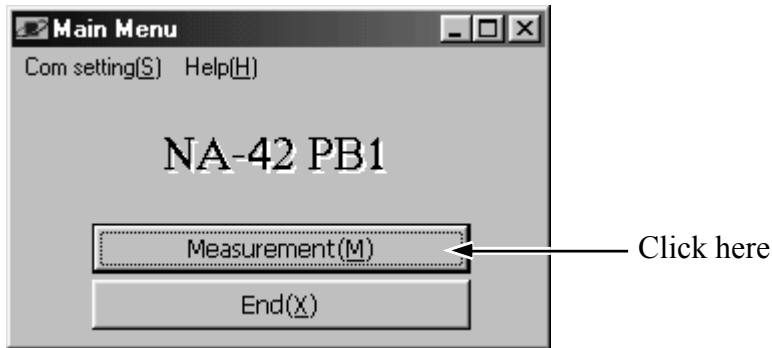
Main menu screen

When you click on "Measurement" in the main menu screen, the ID number selection window appears.
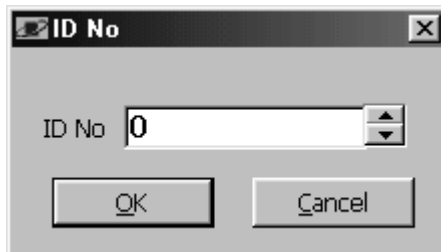
ID number selection window

Enter the same number as set at the connected NA-42 unit.
At the NA-42 unit, the ID number is set using a menu called up with the MENU key.

About ID numbers
The ID number serves to identify the NA-42 unit when multiple units are connected to one computer. In such a setup, a unique ID number must be set at each NA-42.   Even if only one NA-42 unit is connected to the computer, the ID number still must be set.

When multiple NA-42 units are connected to the computer via the SC-31M / SC-31S adapters, the ID No. setting screen lets you select the unit with which to communicate.

To change settings at all connected NA-42 units in one operation, set the ID number to "FF".
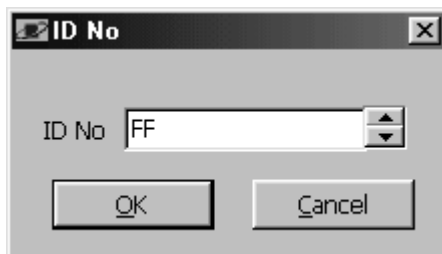
ID number selection window

Note
• When "FF" is selected, it is only possible to change NA-42 settings. Measurement cannot be performed in this condition.   • When "FF" is selected, it is not possible to change the sensitivity setting.

When you click on [OK] after setting the ID number, the measurement screen appears. If you click on [Cancel] instead, the display returns to the main measurement screen.

