INSTRUCTION MANUAL

Waveform Recording Program

NX-42WR

RION CO., LTD.

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Organization of This Manual

This manual describes recording functions, playback functions, and other operation principles of the Waveform Recording Program NX-42WR.
The manual consists of the chapters listed below. You should also consult the documentation for the Sound Level Meter NL-42/NL-52/NL-62.

Outline

Gives basic information on the functions of the NX-42WR.

Installation

Explains about installation of the NX-42WR.

Reading the Display

Explains various items that appear on the display during recording.

Menu Screens

Explains how to use the menus.

Waveform Recording

Explains the steps to take for waveform recording.

Store Data Format and File Structure

Explains the format of stored data and how the files are organized.

Card Capacity and Recording Time

Explains the relationship between rated memory card capacity and recording time.

Communication Commands

Explains additional commands that become available when the sound recording function is loaded.

Specifications

Lists the technical specifications of the NX-42WR.

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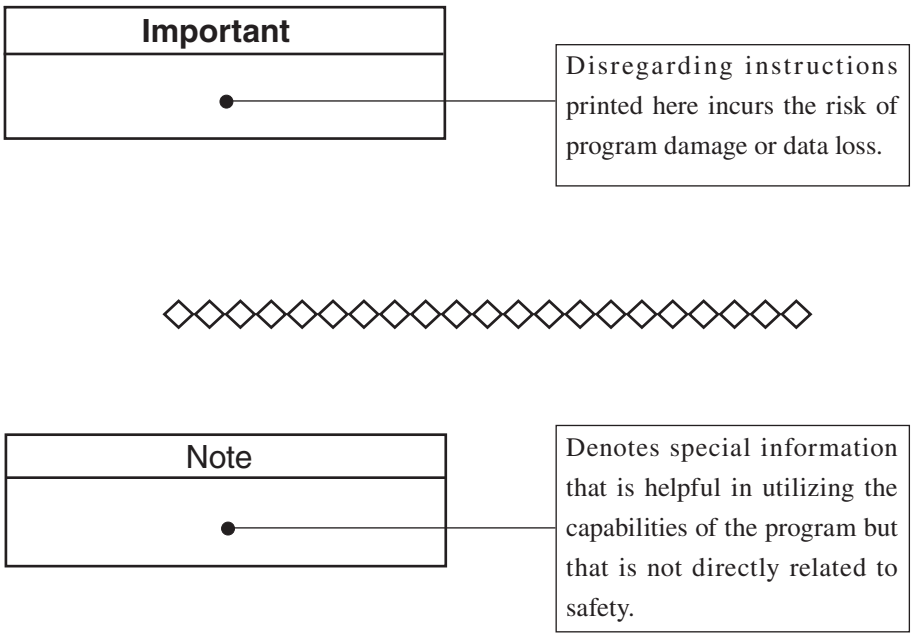
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FOR SAFETY

In this manual, important safety instructions are specially marked as shown below. To prevent the risk of severe damage to the program or peripheral equipment, make sure that all instructions are fully understood and observed.



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Outline

This program card contains software that adds sound pressure waveform recording capability to the Sound Level Meter NL-42/NL-52/NL-62. Recorded sound pressure waveform information is saved as PCM format WAVE files on the memory card, along with other stored data. This makes it easy to play and analyze the sound pressure waveform information later on a computer.

Outline of recording functions

Sound pressure waveform information is stored on the memory card, along with other store data. It is not possible to record only sound pressure waveform information.

There are two recording modes, called event mode and total mode.

Event mode

Sound pressure waveform recording is possible only during auto store mode (Auto store or Timer Auto store) operation. Event mode allows choosing between three types of recording: manual recording, level recording, and interval recording.

- Manual recording

  Allows recording the sound pressure waveform for any duration during auto store operation. This type of recording is suitable when the operator needs to control the recording function as necessary.

- Level recording

  The sound pressure waveform is recorded automatically when a selected level is exceeded. This type of recording is suitable when higher level sound information should be recorded.

- Interval recording

  Recording is carried out at selected intervals (10 minutes, 1 hour), for 15 seconds or 1 minute. This type of recording is suitable for capturing environmental sound at specific intervals.

Total mode

- Total recording

  In auto store mode, all sound pressure waveform information is recorded as long as the mode is active.

  In manual store mode, measurement followed by a store operation records the sound pressure waveform for the entire period while measurement is carried out.

Playback or analysis of recorded information on the NL-42/NL-52/NL-62 is not possible.

Installation

Follow the procedure described in the separate “Optional program installation / uninstallation” to install the NX-42WR program in the NL-42/NL-52/NL-62 unit.

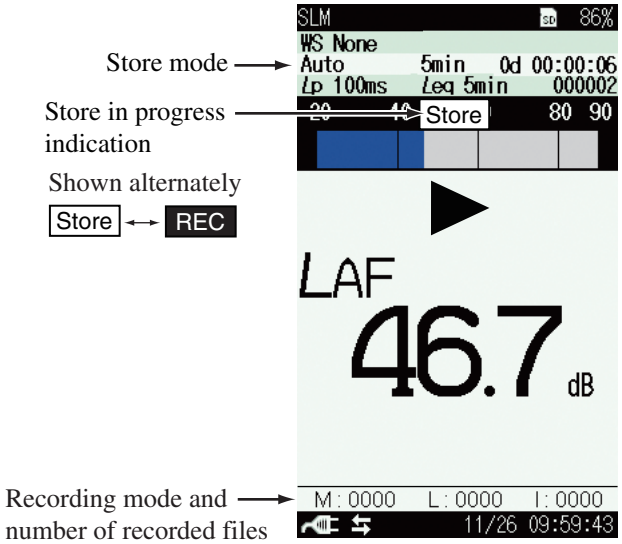
Important
Never format the optional program card with an SD Formatter and others. Otherwise the program data on the card will be erased and the respective functions can no longer be used. Restoration of the erased program is not warranted.

Note
The NX-42WR program can only be installed if the Extended Function Program NX-42EX has been installed in the NL-42/NL-52 first. The NX-42WR program can be installed in the NL-62 without installing NX-42EX.

Reading the Display

Recording screen

An illustration of recording screen is shown below.
(The size and font of the actual display may differ.)



Store mode

Shows the selected mode for storing data in memory.

Store in progress indication

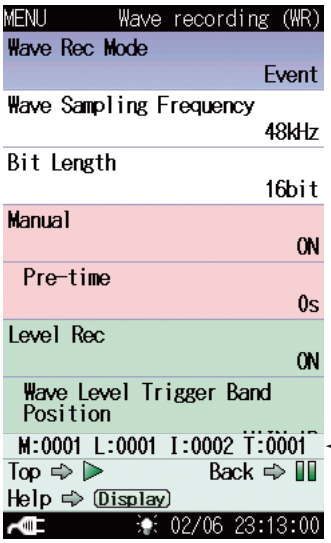
Shows the store condition.

Recording mode and number of recorded files

Shows the recording mode and the recorded file count.

Menu screen

The menu screen looks as follows.



