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

RION

TENTATIVE

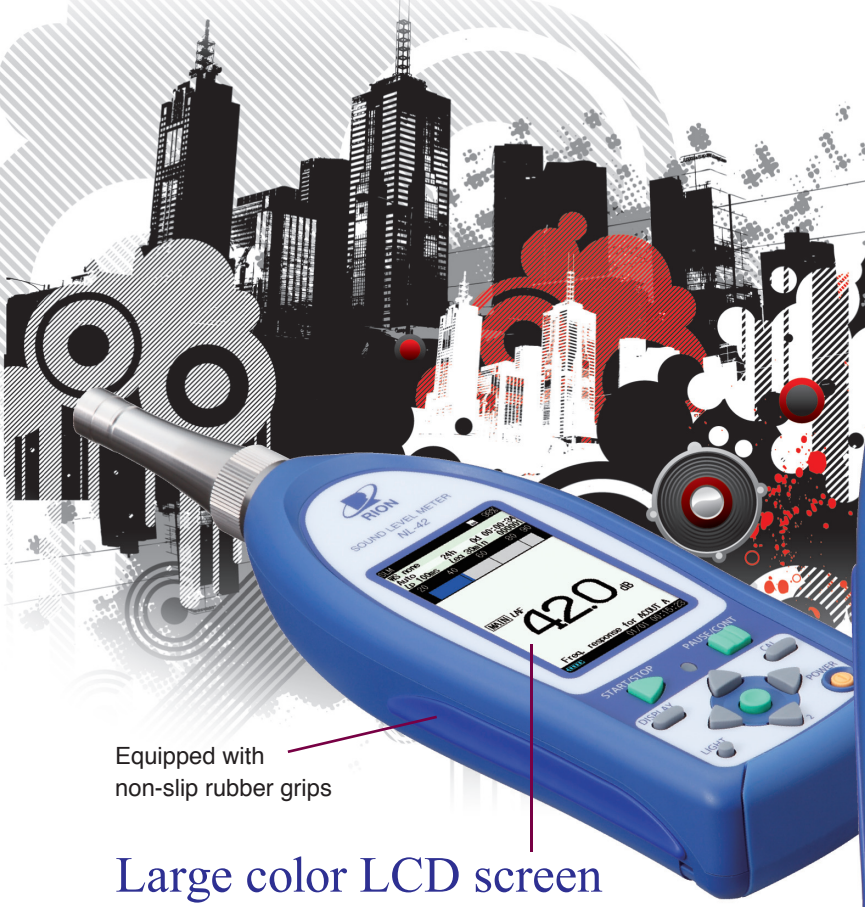
Measure Sounds Reliably

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.



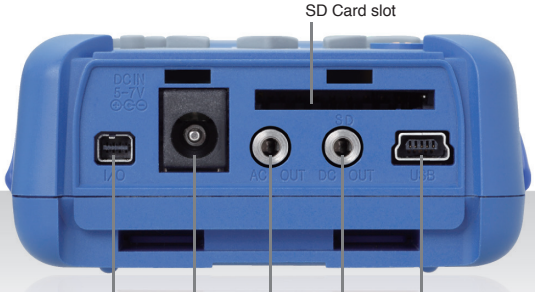
Equipped with non-slip rubber grips

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.

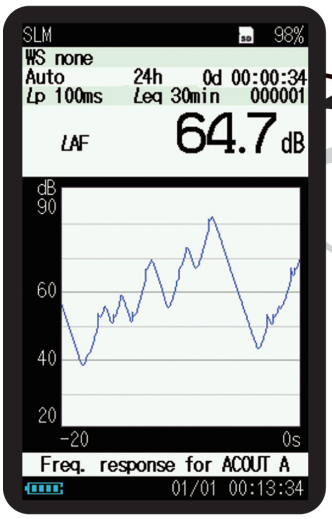
(Full scale)

Variety of I/O Connections

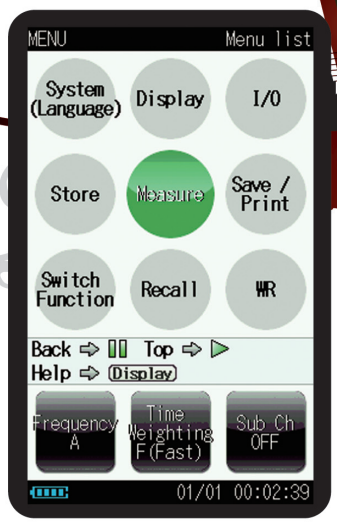


No paper manual is needed.

