Sound Level Meter Class1 NL-62

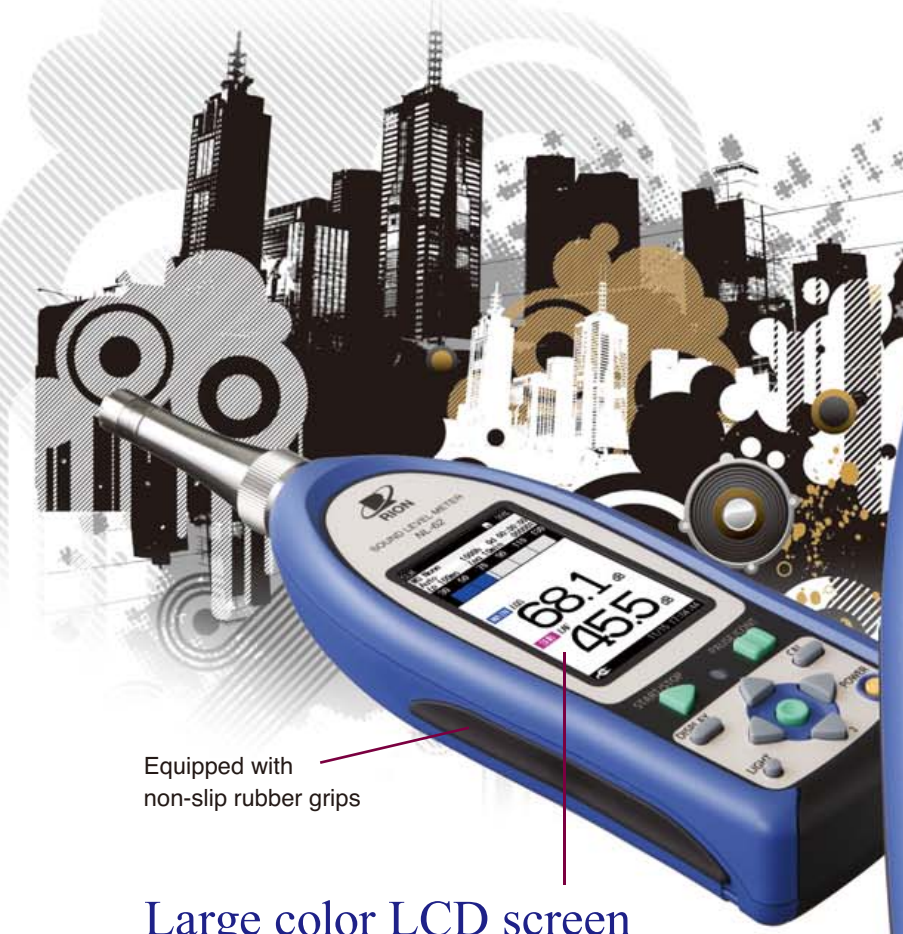
# Wide Range Measurement
# From 1 to 20 000 Hz

## Sound Level Meter
### Class1
( With low-frequency sound measurement function )

## *NL-62*

# Measure Frequencies from 1 to 20 000 Hz. Measure Low-Frequency Sound and Noise with a Single Unit.

With the auto store function included as standard, as well as a timer function and external power supply support, the NL-62 is ideal for continuous measurement. Designed for intuitive ease of use, there is no more need to consult the manual during a measurement. The large 3-inch color screen is bright and easy to read. Sudden rainfall is also no problem, thanks to the water-resistant construction. Using the optional octave and 1/3 octave band real-time analysis program NX-62RT (under development), the unit can even operate as a frequency analyzer. The High-Precision Sound Level Meter NL-62 supports all your measurement needs.



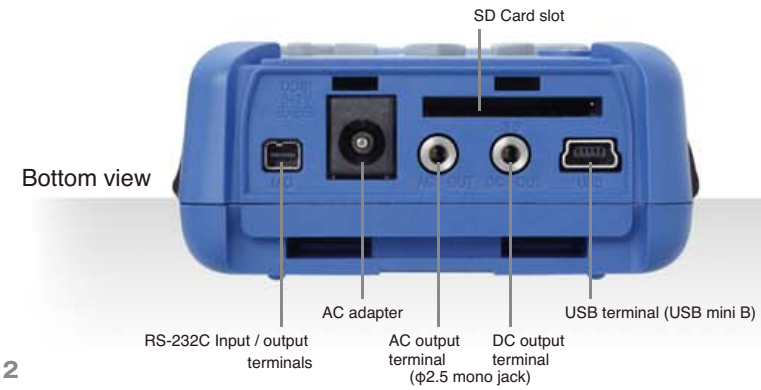
Equipped with
non-slip rubber grips

## Large color LCD screen

Three-inch LCD screen with a touch panel
High resolution screen is easy to see indoors or outdoors and even in the dark.