Measurement screen
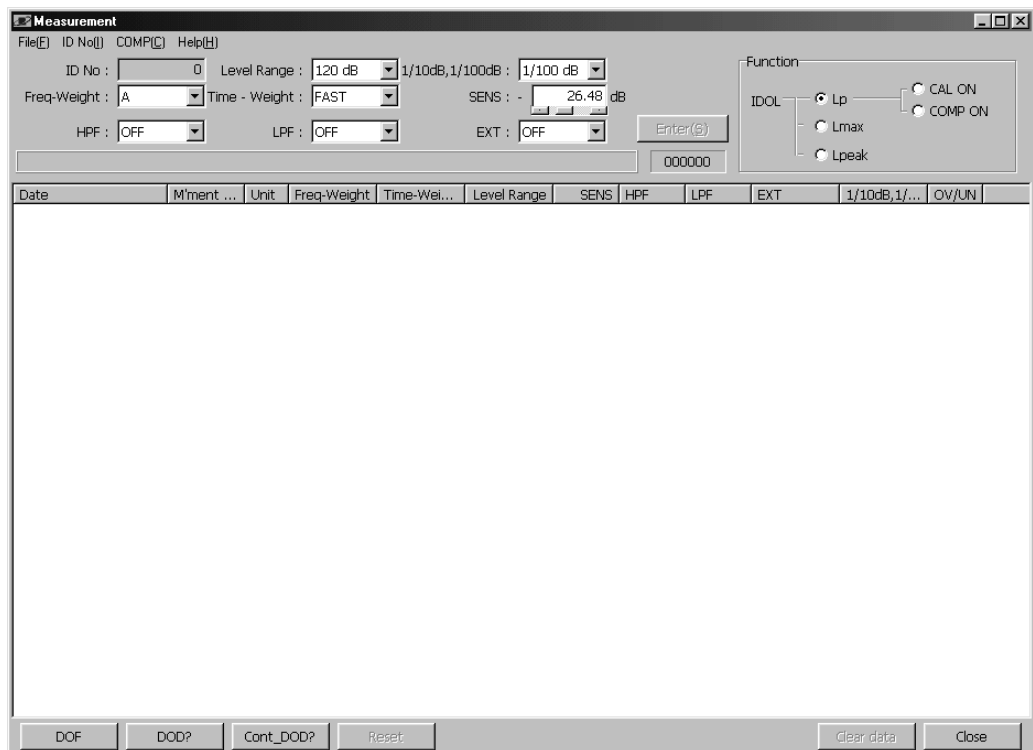
Measurement screen

Screen explanation

File (F)

Creates a CSV file of measurement data. (See page 26.)

ID No. (I)

Sets the ID number. You can select a different ID number for example when several NA-42 units are connected and you want to address a different unit. (See page 9.)

COMP (C)

Shows the comparator setting. The comparator setting can be changed when the ID number is not set to FF and the function is Lp.

Help (H)

Shows version information. (See page 7.)

ID No.

Shows the currently set ID number. This is the number of the NA-42 with which communication is carried out.

If this is set to FF, all connected NA-42 units are addressed.

Level range

Shows the currently set level range. You can change the setting by clicking on the [▼] symbol in the frame. When a setting was changed, click on [Enter] to confirm the change.

Display range

Shows the currently set display range. For 1 / 10 dB, the measurement value is shown to first decimal place. For 1 / 100 dB, the measurement value is shown to second decimal place. You can change the setting by clicking on the [▼] symbol in the frame. When a setting was changed, click on [Enter] to confirm the change.

The display range setting is linked to the sensitivity setting.

Freq-Weight

Shows the currently set frequency weighting. You can change the setting by clicking on the [▼] symbol in the frame. When a setting was changed, click on [Enter] to confirm the change.

Time-Weight

Shows the currently set time weighting. You can change the setting by clicking on the [▼] symbol in the frame. When a setting was changed, click on [Enter] to confirm the change.

Sensitivity ([SENS])

Shows the currently set frequency weighting. You can change the setting by clicking on the bar and sliding the pointer. When a setting was changed, click on [Enter] to confirm the change.

HPF

Shows the current high-pass filter setting. You can change the setting by clicking on the [▼] symbol in the frame. When a setting was changed, click on [Enter] to confirm the change.

LPF

Shows the current low-pass filter setting. You can change the setting by clicking on the [▼] symbol in the frame. When a setting was changed, click on [Enter] to confirm the change.

EXT

Shows the current external filter setting. You can change the setting by clicking on the [▼] symbol in the frame. When a setting was changed, click on [Enter] to confirm the change.

Enter

Sends any changes in level range, display range, Freq-Weight, Time-Weight, sensitivity, HPF, LPF, and EXT to the NA-42.

Function

Shows the current measurement mode. You can change the measurement mode by clicking on the list button.

Lp	Sound pressure level (normal measurement)
Lmax	Sound pressure level maximum value
Lpeak	Peak sound pressure level
CAL ON	Calibration ON
COMP ON	Comparator ON

Counter

Shows the number of measurement data, up to 216000 data.

DOF

Instantaneous measurement value is read from the NA-42 every 100 ms and shown after completion of the measurement. Cannot be set when the ID number is set to FF or the measurement mode is set to CAL ON. (See page 19.)

DOD?

Measurement value shown on the display of the NA-42 is read and displayed. Cannot be set when the ID number is set to FF. (See page 21.)

DOD? (Cont.)

Measurement value shown on the display of the NA-42 is read at a preset sampling interval for a preset number of samples, and then the results are displayed. The setting range for the sampling interval is 1 to 3600 seconds, and for the number of samples 1 to 216000.
Cannot be set when the ID number is set to FF. (See page 22.)