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

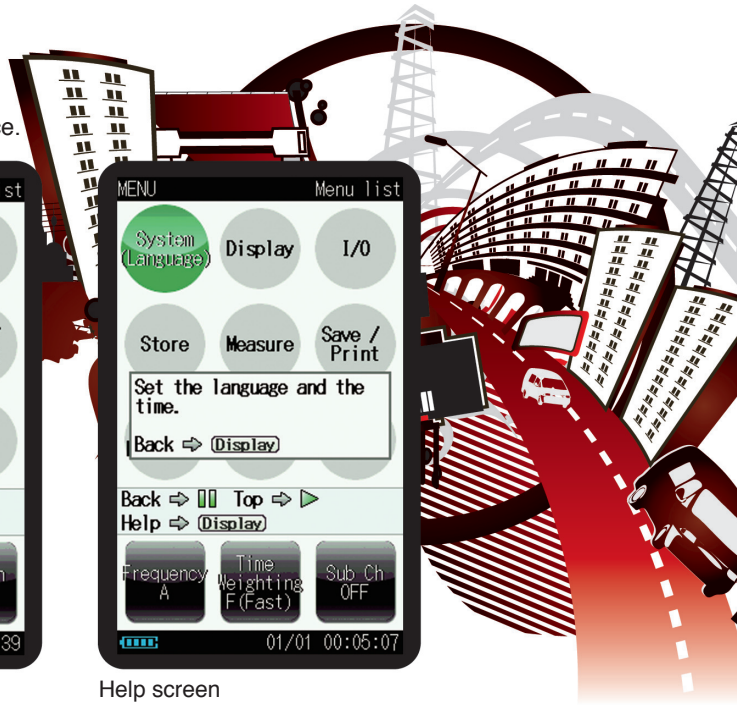


Main screen



Menu 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

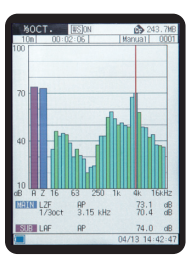
NL-52/42 1000 h (approx. one month)

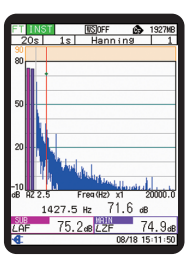
Previous model 200 h (approx. one week)

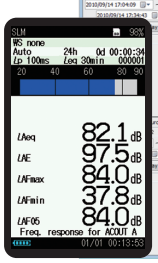
Example of detailed recording	If the L_P is measured at 100 ms intervals and the L_{eq} is simultaneously measured at 10 m intervals over a 24 h period, the total size of accumulated data is approximately 74 MB (reference value)

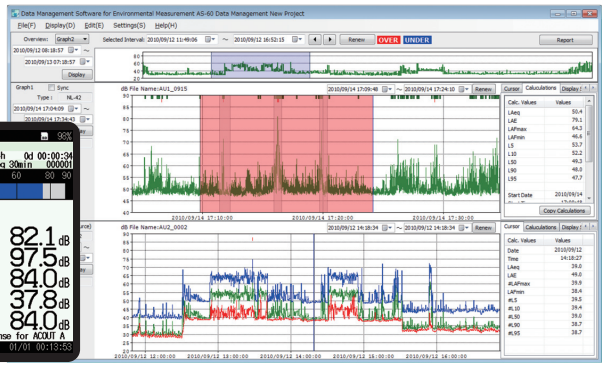
Functionality can be extended by a range of options

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.









Reference screen

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, NX-42SP and NX-42FT can be added.

