

INSTRUCTION MANUAL
WAVEFORM RECORDING CARD
NX-28WR



3-20-41 Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan
<http://www.rion.co.jp/english/>

Organization of This Manual

This manual describes recording functions, playback functions, and other operation principles of the Waveform Recording Card NX-28WR.

The manual consists of the chapters listed below. You should also consult the documentation for the Sound Level Meter NA-28.

Outline

Gives basic information on the functions of the software.

Installation and Uninstallation

Explains how to load the software into the sound level meter and how to unload it.

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-28WR.

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

Usage License Agreement

Important

Carefully read and observe the following agreement.
--

This is a legally binding software license agreement between you as the user and RION CO., LTD. By installing, copying, or using the software, the user agrees to all conditions of the agreement. If the user does not agree to any of the conditions of the agreement, the software must be returned immediately without using it or any other product associated with it.

The software is protected by national and international copyright laws and regulations and intellectual property laws. RION CO., LTD. only grants the right to use the software. The software itself is not sold to the user.

1. License Conditions

(1) Definition and Scope

The item covered by this agreement is software for the Sound Level Meter NA-28 including the media on which the software is supplied, and documentation that is supplied with the software either in printed form or as an electronic file. This license agreement defines the right of the user to use the software.

(2) Usage

The user may install and use the software on the Sound Level Meter NA-28.

2. Intellectual Property Rights

RION CO., LTD. only grants the right to use the software. The software itself is not sold to the user.

RION CO., LTD. holds the copyright to the software, and the rights to all copies revert to RION CO., LTD. The user may not remove any copyright or trademark information attached to the software.

3. Limitations

- (1) Based on this agreement, the user only acquires the right to use the software. Any other rights not covered in this agreement are not accorded to the user. The user may not copy or otherwise duplicate the software and the associated documentation by any means, in whole or in part, except for the case stated in "1. (2) Usage". The software and the associated documentation are protected by copyright laws.
- (2) The user does not have the right to give, sell, loan or otherwise make available the software and associated documentation to third parties, or to grant any usage rights to third parties.
- (3) The user does not have the right to alter, decompile, or reverse-engineer the software.
- (4) The user may not use the software to produce any products that imitate the software. Any imitation or simulation of the software is an infringement of copyright laws.

4. Duty of Agreement Propagation

The user must ensure that all persons using the software are fully aware of all conditions of this agreement. Any violation will be the responsibility of the user.

5. Warranty

- (1) RION CO., LTD. guarantees that the software is supplied on media that have no substantial defect, and that the software contains the functions that are explicitly listed in the specifications. If the software does not operate according to specifications or if any problems described above that are the responsibility of RION CO., LTD. are detected and RION CO., LTD. is informed of this fact within 90 days from the purchase date of the software, RION CO., LTD. will undertake to remedy the problems free of charge.
- (2) If the software does not operate according to specifications due to causes that are not the responsibility of RION CO., LTD. will undertake to remedy the problems against charge.

6. Limitation of Warranty

- (1) RION CO., LTD. does not guarantee that the software is fit for any particular purpose of the user, whether stated explicitly or implicitly, or that the software is free of errors. RION CO., LTD. does not provide any other kind of warranty except as stated in this agreement. RION CO., LTD. does not accept responsibility for any kind of damage, whether direct or indirect, tangible or intellectual, that may arise from the use of the software or the failure of the software to perform any function.
- (2) Under no circumstances will the responsibility of RION CO., LTD. as stated in "5. Warranty" exceed the equivalent of the price that the user paid for the software.

7. Duration

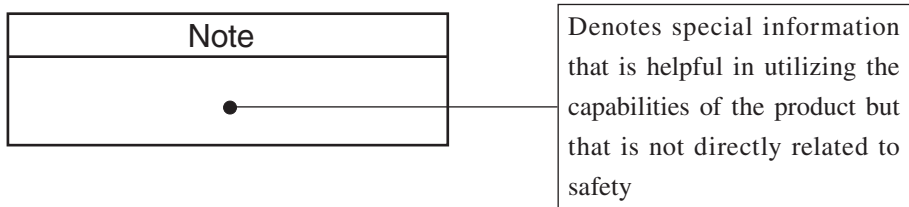
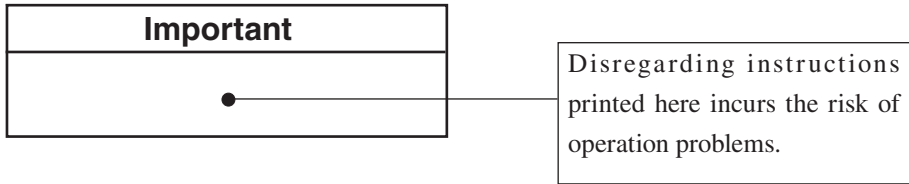
This agreement is valid until terminated. The user can terminate the agreement at any time by unloading the software from the Sound Level Meter NA-28 and destroying the software and associated documentation. The agreement also terminates when the user violates any of the conditions herein. In this case, the user also must destroy the software and unload the software from the Sound Level Meter NA-28.

8. Jurisdiction

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

FOR SAFETY

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



Contents

Usage License Agreement	iii
FOR SAFETY	vii
Outline	1
Installation and Uninstallation	2
Installing the waveform recording function	2
Uninstalling the waveform recording function	6
If the program cannot be installed	8
Reading the Display	10
Recording screen	10
Menu screen	11
Menu Screens	12
Waveform Recording	15
Event recording	16
Manual recording	16
Interval recording	18
Level recording	20
Recording mode priority	23
Total recording	24
When Building Acoustics Card NX-28BA is installed	27
Playback of recorded files	27
Store Data Format and File Structure	28
Card Capacity and Recording Time	30
About card capacity and recording time	30
Communication Commands	32
List of commands	32
Command Description	33
Use together with communication command	42
Specifications	43

Outline

This program card contains software that adds sound pressure waveform recording capability to the Sound Level Meter NA-28. Recorded sound pressure waveform information is saved as PCM format WAVE files on the card, along with other stored data. This makes it easy to play and analyze the sound pressure waveform information later on a computer.

If used in conjunction with software for building acoustics (Building Acoustic Card NX-28BA), recording capability can be added to the process of measuring building acoustics.

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 waveform information.

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

Event mode

Sound pressure waveform recording is possible only during Auto 1 store or Auto 2 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.

If manual store mode is selected, normal processing followed by a store operation records the sound pressure waveform for the entire period while normal processing is carried out.

Playback or analysis of recorded information on the NA-28 is not possible.

Installation and Uninstallation

The software on this program card can be used only on one NA-28 at a time. To install the software on multiple NA-28 units, multiple program cards are required.

