Sound Level Meter Class1 NL-52
Sound Level Meter Class2 NL-42

RION

Measure Sounds Reliably

Sound Level Meter Class1 *NL-52*

Sound Level Meter Class2 *NL-42*

Extremely User Friendly
Rion's NL-52 and NL-42 sound level meters provide full support for the measurement process.

The NL-52 and NL-42 were developed to eliminate the trouble of reading instructions when conducting measurements.
Large and easily viewable three-inch LCD color display.
The unit (except for the microphone) is water-resistant, which means that it is unaffected by sudden rain showers.
You can use rechargeable batteries to help cut down on waste, making this an environmentally friendly product.

Equipped with non-slip rubber grips

Large color LCD screen

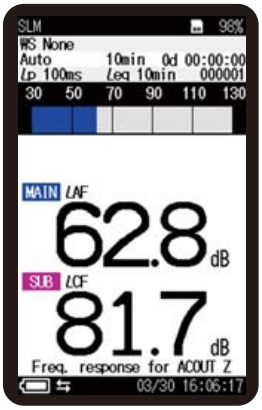
Three-inch LCD screen with a touch panel
High resolution screen is easy to see indoors or outdoors and even in the dark.

Variety of I/O Connections

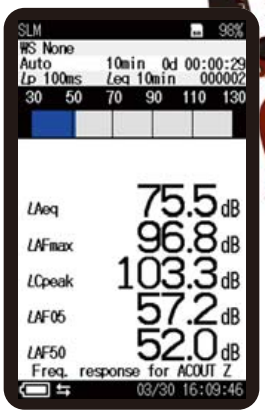
No paper manual is needed.

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

Measurement Display
(T-L graph)



Measurement Display
(Main and Sub Simultaneous Displays)



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.**

＊Mounting the outdoor windscreen and rainproof windscreen helps raise the water-resistant performance of the entire unit, so that the microphone will also meet IPX3 specifications.

Use of rechargeable batteries

**In these new models it is possible to use rechargeable batteries which make these meters environmentally-friendly.
24 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

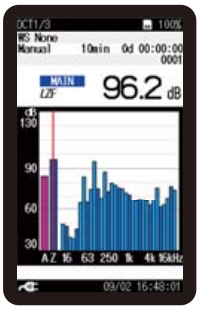
NL-52/42 1000 h (approx. one month)

Previous model 200 h (approx. one week)

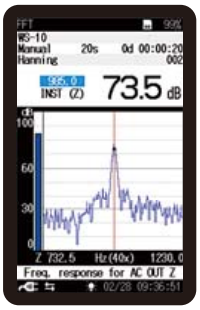
Example of detailed recording	If the L_P is measured at 100 ms intervals and the L_{eq} is simultaneously measured at 10 m intervals over a 24 h period, the total size of accumulated data is approximately 74 MB (reference value)

Functionality can be extended by a range of options

Additional functions can be added, such as simultaneous logging of raw data (100 ms L_P) and processed data(L_{eq} and other indices), frequency analysis and long-term data recording.



1/3 octave band
analysis screen



Analysis screen
(x40)

Data management screen using AS-60 software

Optional program function list

When the optional programs are installed, the following functions are added:

Extended function program NX-42EX

Adds a number of programs.

When NX-42EX is installed*, NX-42WR, NX-42RT and NX-42FT can be added.

NX-42EX
+
NX-42WR
NX-42RT
NX-42FT

*The NX-42EX program cannot be uninstalled.