Reset

When the Lmax or Lpeak function is selected, this button resets the retained value.

Clear Data

Clears the displayed data.

Close

Terminates the measurement and returns to the main menu screen.

Settings Change (Send Settings)

In the top left section of the measurement screen, the current NA-42 settings are shown. If any changes were made to level range, display range, Freq-Weight, Time-Weight, sensitivity, HPF, LPF, and EXT, click on the [Enter] button to effect the change at the NA-42.
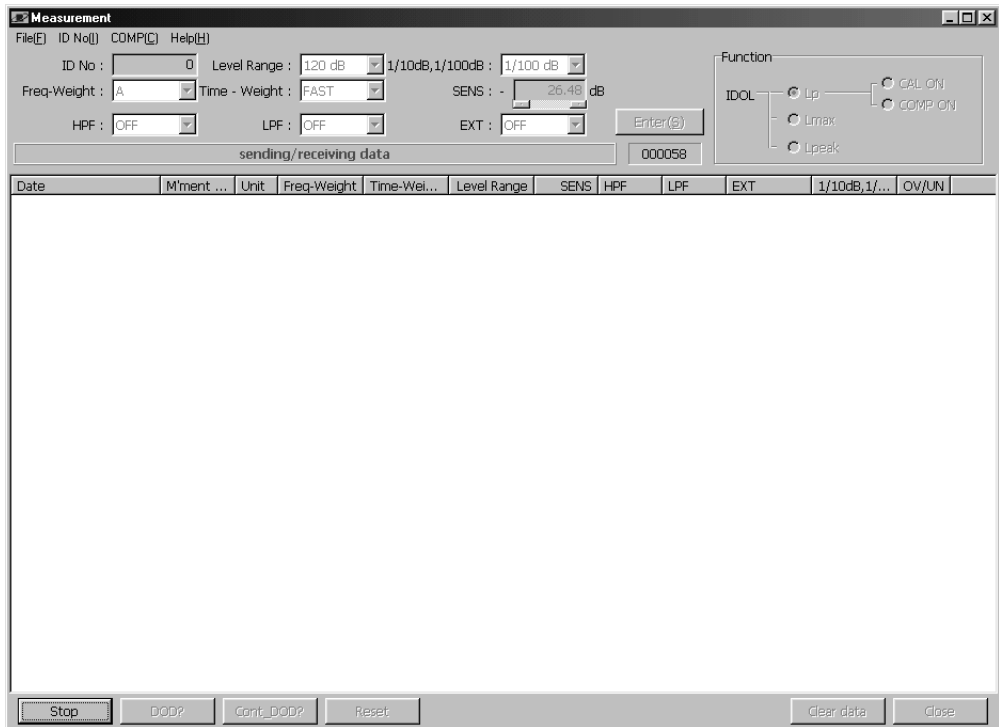
Measurement screen

Note
• If a setting was changed and you have not clicked on [Enter], the functions [DOF], [DOD?], and [DOD? (Cont.)] cannot be selected.   • If CAL ON or COMP ON is selected as function, changing and sending the settings is not possible.   • If Lmax or Lpeak is selected as function, changing the display range is not possible.   • If the ID number is set to FF, changing the sensitivity setting is not possible.   • Immediately after setting the ID number to FF, the measurement status is not shown.

Changing the function

The current measurement mode of the NA-42 is shown at the top right of the measurement screen. If you wish to change the function (measurement mode), click on the list button.

Lp	Sound pressure level (normal measurement)
Lmax	Sound pressure level maximum value
Lpeak	Peak sound pressure level
CAL ON	Calibration ON
COMP ON	Comparator ON

Operation in various measurement modes

1. ID number not set to FF

ID number not set to FF	Function (measurement mode)				
	Lp	Lmax	Lpeak	CAL ON	COMP ON
ID number	○	○	○	○	○
COMP (comparator setting)	○	△	△	△	△
Level range	○	○	○	△	△
Display range	○	△	△	△	△
Freq-Weight	○	○	○	△	△
Time-Weight	○	○	○	△	△
Sensitivity	○	△	△	△	△
HPF	○	○	○	△	△
LPF	○	○	○	△	△
EXT	○	○	○	△	△
DOF	○	○	○	×	○
DOD?	○	○	○	○	○
DOD? (Cont.)	○	○	○	×	○
Reset	×	○	○	×	○
Close	○	○	○	○	○