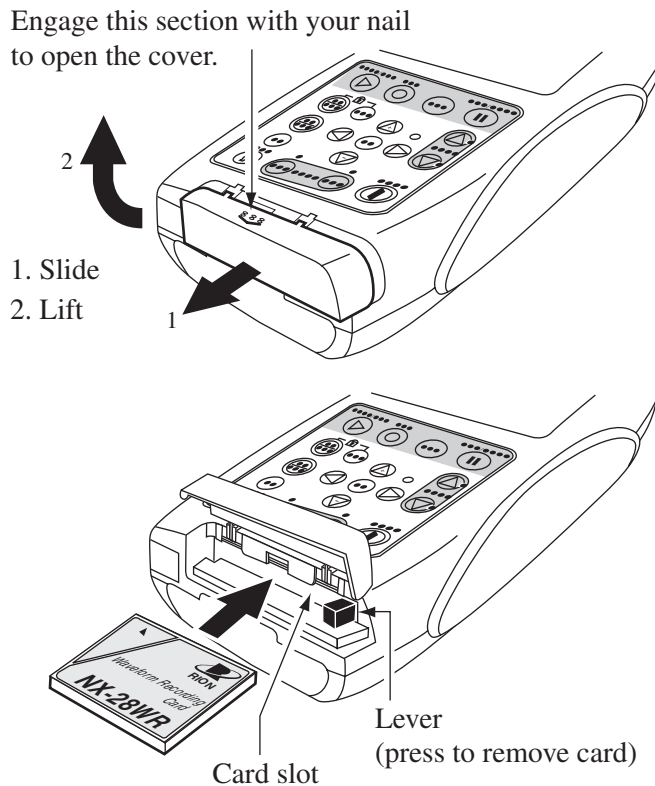
Installing the waveform recording function

Important

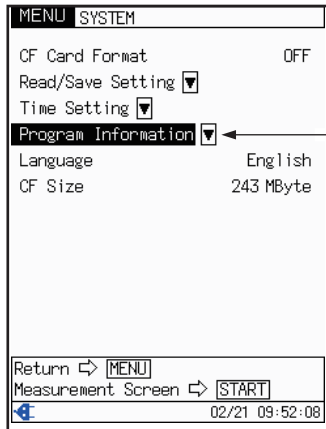
Make sure that power to the unit is turned off before inserting the card.

To install the waveform recording function in the sound level meter, proceed as follows.

1. Open the cover of the card slot and insert the program card.



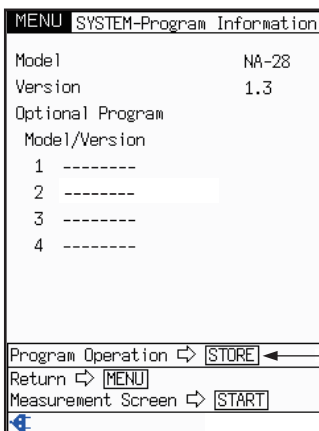
2. Press the POWER key to turn power on.
3. Press the MENU key. (The Menu List screen appears.)
4. Select [System] from the list and press the ENT key. (The SYSTEM menu screen appears.)
5. Select [Program Information] and press the ENT key. (The SYSTEM - Program Information screen appears.)



Selecting [Program Information] and pressing ENT brings up the SYSTEM - Program Information screen.

SYSTEM menu screen

6. Press the STORE key to bring up the installation screen.

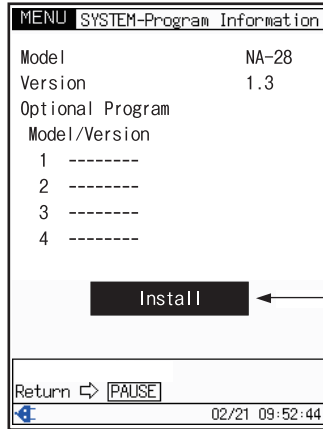


Pressing STORE brings up the installation screen.

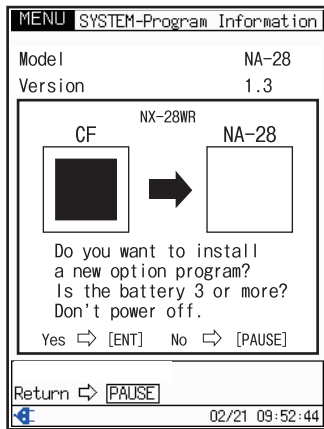
SYSTEM - Program Information screen

- Use the Δ / ∇ keys to select [Install] and press the ENT key.

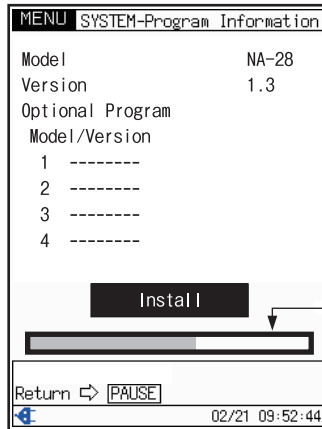
A screen for starting the installation process of the waveform recording function appears. To install the function, press the ENT key. This will cause the program to be installed from the program card in the sound level meter.



SYSTEM - Program Information screen



Program installation confirmation screen



Program installation progress screen

- (black): Program is installed.
- (white): Program is not installed.

Important

Make sure that the battery indicator has at least 3 segments before starting the installation. Do not turn power off during the installation. Otherwise program data may be corrupted.

Note

When the waveform recording function has been installed from the program card in one sound level meter, the card can no longer be used to install the function in another sound level meter, unless it is first uninstalled from the former sound level meter.
--

When the installation is completed, the power automatically goes off.
Press the POWER key to restart the unit.

Uninstalling the waveform recording function

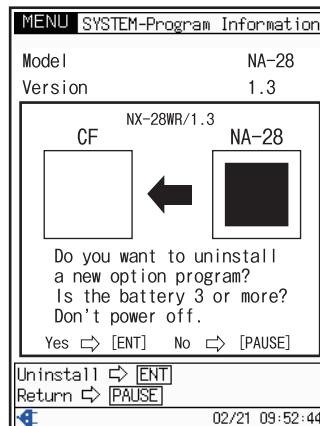
Important

Make sure that power to the unit is turned off before inserting the card.

To uninstall the waveform recording function from the sound level meter, proceed as follows.

1. Open the cover of the card slot and insert the installed program card.
2. Press the POWER key to turn power on.
3. Press the MENU key. (The Menu List screen appears.)
4. Select [System] from the list and press the ENT key. (The SYSTEM menu screen appears.)
5. Select [Program Information] and press the ENT key. (The SYSTEM - Program Information screen appears.)
6. Press the STORE key to bring up the uninstallation screen.
7. Use the Δ / ∇ keys to select [NX-28WR] and press the ENT key.

A screen for starting the uninstallation process of the waveform recording function appears. To uninstall the function, press the ENT key. This will cause the program to be uninstalled from the sound level meter and reinstalled on the program card.



Program uninstallation confirmation screen

Important

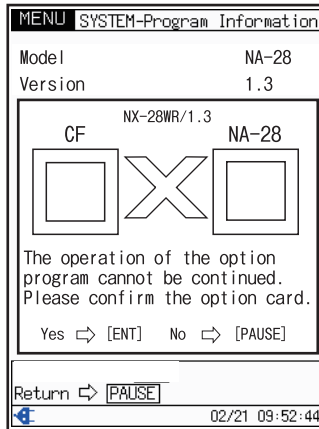
Make sure that the battery indicator has at least 3 segments before starting the uninstallation process.

Do not turn power off during the uninstallation process. Otherwise program data may be corrupted.

To remove the program card, turn power to the sound level meter off and push the lever so that the card pops out.

If the program cannot be installed

If a program card whose software was installed on a sound level meter is inserted into another sound level meter, attempting to install the software in that sound level meter will result in an error screen such as shown below.



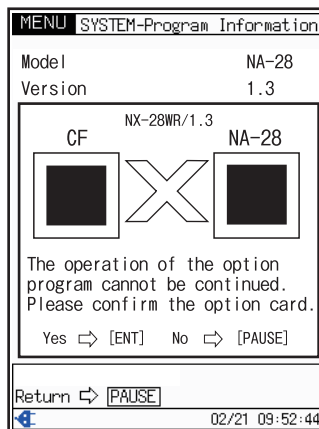
This screen appears when attempting to install the program with a program card that has already been used once for installation.

Program installation error screen

Press the PAUSE key of the sound level meter to abort the installation.

If you attempt to install the waveform recording function on a sound level meter where the program is already installed, an error screen such as shown below appears.

Press the PAUSE key of the sound level meter to abort the installation.



This screen appears when attempting to install the program on a sound level meter where the program is already installed.