Wave recording screen (WR)
(Store Mode : Auto,
Wave Rec Mode : Event)

M:0001
M stands for manual recording, 0001 is the recorded file count

L:0001
L stands for level recording, 0001 is the recorded file count

I:0002
I stands for interval recording, 0002 is the recorded file count

T:0001
T stands for total recording, 0001 is the recorded file count

The recorded file count starts at 0001 and will stop at the maximum of 9999.

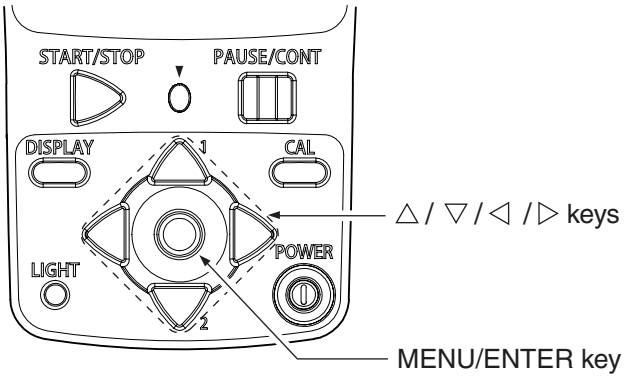
Manual recording: SM0001.WAV to SM9999.WAV
Level recording: SL0001.WAV to SL9999.WAV
Interval recording: SI0001.WAV to SI9999.WAV
Total recording: ST0001.WAV to ST9999.WAV

The figure such as “SM0001” shows the sequential number for the file. A "0000" file is not created.

Note
The performance about the file after the 10,000th will not be guaranteed.

Menu Screens

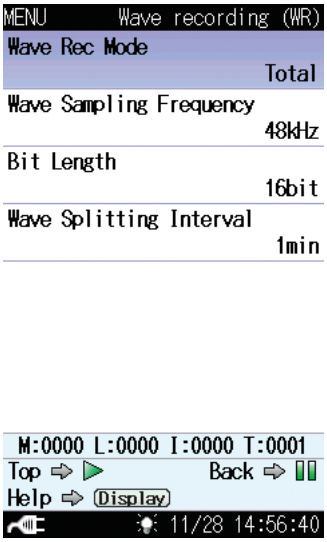
Pressing the MENU/ENTER key brings up the menu list screen. Use the △/▽/◁/▷ keys to select [WR] and press the MENU/ENTER key. The wave recording (WR) screen appears. The recording condition is set on this screen.
Each item of the wave recording screen is selected using the △/▽ key.
Pressing the DISPLAY key displays explanation screen of the item that has been selected.
Pressing the PAUSE/CONT key switches back to the menu list screen.
Pressing the START/STOP key switches back to the measurement screen.
As for the wave recording screen, the displayed set item is different depending on the set recording mode.



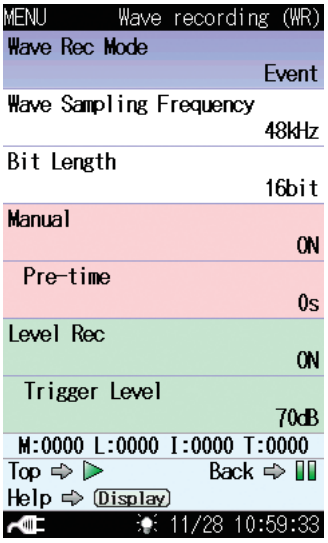


Menu list screen

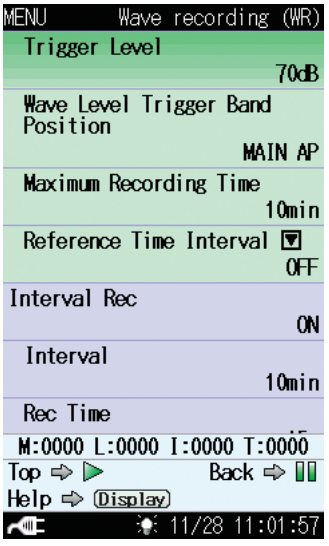
Pressing the △/▽/◁ /▷ keys
to select [WR]
and pressing MENU/ENTER button
brings up the [Wave recording (WR)] screen.



Wave recording screen
(Wave Rec Mode : Total)



Wave recording screen 1
(Wave Rec Mode : Event)



Wave recording screen 2
(Wave Rec Mode : Event)

Wave Rec Mode

Set the waveform recording mode.

Select [Wave Rec Mode] and press the MENU/ENTER key. The Wave Rec Mode screen appears. Select the recording mode (OFF, Total, Event) and press the MENU/ENTER key.

If [Total] is selected, all sounds are recorded from start to finish.

If [Event] is selected, manual recording, level recording and interval recording are selectable (refer to the description of each mode).

When [Wave Rec Mode] is set to “OFF”, waveform recording will not be carried out.

Note
Event mode is selectable if the store mode is Auto or Timer Auto.

Wave Sampling Frequency

Select the sampling frequency. High frequency sounds can be analyzed and reproduced as the value increases.

Select [Wave Sampling Frequency] and press the MENU/ENTER key. The Wave Sampling Frequency screen appears. Select the sampling frequency (48kHz, 24kHz, 12kHz) and press the MENU/ENTER key.

Bit Length

Select the recording data bit length. Increased accuracy of analysis and better sound quality can be obtained as the value increases.

Select [Bit Length] and press the MENU/ENTER key. The Bit Length screen appears. Select the bit length (16bit, 24bit) and press the MENU/ENTER key.

Wave Splitting Interval (only Total mode)

Select the size of one file for the entire recording.

Select [Wave Splitting Interval] and press the MENU/ENTER key. The Wave Splitting Interval screen appears. Select the splitting interval (1min, 10min, 1h) and press the MENU/ENTER key.

Manual (only Event mode)

Select whether to set the Manual recording.

Select [Manual] and press the MENU/ENTER key. The ON/OFF setting screen appears.

Select the ON/OFF setting and press the MENU/ENTER key.

When [Manual] is set to “ON”, the timing for recording can be selected arbitrarily.

Pre-time

When [Manual] is set to “ON”, this item is displayed.

The recording starts including the data from the pre-time before the start.

Select [Pre-time] and press the MENU/ENTER key. The Pre-time screen appears. Select the interval (0s, 5s, 1min) and press the MENU/ENTER key.

Level Rec (only Event mode)

Select whether to set the Level recording.

Select [Level Rec] and press the MENU/ENTER key. The ON/OFF setting screen appears.

Select the ON/OFF setting and press the MENU/ENTER key.

When [Level Rec] is set to “ON”, recording starts when the value exceeds the trigger level.

Trigger Level

When [Level Rec] is set to “ON”, this item is displayed.

Set the trigger level for recording start.

Select [Trigger Level] and press the MENU/ENTER key. The Trigger Level screen appears.

Use the ◁/▷ keys to select the first digit and use the △/▽ keys to set the value. Use the ◁/▷ keys to select the two lower digits and use the △/▽ keys to set the value. Then press the MENU/ENTER key. (Setting range 25 to 130 dB, 1-dB steps)

When [Reference Time Interval] on next page is set to “ON”, [Trigger Level] is not displayed (the setting is invalid).