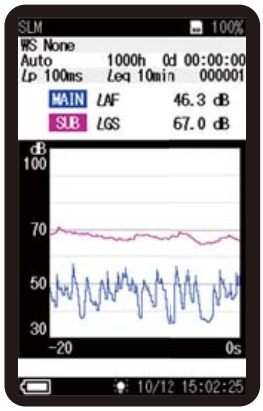
(Full scale)

### Variety of I/O Connections

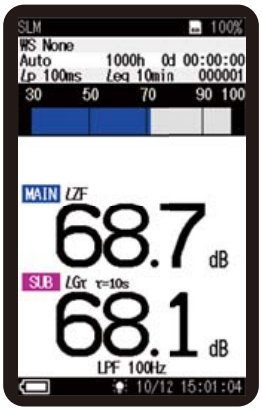


# No paper manual is needed.

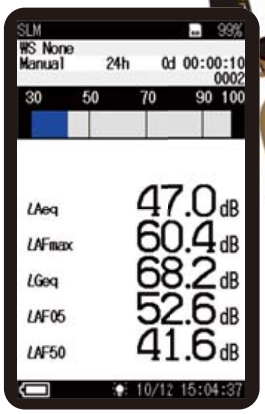
The manual and a help function can be easily accessed on the device.



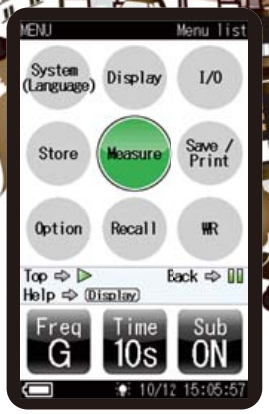

Measurement Display (T-L graph)



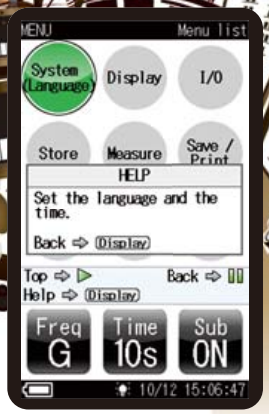

Measurement Display (low-frequency sound)




Parameter Screen




Manu screen




Help screen

## Water-resistant (Except for the microphone)

**Guaranteed water-resistant to at least level IP54 (resistant to spraying water). Helps reduce failures caused by sudden rain showers.**

## Use of rechargeable batteries

**In these new models it is possible to use rechargeable batteries which make these meters environmentally-friendly. 16 hour continuous measurement is possible (when using dry alkaline batteries).**

## Continuous detailed measurements for one month

This meter can be used to conduct long-term measurements, such as environmental measurements.
(If an AC adapter is used)

Duration of recording

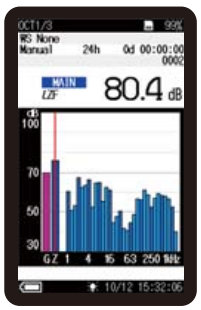
**NL-62** 1000 h (approx. one month)

**Previous model** 200 h (approx. one week)

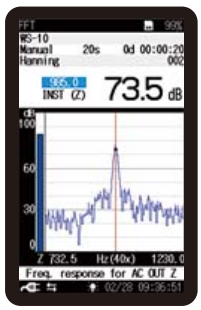
| Example of detailed recording | If the $L_P$ is measured at 100 ms intervals and the $L_{eq}$ is simultaneously measured at 10 m intervals over a 24 h period, the total size of accumulated data is approximately 74 MB (reference value) |
|---|---|

## Functionality can be extended by a range of options

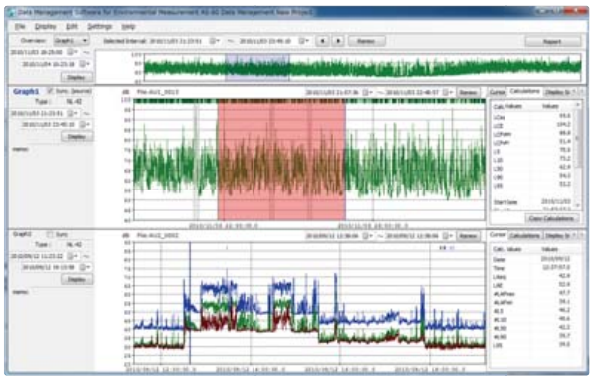
Add long-term data recording capability and frequency analysis function




1/3 octave band analysis screen (low range)




Analysis screen (x40)



Data management screen using AS-60 software

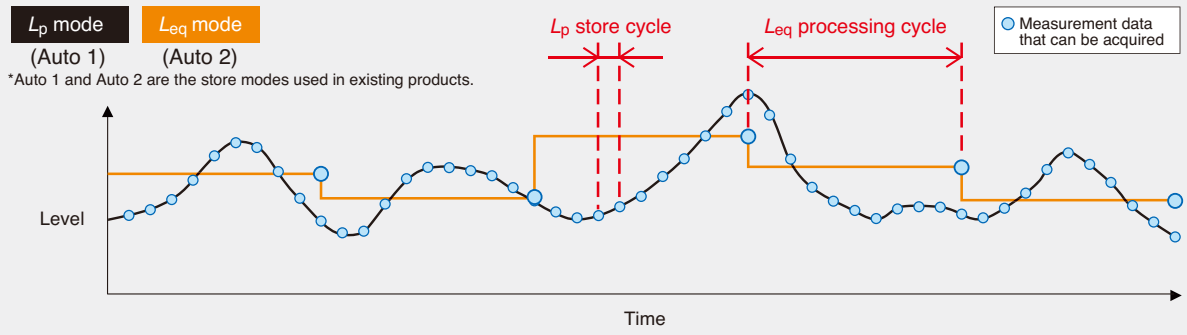
# Program function list

## Auto store function

This function enables continuous measurement in $L_p$ mode (instantaneous SPL) and $L_{eq}$ mode (equivalent continuous SPL) to be conducted simultaneously.