Program installation error screen

Important

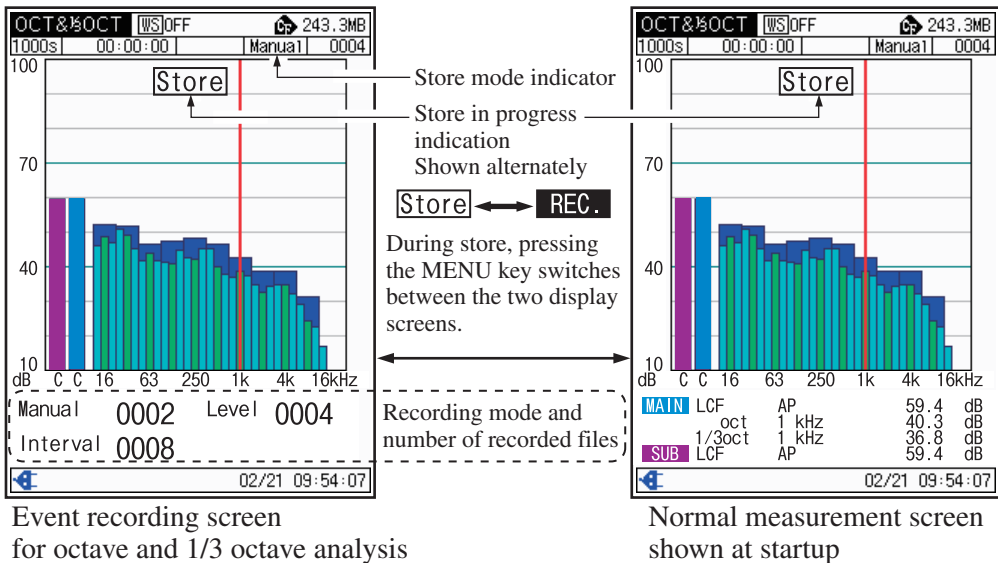
Do not turn power off during the installation process. Otherwise program data may be corrupted.

To remove the program card, turn power to the sound level meter off and push the lever so that the card pops out.

Reading the Display

Recording screen

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



The indication of recording mode and number of recorded files is the same for the numeric display and sound level meter mode display.

Store mode

Shows the selected mode for storing data in memory.

Store in progress indication

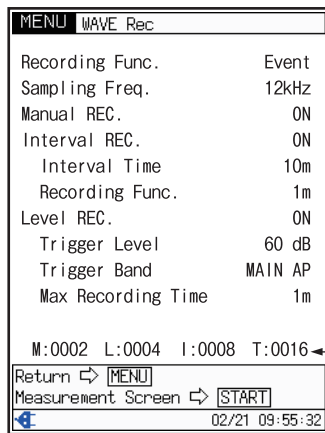
Shows the store condition.

Recording mode and number of recorded files

Shows the recording mode and the recorded file count (as a 4-digit number).

Menu screen

The menu screen looks as follows.



M: 0002

"M" stands for manual recording. 0002 is the recorded file count.

L: 0004

"L" stands for level recording. 0004 is the recorded file count.

I: 0008

"I" stands for interval recording. 0008 is the recorded file count.

T: 0016

"T" stands for total recording. 0016 is the recorded file count.

Recording function menu screen

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

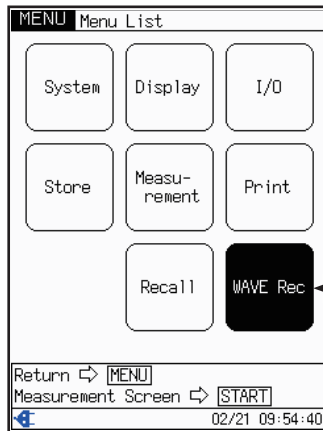
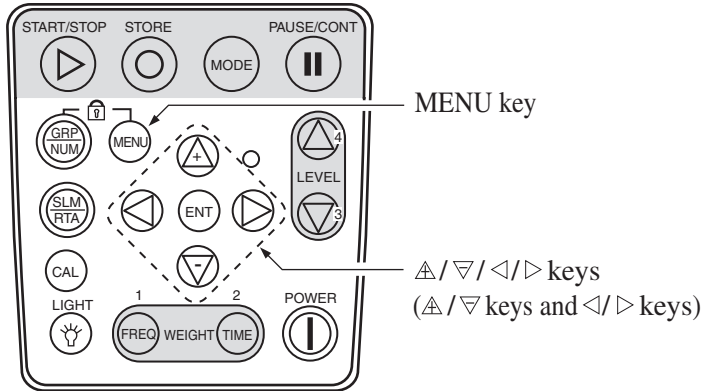
Interval recording: SI0001.WAV to SI9999.WAV

Total recording: ST0001.WAV to ST9999.WAV

A "0000" file is not created.

Menu Screens

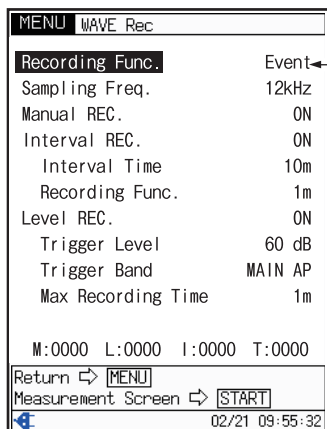
Pressing the MENU key brings up the Menu List screen. Use the Δ/∇ keys to select [WAVE Rec] and press the ENT key. The [WAVE Rec] screen appears.



Using the $\Delta/\nabla/\leftarrow/\rightarrow$ keys to select [WAVE Rec] and pressing ENT brings up the [WAVE Rec] screen.

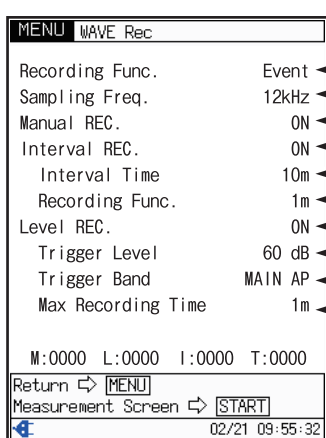
Menu List screen

The [WAVE Rec] menu screen lets you make settings for the recording function.



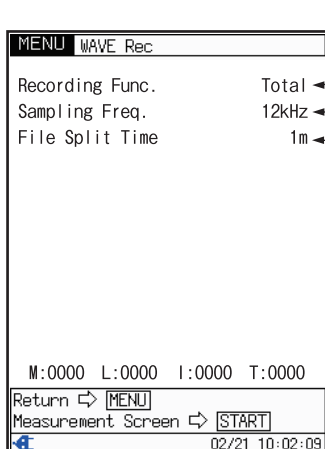
[WAVE Rec] menu screen

- Use Δ / ∇ keys to select "Recording Func."
- Press ENT (highlight moves to right)
- Use Δ / ∇ keys to select OFF/Event/Total
- Press ENT
- Use Δ / ∇ keys to select respective item
- Press ENT
- Use Δ / ∇ keys to select ON/OFF or numerical setting
- Press ENT
- When settings are completed, press START to return to recording screen