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

NX-42EX
Auto store function (instantaneous value, processed value)
Comparator function
Continuous data output function

+

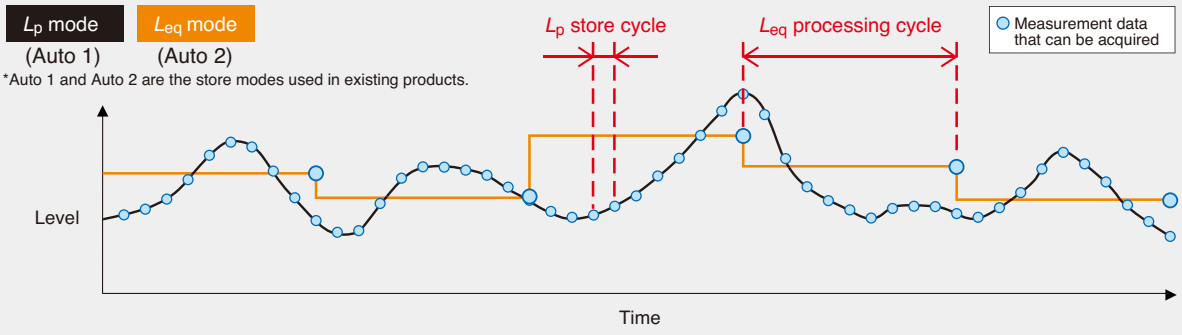
Program type / Additional function	NX-42WR	NX-42RT	NX-42FT
Real sound monitor (waveform recording)	●		
Octave, 1/3 octave band analysis		●	
Octave, 1/3 octave band filter output		●	
FFT analysis			●

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

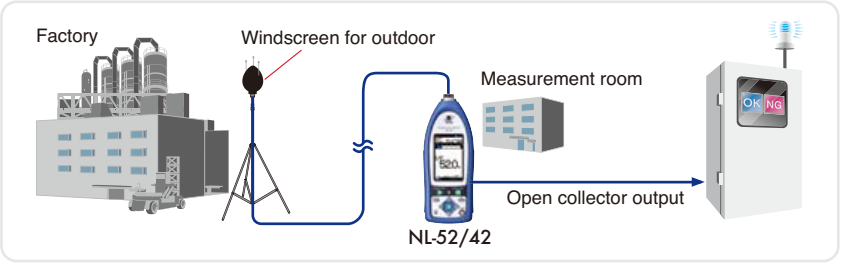
L_p mode (instantaneous SPL) and L_{eq} mode (equivalent continuous SPL) concept



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.

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.

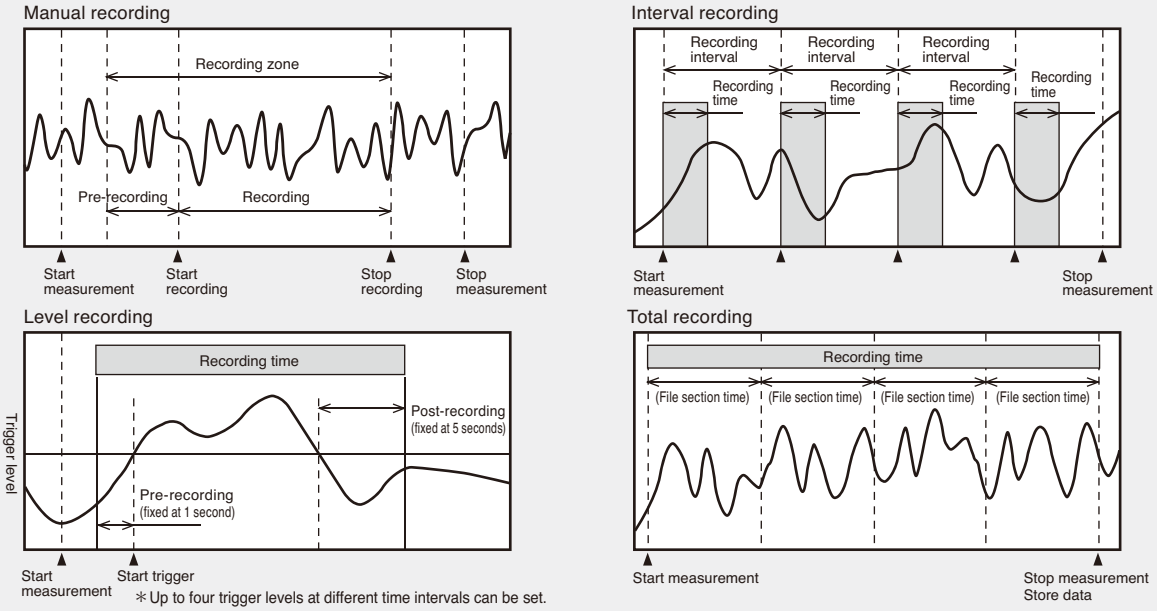
(Uncompressed waveform WAVE file)

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

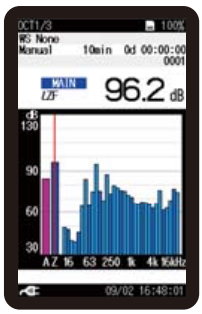


＊Up to four trigger levels at different time intervals can be set.