| | | |
|---|---|---|
| Total measuring time of Auto store function | Up to 1 000 h | Equipped with a timer function |

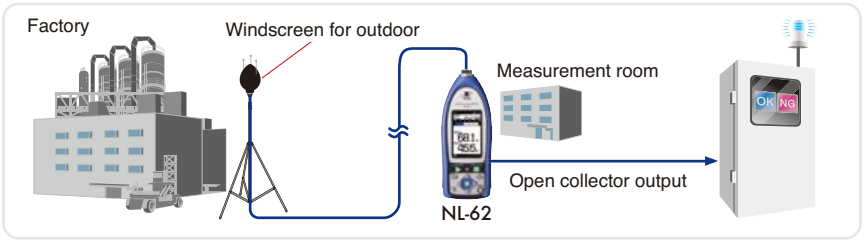
$L_p$ mode (instantaneous SPL) and $L_{eq}$ mode (equivalent continuous SPL) concept




Simultaneous recording in both $L_p$ mode (Auto 1) and $L_{eq}$ mode (Auto 2)

## Comparator function

This function turns on when the open collector output exceeds the set value (max. applied voltage 24 V, max. current 60 mA, allowable dissipation 300 mW).




## Continuous data output function

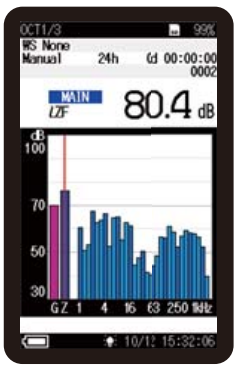
This function enables the continuous acquisition of instantaneous values and processed values during both USB and RS-232C communication.
This is a convenient function for users who can design their own control programs, such as a program to be used as an indicator.

# Optional program function list

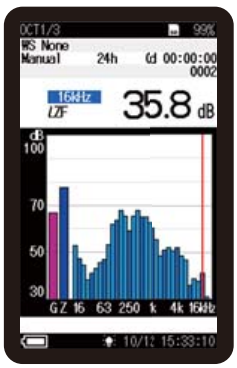
## Octave, 1/3 octave real-time analysis program NX-62RT

The NX-62RT is supplied on the 512 MB SD card. The 512 MB SD card can be used as a memory card after installing the program.

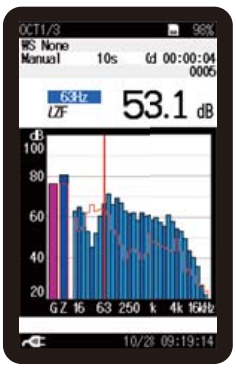
By adding a program to the NL-62, octave band and 1/3 octave band real-time analysis can be realized. Saved analysis results can be loaded and shown in an overlay graph display together with current analysis data. NC curve graph display and NC value calculation/display are also possible.



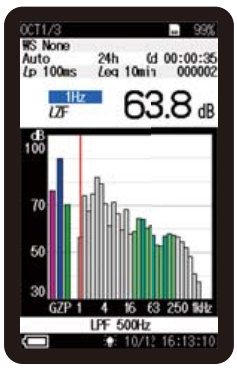

1/3 octave band analysis screen (low range)



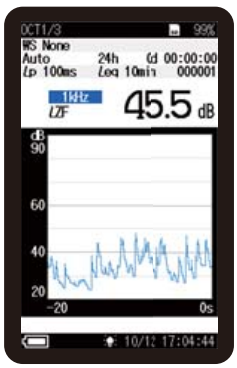

1/3 octave band analysis screen (high range)




Overlay analysis screen




1/3 octave band analysis screen (combined bands)




Measurement screen (T-L graph)

## Waveform recording program NX-42WR

The NX-42WR is supplied on the 2 GB SD card. The 2 GB SD card can be used as a memory card after installing the program.