NX-42EX

+

NX-42WR

NX-42RT

NX-42SP

NX-42FT

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

+

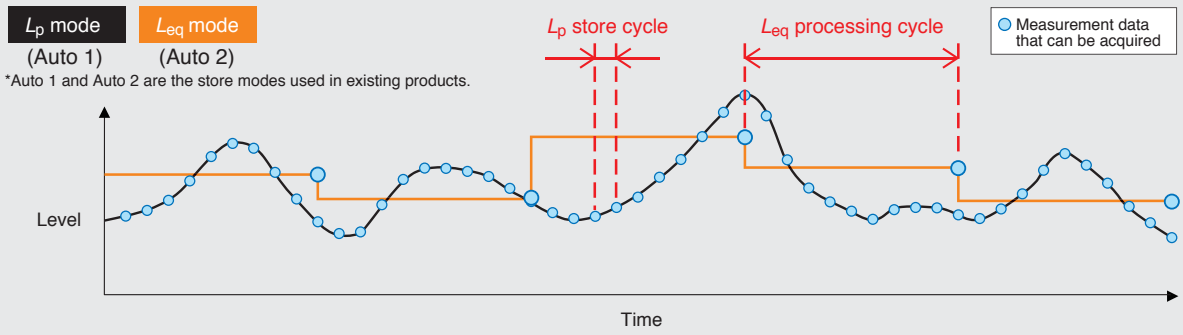
Additional function \ Program type	NX-42WR	NX-42RT	NX-42FT	NX-42SP
Real sound monitor (waveform recording)	●			
Octave, 1/3 octave band analysis		●		
Octave, 1/3 octave band filter output		●		
FFT analysis			●	
Simultaneous Processing				●

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

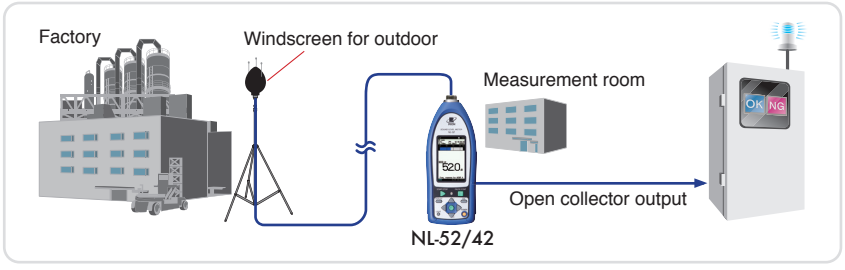
L_p mode (instantaneous SPL) and L_{eq} mode (equivalent continuous SPL) concept