Wave Level Trigger Band Position

When [Level Rec] is set to “ON”, this item is displayed.

Set the target band position for trigger.

Select [Wave Level Trigger Band Position] and press the MENU/ENTER key. The Wave Level Trigger Band Position screen appears. Select the band position (SUB AP, MAIN AP) and press the MENU/ENTER key.

Maximum Recording Time

When [Level Rec] is set to “ON”, this item is displayed.

Set the maximum time for level recording.

If the trigger level is not set appropriate, the recording time will increase. This setting helps to reduce the consumption of memory.

Select [Maximum Recording Time] and press the MENU/ENTER key. The Maximum Recording Time screen appears. Select the recording time (OFF, 10min) and press the MENU/ENTER key.

Reference Time Interval ▼

When [Level Rec] is set to “ON”, this item is displayed.

Set the start time and trigger level for each time zone that divided a maximum of four categories.

Select [Reference Time Interval] and press the MENU/ENTER key. The Time Zone Setting screen appears.

Select [Reference Time Interval] on the Time Zone Setting screen and press the MENU/ENTER key. The ON/OFF setting screen appears.

Select the ON/OFF setting and press the MENU/ENTER key.

When [Reference Time Interval] is set to “ON”, [Time1] to [Time4] setting is valid.

Select any from [Time1] to [Time4] and press the MENU/ENTER key. The selected time zone screen for setting start time and trigger level appears.

Use the ◁/▷ keys to select the start time and use the △/▽ keys to set the value (0 to 23 hour, and OFF). Use the ◁/▷ keys to select the trigger level and use the △/▽ keys to set the value (25 to 130 dB, 1-dB steps).

Press the MENU/ENTER key.

Interval Rec (only Event mode)

Select whether to set the Interval recording.

Select [Interval Rec] and press the MENU/ENTER key. The ON/OFF setting screen appears.

Select the ON/OFF setting and press the MENU/ENTER key.

When [Interval Rec] is set to “ON”, recording is carried out at preset intervals.

Interval

When [Interval Rec] is set to “ON”, this item is displayed.

Set the interval for recording waveforms.

Select [Interval] and press the MENU/ENTER key. The Interval screen appears. Select the interval (10min, 1h) and press the MENU/ENTER key.

Rec Time

When [Interval Rec] is set to “ON”, this item is displayed.

Set the recording time for each recording interval.

Select [Rec Time] and press the MENU/ENTER key. The Rec Time screen appears. Select the recording time (15s, 1min) and press the MENU/ENTER key.

Menu tree

Wave Rec Mode
- OFF
  - Total
    - Wave Sampling Frequency----------48kHz, 24kHz, 12kHz
    - Bit Length----------16bit, 24bit
    - Wave Splitting Interval----------1min, 10min, 1h
  - Event
    - Wave Sampling Frequency----------48kHz, 24kHz, 12kHz
    - Bit Length----------16bit, 24bit
    - Manual----------OFF, ON
      - Pre-time----------0s, 5s, 1min
    - Level Rec----------OFF, ON
      - Trigger level----------25dB to 130dB
      - Wave Level Trigger Band Position------SUB AP, MAIN AP
      - Maximum Recording Time----------OFF, 10min
      - Reference Time Interval▼----------OFF, ON
        Time1 to Time4 (Hour: 0 to 23 and OFF, Level 25 to 130dB)
    - Interval Rec----------OFF, ON
      - Interval----------10min, 1h
      - Rec Time----------15s, 1min

▼ ------: Items displayed when proceeding to next menu level

Waveform Recording

The NX-42WR provides the following recording modes: Event mode (Manual recording, Level recording, Interval recording) and Total mode (Total recording).

The Event mode can only be used when Auto store (Auto and Timer Auto) is selected.

The Total mode can be used when Auto store (Auto and Timer Auto) or Manual store (Manual) is selected.

When the store mode was set to “Manual” using the NL-42/NL-52/NL-62 menus, the Event mode can no longer be selected.

Select the appropriate recording function before starting to record.

Verify that an SD memory card with sufficient free space is inserted in the card slot of the NL-42/NL-52/NL-62. If no card is inserted, recording cannot be carried out.

For information on how to access and use the setup screen and menus, see the section “Menu Screens”.

Note
Recorded data will always use Z frequency weighting (flat response), regardless of the frequency weighting setting of the NL-42/NL-52/NL-62. When the low pass filter (LPF) setting of the NL-62 is selected, the setting will be valid in the recording.
If the measurement time is shorter than the recording time set with this program, the actual recording time will be equivalent to the measurement time.
When recording is performed, pay attention to the setting of output level range over of this unit. If a set value of the output level range over is too high for the sound level of measurement target, the volume of recorded sound will be small and it may be difficult to hear when played on a computer. Also, note that the volume of 24-bit sound is relatively small when compared with 16-bit sound since 24-bit sound has wider dynamic range.
When sound is recorded with 24 bit, it may not be played on a computer depending on its specifications (such as Windows version and sound board type). Before recording, make sure that the data recorded with the specified bit length and sampling frequency can be played on your computer. For 16-bit data, it can be played on computers running Windows XP SP3 or later versions in most cases.

Event recording

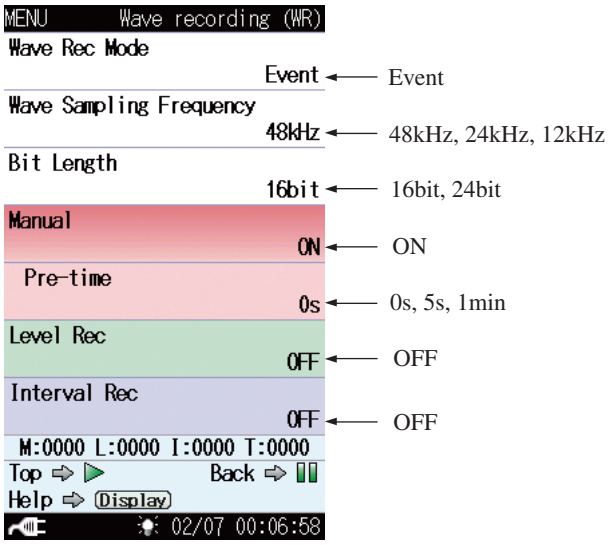
Refer to the documentation (Instruction Manual) of the Sound Level Meter NL-42/NL-52/NL-62 and select Auto store (Auto or Timer Auto) and the respective measurement parameters, as described in the section “Store Operation”.

The sampling frequency setting depends on the upper end of the frequency that is to be analyzed. For better sound quality recording, choose a high setting. To permit long-term recording, choosing a lower setting may be preferable.

During Auto store, the PAUSE/CONT key (PAUSE function) cannot be used.