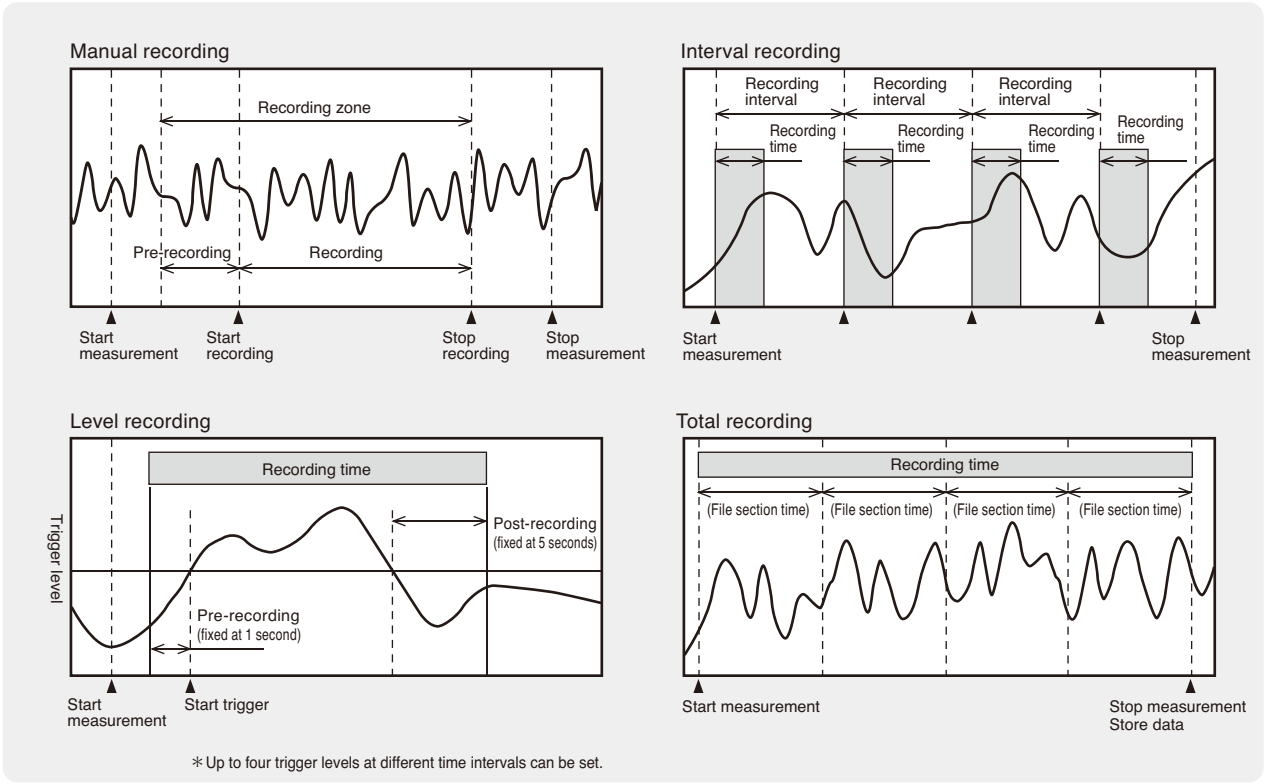
This function enables users to record sounds and processing sound to process sound levels simultaneously. Recorded data can be played on computer and used for frequency analysis. (Uncompressed waveform WAVE file)

Sampling at 48 kHz, 24 kHz, 12 kHz, Selection of 24 bit or 16 bit

Maximum recording time (16 bit)

| Sampling frequency \ Memory card | 512 MB | 2 GB |
|---|---|---|
| 48 kHz | 1 h | 4 h |
| 24 kHz | 2 h | 8 h |
| 12 kHz | 4 h | 16 h |

### Recording concept

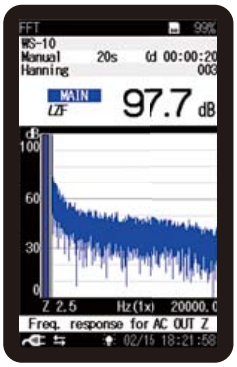



∗Up to four trigger levels at different time intervals can be set.

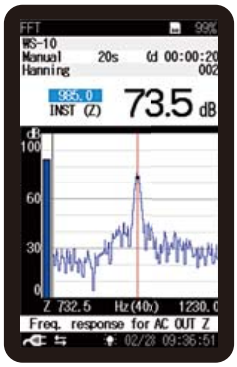
## FFT analysis program NX-42FT

The NX-42FT is supplied on the 512 MB SD card. The 512 MB SD card can be used as a memory card after installing the program.

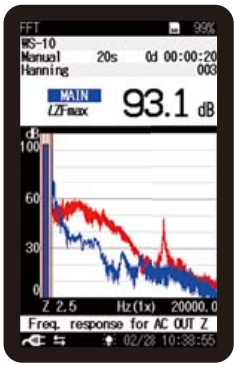
By adding a program to the NL-62, FFT analysis can be performed. The analysis frequency range is 20 kHz, with 8 000 spectrum lines (200 displayed). Saved analysis results can be loaded and shown in an overlay graph display together with current analysis data. Maximum zoom ratio is x40, and the top list screen can show up to 20 lines.



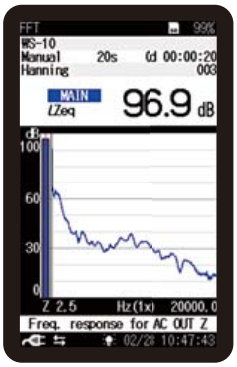

Analysis screen (x1)



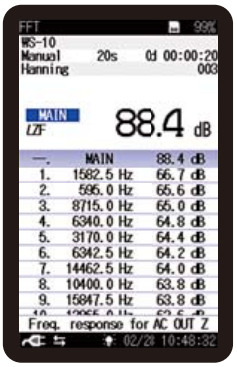

Analysis screen (x40)




