RION

Ideal for Wide Range of High Precision Acoustic Measurement Applications

NA-42

Sound Level Measuring Amplifier

From reliable RION microphone lineup you can select a suitable one.

The NA-42 has three settings for frequency weighting (A, C, Flat) and time weighting (Fast, Slow, Impulse), which covers the requirements of general and environmental acoustic measurements.
Measurement mode can be set to sound pressure level, sound level maximum, or peak sound pressure level.

One or two decimal points can be selected for the numeric readout of measurement results.
In addition, the large LCD panel shows settings and various other information.
Besides AC and DC output, a serial interface and a comparator output are also available.
This makes it easy to integrate the unit in a measurement or monitoring system.
Thanks to its handy box-shaped design, the unit is easily portable, and power can be supplied either by an AC adapter or from internal batteries.
Whether in the lab or in the field, the NA-42 always is a capable performer.

Readout with 2 decimal points

Rear View

The NA-42 covers a wide frequency and measurement level range and supports many different kinds of microphones. It can be used for precision measurements in diverse areas, including manufacturing and research. Suitable microphones include the low-noise microphones UC-34P and UC-57 (available in near future), and the UC-29 for measurements up to 100 kHz.

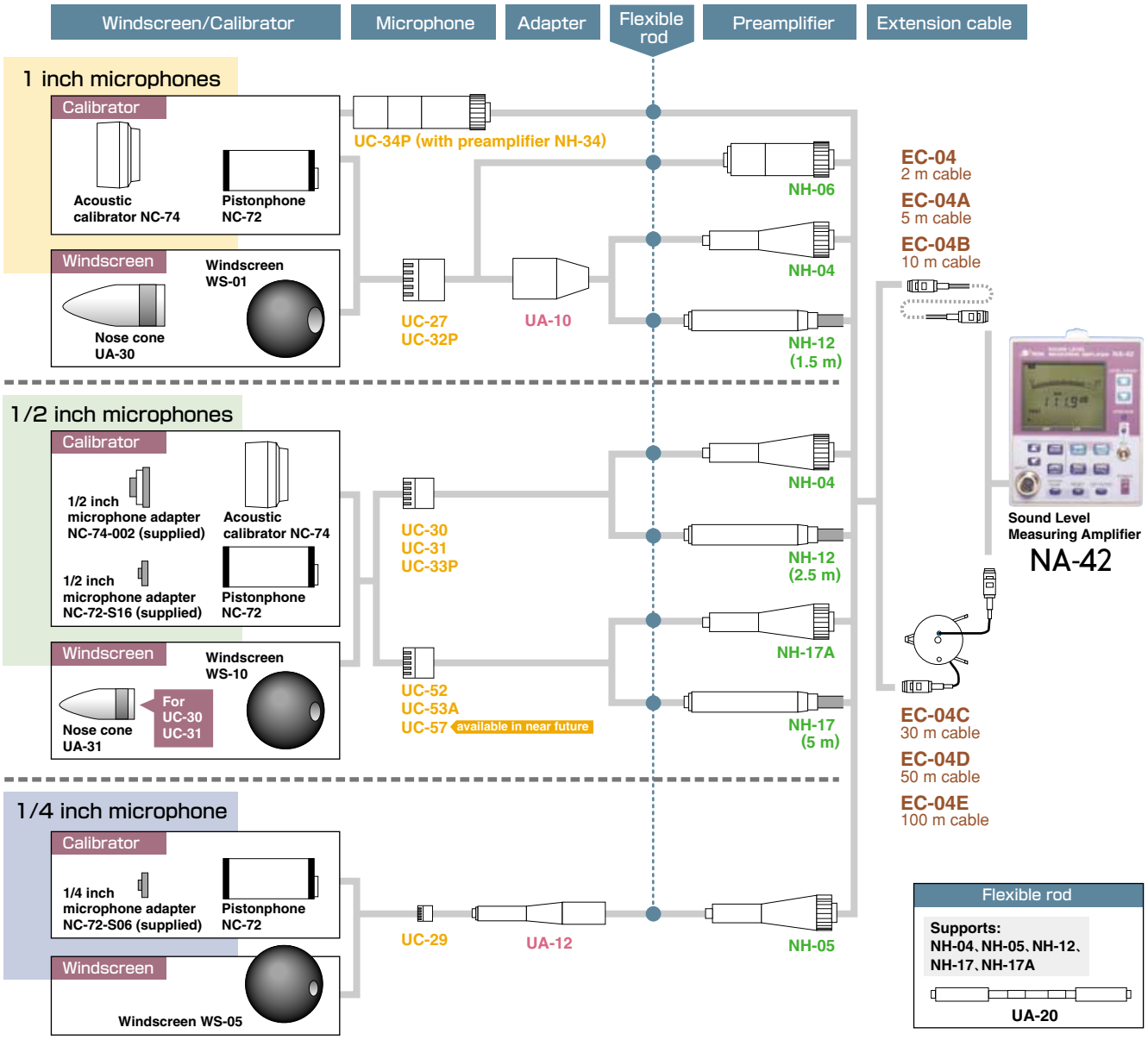
20 dB indication screen

50 dB indication screen

Features

- Wide measurement frequency and level range, plus support for many different microphone types (from low to high sound pressure levels)
- High-resolution readout of sound pressure level down to two decimal points
- Integrated comparator function is convenient for use in measurement and monitoring systems
- Serial communication with up to 16 channels supported (with Multi-Channel Adapter SC-31M/S)