Manual recording

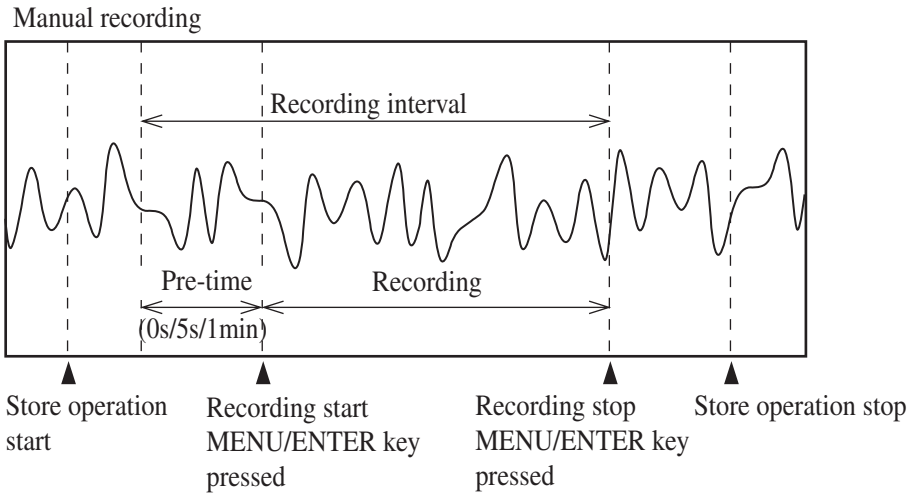
1. Make settings as shown below.



Wave recording screen
(Wave Rec Mode: Event, Manual: ON)

2. Press the START/STOP key to return to the measurement screen.
3. Press the START/STOP key to start the auto store operation.
4. When you press the MENU/ENTER key, recording starts, including the data from setting pre-time before this point.
   When you press the MENU/ENTER key again, recording stops.

The graph below shows the operation principle of manual recording.

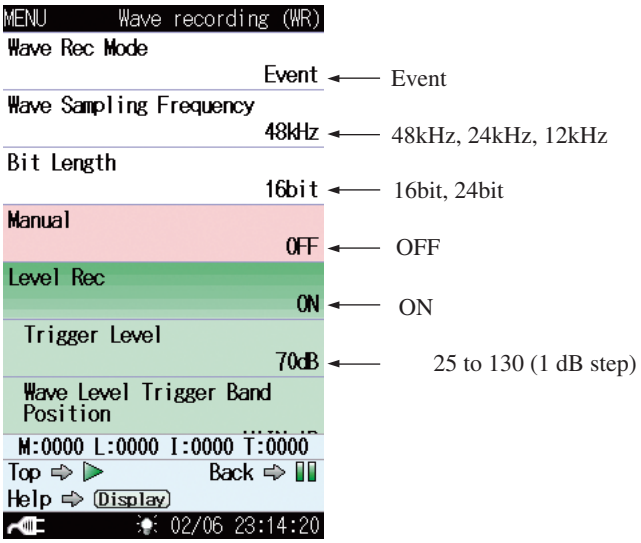


The maximum recording duration for one manual recording session is pre-time plus one hour.

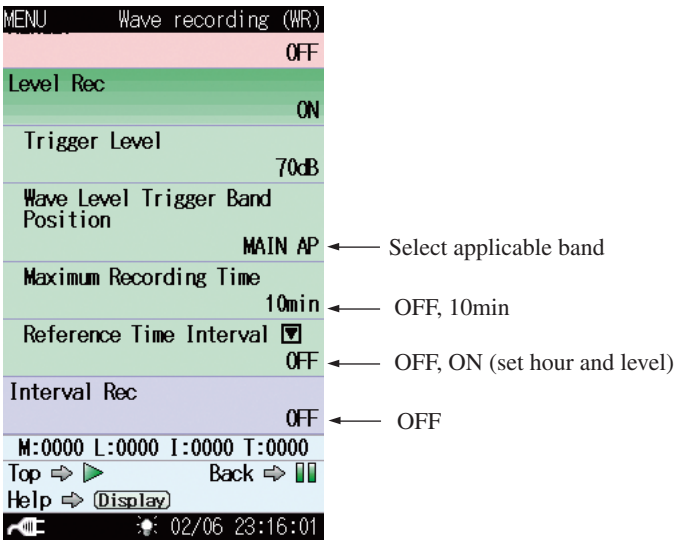
Recording stops automatically when a recording duration excluding pre-time reaches one hour.

Level recording

1. Make settings as shown below.



Wave recording screen 1
(Wave Rec Mode: Event, Level Rec: ON)



Wave recording screen 2
(Wave Rec Mode: Event, Level Rec: ON)

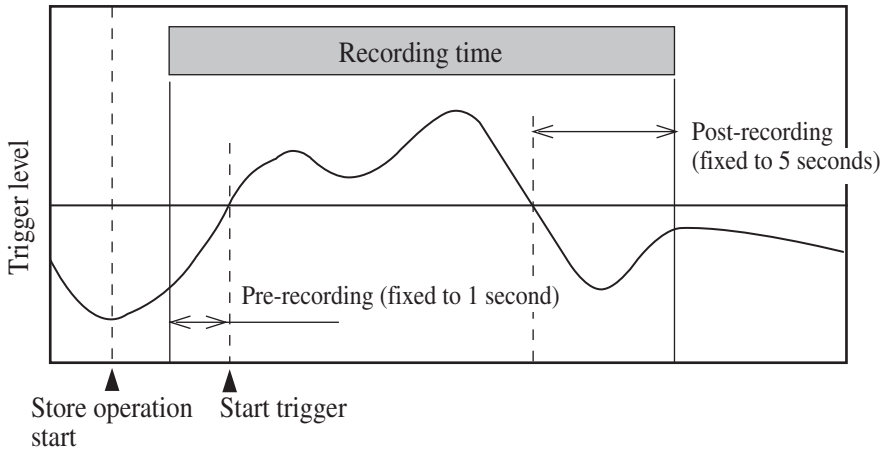
When the Reference Time Interval is set to ON, the Trigger Level is not displayed

2. Press the START/STOP key to return to the measurement screen.
3. Press the START/STOP key to start the auto store operation.
   When a signal higher than the preset trigger level is input, recording starts, including the data from 1 second before this point. Recording stops when the signal falls below the trigger level, after a post-recording period of 5 seconds. If the level rises again above the trigger level during these 5 seconds, recording continues without interruption. Recording also stops when the preset recording time has elapsed.
4. To terminate recording early, press the START/STOP key.

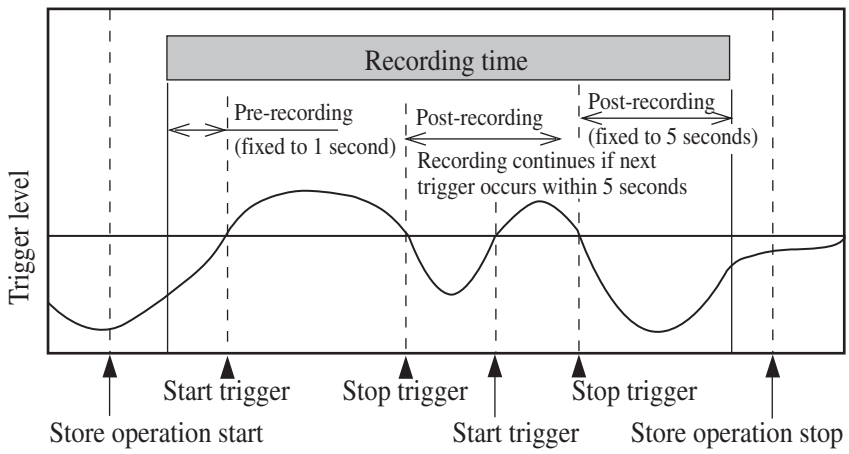
The graphs on the next page show the operation principle of level recording.