Overlay analysis screen

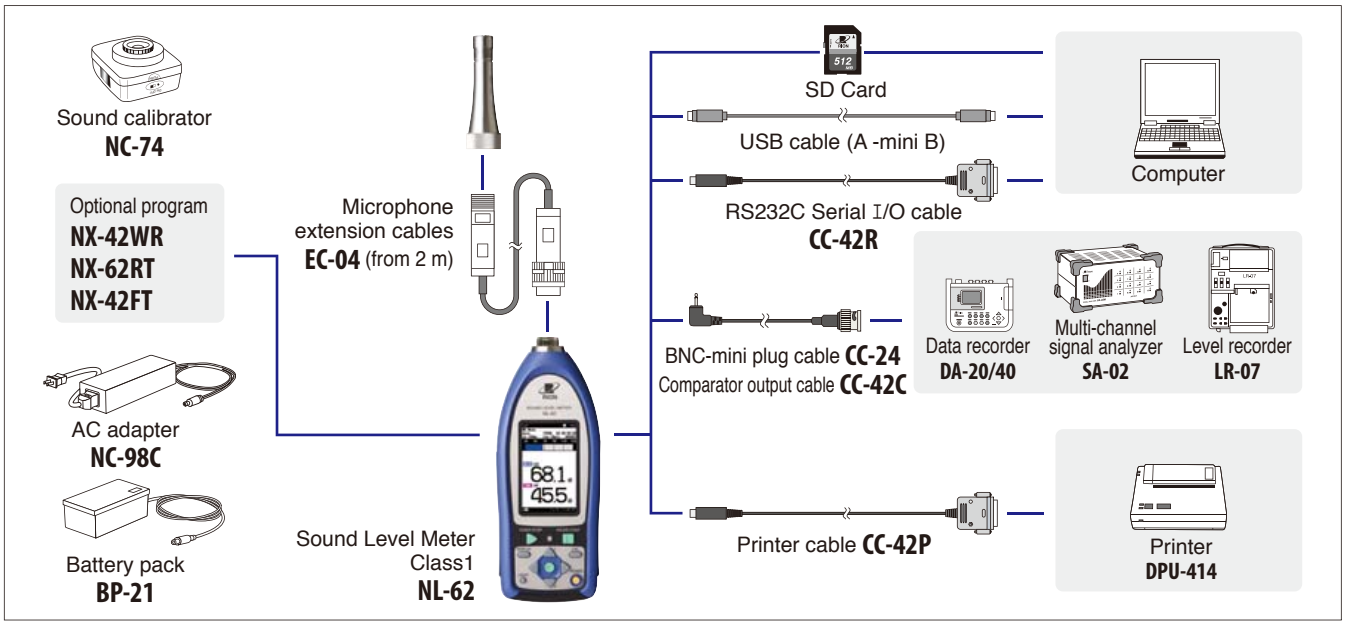



Linear average screen




Top list screen

## System construction




## Peripheral devices

### Windscreen for outdoor
### WS-15

This windscreen is designed for outdoor installations.
It helps to reduce wind noise and is equipped with rainproof features that satisfy the **IPX3 water-resistant** specifications.
It is used with a microphone extension cable.
(Mounting adapter WS15006 required separately)

### Rain-protection windscreen
### WS-16 Upcoming product

This screen protects the microphone against rain for a short period of time. The rainproof performance of this windscreen is designed to satisfy the **IPX3 water-resistant** specifications.

### Sound calibrator
### NC-74

This Sound calibrator conforms to IEC 60942 (JIS C 1515), Class 1, providing a level of performance sufficient for calibrating the precision sound level meter.

Specifications

| | |
|---|---|
| Nominal acoustic pressure level | 94 dB |
| Nominal frequency | 1 kHz |

### Tripod

This stand can be used for general acoustic measurements. The sound level meter and microphone can be mounted on the stand.

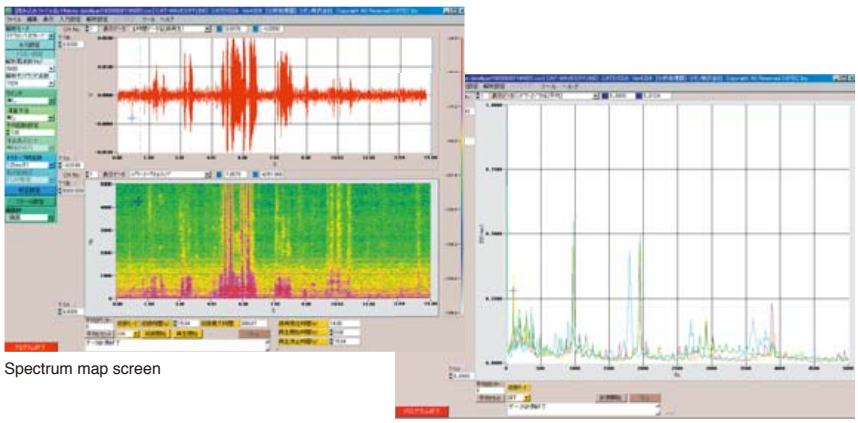
**ST-80**

**ST-81**

(For outdoor windscreen WS-15, use of ST-81 is recommended.)

## Waveform analysis software
### CAT-WAVE (made by CATEC Inc.)

This software analyzes and stores data files (recorded by the NX-42WR) in the WAVE format.
You can select to perform FFT analysis or octave band analysis.



Spectrum map screen

Overlapping Screen

Specifications

| | | |
|---|---|---|
| Waveform | Display function | Scaling of time base, differential and integral calculus |
| FFT analysis | Analysis points | 64 to 32 768 points |
| | Display function | Power spectrum, cross-spectrum, transfer function (amplitude), transfer function (phase), coherence function, power spectrum map, octave map, differential and integral calculus for spectral areas |
| Octave band analysis | Applicable standards | IEC 61260 (JIS C 1514) Class 1 |
| | Analysis frequency range | Octave band<br>0.5 Hz to 8 kHz (15 bands),<br>1/3 octave band<br>0.4 Hz to 10 kHz (45 bands),<br>1/12 octave band<br>0.36 Hz to 11 kHz (180 bands) |