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

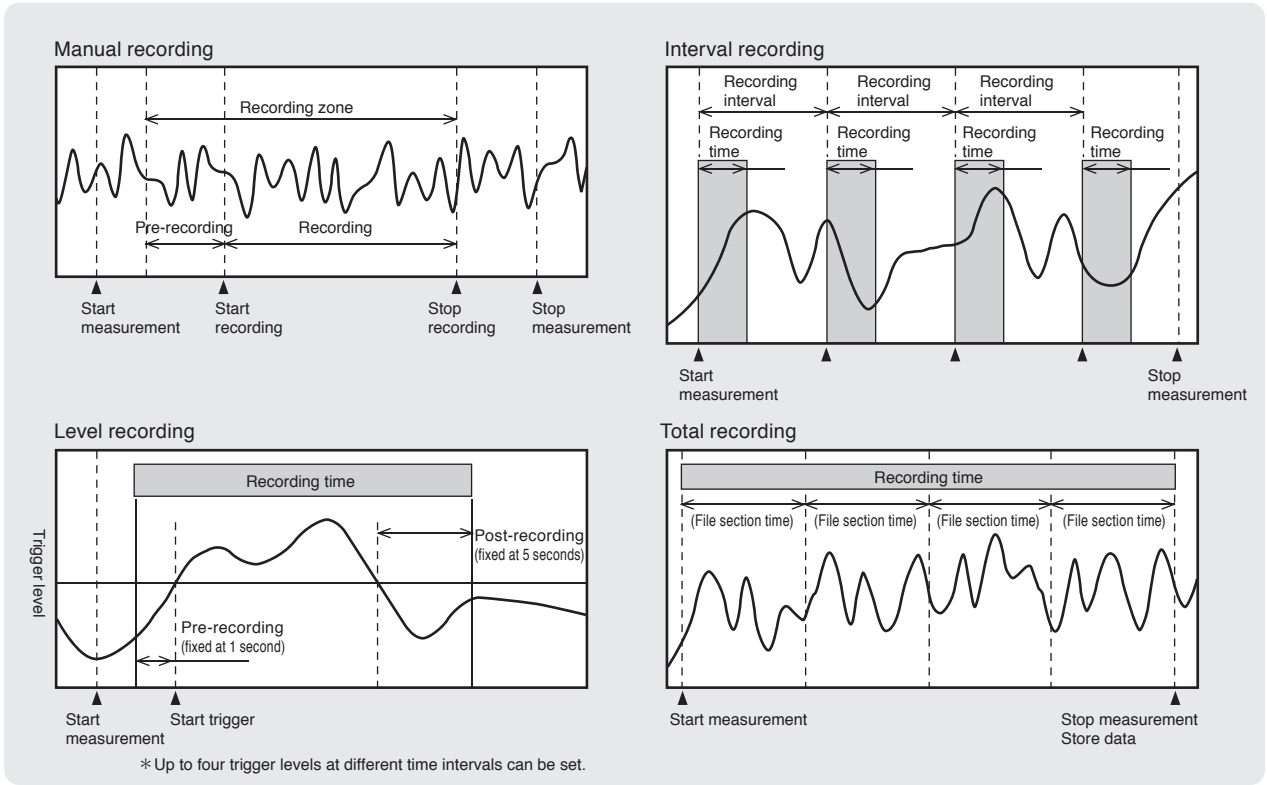
This function enables users to record sounds and processing sound to process sound levels simultaneously. Recorded data can be played on computer and used for frequency analysis. (Uncompressed waveform WAVE file)

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

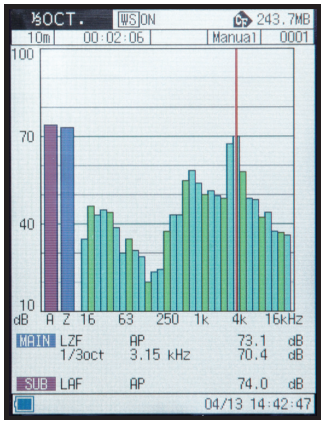


∗Up to four trigger levels at different time intervals can be set.