[WAVE Rec] (Event) menu screen

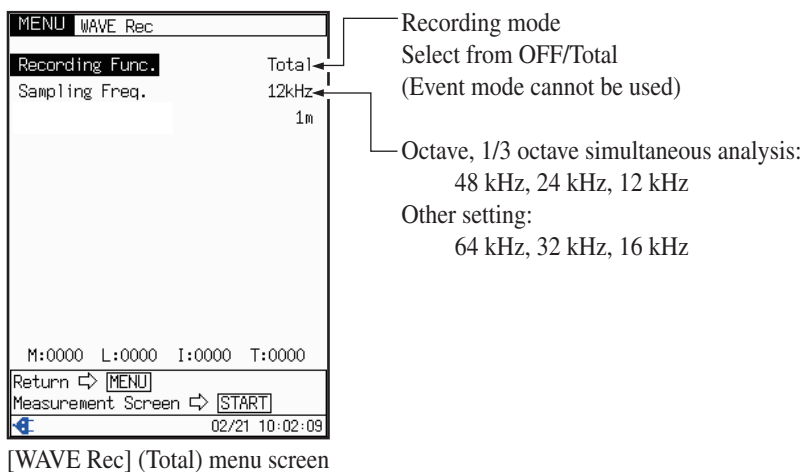
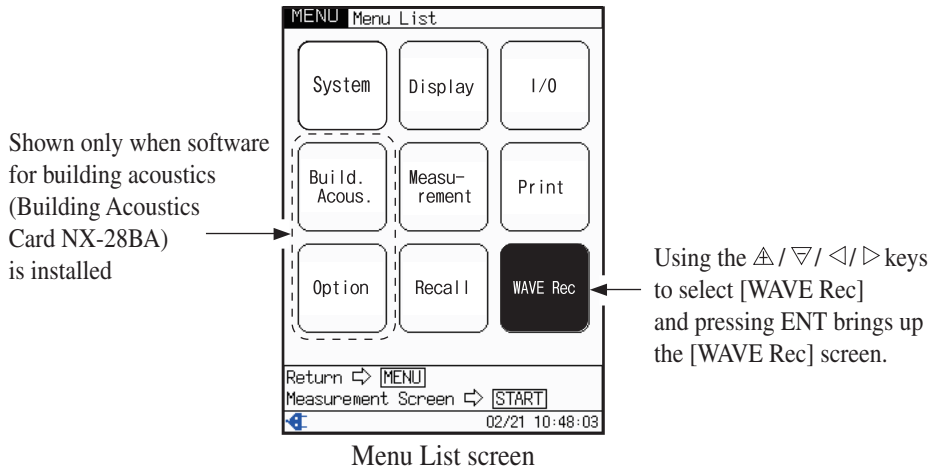
- Recording mode
- Select from OFF/Event/Total
- Octave, 1/3 octave simultaneous analysis:
 - 48 kHz, 24 kHz, 12 kHz
 - Other setting: 64 kHz, 32 kHz, 16 kHz
- ON/OFF
- ON/OFF (when OFF, two items below* are not displayed)
 - * Select from 10 minutes/1 hour
 - * Select from 15 seconds/1 minute
- ON/OFF (when OFF, three items below** are not displayed)
 - ** 30 to 130 dB (1-dB steps)
 - ** Select respective band
 - ** Select from OFF/10 minutes



[WAVE Rec] (Total) menu screen

- Recording mode
- Select from OFF/Event/Total
- Octave, 1/3 octave simultaneous analysis:
 - 48 kHz, 24 kHz, 12 kHz
 - Other setting: 64 kHz, 32 kHz, 16 kHz
- Select from 1 minute/10 minutes/1 hour

Menu screen when software for building acoustics (Building Acoustics Card NX-28BA) is installed



Important
<p>Available sampling frequency settings</p> <p>When simultaneous analysis mode of octave and 1/3 octave is selected: 48 kHz, 24 kHz, 12 kHz</p>
<p>When octave analysis, 1/3 octave analysis, or sound level meter mode is selected: 64 kHz, 32 kHz, 16 kHz</p>

Waveform Recording

The NX-28WR 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 Auto1 (Auto 1 store) or Auto2 (Auto 2 store) is selected.

The Total mode can be used when Auto1 (Auto 1 store), Auto2 (Auto 2 store) or Manual (manual store) is selected.

When the store mode was set to "Manual" using the NA-28 menus, the Event mode can no longer be selected.

Select the appropriate recording function before starting to record.

Verify that a CF card with sufficient free space is inserted in the card slot of the NA-28. 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 NA-28.

Note
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.

Important
When using Auto 1 store and the waveform recording function together, be sure to set the auto 1 store sampling period to at least 100 ms or longer. If the sampling period is less than 100 ms, the waveform recording function cannot be used.

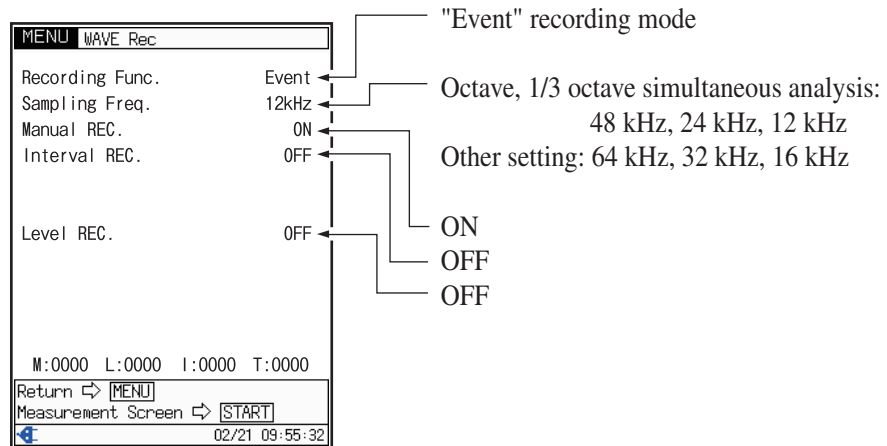
Event recording

Refer to the documentation (Instruction Manual) of the Sound Level Meter NA-28 and select Auto1 or Auto2 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 key cannot be used.

Manual recording

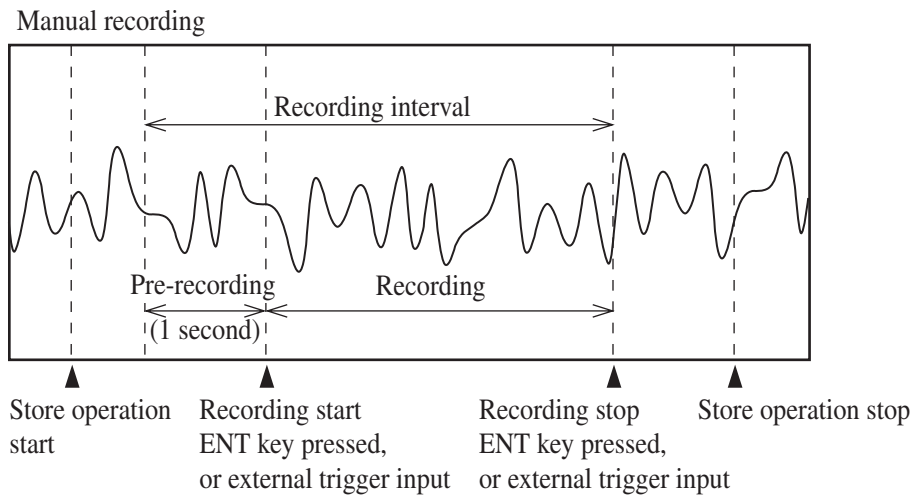
1. Make settings as shown below.



[WAVE Rec] (Event) menu screen

2. Press the START key to return to the measurement screen.
3. Press the STORE key to start the auto store operation.
4. When you press the ENT key, or when a trigger signal is input to the TRIG input of the TRIG IN/COMP OUT jack, recording starts, including the data from 1 second before this point.
For information on trigger signal input, see the section "Input/Output Connectors" in the documentation (Instruction Manual) of the NA-28.
When you press the ENT key again, or when another trigger signal is input, recording stops.