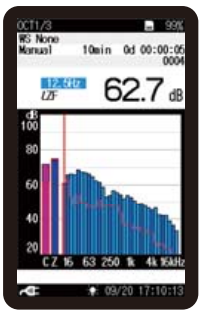
Octave, 1/3 octave real-time analysis program NX-42RT

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

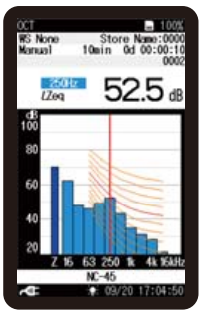
By adding a program to the NL-52/NL-42, octave band and 1/3 octave band analysis can be performed. Saved analysis results can be loaded and shown in an overlay graph display together with current analysis data. NC curve graph display and NC value calculation/display are also possible. Using the AS-60RT software, data can be utilized and managed on a computer.



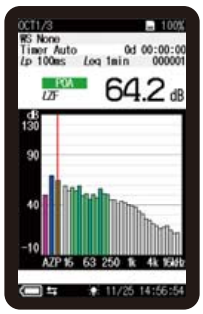
1/3 octave band analysis screen



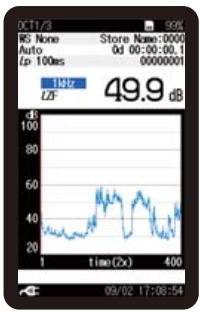
Overlay analysis screen



NC curve screen



Partial over all screen



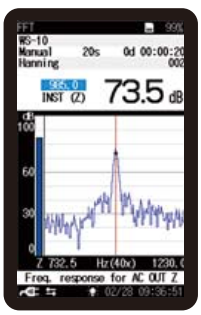
Measurement screen (T-L graph)

FFT analysis program NX-42FT

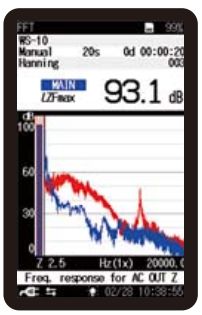
The NX-42FT is supplied on the 512 MB SD card. The 512 MB SD card can be used as a memory card after installing the program.

By adding a program to the NL-52/NL-42, 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.

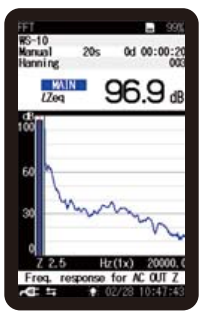
Analysis screen (x1)



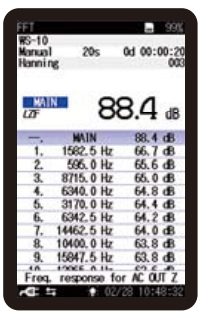
Analysis screen (x40)