○ : Current setting can be displayed and changed; or measurement possible
△ : Current setting can be displayed but not changed
× : Setting cannot be changed

2. ID number set to FF

ID number set to FF	Function (measurement mode)				
	Lp	Lmax	Lpeak	CAL ON	COMP ON
ID number	○	○	○	○	○
COMP (comparator setting)	○	×	×	×	×
Level range	○	○	○	×	×
Display range	○	×	×	×	×
Freq-Weight	○	○	○	×	×
Time-Weight	○	○	○	×	×
Sensitivity	○	×	×	×	×
HPF	○	○	○	×	×
LPF	○	○	○	×	×
EXT	○	○	○	×	×
DOF	×	×	×	×	×
DOD?	×	×	×	×	×
DOD? (Cont.)	×	×	×	×	×
Reset	×	×	×	×	×
Close	○	○	○	○	○

○ : Setting can be changed
× : Setting cannot be changed; or measurement not possible

Reading Data Every 100 Milliseconds (DOF)

Click on [DOF] in the bottom left section of the screen to start the measurement. The instantaneous value is read from the NA-42 every 100 ms, until [Stop] is clicked or until the maximum of 216000 data (6 hours of continuous measurement) is reached. When the maximum is reached, measurement stops automatically.

Flashes while sending or receiving data
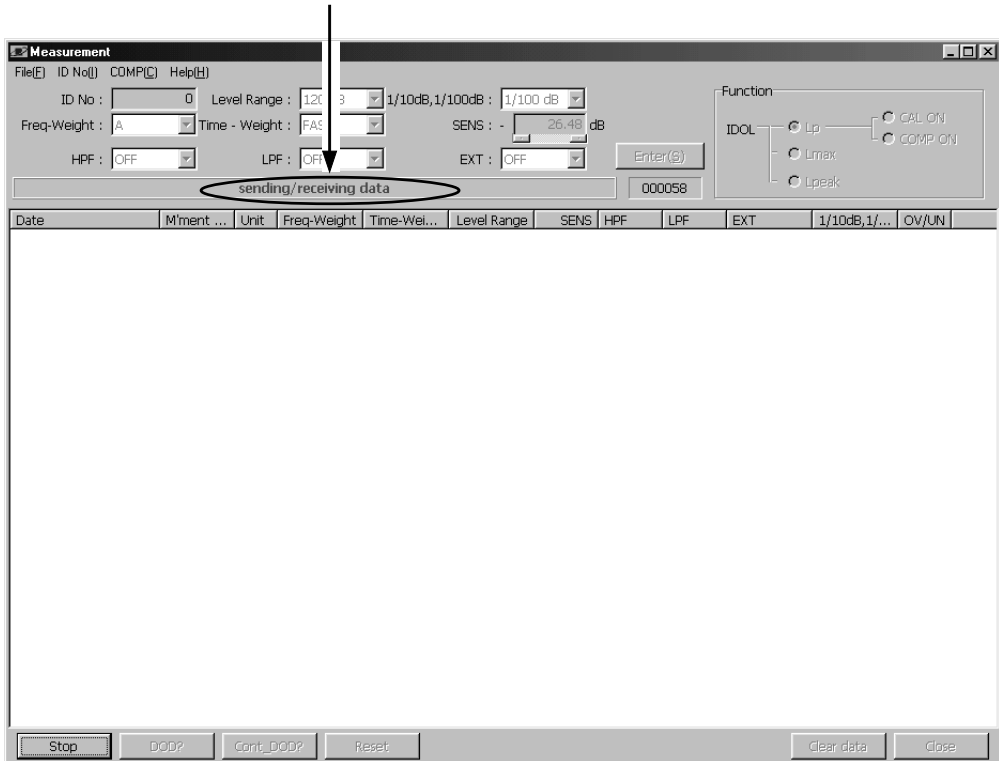
DOF data read-in screen

While instantaneous value data are being read in, the indication "Data Send / Receive" flashes.

When you click on [Stop], the instantaneous data read-in process is terminated, and the data are displayed.

Note
When performing DOF measurement, the sound pressure level is read every 100 milliseconds, also if Lmax or Lpeak is selected.