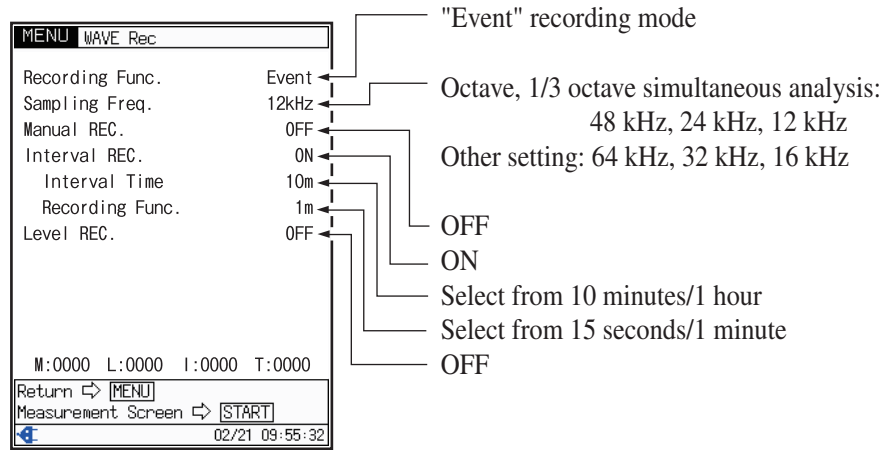
The graph below shows the operation principle of manual recording.



The maximum recording duration for one manual recording session is one hour. Recording will stop automatically when this is exceeded.

Interval recording

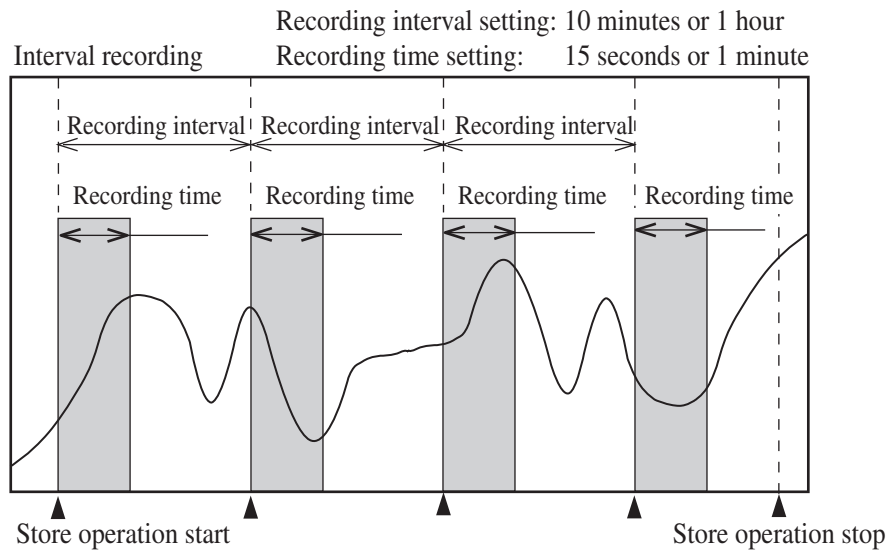
1. Make settings as shown below.



[WAVE Rec] (Event) menu screen

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

The graph below shows the operation principle of interval recording.

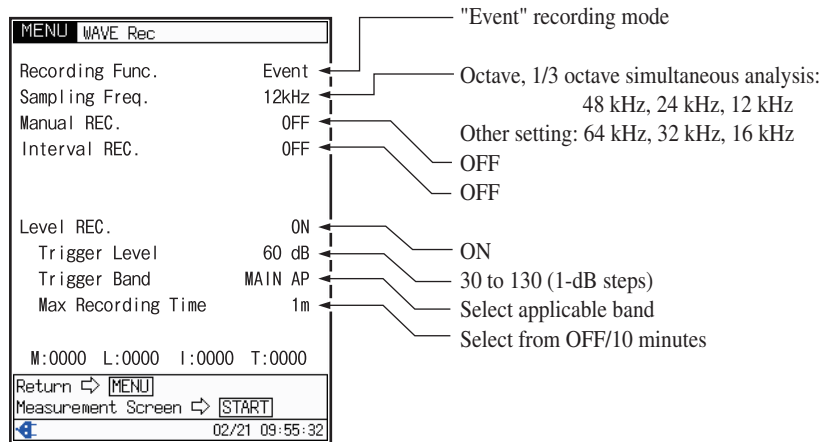


Note

If the Auto 2 store time trigger mode is used, the actual recording intervals will be equivalent to the time trigger intervals.

Level recording

1. Make settings as shown below.



[WAVE Rec] (Event) menu screen

2. Press the START key to return to the measurement screen.
3. Press the STORE key.

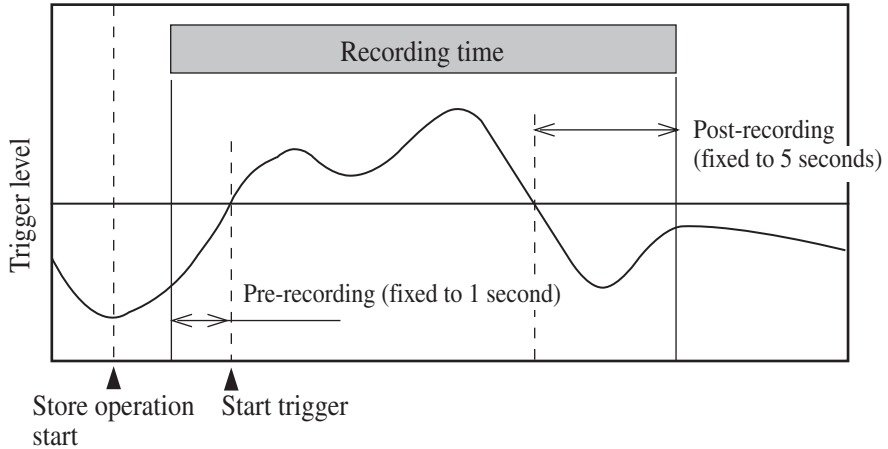
When a signal higher than the preset trigger level is input, recording starts, including the data from 1 second before this point. Recording stops when the signal falls below the trigger level, after a post-recording period of 5 seconds. If the level rises again above the trigger threshold during these 5 seconds, recording continues without interruption.

Recording also stops when the preset recording time has elapsed.

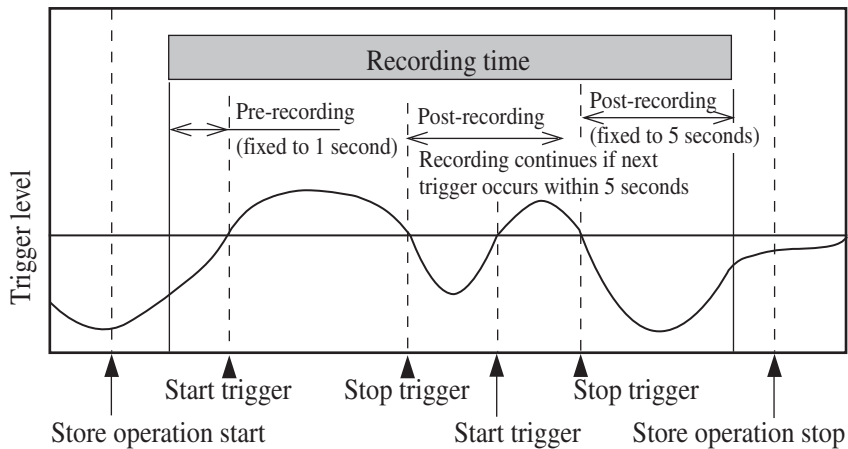
4. To terminate recording early, press the START/STOP key or the STORE key.