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

Upcoming product

Enables octave band and 1/3 octave band analysis in real time

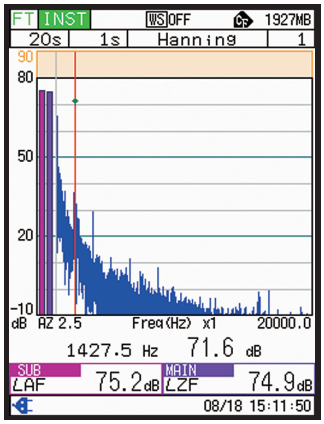


Reference screen

FFT analysis program
NX-42FT

Upcoming product

Enables FFT analysis

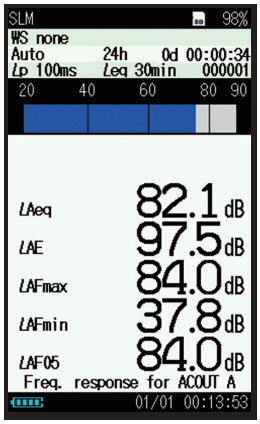


Reference screen

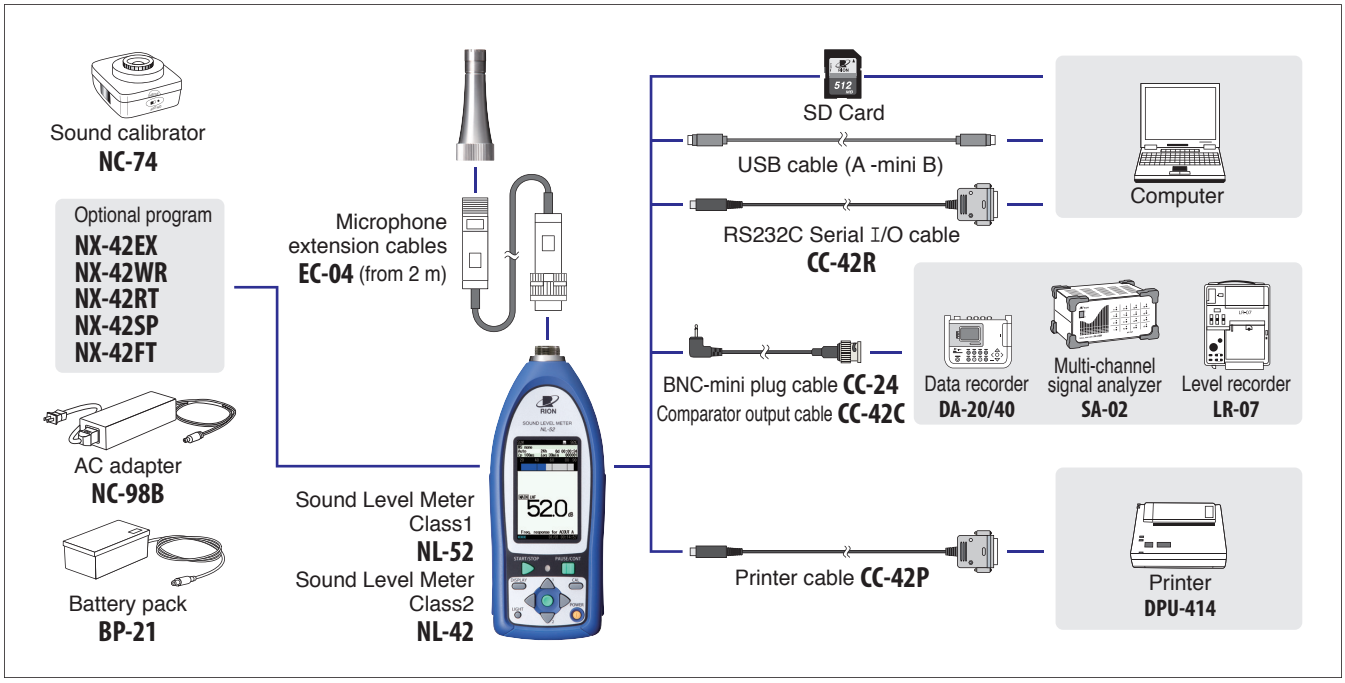
Simultaneous Processing program
NX-42SP

Upcoming product

Measurement and data logging of all available parameters with various frequency weightings and time weightings in parallel. For example L_{Aeq}, L_{Ceq} and L_{Aleq} in parallel, L_{AF},L_{AS} and L_{AI} in parallel, etc.



System construction



Peripheral devices

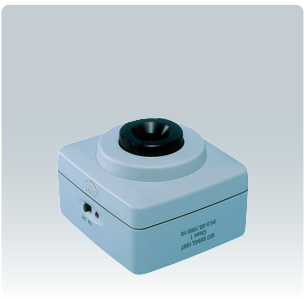
Windscreen for outdoor WS-15 Upcoming product

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.