Recommended operating environment

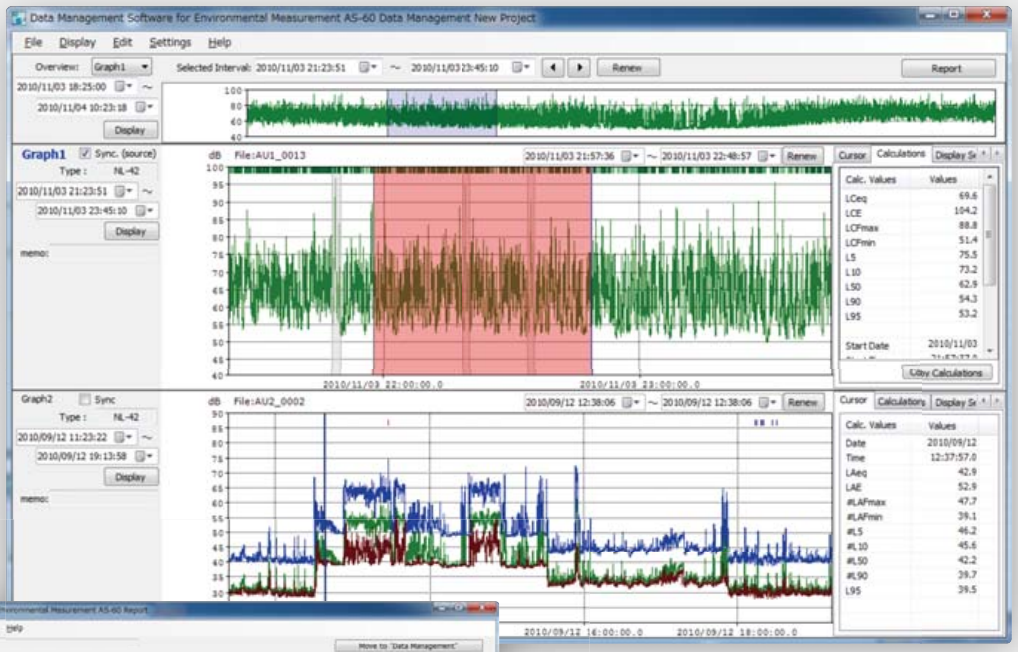
| | |
|---|---|
| CPU | Intel Core™2 Duo 2.4 GHz or higher |
| RAM | 2 GB or more |
| HDD | 60 GB or more (free space) |
| DISPLAY | SXGA (1280 × 1024) or more |
| OS | Microsoft Windows XP Professional 32 bit, Vista Business 32 bit, 7 Professional 32 bit and 64 bit |

# Complete software for environmental measurements

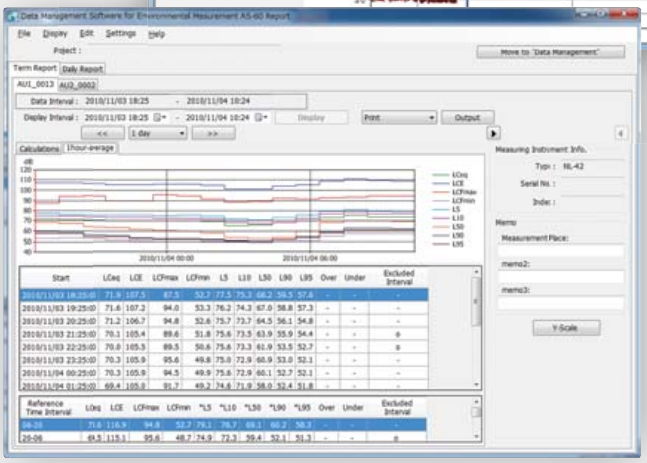
## Data management software for environmental measurement AS-60

**Data management software for environmental measurement AS-60 enables the graph display of measurement data, arithmetic processing, exclusion sound processing, preparation of reports, output of files, and playback of real sound files.**

- **Easy to use**
- **Simultaneous display of multiple data items** (up to 8 data items)
- **Reports easy to prepare**
- **Data on the data recorder can be loaded** (CSV file for DA-40 Viewer)
- **Data combination**




Data management screen



Report preparation screen

### Supported models

- **NL-62**＊
- **NL-52/42**＊
- **NL-32/31/22/21**＊
- **DA-40Viewer**

＊Only auto store data are supported.

**Support for the following model will be available in future (at cost)**

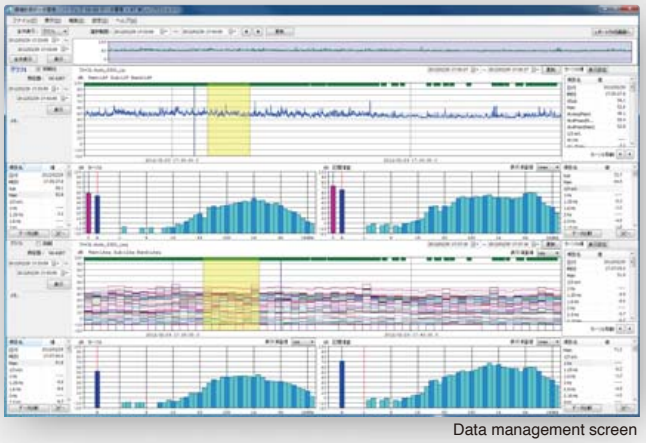
- **VM-53A**

**Recommended computer specifications**
**(Common for AS-60/AS-60RT)**

| | |
|---|---|
| CPU | Intel Core™2 Duo 2.0 GHz or higher |
| RAM | 2 GB or more |
| DISPLAY | XGA (1 024 x 768) or more, at least 65 536 colors |
| OS | Microsoft Windows XP Professional 32 bit, Microsoft Windows 7 Professional 32 bit and 64 bit |

● If AS-60/60RT is used on the NL-52/42, the NX-42EX is also needed.