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

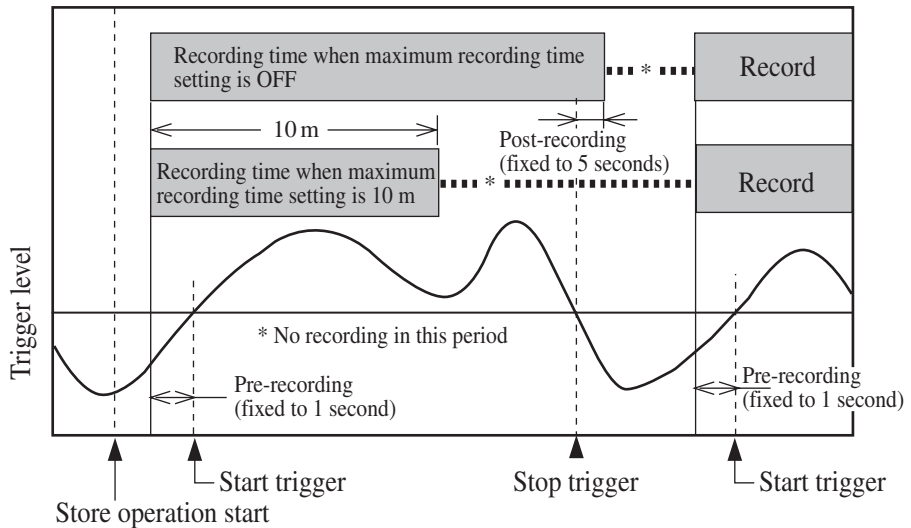
Level recording



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 CF card capacity.

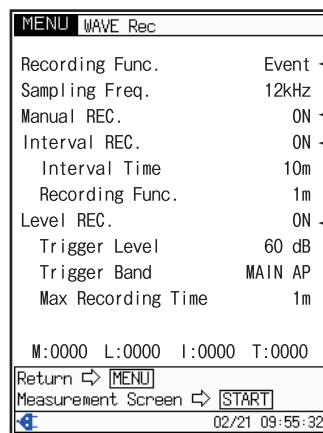
Recording mode priority

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. During recording with a mode whose priority is higher than interval recording, all interval recording action is stopped, and only the interval time is updated.



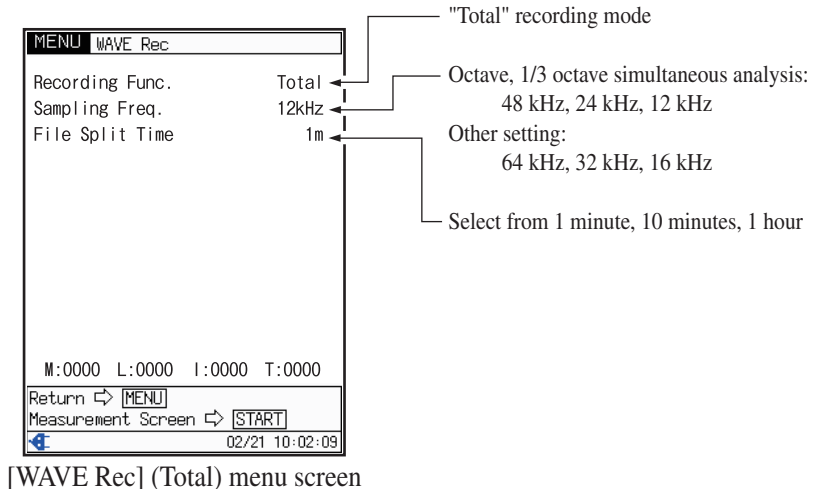
[WAVE Rec] (Event) menu screen

When two or more recording mode selections are set to ON, priority is as follows:
 Manual recording
 Level recording
 Interval recording

Total recording

For this mode, you select measurement parameters as described in the "Manual", "Auto1", and "Auto2" sections of the "Store Operation" in the documentation (Instruction Manual) of the NA-28.

1. Make settings as shown below.



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

3-A. Manual store

Press keys in the order START (start processing) → STOP (stop processing) → STORE (store processing data and recording data). When you press the STORE key, the recording data are stored on the CF card.

During measurement, the back-erase function controlled by the PAUSE key is not available.

3-B. Auto1, Auto2 store

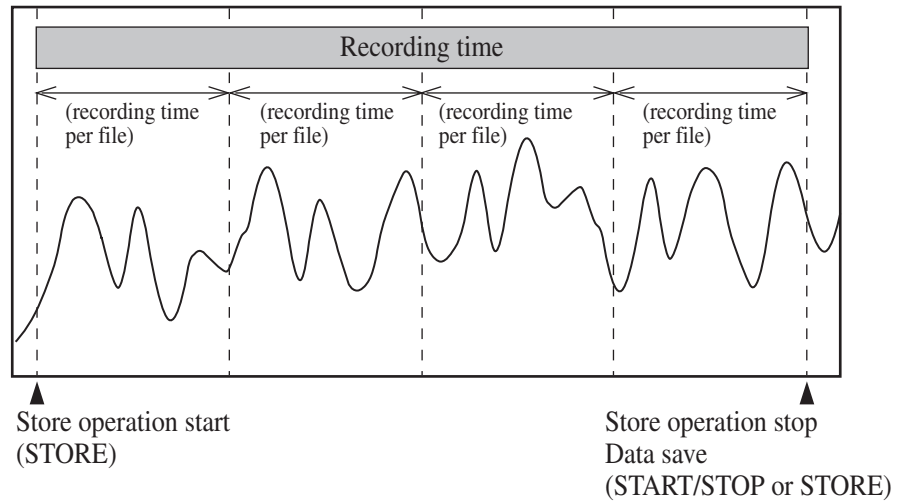
When you press the STORE key to start auto store, recording also starts simultaneously.

To stop recording, press the START/STOP key or the STORE key.

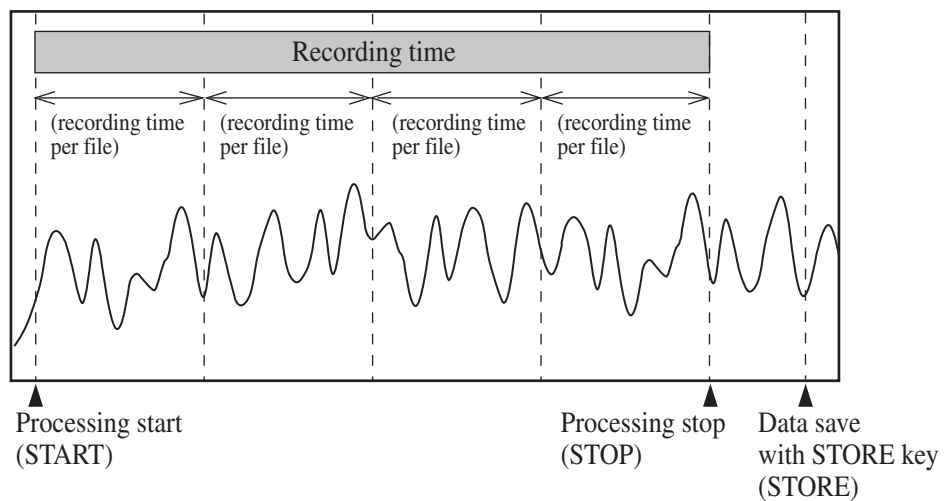
During Auto store, the PAUSE key cannot be used.

The graphs below show the operation principle of total recording.

Total recording (with auto store)



Total recording (with manual store)



Note

During total recording with manual store, recording data are stored as temporary data on the CF card when normal processing is carried out. If one of the following actions is carried out before the STORE key is pressed for storing the data, the temporary data will be lost.