DOF data display screen

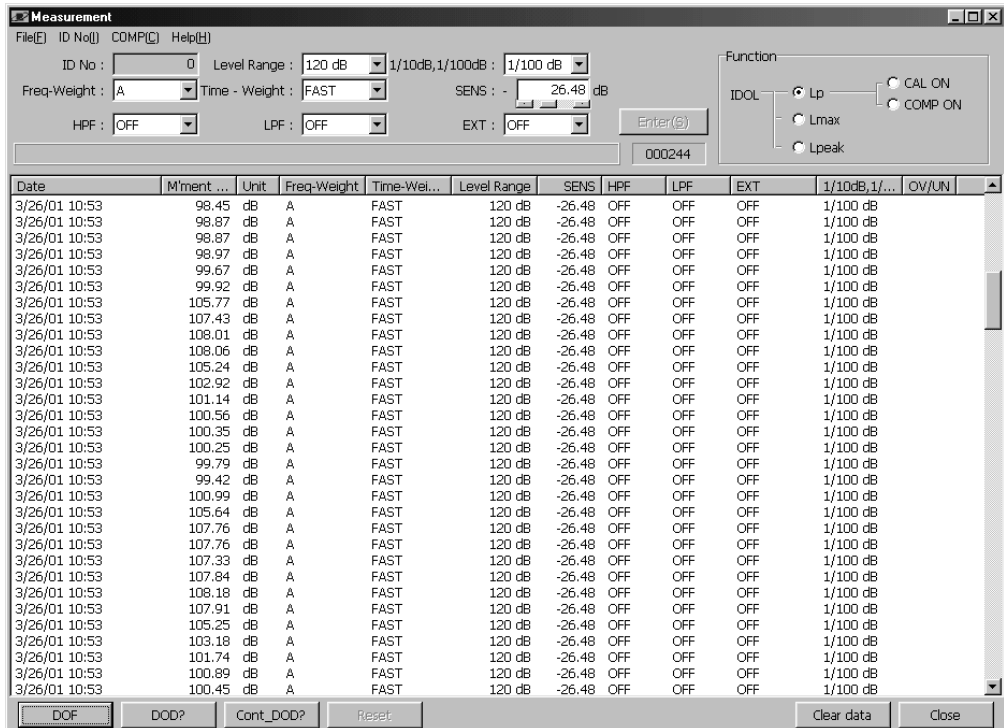| Note |
|---|
| • The measurement date and time are derived from the clock of the computer. |
| • DOF cannot be used when CAL ON is selected or the ID number is set to FF. |
| • For the measurement maximum of 216000 data, about 100 MB of free space are required on the hard disk of the computer. |
| • The OV / UN column indicates oversampling (O) and undersampling (U). |

To read in data other than DOF or to change the function or ID number, the data must be cleared first before proceeding. (See page 25.)

When wishing to store measurement data as a CSV file, please refer to "Storing Measurement Data" on page 26.

Reading Measurement Data (DOD?)

Click on [DOD?] in the bottom left section of the screen to start the measurement. With each click of the button, measurement data are read from the NA-42 and displayed on the screen. Up to 216000 data can be read in.

DOD? data display screen

Note
• The measurement date and time are derived from the clock of the computer. • If Lmax is selected as function, the retained maximum value is read in. • If Lpeak is selected as function, the retained peak value is read in.

To read in data other than DOD or to change the function or ID number, the data must be cleared first before proceeding. (See page 25.)

When wishing to store measurement data as a CSV file, please refer to "Storing Measurement Data" on page 26.

Continuous Measurement Value Read-in [Cont_DOD?]

