



Multi-Channel Sound/Vibration Measurement System

Flexible Multi-Channel Configuration Handles Many Measurement Scenarios

Sound Level Meter Unit

UN-14

Vibration Level Meter Unit

UV-15

Interface Unit

UV-22

The Multi-Channel Sound/Vibration Measurement System offers unprecedented flexibility. Freely combine units for applications such as acoustic measurements, wide range vibration level measurements, or simultaneous monitoring of noise and vibration levels.



<Front View>

<Rear View>

Sound Level Meter Unit UN-14 CE

Accommodates a range of measurement microphones and various preamplifiers including types with TEDS compliant input.



Configuration example showing three UN-14 units with BP-17



<Front View>

<Rear View>

Vibration Level Meter Unit UV-15 CE

Provides connectivity for piezoelectric accelerometers, accelerometers with integrated preamplifier, and TEDS compliant accelerometers.



Configuration example showing three UV-15 units with BP-17

Multi-Channel Sound/Vibration Measurement System Configuration Examples

■ UN-14 current consumption per unit: 140 mA ■ UV-15 current consumption per unit: 140 mA ■ UV-22 current consumption per unit: 240 mA

Sensors

- Microphone
- Microphone preamplifier (excluding UC-34P)
Sensitivity setting range: -10.0 to -59.9 dB (dB re 1 V/Pa)
- Piezoelectric accelerometer
- Accelerometer with integrated preamplifier
- TEDS compliant accelerometer with integrated preamplifier
Sensitivity setting range:
: 0.100 to 99.9 pC/ (m/s²)
: 0.100 to 99.9 mV/ (m/s²)

Combination

■ Link 1 to 16 units in any combination:
Sound Level Meter Unit UN-14 and
Vibration Level Meter Unit UV-15



UV-15 UV-15 UN-14

■ Link up to 3 units for battery powered operation with
Battery Pack Unit BP-17



UV-15 UN-14 BP-17

■ Link 1 to 16 units to
Interface Unit UV-22



UV-22 UV-15 UN-14

Configure a measurement system for up to 16 channels by linking the Sound Level Meter Unit UN-14 and Vibration Level Meter Unit UV-15. Each unit has its own display showing settings, measurement values, and a bar graph indication. Adding the Interface Unit UV-22 allows connection to a computer for control of settings and operation and transfer of measurement data.

- Backlit LCD and LED warning indicators
- Rack mount capability for shop floor or laboratory installations (JIS compliant rack CF-27 available as option)
- Easy portability of sound level or vibration level units allows use in the field (with optional Battery Pack Unit BP-17)

UN-14 Specifications

Inputs													
Number of measurement channels	1												
Connectors													
7-pin input connector	For measurement microphone or preamplifier (max. input voltage ± 10 V) (excl. UC-34P connection) Microphone bias voltage +30 V, +60 V, +200 V												
BNC connector	For CCLD compliant microphone or preamplifier (24 V 4 mA) For TEDS compliant microphone (24 V 4 mA)												
Frequency weighting characteristics													
Measurement level range	A 30 to 128 dB (using UC-59, NH-17) C 36 to 128 dB (using UC-59, NH-17) Z 41 to 128 dB (using UC-59, NH-17) (HPF 20 Hz, LPF 20 kHz)												
Frequency range	1 Hz to 80 kHz (20 Hz to 40 kHz ± 0.5 dB) (1 Hz to 80 kHz ± 3 dB)												
Sensitivity setting													
Setting range	-10.0 to 59.9 dB/Pa in 0.1 dB/Pa steps												
Level range settings													
6 settings (level range changes with sensitivity setting)													
	<table border="1"> <thead> <tr> <th>Sensitivity</th> <th>Level range</th> </tr> </thead> <tbody> <tr> <td>-10.0 to -19.9</td> <td>70 dB to 120 dB in 10-dB steps</td> </tr> <tr> <td>-20.0 to -29.9</td> <td>80 dB to 130 dB in 10-dB steps</td> </tr> <tr> <td>-30.0 to -39.9</td> <td>90 dB to 140 dB in 10-dB steps</td> </tr> <tr> <td>-40.0 to -49.9</td> <td>100 dB to 150 dB in 10-dB steps</td> </tr> <tr> <td>-50.0 to -59.9</td> <td>110 dB to 160 dB in 10-dB steps</td> </tr> </tbody> </table>	Sensitivity	Level range	-10.0 to -19.9	70 dB to 120 dB in 10-dB steps	-20.0 to -29.9	80 dB to 130 dB in 10-dB steps	-30.0 to -39.9	90 dB to 140 dB in 10-dB steps	-40.0 to -49.9	100 dB to 150 dB in 10-dB steps	-50.0 to -59.9	110 dB to 160 dB in 10-dB steps
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-50.0 to -59.9	110 dB to 160 dB in 10-dB steps												
Time weighting characteristics													
	F, S, 10, ms (JIS C 1509-1 Class 1 electrical characteristics)												
Display													
Display contents	Segment-type LCD with backlight (constantly on)												
Warning indications	Unit settings, instantaneous value (1-s cycle), bar graph (100-ms cycle)												
Filters													
HPF (attenuation -18 dB/oct, -3 dB drop)	20 Hz, OFF (user filter supported with UV-22)												
LPF (attenuation -18 dB/oct, -3 dB drop)	20 kHz, OFF (user filter supported with UV-22)												