- Changing the store mode
- Changing the store name
- Changing the recording function
- Changing the sampling frequency
- Changing the recording time

When Building Acoustics Card NX-28BA is installed

Sound insulation and impact sound measurements will use total recording. Reverberation time measurements will use total recording with pre-trigger (1 second).

Playback of recorded files

Recorded files can be played with WAVE file playback software (on public sale) or with the Waveform Analysis Software DA-20PA1 or CAT-78WR from Rion.

Playback or analysis on the NA-28 is not possible.

Store Data Format and File Structure

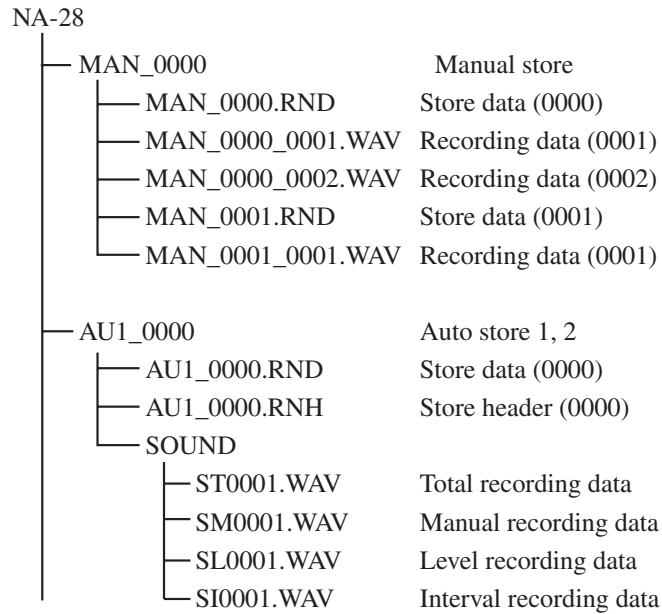
Folder and file names that are used for saving data differ, depending on the selected store mode.

The table below lists the various store destinations and file naming rules.

Store mode	Store destination folder	Recorded data file name
Manual store	Files will be saved in store folder specified with store name. Example: MAN_0123	Recorded file name will be "MAN_0001_0001.WAV". The numeric part uses the store address specified for manual store. Because manual store uses only total recording, files will be split. Four-digit numeral after store file name is automatically assigned in the range from 0001 to 9999. A "0000" file is not created.
Auto store 1, 2	Subfolder "SOUND" is created under store folder specified with store name, and files will be saved in this folder. Example: AU1_1248\SOUND	Recording file name will be assigned as follows, depending on recording mode. Total recording: ST0001.WAV Manual recording: SM0001.WAV Level recording: SL0001.WAV Interval recording: SI0001.WAV Four-digit numeral part of file name is automatically assigned in the range from 0001 to 9999. A "0000" file is not created.

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

A sample configuration is shown below.



Recording file numbering starts at 0001 and stops at 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

A "0000" file is not created.

Card Capacity and Recording Time

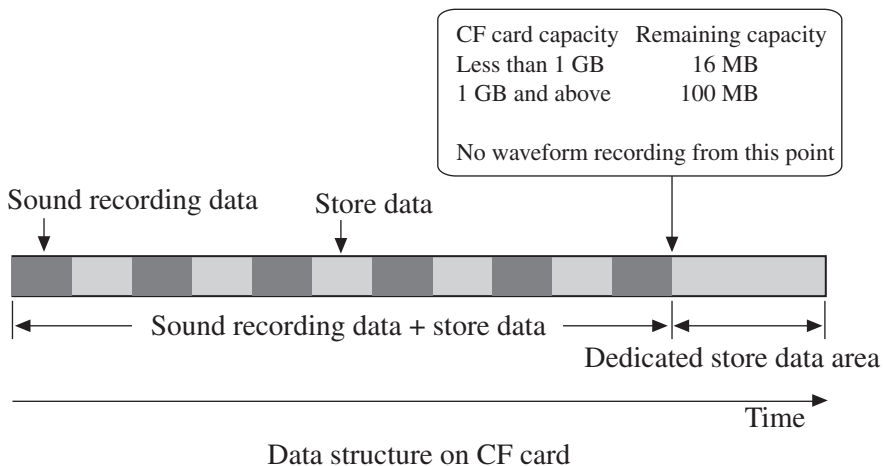
About card capacity and recording time

When saving data on the CF 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 CF card is less than 1 GB, sound recording will always stop when the remaining capacity reaches 16 MB. After that, only store data will be saved. On CF cards with a capacity of 1 GB and above, sound recording will stop when the remaining capacity reaches 100 MB. After that, only store data will be saved.

The actual size of both sound recording files and store data files depends on various factors, such as sound level meter/analyzer mode, store mode, and sampling frequency. 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.



Approximate recording times for CF cards

		CF card capacity			
Sampling frequency (Hz)		128 MB	256 MB	1 GB	2 GB
	48 k	15 min.	30 min.	2 h 10 min.	4 h 40 min.
	24 k	30 min.	1 h	4 h 20 min.	9 h 20 min.
	12 k	1 h	2 h 10 min.	8 h 50 min.	18 h 50 min.
	64 k	10 min.	20 min.	1 h 40 min.	3 h 30 min.
	32 k	20 min.	50 min.	3 h 20 min.	7 h
	16 k	50 min.	1 h 40 min.	6 h 40 min.	14 h 10 min.

Data apply for octave, 1/3 octave simultaneous analysis, Auto 1 store, sampling period 100 ms

Important

16 MB cards cannot be used. Use CF cards with a capacity of 64 MB and above.
--

Relationship between analysis mode and sampling frequency

	Sampling frequency (Hz)
Octave, 1/3 octave simultaneous analysis mode	48 k, 24 k, 12 k
Sound level meter mode Octave, 1/3 octave analysis mode	64 k, 32 k, 16 k

Communication Commands

This section lists commands that are added to the Sound Level Meter NA-28 when the waveform recording function is installed. For information on other commands, please refer to the documentation (Serial Interface Manual) of the NA-28.

List of commands

S: Setting command (for making NA-28 settings)

R: Request command (for obtaining information on NA-28 status and measurement results)

Command	Function	See page
SRC	Sound recording control (S/R)	33
SSP	Sampling frequency (S/R)	33
SFS	Specify file split time (S/R)	34
STF	Total recording file number (R)	34
SMR	Manual recording function control (S/R)	35
SMF	Manual recording file number (R)	35
SIR	Interval recording function control (S/R)	36
SIP	Interval recording setting (S/R).....	36
SIF	Interval recording file number (R)	36
SIT	Recording time (S/R).....	37
SLR	Level recording function control (S/R)	37
SLT	Trigger level (S/R)	38
SLS	Trigger band (SLM) (S/R)	38
SLB	Trigger band (RTA) (S/R).....	39
SMX	Maximum recording time (S/R).....	40
SVF	Level recording file number (R)	40
SST	Get all measurement parameters (R).....	41

Command Description

SRC

Sound recording control

Enable/disable waveform recording function

Setting command SRC p1

Parameter	Description
p1=0:	OFF
p1=1:	Total
p1=2:	Event

Request command SRC?

Response data d1

Returned value Description

Same as for setting command

SSP

Sampling frequency

Specify sampling rate for waveform recording

Setting command SSP p1

Parameter	Description
p1=0:	48 kHz
p1=1:	24 kHz
p1=2:	12 kHz

Description	Description
Simultaneous analysis	Sound level meter, octave analysis, 1/3 octave analysis

Request command SSP?

Response data d1

Returned value Description

Same as for setting command

SFS

Specify file split time

Specify recording time where files are split during total recording

Setting command SFS p1

Parameter	Description
-----------	-------------

p1=0:	1 minute
-------	----------

p1=1:	10 minutes
-------	------------

p1=2:	1 hour
-------	--------

Request command SFS?