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

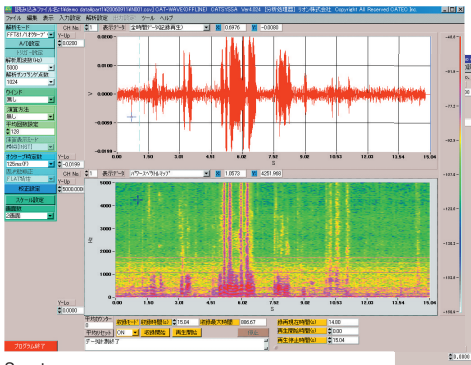
Sound level meter tripod ST-80

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

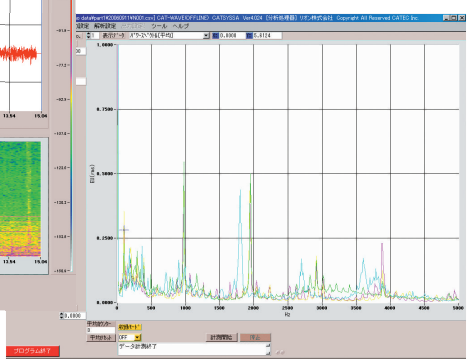
Waveform analysis software

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 (1 280 × 1 024) or more
OS	Microsoft Windows XP Professional

Data management software for environmental measurement
AS-60 (for NL-52/42, NL-32/31/22/21)

Complete software for environmental measurements

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.

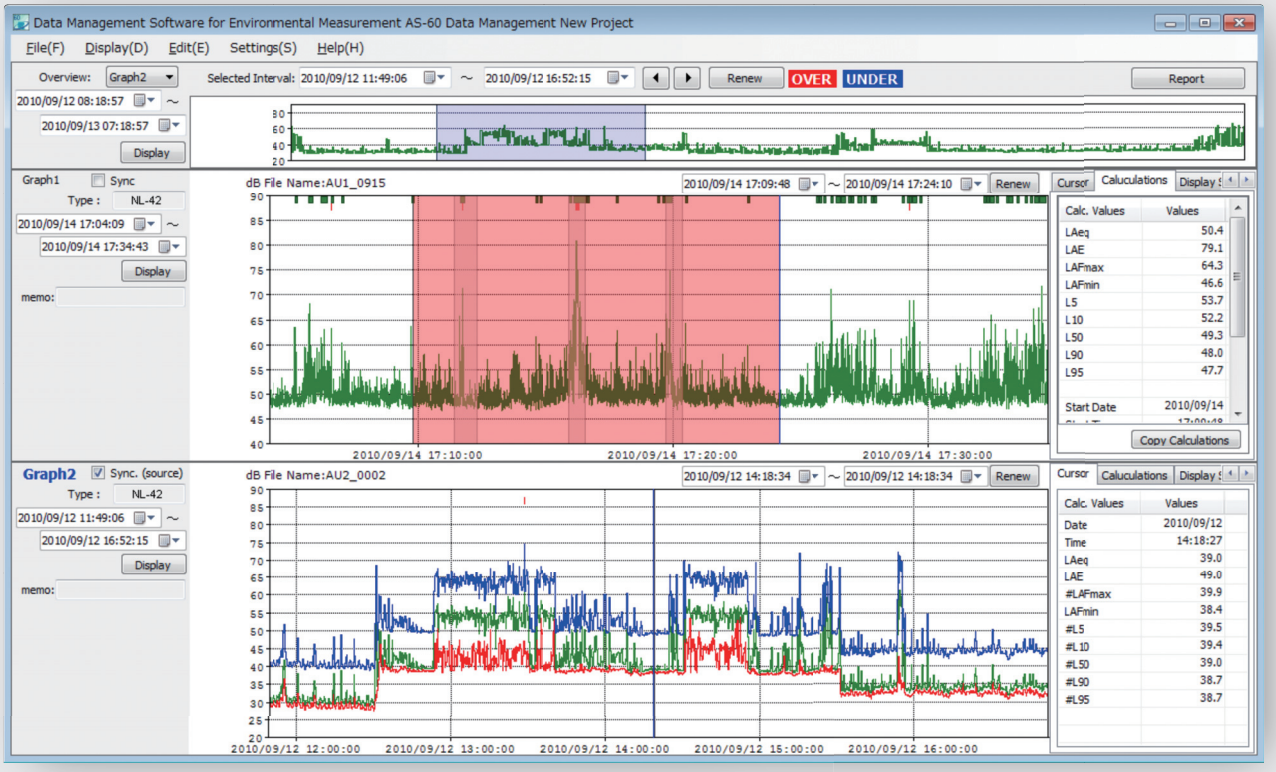
Easy to use

Simultaneous display of multiple data items (up to 8 data items)