Calibration signal output (for calibration of subsequent unit)	
AC output	Sine wave 1 kHz ± 2 %, output signal 0.5 V (RMS) ± 2 %
DC output	+3.2 V ± 1 %
Output	
BNC connector	
AC output	
Output voltage	Output impedance 600 Ω
Max. output voltage	1 V (RMS) ± 2 % at range full-scale point
Dynamic range	± 5 V (peak) (no overload)
Load impedance	80 dB or more (1 Hz to 80 kHz), 85 dB or more (20 Hz to 20 kHz)
DC output	
Output voltage	Output impedance 50 Ω
Max. output voltage	+3.5 V ± 1 % at range full-scale point (0.5 V/10 dB)
Dynamic range	+5 V
Output impedance	40 dB or more (1 Hz to 80 kHz), 60 dB or more (20 Hz to 20 kHz)
Residual noise	
	Input converted residual noise 4 μ V(RMS) or less (Z, 1 Hz to 80 kHz), 2 μ V(RMS) or less (Z, 20 Hz to 20 kHz), 1.5 μ V(RMS) or less (A, C)
Power supply	
	9 V to 15 V DC Suitable AC adapter: NC-99 (for up to 16 units) Battery Pack Unit BP-17 Automotive 12 V battery can also be used
Temperature/humidity range for operation	
	-10 °C to +50 °C, max. 90 % RH (no condensation)
Dimensions and weight	
	150 (H) x 36 (W) x 179 (D) mm (without protruding parts), approx. 500 g
Accessories	
	Link plate x 1

Options

Name	Model
Measurement microphone	Various
Preamplifier	Various
7-p microphone extension cable	EC-04 (2 m and up)
BNC-BNC cable	NC-39A
BNC-BNC coaxial cable	EC-90A (2 m and up)
Link plate	UV160070

UV-15 Specifications

Inputs	
Number of measurement channels	1
Connectors	
Microdot connector	For piezoelectric accelerometer (max. input charge 100,000 pC)
CCLD (Constant Current Line Drive)	For accelerometer with integrated preamplifier (24 V 4 mA) For TEDS compliant accelerometer with integrated preamplifier (24 V 4 mA)
7-pin preamplifier connector (connector type PROCEDURE-03)	For connection of piezoelectric accelerometer via preamplifier (VP-26A) (max. input voltage ± 10 V)
Measurement modes and units	
ACC (acceleration): m/s ² , VEL (velocity): mm/s, DISP (displacement): mm	
Display characteristics	
	RMS, EQ PEAK (RMS $\times \sqrt{2}$), EQ P-P (EQ PEAK $\times 2$)
Range selection	
7 settings (range changes with sensitivity setting)	
Sensitivity 0.100 to 0.999	ACC (acceleration): 10, 30, 100, 300, 1 000, 3 000, 10 000 VEL (velocity): 10, 30, 100, 300, 1 000, 3 000, 10 000 DISP (displacement): 1, 3, 10, 30, 100, 300, 1 000
Sensitivity 1.00~9.99	ACC (acceleration): 1, 3, 10, 30, 100, 300, 1 000 VEL (velocity): 1, 3, 10, 30, 100, 300, 1 000 DISP (displacement): 0.1, 0.3, 1, 3, 10, 30, 100
Sensitivity 10.0~99.9	ACC (acceleration): 0.1, 0.3, 1, 3, 10, 30, 100 VEL (velocity): 0.1, 0.3, 1, 3, 10, 30, 100 DISP (displacement): 0.01, 0.03, 0.1, 0.3, 1, 3, 10
Sensitivity settings	
Setting range	0.100 to 0.999 in 0.001 increments, 1.00 to 9.99 in 0.01 increments, 10.0 to 99.9 in 0.1 increments
Units	
pC/(m/s ²)	Piezoelectric accelerometer
mV/(m/s ²)	Accelerometer with integrated preamplifier, Accelerometer with integrated TEDS compliant preamplifier, piezoelectric accelerometer connected via preamplifier (VP-26A)
Frequency range	
ACC (acceleration)	1 Hz to 15 kHz (AC output tolerance ± 5 %), 0.5 Hz to 30 kHz (AC output tolerance ± 10 %)
VEL (velocity)	3 Hz to 3 kHz (measurement value tolerance ± 5 %)
DISP (displacement)	3 Hz to 500 Hz (AC output tolerance ± 10 %)
Display	
Display contents	Segment-type LCD with backlight (constantly on)
Alarm indication	Unit settings, instantaneous value (1-s cycle), bar graph (100-ms cycle)
LEDs	
Right-side LED	LED x 2
Left-side LED	Normally out. Lights up in red to indicate overload
Right-side LED	Master/Slave indication (when linked to UV-22). Normally out. Lights up to indicate Master operation