Overlay analysis screen

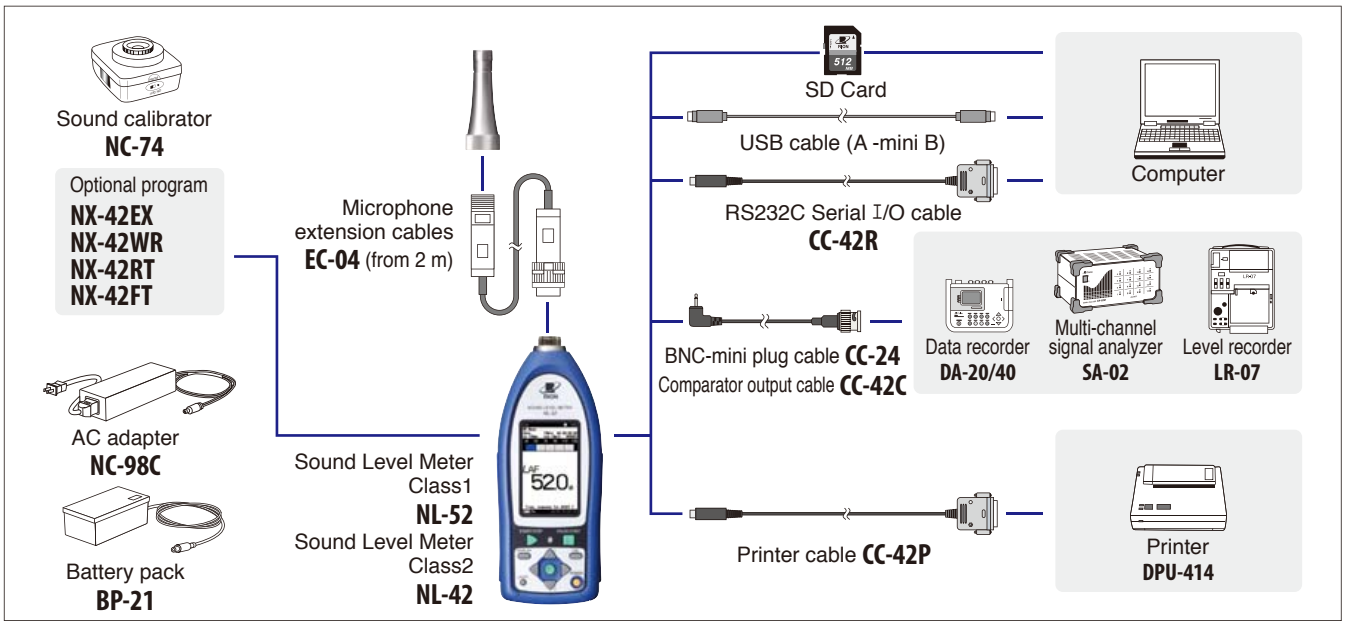


Linear average screen



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.

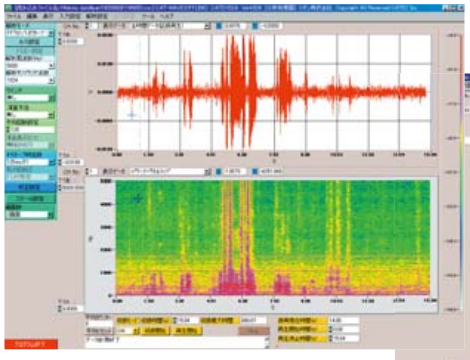
ST-80

ST-81

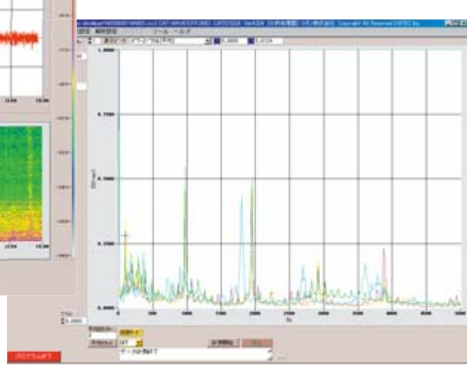
(For outdoor windscreen WS-15, use of ST-81 is recommended.)

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 0.5 Hz to 8 kHz (15 bands), 1/3 octave band 0.4 Hz to 10 kHz (45 bands), 1/12 octave band 0.36 Hz to 11 kHz (180 bands)