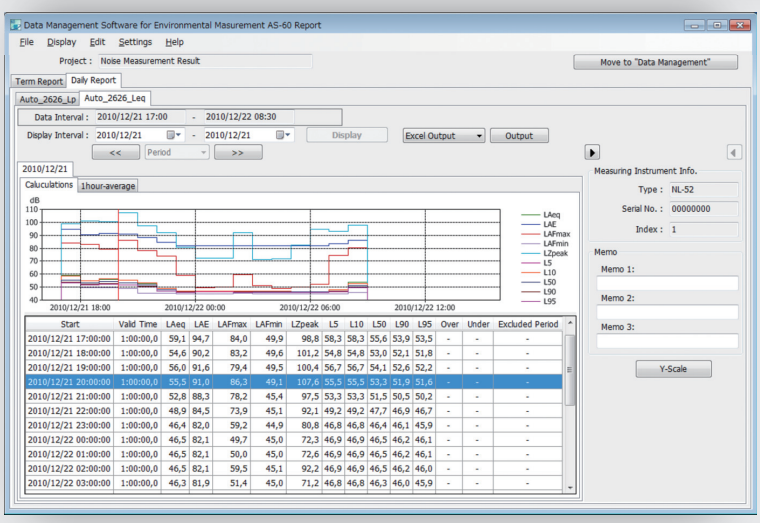
Reports easy to prepare

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

Recommended computer specifications

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 is used on the NL-52/42, the NX-42EX is also needed.

This software will also be used on the following models:

Vibration level meter **Sound level meter NA-28** **Data recorder DA-20/40**

Specifications


		NL-52	NL-42
Applicable standards		IEC 61672-1: 2002 Class 1 ANSI S1.4-1983 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 S1.43-1997 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)		1) Instantaneous sound pressure level: L_P 2) Equivalent continuous sound pressure level: L_{eq} 3) Sound exposure level: L_E 4) Maximum sound pressure level: L_{max} 5) Minimum sound pressure level: L_{min} 6) Percentile sound levels: L_N (1 to 99 %, 1 % Step: Minimum 5 values, calculated from L_P or $L_{eq\ 1s}$)	
Processing (sub ch)		1) Instantaneous sound pressure level: L_D	
Additional processing		In addition to main processing items, one of the following can be selected for simultaneous processing: 1) C-weighted equivalent continuous sound level: L_{Ceq} 2) C-weighted peak sound level: L_{Cpeak} 3) Z-weighted peak sound level: L_{Zpeak} 4) 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.	
Simultaneous processing		Parallel measurement and logging of the followiing parameters: Logging with an interval of 100 ms: L_{XY} Logging with an interval of 1 s to 24 h (selectable in steps of 1 s): L_{Xeq} and L_{Aleq}, L_{XE}, L_{XYmax} and L_{Almax}, L_{XYmin}, L_{AN}, L_{Cpeak} and L_{Zpeak}, L_{Atm5} X = Frequency weighting for A, C and Z Y = Time weighting for F, S and I N: Four exceedance values selectable 1 to 99 % in steps of 1 % and one value selectable 0.1 to 99.9 % in steps of 0.1 % (Available when the unit set on A-weighting and FAST)	
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 (dynamic 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
	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
AC adapter		NC-98B
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		IP rating: IP54 (except for microphone)
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

Options

Product name	Model
Extended function program	NX-42EX
Waveform recording program＊2	NX-42WR
Octave, 1/3 octave real-time analysis program＊2	NX-42RT
Simultaneous processing program	NX-42SP
FFT analysis program＊2	NX-42FT
Data management software for environmental measurement	AS-60
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-98B
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
Rain-protection windscreen	WS-16
Sound level meter tripod	ST-80

＊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.

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

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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 soy ink on recycled paper.

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