- Large, easy to read LCD panel with backlight
- Continuous operation up to 14 hours on one set of alkaline batteries (size "C" x 4).
  Batteries function as power failure backup during AC adapter operation.

Microphone and preamplifier combinations



Specifications for various microphone combinations

Overall range of linear operation measured with A weighting, not including overload margin

Model	Range of linear operation	Frequency range	Suitable purpose	Applicable standards
UC-53A	28 to 145 dB	10 Hz to 20 kHz	Precision sound level measurement	A
UC-52	28 to 146 dB	20 Hz to 8 kHz	General sound level measurement	B
UC-34P	10 to 112 dB	10 Hz to 12.5 kHz	Ultra low sound level measurement	A
UC-29	50 to 164 dB	20 Hz to 100 kHz	Ultrasonic measurement and high sound pressure level measurement	A
UC-27	20 to 145 dB	5 Hz to 12.5 kHz	Low sound level measurement	A
UC-57	22 to 132 dB	20 Hz to 16 kHz	Low sound level measurement (up to 16 kHz)	A
UC-31	34 to 155 dB	10 Hz to 35 kHz	High sound pressure level measurement	A

A JIS C 1505:1988, IEC 60651:1979 Type 1

B JIS C 1502:1990, IEC 60651:1979 Type 2

UC-57 (available in near future)

The overall range of linear operation can be extended by 1 to 5 dB* up or down through microphone sensitivity selection. *Depends on microphone model.

Level range settings

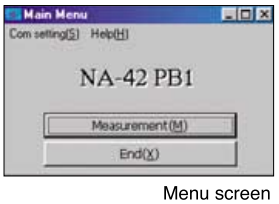
Settings shown in [ ] are only available with ±45 V preamplifier voltage.

Condition		Level range (dB)							
Preamplifier gain	Microphone sensitivity								
0 dB / 20 dB	(dB)								
0 dB	−19.9 to −10.0	60	70	80	90	100	110	120	130
	−29.9 to −20.0	70	80	90	100	110	120	130	140
	−39.9 to −30.0	80	90	100	110	120	130	140	150
	−49.9 to −40.0	90	100	110	120	130	140	150	160
	−59.9 to −50.0	100	110	120	130	140	150	160	170
	−69.9 to −60.0	110	120	130	140	150	160	170	180
20 dB (UC-34P)	−19.9 to −10.0	40	50	60	70	80	90	100	—
	−29.9 to −20.0	50	60	70	80	90	100	110	—

