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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Important

Disregarding instructions printed here incurs the risk of program damage or data loss.

Note

Denotes special information that is helpful in utilizing the capabilities of the program but that is not directly related to safety.
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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, 1 minute or 2 minutes. 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.

<table>
<thead>
<tr>
<th>Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never format the optional program card with SD card formatting software (such as SD Formatter etc.). 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.</td>
</tr>
<tr>
<td>Upgrade the firmware of the sound level meter to the latest version before installing the optional program. The latest version firmware can be downloaded from “Software downloads” of Support Room on our web site (<a href="http://www.rian.co.jp/english/">http://www.rian.co.jp/english/</a>).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>
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.

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 \( \Delta / \nabla / \leftarrow / \rightarrow \) 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 \( \Delta / \nabla \) 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 Screen Diagram]

- Pressing the \( \Delta / \nabla / \leftarrow / \rightarrow \) keys to select [WR] and pressing MENU/ENTER button brings up the [Wave recording (WR)] screen.
Menu Screens

Wave recording screen
(Wave Rec Mode : Total)

Wave recording screen 1
(Wave Rec Mode : Event)

Wave recording screen 2
(Wave Rec Mode : Event)

Wave recording screen 3
(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.

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event mode is selectable if the store mode is Auto or Timer Auto.</td>
</tr>
</tbody>
</table>

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] or [Level] 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, 1s, 5s, 10s, 30s, 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 Δ/▽ keys to set the value. Use the </> keys to select the two lower digits and use the Δ/▽ keys to set the value. Then press the MENU/ENTER key. (Setting range 25 dB 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.

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>When using optional program NX-42RT or NX-62RT, each frequency band can also be selected.</td>
</tr>
</tbody>
</table>

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.
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 Δ / ∨ keys to set the value (0 hour to 23 hour, and OFF). Use the < / > keys to select the trigger level and use the Δ / ∨ keys to set the value (25 dB 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, 2min) and press the MENU/ENTER key.
Menu tree

<table>
<thead>
<tr>
<th>Wave Rec Mode</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
<tr>
<td>Wave Sampling Frequency</td>
<td>48kHz, 24kHz, 12kHz</td>
</tr>
<tr>
<td>Bit Length</td>
<td>16bit, 24bit</td>
</tr>
<tr>
<td>Wave Splitting Interval</td>
<td>1min, 10min, 1h</td>
</tr>
<tr>
<td><strong>Event</strong></td>
<td></td>
</tr>
<tr>
<td>Wave Sampling Frequency</td>
<td>48kHz, 24kHz, 12kHz</td>
</tr>
<tr>
<td>Bit Length</td>
<td>16bit, 24bit</td>
</tr>
<tr>
<td><strong>Manual</strong></td>
<td>OFF, ON</td>
</tr>
<tr>
<td>Pre-time</td>
<td>0s, 1s, 5s, 10s, 30s, 1min</td>
</tr>
<tr>
<td><strong>Level Rec</strong></td>
<td>OFF, ON</td>
</tr>
<tr>
<td>Trigger level</td>
<td>25dB to 130dB</td>
</tr>
<tr>
<td>Wave Level Trigger Band Position</td>
<td>SUB AP, MAIN AP</td>
</tr>
<tr>
<td>Pre-time</td>
<td>0s, 1s, 5s, 10s, 30s, 1min</td>
</tr>
<tr>
<td>Maximum Recording Time</td>
<td>OFF, 10min</td>
</tr>
<tr>
<td><strong>Reference Time Interval</strong></td>
<td>OFF, ON</td>
</tr>
<tr>
<td>Time1 to Time4 (Hour: 0 to 23 and OFF, Level 25dB to 130dB)</td>
<td></td>
</tr>
<tr>
<td><strong>Interval Rec</strong></td>
<td>OFF, ON</td>
</tr>
<tr>
<td>Interval</td>
<td>10min, 1h</td>
</tr>
<tr>
<td>Rec Time</td>
<td>15s, 1min, 2min</td>
</tr>
</tbody>
</table>

▼ ------: 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”.