Note
When the [Maximum Recording Time] is set to "OFF", splitting interval for file is 1 hour.

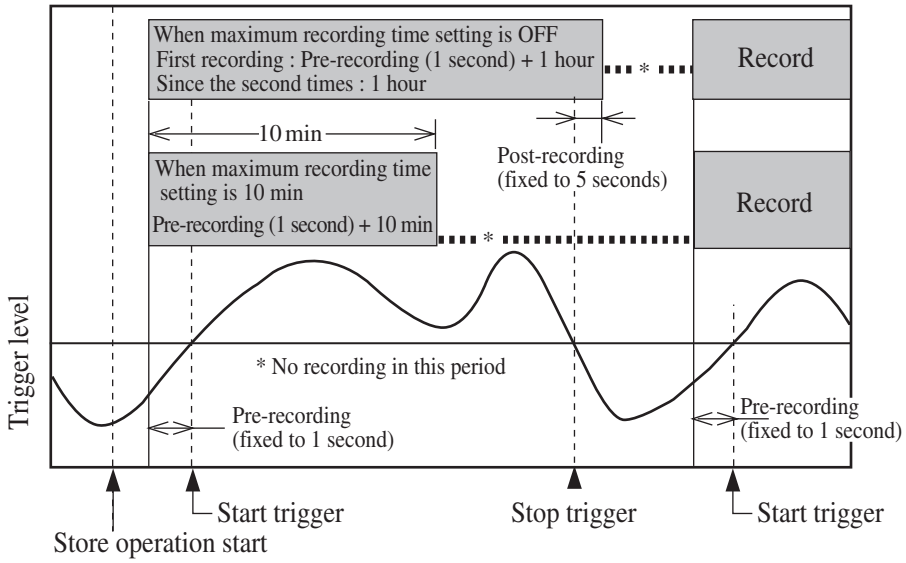
Level recording



Level recording When stop trigger occurred within maximum recording time, but start trigger occurred again within 5-second post-recording period



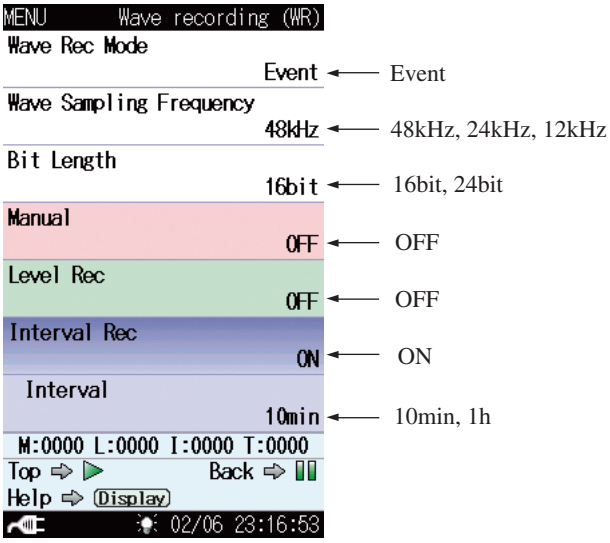
Level recording When recording time is set to OFF and to 10 minutes



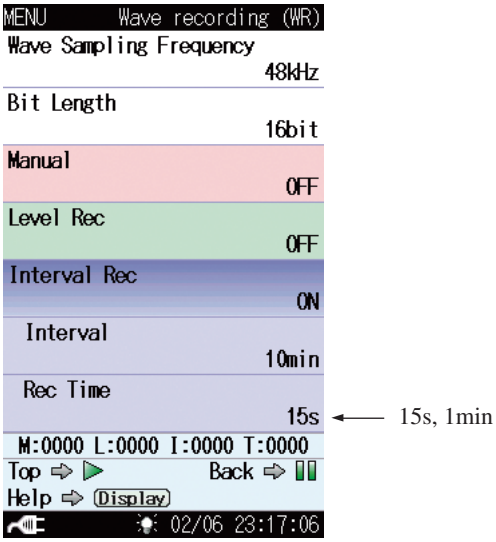
Note
When the maximum recording time is set to 10 minutes, recording will stop after 10 minutes also when sound that exceeds the trigger level continues for a long time (such as the sound of an idling car). This is helpful to prevent unnecessary use of SD memory card capacity.

Interval recording

1. Make settings as shown below.



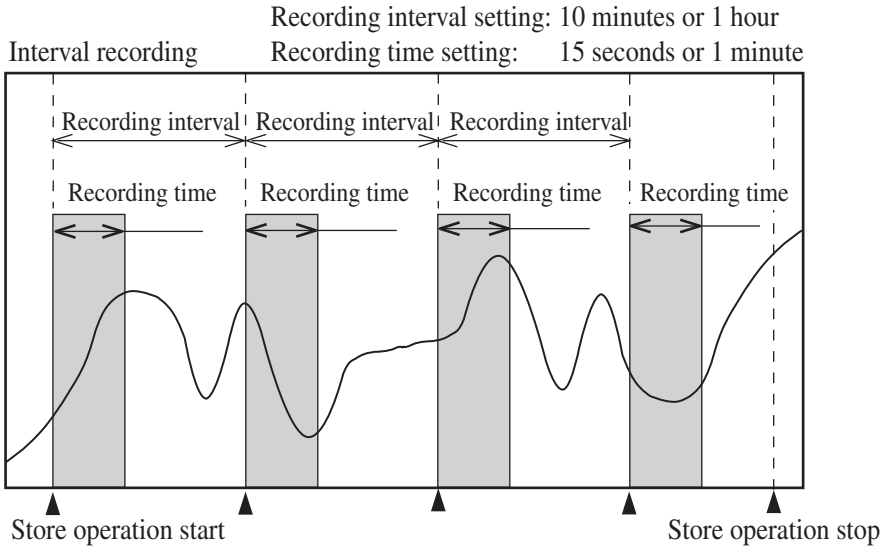
Wave recording screen 1
(Wave Rec Mode: Event, Interval Rec: ON)



Wave recording screen 2
(Wave Rec Mode: Event, Interval Rec: ON)

2. Press the START/STOP key to return to the measurement screen.
3. Press the START/STOP key to start the auto store operation and start recording at the preselected intervals and recording times.
4. To stop measurement, press the START/STOP key.

The graph below shows the operation principle of interval recording.



Note
When the store mode is Timer Auto, the actual recording intervals will be equivalent to the Timer Auto intervals.