Management Software NA-42PB1

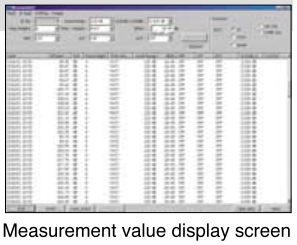
Supported operating systems: Windows 95/NT4.0/98/2000/XP

- Allows setup of NA-42
- Reads sound pressure level data every 100 milliseconds
- Reads measurement values displayed on LCD (sound pressure level, sound level maximum, peak sound pressure level)



Menu screen

- Can read measurement values at sampling intervals (1 to 3600 seconds)
- Max. 216,000 data (2.5 days with 1 data set/second)
- Saves data in CSV format (text file)



Measurement value display screen

Specifications

		NA-42
Applicable standards		With certain microphone combinations IEC 60651:1979 Type 2, JIS C 1502:1990
Measurement functions		Sound pressure level, sound level maximum, peak sound pressure level
Input section		Preamplifier input connector
		Preamplifier power supply: ±12 V or ±45 V (switchable)
		Microphone bias voltage: 30/60/200 V
Frequency range		10 Hz to 20 kHz (including UC-53A microphone)
		1 Hz to 100 kHz (NA-42 only)
Frequency weighting characteristics		A、C、FLAT
Measurement level range		Dependent on microphone combination
		〃
		〃
Residual noise level		〃
		〃
		〃
Residual noise level (NA-42 only, without microphone and preamplifier)		A weighting: 1.5 μVrms or less
		C weighting: 1.5 μVrms or less
		Flat characteristics: 7 μVrms or less
		Flat (HPF 20 Hz, LPF 20 kHz): 2.5 μVrms or less
Time weighting characteristics		F (Fast), S (Slow), I (Impulse)
RMS detection		By digital processing
Built-in filters		High-pass filter (HPF): 3rd-order Butterworth filter, 20 Hz
		Low-pass filter (LPF): 3rd-order Butterworth filter, 20 kHz
Calibration		Electrical calibration using 1 kHz sine wave signal produced by internal oscillator
Microphone sensitivity setting range		-69.99 dB to -10.00 dB (0.01 dB steps)
Outputs	AC output (BNC connector)	1 Vrms full-scale
		Output impedance 600 Ω , load impedance 10 kΩ or more
	DC output (BNC connector)	6 V (1 V/10 dB) full-scale
		Output impedance 50 Ω , load impedance 10 kΩ or more
External filter input/output		BNC connector
		Output impedance 600 Ω , input impedance 100 kΩ
Interface		Serial communication (for setting control from computer and data output)
		D-sub 9-pin male connector
		Multi-channel configuration using Multi-Channel Adapter SC-31M/S possible (up to 16 channels, maximum distance 400 m)
Comparator function		Sound pressure level evaluating comparator (M3 screw terminal block)
Display	LCD	Numeric readout to 2 decimal points or 1 decimal point (switchable)
	Bar graph	Scale range 50 dB or 20 dB (switchable)
	Other features	Various setting indicators, backlight
Power requirements		IEC R14 (size "C") batteries x 4, or AC adapter (NC-98, supplied)
Battery life		Alkaline batteries (LR14) approx. 14 hours
		Manganese batteries (R14P) approx. 6 hours
Ambient conditions for use		-10 ℃ to +50 ℃ (10 % to 90 % relative humidity)
Dimensions and weight		171 (H) x 120 (W) x 236 (D) mm, 1.8 kg (without batteries)
Supplied accessories		AC adapter (NC-98) x 1, storage case x 1, IEC R14 (size "C") batteries x 4

Optional accessories

Product name	Model number
Management software	NA-42PB1
Multi-channel adapter (master)	SC-31M
Multi-channel adapter (slave)	SC-31S
Microphone extension cable	EC-04 (2 m and up)
Input adapter	UA-01

Product name	Model number
Acoustic calibrator	NC-74
Pistonphone	NC-72
Windscreen	Various
Microphone	Various
Preamplifier	Various

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

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