Filters	
HPF (attenuation -18 dB/oct, -10 % dB drop)	3 Hz, 5 Hz, 10 Hz, 15 Hz, 20 Hz, 30 Hz, 50 Hz, 100 Hz, 150 Hz, 200 Hz, OFF (user filter supported with UV-22)
LPF (attenuation -18 dB/oct, -10 % dB drop)	300 Hz, 500 Hz, 1 kHz, 1.5 kHz, 2 kHz, 5 kHz, 10 kHz, 15 kHz, 20 kHz, OFF (user filter supported with UV-22)
Calibration signal output (for calibration of subsequent unit)	
AC output	
Output signal	Sine wave 80 Hz ± 2 % 1 V (RMS) ± 2 % (RMS indication), 1 V (peak) ± 2 % (EQ PEAK indication), 1 V (peak-to-peak) ± 2 % (EQ P-P indication)
DC output	
	1 V
Outputs	
BNC connector x 2	
AC output	
Output voltage accuracy (80 Hz full-scale)	Output impedance 50 Ω
Maximum output voltage	ACC (acceleration) 1 V ± 2 %, VEL (velocity) 1 V ± 3 %, DISP (displacement) 1 V ± 5 %
DC output	
Output voltage accuracy	Output impedance 50 Ω
Maximum output voltage	ACC (acceleration) 1 V ± 2 %, VEL (velocity) 1 V ± 3 %, DISP (displacement) 1 V ± 5 %
Residual noise (representative characteristics)	
	Input capacitance 1 000 pF, sensitivity 5.00 pC/(m/s ²), piezoelectric accelerometer, HPF OFF, LPF OFF, minimum range ACC (acceleration) 0.01 m/s ² (RMS) or less, VEL (velocity) 0.1 mm/s (RMS) or less, DISP (displacement) 0.0015 mm (RMS) or less
Power supply	
	9 V to 15 V DC, Suitable AC adapter: NC-99 (for up to 16 units) Battery Pack Unit BP-17, Automotive 12 V battery can also be used
Temperature/humidity range for operation	
	-10 °C to +50 °C, max. 90 % RH (no condensation)
Dimensions and weight	
	150 (H) x 36 (W) x 179 (D) mm (without protruding parts), approx. 500 g
Accessories	
	Link plate x 1

Options

Name	Model
Piezoelectric accelerometer	Various
Accelerometer cable	Various
Vibration meter preamplifier	VP-26A
Vibration level meter/vibration meter accelerometer cable	EC-02S (3 m and up)
BNC-BNC cable	NC-39A
Link plate	UV160070

Options (One of the following is required for supplying power)



Links to UN-14 or UV-15.
Up to 3 units can be operated on battery power (AC adapter connection enables operation of 1 to 16 units)

- IEC R14 (size "C") x 8
- Continuous operation capability: approx. 8hours* (alkaline batteries, CHARGE-setting, normal operating) approx. 6hours* (alkaline batteries, CCLD-setting, normal operating)

*3 units connected, at 25 °C ambient temperature (will differ according to environmental conditions and unit settings)

Battery Pack Unit
BP-17 €

■ NC-99: 100 to 240 V AC, 12 V DC, 5 A (for max. 16 units)