Recording mode priority

If two or more selections (manual recording, interval recording, level recording) are set to ON, the priority order, starting with the highest priority, is as follows:

Manual recording (highest)
Level recording
Interval recording

Priority operation

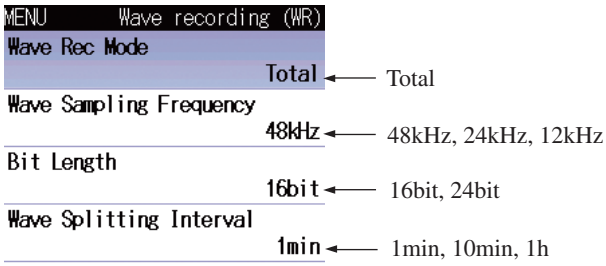
- If manual recording is started during level recording, level recording stops immediately (a file is created at this point), and manual recording takes over. All events (trigger etc.) that occur during manual recording are disregarded.

- If level recording or manual recording is started during interval recording, interval recording stops immediately (a file is created at this point), and the other recording mode takes over. In this case, interval recording is not performed, and only the interval time is updated.

Total recording

For this mode, you select measurement parameters as described in the "Manual", "Auto", and "Timer Auto" sections of the "Store Operation" in the documentation (Instruction Manual) of the NL-42/NL-52/NL-62.

1. Make settings as shown below.





Wave recording screen
(Wave Rec Mode: Total)

2. Press the START/STOP key to return to the measurement screen.
3. Store

3-A. Manual store

Press the START/STOP key to start measurement, and press the START/STOP key again to stop.

To save the measured data and recorded data, select "Store data" on the data save confirmation screen when the measurement is stopped.

During a recording session, the PAUSE/CONT key (PAUSE function) can be used but the back erase function becomes unavailable.

3-B. Auto, Timer Auto store

When you press the START/STOP key to start auto store, recording also starts simultaneously.

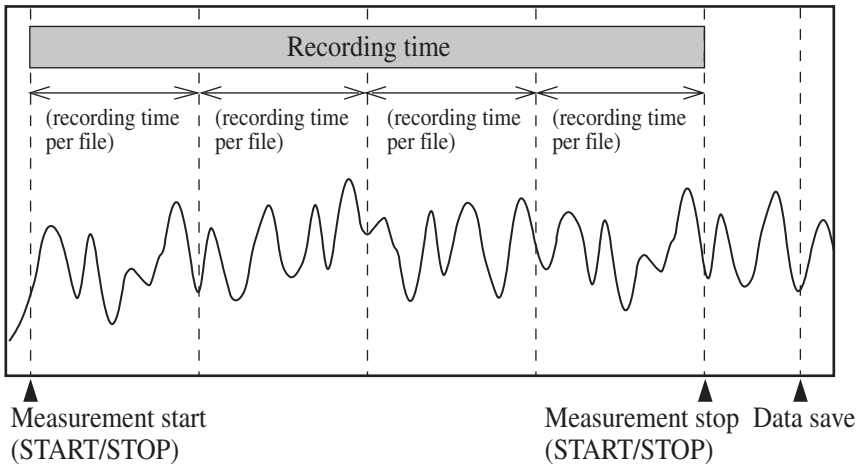
Files are created and saved for each recording period.

To stop recording, press the START/STOP key.

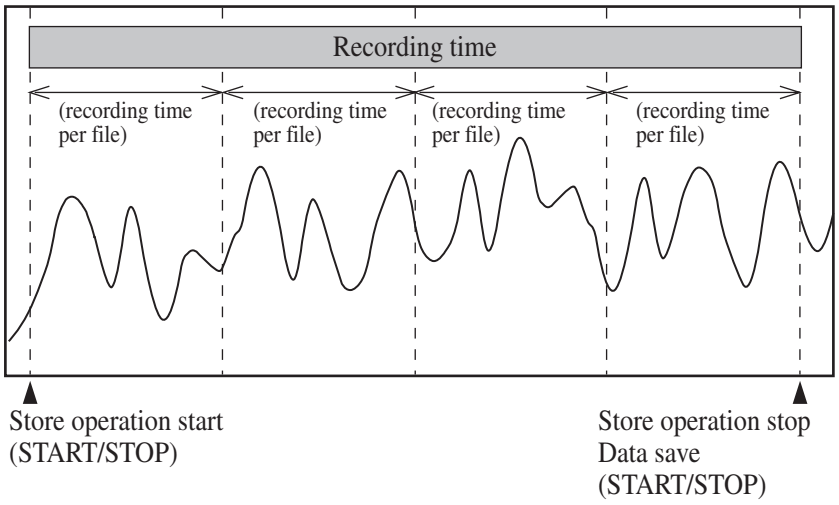
During Auto store, the PAUSE/CONT key (PAUSE function) cannot be used.

The graphs below show the operation principle of total recording.

Total recording (with manual store)



Total recording (with auto store)



Playback of recorded files

Recorded files can be played with WAVE file playback software (on public sale) or with the Waveform Analysis Software CAT-WAVE or AS-60 from Rion.

Playback on the NL-42/NL-52/NL-62 is not possible.

Analysis of recorded files

Recorded files can be analyzed with the Waveform Analysis Software CAT-WAVE from Rion.

Store Data Format and File Structure

Folder and file names that are used for saving data differ, depending on the selected store mode.

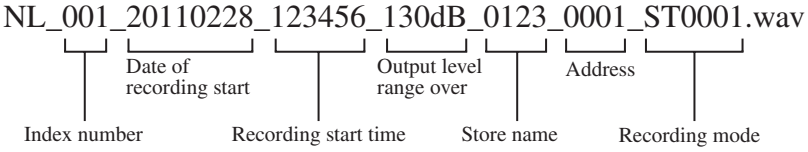
Store destination folder

Files are saved in the sub folder SOUND which is created in the store folder specified by store name.

Example: Manual_0123/SOUND (with manual store)
Auto_0123/SOUND (with auto store)

File name of recording data

Recording files are named as shown below.



Store name: 0000 to 9999

Address: 0000 to 9999 (Auto store is fixed to 0000)

Recording mode: The file name varies depending on the recording mode.

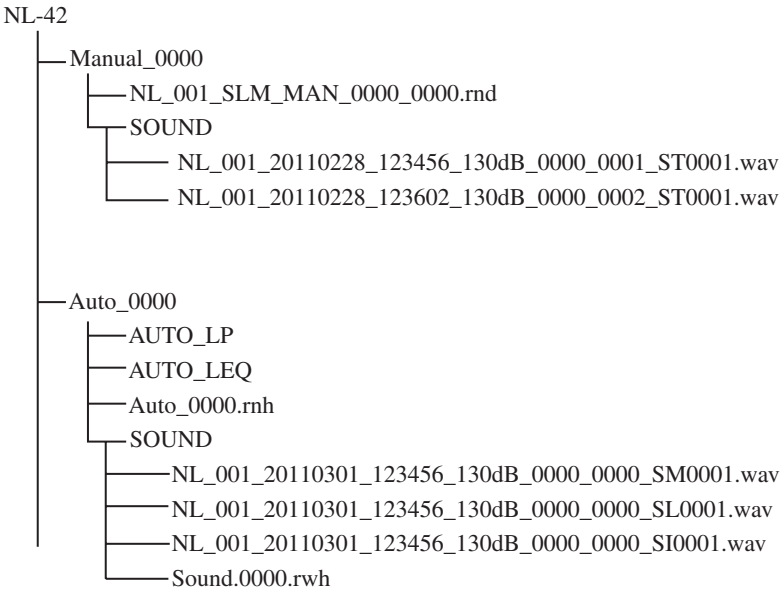
- Total recording: ST0001
- Manual recording: SM0001
- Level recording: SL0001
- Interval recording: SI0001

The numeric part of file name ranges from 0001 up to 9999 and stops at 9999.