Click on [Cont_DOD?], set the sampling interval and number of samples, and start the measurement. The selected number of measurement values (data shown on the screen of the NA-42) will be taken at the preset intervals.
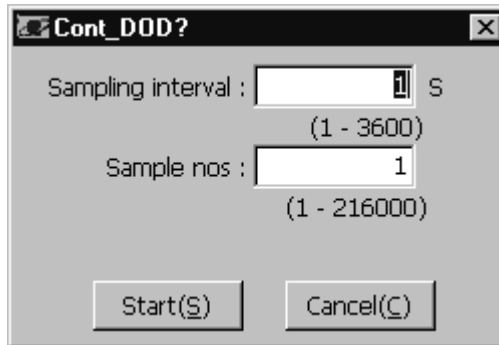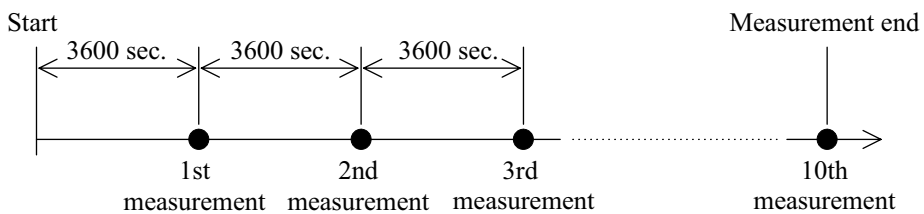

Continuous measurement value screen

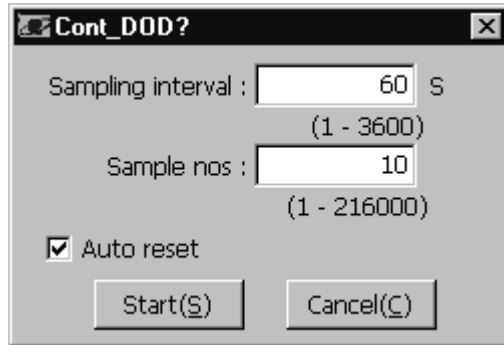Sampling interval: 1 to 3600 seconds, in 1-second steps

Number of samples: 1 to 216000

Example

   Sampling interval: 3600 seconds

When Lmax or Lpeak is selected, auto-reset can be used. To enable auto-reset, click on the check box.

Continuous measurement value screen

When auto reset is active, a reset signal is sent out immediately after the Lmax or Lpeak measurement value (hold data) were read in. From the 2nd measurement onwards, there will be a non-measured interval.

    Non-measured interval

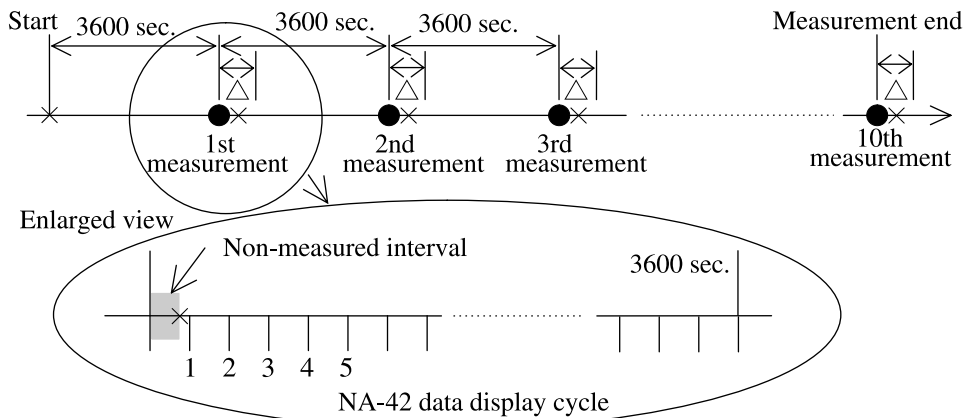   When measurement display range is 1 / 10 dB: max. 1 s

        When measurement display range is 1 / 100 dB: max. 200 ms

    Example

        Sampling interval: 3600 seconds

        Number of samples: 10

        Auto reset: ON

● means measurement
✕ means reset
△ means non-measured interval;
    1 second max. for display range 1 / 10 dB
    200 ms max. for display range 1 / 100 dB

