

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

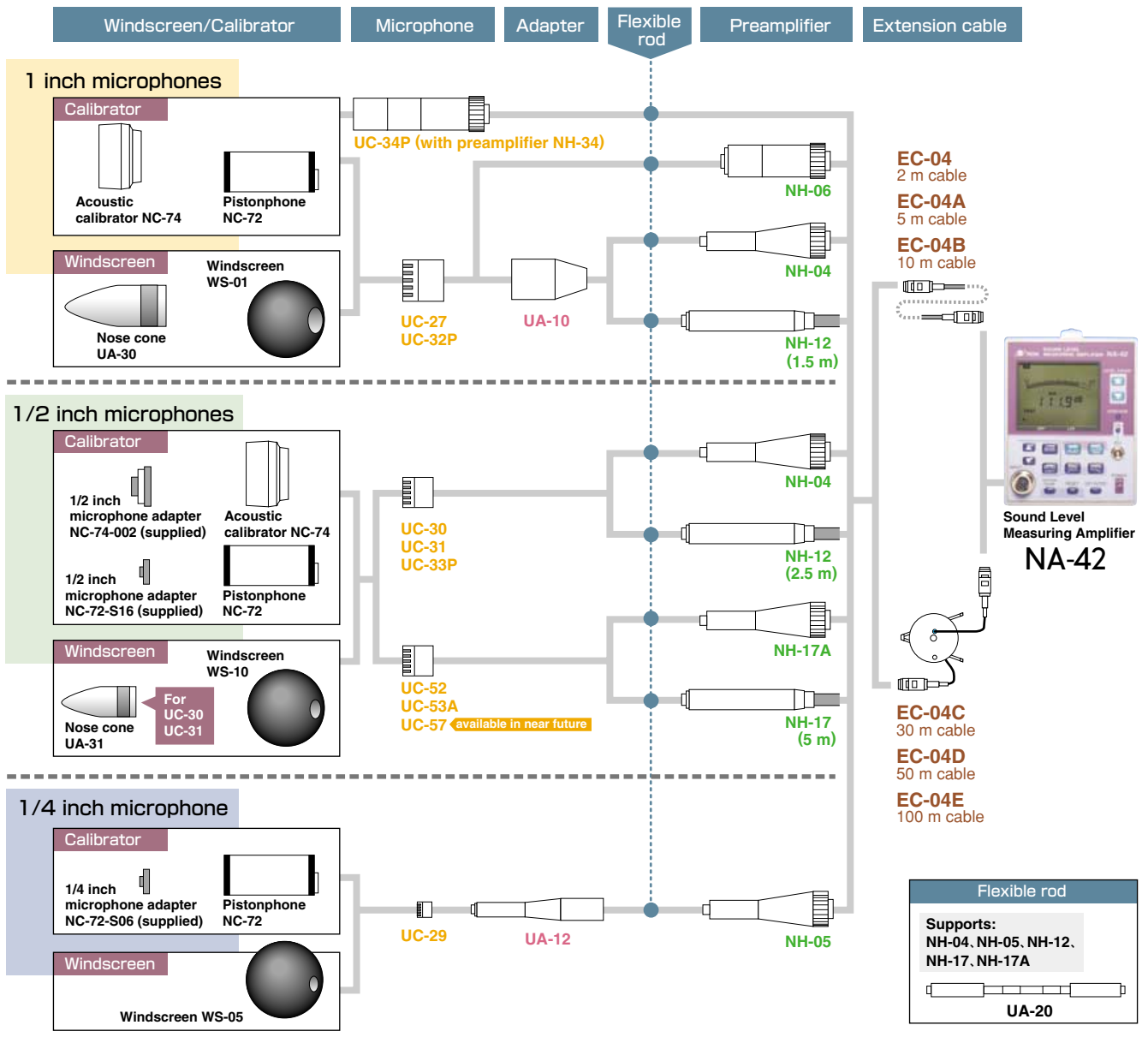


50 dB indication screen

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

A UC-57 (available in near future)

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

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 yellow are only available with ± 45 V preamplifier voltage.

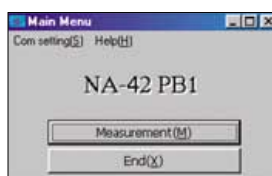
| Condition | | Level range (dB) | | | | | | | | | | | | |
|-------------------|-----------------------------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Preamplifier gain | Microphone sensitivity (dB) | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140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

Management Software NA-42PB1

Supported operating systems

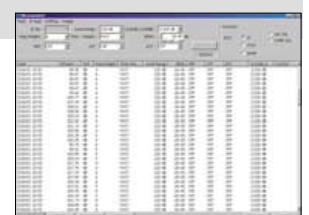
Windows 95/NT4.0/98/2000/XP

- 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 μ Vrms or less |
| | | C weighting: 1.5 μ Vrms or less |
| | | Flat characteristics: 7 μ Vrms or less |
| | | Flat (HPF 20 Hz, LPF 20 kHz): 2.5 μ Vrms 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 k Ω or more |
| | DC output (BNC connector) | 6 V (1 V/10 dB) full-scale Output impedance 50 Ω , load impedance 10 k Ω or more |
| External filter input/output | | BNC connector |
| | | Output impedance 600 Ω , input impedance 100 k Ω |
| 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 $^{\circ}$ C to +50 $^{\circ}$ C (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 |

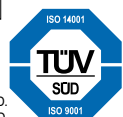
Optional accessories

| 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.

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



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