AC Adapter
NC-99 €

■ Size: 149 (H) x 480 (W) x 320 (D) mm



Rack Mounting Base
CF-27 (JIS compliant)

Interface Unit

UV-22 ^{CE}

The UV-22 is a dedicated interface unit for use with the UN-14 and UV-15. Both USB and Ethernet interfaces are provided, allowing control of the UN-14 and UV-15 from a computer. The supplied UV-22Viewer software makes it easy to establish settings for the UN-14 and UV-15 and check measurement results. High-pass filter and low-pass filter cutoff frequency (user filter*) settings can also be made. When multiple UN-14/UV-15 units are connected, the Master/Slave function simplifies operation.

※ The 2-channel charge amplifier UV-16 cannot be connected. *1 Can be set in 1/3 octave band steps within the specified frequency range.



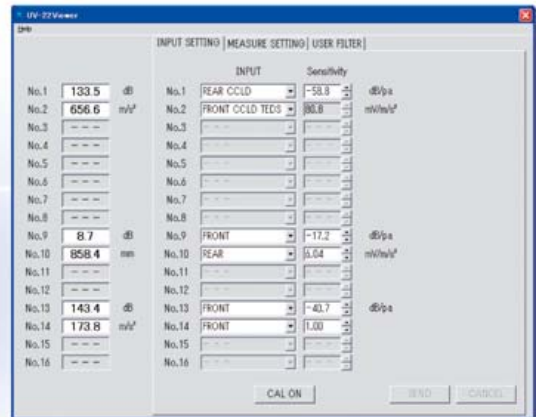
<Front View>

<Rear View>

UV-22Viewer (supplied)



Startup screen

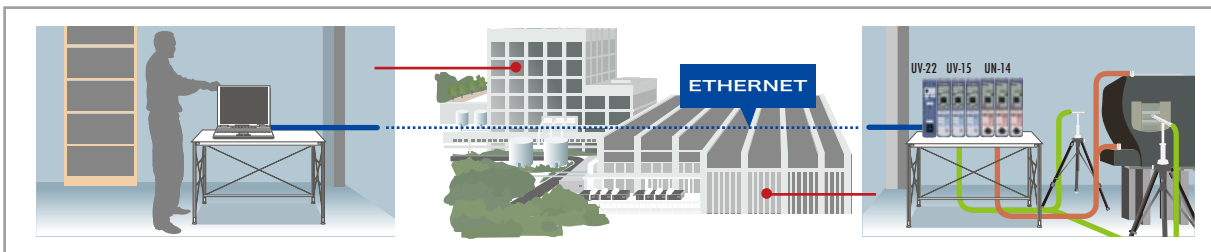


Measurement value/setup screen

UN-14 and UV-15 communication specifications

Settings control and check (for UN-14 and UV-15)	Input selection, sensitivity, HPF, LPF, compensation
For UN-14 only	Frequency weighting, level range, time weighting
For UV-15 only	Measurement mode, range, display characteristics
Measurement values	Instantaneous value or max. value, every 100 ms
UN-14/UV-15 interface	
Number of connected units	Up to a combined total of 16 UN-14/UV-15 units
Computer interfaces	
USB	USB 1.1 (one UV-22 per computer supported)
Connector	Mini B
Ethernet	10/100 Base-TX (one UV-22 per computer supported)
Temperature/humidity range for operation	-10 °C to +50 °C, max. 90 % RH
Power supply	9 V to 15 V DC, Suitable AC adapter: NC-99, Battery Pack Unit BP-17, automotive 12 V battery can also be used
Current consumption	Approx. 240 mA (12 V DC, LAN operation)
Dimensions and weight	150(H) × 36(W) × 179(D) mm, approx. 500 g
Supplied accessories	UV-22Viewer software x 1 (CD-ROM), USB cable

Example for multi-channel sound/vibration measurement system



JCSS

RION Co., Ltd. is recognized by the JCSS which uses ISO/IEC 17025 (JIS Q 17025) as an accreditation standard and bases its accreditation scheme on ISO/IEC 17011. JCSS is operated by the accreditation body (IA Japan) which is a signatory to the Asia Pacific Laboratory Accreditation Cooperation (APLAC) as well as the International Laboratory Accreditation Cooperation (ILAC). The Quality & Environmental Management system Center of RION Co., Ltd. is an international MRA compliant JCSS operator with the accreditation number JCSS 0197.



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