Date	M'ment value	Unit	Freq-Weight	Time-Weight	Level Range	SENS	HPF	LPF	EXT	1/10dB,1/100dB	OV/UN
3/26/01 13:58	102.02	dB	FLAT	FAST	110 dB	-29.42	20Hz	OFF	OFF	1/100 dB	
3/26/01 14:00	108.13	dB	FLAT	FAST	110 dB	-29.42	20Hz	OFF	OFF	1/100 dB	
3/26/01 14:01	85.69	dB	FLAT	FAST	90 dB	-29.42	20Hz	OFF	OFF	1/100 dB	
3/26/01 14:01	88.67	dB	FLAT	FAST	90 dB	-29.42	20Hz	OFF	OFF	1/100 dB	O
3/26/01 14:02	68.44	dB	A	FAST	90 dB	-29.42	OFF	OFF	OFF	1/100 dB	
3/26/01 14:02	64.98	dB	A	FAST	90 dB	-29.42	OFF	OFF	OFF	1/100 dB	
3/26/01 14:03	72.02	dB	A	FAST	90 dB	-29.42	OFF	OFF	OFF	1/100 dB	
3/26/01 14:03	72.02	dB	A	FAST	90 dB	-29.42	OFF	OFF	OFF	1/100 dB	
3/26/01 14:03	63.2	dB	A	FAST	90 dB	-29.4	OFF	OFF	OFF	1/10 dB	
3/26/01 14:04	63.9	dB	A	FAST	80 dB	-29.4	OFF	OFF	OFF	1/10 dB	
3/26/01 14:04	86.1	dB	C	FAST	100 dB	-29.4	OFF	OFF	OFF	1/10 dB	
3/26/01 14:05	79.1	dB	C	FAST	100 dB	-29.4	OFF	OFF	OFF	1/10 dB	
3/26/01 14:07	53.9	dB	C	FAST	110 dB	-29.4	OFF	OFF	OFF	1/10 dB	U

Continuous DOD? data display screen (sample interval 60 seconds, 10 samples)

Note
The measurement date and time are derived from the clock of the computer.

To read in data other than DOD or to change the function or ID number, the data must be cleared first before proceeding. (See page 25.)

When wishing to store measurement data as a CSV file, please refer to "Storing Measurement Data" on page 26.

Clear Data

Erases the displayed data.

Clear data screen

Click on [OK] to clear the data.

Clicking on [Cancel] aborts the process and returns to the previous screen.

If the maximum of 216000 data is displayed, the clearing process will take about 30 minutes (on a 133-MHz computer).

Note
• This option clears all displayed data.
• It is advisable to save any data that you want to keep in a file, as described on the next page.

Storing Measurement Data

The measurement data read in at the measurement screen can be stored in a file by clicking on [File]. This brings up the File Save screen shown below. The file is stored in CSV format which can be read by most spreadsheet applications.

File Save screen

After specifying the folder and file name, click on [Save] to create the file.
The setting for decimal point should normally be "Period".

Period

The CSV format file uses a period (.) for the decimal point. The data delimiter is a comma (,).

Comma

The TXT format file uses a comma (,) for the decimal point. The data delimiter is a semicolon (;).

Clicking on [Cancel] aborts the process and returns to the previous screen.

The file name can use any alphanumeric character. A file number (00 to 11) will be automatically appended, and the extension is "CSV".

Note

- When there are more than 18000 data to be saved, multiple files will be created.
- A file number (00, 01, 02 ... 11) is automatically appended to the file name. This number serves to identify the files when the data are divided into multiple files.
- The process will take about one minute when saving the maximum of 216000 data.

Example for opening a CSV file in Excel

Communication when ID number is set to FF

When the ID number is set to FF, settings except for sensitivity can be changed. The setting change command is sent to all units connected via the SC-31M / SC-31S adapters.

Note that the available level range settings differ, depending on the microphone sensitivity.

Level range settings

Preamplifier gain 0 dB/20 dB	Microphone sensitivity （dB）	Level range (dB)							
0 dB	-19.99～-10.00	60	70	80	90	100	110	120	<u>130</u>
	-29.99～-20.00	70	80	90	100	110	120	130	<u>140</u>
	-39.99～-30.00	80	90	100	110	120	130	140	<u>150</u>
	-49.99～-40.00	90	100	110	120	130	140	150	<u>160</u>
	-59.99～-50.00	100	110	120	130	140	150	160	<u>170</u>
20 dB (UC-34P)	-69.99～-60.00	110	120	130	140	150	160	170	<u>180</u>
	-19.99～-10.00	40	50	60	70	80	90	100	—
	-29.99～-20.00	50	60	70	80	90	100	110	—

Underlined level range settings are only available when preamplifier power supply voltage is ±45 V.

Note
When a NA-42 receives an invalid setting command, the command is disregarded.