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

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.

After installation is complete, the SD card from which the NX-42WR program was installed can be used as a memory card for storing data.

Prior to measurement, it is recommended first to format the memory card for storing data with this unit.
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.

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 the selected pre-time 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.

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>When the [Maximum Recording Time] is set to “OFF”, splitting interval for file is 1 hour.</td>
</tr>
</tbody>
</table>
Level recording

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

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. Interval recording is started whenever the Timer Auto interval elapses.
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.

   ![Waveform Recording Menu](image)

   - **Waveform Recording (WF)**
   - **Wave Rec Mode**: Total
   - **Wave Sampling Frequency**: 48kHz, 24kHz, 12kHz
   - **Bit Length**: 16bit, 24bit
   - **Wave Splitting Interval**: 1min, 10min, 1h

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) cannot 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.
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.

```
NL_001_20110228_123456_130dB_0123_0001_ST0001.wav
```

- **Date of recording start**
- **Output level range over**
- **Address**
- **Store name**
- **Recording mode**
- **Index number**
- **Recording start time**
- **Store name**
- **Recording mode**

**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.

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>The performance about the file after the 10,000th will not be guaranteed.</td>
</tr>
</tbody>
</table>

When a file with the same name exists in the same directory, it will always be overwritten.
A sample configuration is shown below.

```
NL-42
  Manual_0000
    NL_001_SLM_MAN_0000_0000.rnd
    SOUND
      NL_001_20110228_123456_130dB_0000_0001_ST0001.wav
      NL_001_20110228_123602_130dB_0000_0002_ST0001.wav

  Auto_0000
    AUTO_LP
    AUTO_LEQ
    Auto_0000.rnh
    SOUND
      NL_001_20110301_123456_130dB_0000_0000_SM0001.wav
      NL_001_20110301_123456_130dB_0000_0000_SL0001.wav
      NL_001_20110301_123456_130dB_0000_0000_SI0001.wav
      Sound.0000.rwh
```

**Note**

The store name at the time of recording may not correspond to the store name of the recording file name.
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 GB, sound recording will always stop when the remaining capacity reaches 100 MB. After that, only store data will be saved. On SD memory cards with a capacity of 2 GB and above, sound recording will stop when the remaining capacity reaches 200 MB. 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.

<table>
<thead>
<tr>
<th>SD memory card capacity</th>
<th>Remaining capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 GB</td>
<td>100 MB</td>
</tr>
<tr>
<td>2 GB and above</td>
<td>200 MB</td>
</tr>
</tbody>
</table>

No waveform recording from this point

Data structure on SD memory card
Approximate recording times for SD memory cards

<table>
<thead>
<tr>
<th>Sampling frequency (Hz)</th>
<th>SD memory card capacity</th>
<th>512 MB</th>
<th>2 GB</th>
<th>32 GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 k</td>
<td>1 h</td>
<td>4 h 40 min.</td>
<td>79 h</td>
<td></td>
</tr>
<tr>
<td>24 k</td>
<td>2 h 10 min.</td>
<td>9 h 20 min.</td>
<td>158 h</td>
<td></td>
</tr>
<tr>
<td>12 k</td>
<td>4 h 20 min.</td>
<td>18 h 50 min.</td>
<td>315 h 40 min.</td>
<td></td>
</tr>
</tbody>
</table>

Data apply for Auto store, bit length 16 bit, Lp 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 MB 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)