Note
The performance about the file after the 10,000th will not be guaranteed.

When a file with the same name exists in the same directory, it will always be overwritten.

A sample configuration is shown below.



Card Capacity and Recording Time

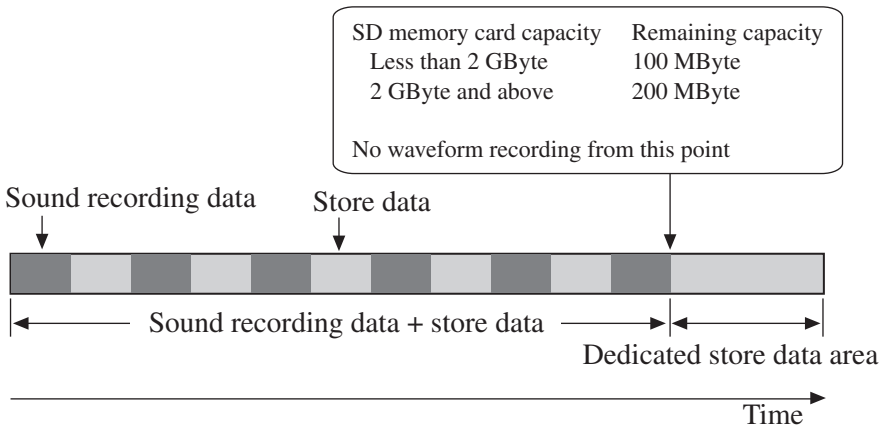
About card capacity and recording time

When saving data on the SD memory card, there are two kinds of storage areas: an area for sound recording data (WAVE files) + store data, and an area dedicated to store data only.

When the area for sound recording data + store data becomes full, sound recording will stop, but only store data will continue to be saved in the area dedicated to store data.

If the capacity of the SD memory card is less than 2 GByte, sound recording will always stop when the remaining capacity reaches 100 MByte. After that, only store data will be saved. On SD memory cards with a capacity of 2 GByte and above, sound recording will stop when the remaining capacity reaches 200 MByte. After that, only store data will be saved.

The actual size of both store data files and sound recording files depends on various factors, such as store mode, sampling frequency, and etc. When there are multiple sound recording data with short recording times, storage space will be wasted and the available time for recording may be up to 20 percent shorter.



Data structure on SD memory card

Approximate recording times for SD memory cards

		SD memory card capacity	
		512 MByte	2 GByte
Sampling frequency (Hz)	48 k	1 h	4 h 40 min.
	24 k	2 h 10 min.	9 h 20 min.
	12 k	4 h 20 min.	18 h 50 min.

Data apply for Auto store, bit length 16 bit, L_p store interval 100 ms

The duration of recording with 24 bit becomes shorter than that with 16 bit because the data volume of 24 bit is about 1.5 times more.

Important
Use SD memory cards with a capacity of 512 MByte and above.

Communication Commands

This section lists commands that are added to the Sound Level Meter NL-42/NL-52/NL-62 when the waveform recording function is installed. For information on other commands, please refer to the documentation (Serial Interface Manual) of the NL-42/NL-52/NL-62.

List of commands

S: Setting command (for making NL-42/NL-52/NL-62 settings)

R: Request command (for obtaining information on NL-42/NL-52/NL-62 status and measurement results)

Command	Function	See page
Wave Rec Mode	Sound recording mode (S/R)	31
Wave Sampling Frequency	Sampling frequency (S/R)	31
Wave Bit Length	Bit length (S/R)	32
Wave Splitting Interval	File split period (S/R)	32
Wave Manual Rec	Manual recording (S/R)	32
Wave Manual Pre-time	Pre-time (S/R)	33
Wave Level Rec	Level recording (S/R)	33
Wave Level Trigger Level	Trigger level (S/R)	33
Wave Level Trigger Band	Trigger band (S/R)	34
Wave Level Maximum Recording Time	Maximum recording time (S/R)	34
Wave Level Reference Time Interval	Reference time interval (S/R)	34
Wave Level Reference Time 1	Time setting (time zone 1) (S/R)	35
Wave Level Reference Time 2	Time setting (time zone 2) (S/R)	35
Wave Level Reference Time 3	Time setting (time zone 3) (S/R)	35
Wave Level Reference Time 4	Time setting (time zone 4) (S/R)	36
Wave Level Reference Time 1 Level	Level setting (time zone 1) (S/R)	36
Wave Level Reference Time 2 Level	Level setting (time zone 2) (S/R)	36

Wave Level Reference Time 3 Level
Level setting (time zone 3) (S/R) 37
Wave Level Reference Time 4 Level
Level setting (time zone 4) (S/R) 37
Wave Interval Rec Interval recording (S/R) 37
Wave Interval Rec Interval Recording interval (S/R) 38
Wave Interval Rec Time Recording time (S/R) 38

Command Description

Wave Rec Mode

Sound recording mode

Setting sound recording mode

Setting command	Wave␣Rec␣Mode, p1
Parameter	p1= “Off”
	p1= “Total”
	p1= “Event”
Request command	Wave␣Rec␣Mode?
Response data	d1
Returned value	Same as for setting command

Wave Sampling Frequency

Sampling frequency

Setting sampling frequency

Setting command	Wave␣Sampling␣Frequency, p1
Parameter	p1= “48kHz”
	p1= “24kHz”
	p1= “12kHz”
Request command	Wave␣Sampling␣Frequency?
Response data	d1
Returned value	Same as for setting command

Wave Bit Length

Bit Length

Setting bit length

Setting command	Wave␣Bit␣Length, p1
Parameter	p1= “16bit”
	p1= “24bit”
Request command	Wave␣Bit␣Length?
Response data	d1
Returned value	Same as for setting command

Wave Splitting Interval

File split Period

Setting file split period

Setting command	Wave␣Splitting␣Interval, p1
Parameter	p1= “1m”
	p1= “10m”
	p1= “1h”
Request command	Wave␣Splitting␣Interval?
Response data	d1
Returned value	Same as for setting command

Wave Manual Rec

Manual recording

Setting ON/OFF of manual recording mode

Setting command	Wave␣Manual␣Rec, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Wave␣Manual␣Rec?
Response data	d1
Returned value	Same as for setting command

Wave Manual Pre-time

Pre-time

Setting pre-time on manual recording mode

Setting command	Wave␣Manual␣Pre-time, p1
Parameter	p1= “0s”
	p1= “5s”
	p1= “1m”
Request command	Wave␣Manual␣Pre-time?
Response data	d1
Returned value	Same as for setting command