Response data	d1
---------------	----

Returned value	Description
----------------	-------------

Same as for setting command

STF

Total recording file number

Get number of file for total recording

Request command STF?

Response data	d1
---------------	----

Returned value	Description
----------------	-------------

d1 = 0001 to 9999 file number

Numeric part of STxxxx.WAV

There is no setting command

SMR

Manual recording function control

Enable/disable manual recording function

Setting command SMR p1

Parameter Description

p1=0: OFF

p1=1: ON

Request command SMR?

Response data d1

Returned value Description

Same as for setting command

SMF

Manual recording file number

Get number of file for manual recording

Request command SMF?

Response data d1

Returned value Description

d1 = 0001 to 9999 file number

Numeric part of SMxxxx.WAV

There is no setting command

SIR

Interval recording function control

Enable/disable interval recording function

Setting command SIR p1

Parameter	Description
-----------	-------------

p1=0:	OFF
-------	-----

p1=1:	ON
-------	----

Request command SIR?

Response data	d1
---------------	----

Returned value	Description
----------------	-------------

Same as for setting command

SIP

Interval recording setting

Select interval for interval recording

Setting command SIP p1

Parameter	Description
-----------	-------------

p1=0:	10 minutes
-------	------------

p1=1:	1 hour
-------	--------

Request command SIP?

Response data	d1
---------------	----

Returned value	Description
----------------	-------------

Same as for setting command

SIF

Interval recording file number

Get number of file for interval recording

Request command SIF?

Response data	d1
---------------	----

Returned value	Description
----------------	-------------

d1 = 0001 to 9999 file number

Numeric part of SIxxxx.WAV

There is no setting command

SIT

Recording time

Set recording time for one interval of interval recording

Setting command	SIT p1
Parameter	Description
p1=0:	15 seconds
p1=1:	1 minute

Request command	SIT?
Response data	d1
Returned value	Description
	Same as for setting command

SLR

Level recording function control

Enable/disable level recording function

Setting command	SLR p1
Parameter	Description
p1=0:	OFF
p1=1:	ON

Request command	SLR?
Response data	d1
Returned value	Description
	Same as for setting command

SLT

Trigger level

Set trigger level for event recording

Setting command SLT p1

Parameter	Description
-----------	-------------

p1=25 to 130:	1 step
---------------	--------

Request command SLT?

Response data	d1
---------------	----

Returned value	Description
----------------	-------------

Same as for setting command

SLS

Trigger band (SLM)

Set trigger band for event recording

Setting command SLS p1

Parameter	Description
-----------	-------------

p1=0:	Sub channel AP
-------	----------------

p1=1:	Main channel AP
-------	-----------------

Request command SLS?

Response data	d1
---------------	----

Returned value	Description
----------------	-------------

Same as for setting command

SLB**Trigger band (RTA)**

Set trigger band for event recording (octave unit)

Setting command	SLB p1 p2	Parameter	Description
		p1=0:	Sub channel AP
		p1=1:	Main channel AP
		p1=2	16 Hz
		p1=3	31.5 Hz
		p1=4	63 Hz
		p1=5	125 Hz
		p1=6	250 Hz
		p1=7	500 Hz
		p1=8	1 kHz
		p1=9	2 kHz
		p1=10	4 kHz
		p1=11	8 kHz
		p1=12	16 kHz
		p2=0	Lower band
		p2=1	Middle band
		p2=2	Upper band

To specify a 1/3 octave band, first use p1 to specify the octave band, and then use p2 to specify the lower, middle, or upper band as trigger target.

Request command	SLB?	Response data	Returned value	Description
		SLB d1 d2		
				Same as for setting command

SMX

Maximum recording time

Specify maximum recording time for event recording

Setting command SMX p1

Parameter	Description
-----------	-------------

p1=0:	OFF
-------	-----

p1=1:	10 minutes
-------	------------

Request command SMX?

Response data	d1
---------------	----

Returned value	Description
----------------	-------------

Same as for setting command

SVF

Level recording file number

Get number of file for level recording

Request command SVF?

Response data	d1
---------------	----

Returned value	Description
----------------	-------------

d1 = 0001 to 9999 file number

Numeric part of SLxxxx.WAV

There is no setting command

SST

Get all measurement parameters

Get all measurement parameters in one operation

Request command SST?

Response data SST d1,d2,d3 ... d16

Returned value Description

d1	SRC	Waveform recording enable/disable
d2	SSP	Waveform recording sampling rate setting
d3	SFS	File split time for total recording
d4	STF	File number for total recording
d5	SMR	Manual recording function enable/disable
d6	SMF	File number for manual recording
d7	SIR	Interval recording function enable/disable
d8	SIP	Interval recording setting
d9	SIF	File number for interval recording
d10	SIT	Recording time for one interval of interval recording (second)
d11	SLR	Level recording function enable/disable
d12	SLT	Trigger level for level recording
d13	SLS	Trigger band for level recording
d14	SLB	Trigger band for level recording (octave unit)
d15	SLB	Trigger band for level recording (1/3 octave offset within octave)
d16	SMX	Maximum recording time for level recording
d17	SVF	File number for trigger recording

This command is only valid during measurement. In other conditions an error (0003) is returned.

There is no setting command.

Use together with communication command

- When the recording function is enabled, the DRD command returns an error (0003).
- The SRT command allows a processing restart if sent during processing, but if the recording function is enabled and manual store is selected, recording starts simultaneously with processing. In this case, sending the command SRT1 to initiate a restart will result in an error (0003).

Specifications

Compatible model	Sound Level Meter NA-28
Media	CompactFlash card
Sampling frequencies	
Octave, 1/3 octave simultaneous analysis	48 kHz, 24 kHz, 12 kHz
Sound level meter, octave analysis, 1/3 octave analysis	64 kHz, 32 kHz, 16 kHz
Bit length	16 bit
Data format	WAVE
Frequency weighting	Z weighting (flat response)
Recording functions	
Event mode	
Level recording	Recording starts 1 second before preset level was exceeded and stops 5 seconds dropping below preset level Use during auto store possible
Parameter settings	
Threshold level	30 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	Off, 10 minutes, 1 hour
Recording time	15 seconds, 1 minute
Max. number of recorded data	9999 using a single store name
Manual recording	Recording is carried out during auto store using manual start/stop or trigger start/stop. Pre-recording Fixed to 1 second 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 when normal processing is in progress
 During manual store, recording data are stored as a file when STORE key is pressed

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

Limitation: When using Auto 1 store and waveform recording function together, the auto 1 store sampling period must be at least 100 ms or longer. If it is shorter than 100 ms, the waveform recording function cannot be used.

Concurrent use with Building Acoustics Card NX-28BA

Total recording during sound insulation and impact sound measurement

Total recording with pre-trigger (1 s) during reverberation time measurement

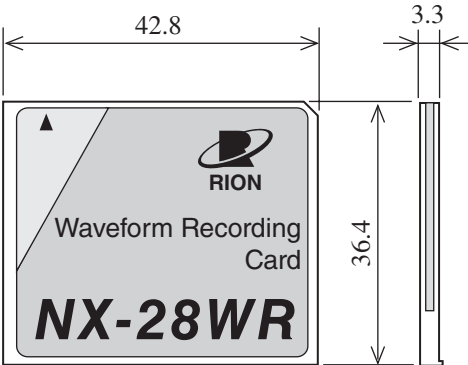
Number of recorded data: 1 file per processing run

Battery life Battery life of NA-28 will be approx. 20% shorter when waveform recording function is used

Supplied accessories

Instruction Manual 1

Inspection certificate 1



Unit: mm

Dimensional Drawings