## Data management software for environmental measurement AS-60RT
**(Includes the octave and 1/3 octave data management software)**



Data management screen

### Adds support for handling octave band analysis data to AS-60

AS-60RT is for managing data saved with the NX-62RT/42RT or data measured with the NA-28 on a computer.

### Supported models

- **NX-62RT**＊
- **NX-42RT**＊
- **NA-28**＊

＊Only auto store data are supported.

## Specifications

| | NL-62 |
|---|---|
| Applicable standards | IEC 61672-1: 2002 Class 1<br>ISO 7196: 1995<br>ANSI S1.4-1983 Type 1<br>ANSI S1.4A-1985 Type 1<br>ANSI S1.43-1997 Type 1<br>JIS C 1509-1: 2005 Class 1 |
| | CE Marking (EMC Directive 2004/108/EC, Low Voltage Directive 2006/95/EC), WEEE Directives, Chinese RoHS (export model for China only) |
| Measurement functions | Simultaneous measurement of the following items, with selected time weighting and frequency weighting |
| Processing (main ch) | Instantaneous sound pressure level: $L_P$<br>Equivalent continuous sound pressure level: $L_{eq}$<br>Sound exposure level: $L_E$<br>Maximum sound pressure level: $L_{max}$<br>Minimum sound pressure level: $L_{min}$<br>Percentile sound levels: $L_N$ (0.1 to 99.9 %, 0.1-increment steps, max. 5 values) |
| Processing (sub ch) | Instantaneous sound pressure level: $L_P$ |
| Additional processing | One of the following can be selected:<br>C-weighted equivalent continuous sound level: $L_{Ceq}$<br>G-weighted average sound level: $L_{Geq}$<br>C-weighted peak sound level: $L_{Cpeak}$<br>Z-weighted peak sound level: $L_{Zpeak}$<br>Power average of max. level in time weighted sound level interval $L_{Atm5}$<br>I-time-weighted average sound level: $L_{AIeq}$<br>Max. value of I-time-weighted average sound level: $L_{AImax}$<br>*Because additional processing frequency characteristics are linked to sub channel frequency characteristics, $L_{Atm5}$, $L_{AIeq}$, $L_{AImax}$ can be selected when A characteristics are selected for sub channel. When C, G, or Z characteristics are selected, $L_{Ceq}$ and $L_{Cpeak}$, $L_{Geq}$, and $L_{Zpeak}$ can be selected for additional processing. |
| Measuring time | 10 s, 1, 5, 10, 15, 30 m, 1, 8, 24 h, and manual (maximum 24 h)<br>Max. 1 000 hours with auto store |
| Microphone: Type | UC-59L |
| Microphone: Sensitivity level | −27 dB |
| Measurement range | A-weighting: 25 dB to 138 dB<br>C-weighting: 33 dB to 138 dB<br>G-weighting: 43 dB to 138 dB<br>Z-weighting: 50 dB to 138 dB<br>C-weighting peak sound level: 60 dB to 141 dB<br>Z-weighting peak sound level: 65 dB to 141 dB |
| Inherent noise: A-weighting | 17 dB or less |
| Inherent noise: C-weighting | 25 dB or less |
| Inherent noise: G-weighting | 35 dB or less |
| Inherent noise: Z-weighting | 42 dB or less |
| Frequency range | 1 Hz to 20 kHz |
| Frequency weighting | A, C, G and Z |
| Time weighting | F (Fast) and S (Slow), I (Impulse) and 10 s |
| Level range | Single range (Linearity range: 113 dB) |
| Bar graph display range max | Max. 110 dB (20 to 130 dB) |
| Switching of bar graph display | Set the upper/ lower limit in 10 dB increments. |
| RMS detection circuit | Digital processing method |
| Sampling cycle | 20.8 µs ($L_P$, $L_{eq}$, $L_E$, $L_{max}$, $L_{min}$, $L_{peak}$ : sampling frequency: 48 kHz)<br>100 ms ($L_N$) |
| Calibration | Measurement Law: electrical calibration performed according to IEC and JIS standards, using internally generated signals: acoustic calibration performed with the NC-74. |
| Correction functions | Windscreen correction:<br>Compliant with IEC 61672-1 and JIS C 1509-1 standards when the windscreen is installed. |
| | Diffuse sound field correction:<br>Correction of frequency characteristics in order to comply with standards (ANSI S1.4) in diffuse sound field. |
| Delay time | The meter can be set to start measuring a specified time (OFF, 1, 3, 5 or 10 s) after the start button has been pressed or when a user-set trigger is exceeded. |
| Back erase function | When the PAUSE key is pressed to pause measurement, the preceding (user selectable) 0, 1, 3 or 5 s data are excluded from processing. |
| Display | Backlit semitransparent color TFT LCD display WQVGA (400 x 240 dots)<br>*LCD with touch panel (Capacitive Touch Panel) |
| | Numerical display update frequency: 1 s Bar graph update frequency: 100 ms |
| Store: Manual | Data for measurement results are stored manually in single address increments. |
| Store: Manual: Number of data | Internal memory: max. 1 000 sets<br>SD Card: depends on the capacity of the SD Card*1 |
| Store: Auto | Instantaneous values ($L_P$ mode) and processed values ($L_{eq}$ mode) are stored continuously and automatically at preset intervals. |
| Store: Auto: $L_P$ sampling cycle | 100 ms, 200 ms, 1 s, $L_{eq\ 1s}$ |
| Store: Auto: $L_{eq}$ sampling cycle | 10 s, 1, 5, 10, 15, 30 ms, 1, 8, 24 h |
| Store: Auto: Measurement Time | Max. 1 000 h (depends on the capacity of the SD Card)*1 |
| Data recall | Allows viewing of stored data |
| Setup memory | Up to five setup configurations can be saved in internal memory, for later recall<br>Start up via file settings previously stored on SD card possible |
| Waveform recording*2 | |
| Waveform recording: File format | Uncompressed waveform WAVE file |
| Waveform recording: Sampling frequency | Select 48 kHz, 24 kHz or 12 kHz |
| Waveform recording: Data length | Select 24 bit or 16 bit |
| Outputs: DC output | Output DC signals using a frequency weighting characteristic selected by processing. |
| Outputs: DC output: Output voltage | 2.5 V, 25 mV / dB at bar graph display full scale |
| Outputs: AC output | Output AC signal using frequency weighting selected by processing or by A, C, Z, G weighting |
| Outputs: AC output: Output voltage | 1 V (rms values) at bar graph display full scale |
| Outputs: Comparator output | Turns on when the open-collector output exceeds the set value (max. applied voltage 24 V, max. current 60 mA, allowable dissipation 300 mW). |
| USB | Allows USB to be connected to a computer and recognized as a removable disk<br>Allows USB to be controlled via communication commands |
| RS-232C communication | Allows for RS-232C communication via use of a dedicated cable |
| Data continuous output | |
| Data continuous output: Type of data: Instantaneous value | $L_P$ |
| Data continuous output: Type of data: Processed value | $L_{eq}$, $L_{max}$, $L_{min}$, $L_{peak}$ |
| Data continuous output: Output interval | 100 ms,1 s |
| Print out | Printing of measurement results on dedicated printer DPU-414 |
| Power requirements | Four IEC R6 (size AA) batteries (alkaline or rechargeable batteries) or external power supply |
| Battery life (23 ˚C) | Alkaline battery LR6 (AA): 16 h Ni-MH secondary battery: 16 h<br>At the maximum *Depends on the setting |
| AC adapter | NC-98C |
| External power voltage | 5 to 7 V (rated voltage: 6 V) |
| Current consumption | Approximately 120 mA (normal operation, rated voltage) |
| Ambient conditions: Temperature | −10 to +50 ˚C |
| Ambient conditions: Humidity | 10 to 90 % RH (non-condensing) |
| Dustproof / water-resistant performance*3 | IP code: IP54 (except for microphone)<br>See precautions regarding waterproofing |
| Dimensions, weight | Approx. 255 (H) x 76 (W) x 33 mm(D), approx. 400 g (with batteries) |
| Supplied accessories | Storage case x 1, Windscreen WS-10 x 1, Windscreen fall prevention rubber x 1, Hand strap x 1, LR6 (AA) alkaline batteries x 4, SD card 512 MB×1 |