Recommended operating environment

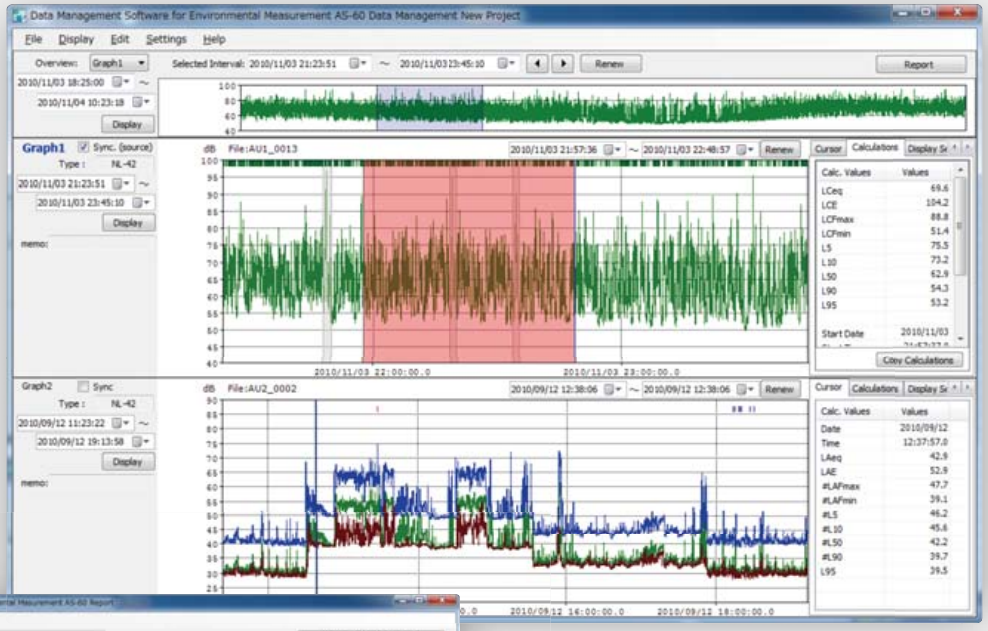
CPU	Intel Core™2 Duo 2.4 GHz or higher
RAM	2 GB or more
HDD	60 GB or more (free space)
DISPLAY	SXGA (1280 × 1024) or more
OS	Microsoft Windows XP Professional 32 bit, Vista Business 32 bit, 7 Professional 32 bit and 64 bit

Complete software for environmental measurements

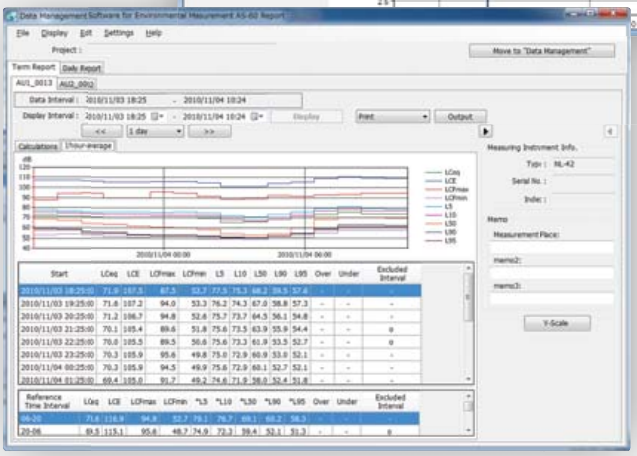
Data management software for environmental measurement AS-60