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<th>Function</th>
<th>See page</th>
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</thead>
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<td>File split period (S/R)</td>
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<td>Wave Level Trigger Level</td>
<td>Trigger level (S/R)</td>
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<tr>
<td>Wave Level Trigger Band</td>
<td>Trigger band (S/R)</td>
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<tr>
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<td>Pre-time (S/R)</td>
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<td>Maximum recording time (S/R)</td>
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<td>Wave Level Reference Time Interval</td>
<td>Reference time interval (S/R)</td>
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<tr>
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<td>Time setting (time zone 4) (S/R)</td>
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<td>Level setting (time zone 1) (S/R)</td>
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<tr>
<td>Wave Level Reference Time 2 Level</td>
<td>Level setting (time zone 2) (S/R)</td>
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<tr>
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<td></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>Wave Interval Rec Interval</td>
<td>Recording interval (S/R) ................ 38</td>
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</tr>
<tr>
<td>Wave Interval Rec Time</td>
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<td>Recording states (R) ................... 39</td>
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</tbody>
</table>
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 = “12kHz”
- p1 = “24kHz”
- p1 = “48kHz”

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= "1s"
- p1= "5s"
- p1= "10s"
- p1= "30s"
- 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 Pre-time

Pre-time

Setting pre-time on level recording mode

Setting command Wave Level Pre-time, p1
Parameter p1= “0s”
  p1= “1s”
  p1= “5s”
  p1= “10s”
  p1= “30s”
  p1= “1m”

Request command Wave Level Pre-time?
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, pl`

Parameter: `pl= 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, pl`

Parameter:
- `pl= “Off”`
- `pl= “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, pl`

Parameter:
- `pl= “10m”`
- `pl= “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”`
- `p1= “2m”`

Request command: `Wave Interval Rec Time?`

Response data: `d1`

Returned value: Same as for setting command

**Wave Rec State**

**Recording states**

Request command: `Wave Rec State?`

Response data: `d1`

Returned value:
- `d1=0: Stop`
- `d1=1: Interval`
- `d1=2: Level`
- `d1=3: Manual`
- `d1=4: Total`
## Specifications

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<tr>
<th>Category</th>
<th>Details</th>
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<tbody>
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<td><strong>Compatible model</strong></td>
<td>Sound Level Meter NL-42/NL-52/NL-62</td>
</tr>
<tr>
<td><strong>Media</strong></td>
<td>SD memory card 2 GB</td>
</tr>
<tr>
<td><strong>Sampling frequencies</strong></td>
<td>48 kHz, 24 kHz, 12 kHz</td>
</tr>
<tr>
<td><strong>Bit length</strong></td>
<td>24 bit, 16 bit</td>
</tr>
<tr>
<td><strong>Data format</strong></td>
<td>WAVE</td>
</tr>
<tr>
<td><strong>Frequency weighting</strong></td>
<td>Z weighting (flat response)</td>
</tr>
<tr>
<td></td>
<td>* When the low pass filter (LPF) setting of the NL-62 is selected, the frequency weighting setting of the NL-62 will be valid</td>
</tr>
</tbody>
</table>

### Recording functions

#### Event mode

- **Manual recording**
  - Recording is carried out during auto store using manual start/stop
  - Pre-recording: 0 second, 1 second, 5 seconds, 10 seconds, 30 seconds, 1 minute
  - Max. number of recorded data: 9999 using a single store name

- **Level recording**
  - Recording starts when trigger level is exceeded, including the data from the selected pre-time, and stops 5 seconds after dropping below trigger level
  - Separate trigger level setting is possible for day, evening, and night time interval (up to 4 settings)

#### Parameter settings

- **Trigger level** 25 dB to 130 dB (1-dB steps)
- **Pre-recording** 0 second, 1 second, 5 seconds, 10 seconds, 30 seconds, 1 minute
- **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, 1 minute or 2 minutes.

Parameter settings
Recording interval
10 minutes, 1 hour
Recording time
15 seconds, 1 minute, 2 minutes
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 mm (H) × 24 mm (W) × 2.1 mm (D)
Weight  Approx. 5 g

Supplied accessories
Inspection certificate 1
This product is environment-friendly. It does not include toxic chemicals on our policy.