## Options

| Product name | Product number |
|---|---|
| Waveform recording program (Inst.on 2 GB SD card) | NX-42WR |
| Octave, 1/3 octave real-time analysis program (Inst.on 512 MB SD card) | NX-62RT |
| FFT analysis program (Inst.on 512 MB SD card) | NX-42FT |
| Waveform analysis software | CAT-WAVE |
| SD Card 512 MB | SD-512M |
| SD Card 2 GB | SD-2G |
| AC adapter (100 V to 240 V) | NC-98C |
| Battery pack | BP-21 |
| Microphone extension cables | EC-04 (from 2 m) |
| BNC-Pin output code | CC-24 |
| Comparator output cable | CC-42C |
| Printer | DPU-414 |
| Printer cable | CC-42P |
| RS 232C serial I/O cable | CC-42R |
| USB cable | — |
| Sound calibrator | NC-74 |
| Windscreen for outdoor | WS-15 |
| Windscreen mounting adapter | WS-15006 |
| Rain-protection windscreen | WS-16 (Upcoming product) |
| Sound level meter tripod | ST-80 |
| All-weather windscreen tripod | ST-81 |

*1 Use Rion fully guaranteed products. *2 NX-42WR required (sold separately).
*3 Protection against harmful dust and water splashing from any direction.

**Precautions regarding waterproofing**

Before use, verify that the rubber bottom cover and the battery compartment lid are firmly closed.
To maintain the water and dust proof rating, internal packing replacement is required every two years (at cost).

* Windows is a trademark of Microsoft Corporation.
* Specifications subject to change without notice.

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Distributed by:

RION CO., LTD.
http://www.rion.co.jp/english/
3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan
Tel: +81-42-359-7888 Fax: +81-42-359-7442

This product is environment-friendly. It does not include toxic chemicals on our policy.
This product is certified to an International Protection rating of IP54 (dust protected and resistant to splashing water).
This leaflet is printed with environmentally friendly vegetable-based ink on recycled paper.

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