Wave Level Rec

Level recording

Setting ON/OFF of level recording mode

Setting command	Wave␣Level␣Rec, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Wave␣Level␣Rec?
Response data	d1
Returned value	Same as for setting command

Wave Level Trigger Level

Trigger level

Setting trigger level on level recording mode

Setting command	Wave␣Level␣Trigger␣Level, p1
Parameter	p1= 25 to 130 (1 step)
Request command	Wave␣Level␣Trigger␣Level?
Response data	d1
Returned value	Same as for setting command

Wave Level Trigger Band

Trigger band

Setting trigger band on level recording mode

Setting command	Wave␣Level␣Trigger␣Band, p1
Parameter	p1= “Sub”
	p1= “Main”
Request command	Wave␣Level␣Trigger␣Band?
Response data	d1
Returned value	Same as for setting command

Wave Level Maximum Recording Time

Maximum recording time

Setting maximum recording time on level recording mode

Setting command	Wave␣Level␣Maximum␣Recording␣Time, p1
Parameter	p1= “Off”
	p1= “10m”
Request command	Wave␣Level␣Maximum␣Recording␣Time?
Response data	d1
Returned value	Same as for setting command

Wave Level Reference Time Interval

Reference time interval

Setting ON/OFF of reference time interval on level recording mode

Setting command	Wave␣Level␣Reference␣Time␣Interval, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Wave␣Level␣Reference␣Time␣Interval?
Response data	d1
Returned value	Same as for setting command

Wave Level Reference Time 1

Time setting (time zone 1)

Setting start time of reference time interval (time zone 1) on level recording mode

Setting command	Wave␣Level␣Reference␣Time␣1, p1
Parameter	p1= -1 (OFF setting) p1= 00 to 23
Request command	Wave␣Level␣Reference␣Time␣1?
Response data	d1
Returned value	Same as for setting command

Wave Level Reference Time 2

Time setting (time zone 2)

Setting start time of reference time interval (time zone 2) on level recording mode

Setting command	Wave␣Level␣Reference␣Time␣2, p1
Parameter	p1= -1 (OFF setting) p1= 00 to 23
Request command	Wave␣Level␣Reference␣Time␣2?
Response data	d1
Returned value	Same as for setting command

Wave Level Reference Time 3

Time setting (time zone 3)

Setting start time of reference time interval (time zone 3) on level recording mode

Setting command	Wave␣Level␣Reference␣Time␣3, p1
Parameter	p1= -1 (OFF setting) p1= 00 to 23
Request command	Wave␣Level␣Reference␣Time␣3?
Response data	d1
Returned value	Same as for setting command

Wave Level Reference Time 4

Time setting (time zone 4)

Setting start time of reference time interval (time zone 4) on level recording mode

Setting command	Wave␣Level␣Reference␣Time␣4, p1
Parameter	p1= -1 (OFF setting) p1= 00 to 23
Request command	Wave␣Level␣Reference␣Time␣4?
Response data	d1
Returned value	Same as for setting command

Wave Level Reference Time 1 Level

Level setting (time zone 1)

Setting trigger level of reference time interval (time zone 1) on level recording mode

Setting command	Wave␣Level␣Reference␣Time␣1␣Level, p1
Parameter	p1= 25 to 130 (1 step)
Request command	Wave␣Level␣Reference␣Time␣1␣Level?
Response data	d1
Returned value	Same as for setting command

Wave Level Reference Time 2 Level

Level setting (time zone 2)

Setting trigger level of reference time interval (time zone 2) on level recording mode

Setting command	Wave␣Level␣Reference␣Time␣2␣Level, p1
Parameter	p1= 25 to 130 (1 step)
Request command	Wave␣Level␣Reference␣Time␣2␣Level?
Response data	d1
Returned value	Same as for setting command

Wave Level Reference Time 3 Level

Level setting (time zone 3)

Setting trigger level of reference time interval (time zone 3) on level recording mode

Setting command	Wave␣Level␣Reference␣Time␣3␣Level, p1
Parameter	p1= 25 to 130 (1 step)
Request command	Wave␣Level␣Reference␣Time␣3␣Level?
Response data	d1
Returned value	Same as for setting command

Wave Level Reference Time 4 Level

Level setting (time zone 4)

Setting trigger level of reference time interval (time zone 4) on level recording mode

Setting command	Wave␣Level␣Reference␣Time␣4␣Level, p1
Parameter	p1= 25 to 130 (1 step)
Request command	Wave␣Level␣Reference␣Time␣4␣Level?
Response data	d1
Returned value	Same as for setting command

Wave Interval Rec

Interval recording

Setting ON/OFF of interval recording mode

Setting command	Wave␣Interval␣Rec, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Wave␣Interval␣Rec?
Response data	d1
Returned value	Same as for setting command

Wave Interval Rec Interval

Recording interval

Setting recording interval on interval recording mode

Setting command	Wave␣Interval␣Rec␣Interval, p1
Parameter	p1= “10m”
	p1= “1h”
Request command	Wave␣Interval␣Rec␣Interval?
Response data	d1
Returned value	Same as for setting command

Wave Interval Rec Time

Recording time

Setting recording time on interval recording mode

Setting command	Wave␣Interval␣Rec␣Time, p1
Parameter	p1= “15s”
	p1= “1m”
Request command	Wave␣Interval␣Rec␣Time?
Response data	d1
Returned value	Same as for setting command

Specifications

Compatible model	Sound Level Meter NL-42/NL-52/NL-62
Media	SD memory card
Sampling frequencies	48 kHz, 24 kHz, 12 kHz
Bit length	24 bit, 16 bit
Data format	WAVE
Frequency weighting	Z weighting (flat response)
Recording functions	
Event mode	
Manual recording	
	Recording is carried out during auto store using manual start/stop
	Pre-recording 0 second, 5 seconds, 1 minute
	Max. number of recorded data 9999 using a single store name
Level recording	Recording starts 1 second before preset level was exceeded and stops 5 seconds after dropping below preset level
	Separate preset level setting is possible for day, evening, and night time interval (up to 4 settings)
Parameter settings	
	Preset level 25 to 130 dB (1-dB steps)
	Maximum recording time Off, 10 minutes
	Max. number of recorded data 9999 using a single store name
Interval recording	Recording is carried out during auto store at selected intervals for 15 seconds or 1 minute.
Parameter settings	
	Recording interval 10 minutes, 1 hour
	Recording time 15 seconds, 1 minute
	Max. number of recorded data 9999 using a single store name

Total mode

Total recording — Record all sounds during auto store
Recording also possible during manual store measurement
In manual store mode, measurement followed by store operation records the sound pressure waveform for the entire period of measurement

Parameter settings

File split interval
1 minute, 10 minutes, 1 hour

Number of recorded data

Auto store	9999 using a single store name
Manual store	1440 per address

Battery life — Battery life will be approx. 25% shorter when waveform recording function is used

Dimensions — 32 (H) × 24 (W) × 2.1 (D) mm

Weight — Approx. 5 g

Supplied accessories

Inspection certificate 1

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