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-52	NL-42
Applicable standards		IEC 61672-1: 2002 Class 1 ANSI S1.4-1983 Type 1 ANSI S1.4A-1985 Type 1 ANSI S1.43-1997 Type 1 JIS C 1509-1: 2005 Class 1	IEC 61672-1: 2002 Class 2 ANSI S1.4-1983 Type 2 ANSI S1.4A-1985 Type 2 ANSI S1.43-1997 Type 2 JIS C 1509-1: 2005 Class 2
		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 Equivalent continuous sound pressure level: L_{eq} Sound exposure level: L_E Maximum sound pressure level: L_{max} Minimum sound pressure level: L_{min} 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	In addition to main processing items, one of the following can be selected for simultaneous processing: C-weighted equivalent continuous sound level: L_{Ceq} C-weighted peak sound level: L_{Cpeak} Z-weighted peak sound level: L_{Zpeak} I-time-weighted equivalent continuous sound level: L_{AIeq} ∗2 Maximum I-time-weighted equivalent continuous sound level: L_{AImax} ∗2 The power average of the maximum level of each 5 second interval: L_{Atm5} The frequency weighting for the additional processing synchronizes with the frequency weighting of the sub-channel, so when the sub-channel has A-weighting, L_{Atm5} can be selected. When C-weighting (Z-weighting) is selected, the additional processing L_{Ceq} and L_{Cpeak} (L_{Zpeak}) are selectable.	
Measuring time		10 s, 1, 5, 10, 15, 30 m, 1, 8, 24 h, and manual (maximum 24 h)	
Microphone	Type	UC-59	UC-52
	Sensitivity level	−27 dB	−33 dB
Measurement range		A-weighting: 25 dB to 138 dB C-weighting: 33 dB to 138 dB Z-weighting: 38 dB to 138 dB C-weighting peak sound level: 55 dB to 141 dB Z-weighting peak sound level: 60 dB to 141 dB	
Inherent noise	A-weighting	17 dB or less	19 dB or less
	C-weighting	25 dB or less	27 dB or less
	Z-weighting	30 dB or less	32 dB or less
Frequency range		20 Hz to 20 kHz	20 Hz to 8 kHz
Frequency weighting		A, C, and Z	
Time weighting		F (Fast) and S (Slow)	
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) 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: Compliant with IEC 61672-1 and JIS C 1509-1 standards when the windscreen is installed.	
		Diffuse sound field correction: 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) ∗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.	
	Number of data	Internal memory: max. 1 000 sets SD Card: depends on the capacity of the SD Card ∗1	
	Auto ∗2	Instantaneous values (L_P mode) and processed values (L_{eq} mode) are stored continuously and automatically at preset intervals.	
	L_P sampling cycle	100 ms, 200 ms, 1 s, $L_{eq\ 1s}$	
	L_{eq} sampling cycle	10 s, 1, 5, 10, 15, 30 ms, 1, 8, 24 h	
	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 Start up via file settings previously stored on SD card possible
Waveform recording ∗3		
	File format	Uncompressed waveform WAVE file
	Sampling frequency	Select 48 kHz, 24 kHz or 12 kHz
	Data length	Select 24 bit or 16 bit
Outputs	DC output	Output DC signals using a frequency weighting characteristic selected by processing.
	Output voltage	2.5 V, 25 mV / dB at bar graph display full scale
	AC output	Output AC signals using a frequency weighting characteristic selected by processing or by A, C, Z-weighting.
	Output voltage	1 V (rms values) at bar graph display full scale
	Comparator output ∗2	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 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 ∗2		
	Type of data: Instantaneous value	L_P
	Type of data: Processed value	L_{eq}, L_{max}, L_{min}, L_{peak}
	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): 26 h Ni-MH secondary battery: 25 h At the maximum ∗Depends on the setting
	AC adapter	NC-98C (NC-34 for previous models cannot be used)
	External power voltage	5 to 7 V (rated voltage: 6 V)
	Current consumption	Approximately 90 mA (normal operation, rated voltage)
Ambient conditions	Temperature	−10 to +50 ˚C
	Humidity	10 to 90 % RH (non-condensing)
Dustproof / water-resistant performance ∗4		IP code: IP54 (except for microphone) See precautions regarding waterproofing
Dimensions, weight		Approx. 250 (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 (NX-42EX preinstalled model only)

Options

Product name	Product number
Extended function program (Inst.on 512 MB SD card)	NX-42EX
Waveform recording program ∗2 (Inst.on 2 GB SD card)	NX-42WR
Octave, 1/3 octave real-time analysis program ∗2 (Inst.on 512 MB SD card)	NX-42RT
FFT analysis program ∗2 (Inst.on 512 MB SD card)	NX-42FT
Data management software for environmental measurement	AS-60
Data management software for environmental measurement (Includes the octave and 1/3 octave data management software)	AS-60RT
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-42EX required (sold separately). ∗3 NX-42WR required (sold separately).
∗4 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 (cost).

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

ISO 14001 RION CO., LTD.
ISO 9001 RION CO., LTD.

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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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