



# 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.



### 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



### 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

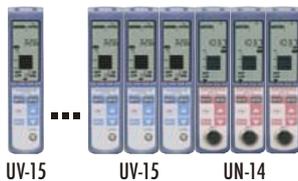
■ UN-14 current consumption per unit: 140 mA ■ UV-15 current consumption per unit: 140 mA ■ UV-22 current consumption per unit: 240 mA

### 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/s<sup>2</sup>)  
: 0.100 to 99.9 mV/ (m/s<sup>2</sup>)

Combination →

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



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



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



**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**

<b>Inputs</b>	
Number of measurement channels	1
<b>Connectors</b>	
7-pin input connector	For measurement microphone or preamplifier (max. input voltage $\pm 10$ 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)
<b>Frequency weighting characteristics</b>	
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 $\pm 0.5$ dB) (1 Hz to 80 kHz $\pm 3$ dB)
<b>Sensitivity setting</b>	
Setting range	-10.0 to 59.9 dB/Pa in 0.1 dB/Pa steps
<b>Level range settings</b>	
6 settings (level range changes with sensitivity setting)	
<b>Sensitivity</b>	<b>Level range</b>
-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
<b>Time weighting characteristics</b>	
F, S, 10 ms (JIS C 1509-1 Class 1 electrical characteristics)	
<b>Display</b>	
Segment-type LCD with backlight (constantly on)	
<b>Display contents</b>	
Unit settings, instantaneous value (1-s cycle), bar graph (100-ms cycle)	
<b>Warning indications</b>	
LED x 2	
Right-side LED	Normally out. Lights up in red to indicate overload.
Left-side LED	Master/Slave indication (when linked to UV-22). Normally out. Lights up to indicate Master operation
<b>Filters</b>	
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)

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

<b>Inputs</b>	
Number of measurement channels	1
<b>Connectors</b>	
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 $\pm 10$ V)
<b>Measurement modes and units</b>	
ACC (acceleration): m/s <sup>2</sup> , VEL (velocity): mm/s, DISP (displacement): mm	
<b>Display characteristics</b>	
RMS, EQ PEAK (RMS $\times \sqrt{2}$ ), EQ P-P (EQ PEAK $\times 2$ )	
<b>Range selection</b>	
7 settings (range changes with sensitivity setting)	
Sensitivity	ACC (acceleration): 10, 30, 100, 300, 1 000, 3 000, 10 000
0.100 to 0.999	VEL (velocity): 10, 30, 100, 300, 1 000, 3 000, 10 000 DISP (displacement): 1, 3, 10, 30, 100, 300, 1 000
Sensitivity	ACC (acceleration): 1, 3, 10, 30, 100, 300, 1 000
1.00~9.99	VEL (velocity): 1, 3, 10, 30, 100, 300, 1 000 DISP (displacement): 0.1, 0.3, 1, 3, 10, 30, 100
Sensitivity	ACC (acceleration): 0.1, 0.3, 1, 3, 10, 30, 100
10.0~99.9	VEL (velocity): 0.1, 0.3, 1, 3, 10, 30, 100 DISP (displacement): 0.01, 0.03, 0.1, 0.3, 1, 3, 10
<b>Sensitivity settings</b>	
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
<b>Units</b>	
pC/(m/s <sup>2</sup> )	Piezoelectric accelerometer
mV/(m/s <sup>2</sup> )	Accelerometer with integrated preamplifier, Accelerometer with integrated TEDS compliant preamplifier, piezoelectric accelerometer connected via preamplifier (VP-26A)
<b>Frequency range</b>	
ACC (acceleration)	1 Hz to 15 kHz (AC output tolerance $\pm 5$ %), 0.5 Hz to 30 kHz (AC output tolerance $\pm 10$ %)
VEL (velocity)	3 Hz to 3 kHz (measurement value tolerance $\pm 5$ %)
DISP (displacement)	3 Hz to 500 Hz (AC output tolerance $\pm 10$ %)
<b>Display</b>	
Segment-type LCD with backlight (constantly on)	
<b>Display contents</b>	
Unit settings, instantaneous value (1-s cycle), bar graph (100-ms cycle)	
<b>Alarm indication</b>	
LEDx2	
Right-side LED	Normally out. Lights up in red to indicate overload
Left-side LED	Master/Slave indication (when linked to UV-22). Normally out. Lights up to indicate Master operation

<b>Filters</b>	
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)
<b>Calibration signal output (for calibration of subsequent unit)</b>	
AC output	
Sine wave 80 Hz $\pm 2$ %	
Output signal	1 V (RMS) $\pm 2$ % (RMS indication), 1 V (peak) $\pm 2$ % (EQ PEAK indication), 1 V (peak-to-peak) $\pm 2$ % (EQ P-P indication)
DC output	
1 V	
<b>Outputs</b>	
BNC connector x 2	
AC output	
Output impedance 50 $\Omega$	
Output voltage accuracy (80 Hz full-scale)	ACC (acceleration) 1 V $\pm 2$ %, VEL (velocity) 1 V $\pm 3$ %, DISP (displacement) 1 V $\pm 5$ %
Maximum output voltage	$\pm 10$ V (peak) or more
DC output	
Output impedance 50 $\Omega$	
Output voltage accuracy	ACC (acceleration) 1 V $\pm 2$ %, VEL (velocity) 1 V $\pm 3$ %, DISP (displacement) 1 V $\pm 5$ %
Maximum output voltage	10 V or more
<b>Residual noise (representative characteristics)</b>	
Input capacitance 1 000 pF, sensitivity 5.00 pC/(m/s <sup>2</sup> ), piezoelectric accelerometer, HPF OFF, LPF OFF, minimum range ACC (acceleration) 0.01 m/s <sup>2</sup> (RMS) or less, VEL (velocity) 0.1 mm/s (RMS) or less, DISP (displacement) 0.0015 mm (RMS) or less	
<b>Power supply</b>	
9 V to 15 V DC, Suitable AC adapter: NC-99A, Battery Pack Unit BP-17, Automotive 12 V battery can also be used	
<b>Temperature/humidity range for operation</b>	
-10 °C to +50 °C, max. 90 % RH (no condensation)	
<b>Dimensions and weight</b>	
150 (H) x 36 (W) x 179 (D) mm (without protruding parts), approx. 500 g	
<b>Accessories</b>	
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-99A: 100 to 240 V AC, 12 V DC



AC Adapter  
**NC-99A**  $\text{C}\text{E}$

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



Rack Mounting Base  
**CF-27** (JIS compliant)

## Interface Unit

# UV-22 <sup>CE</sup>

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\*<sup>1</sup>) 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.



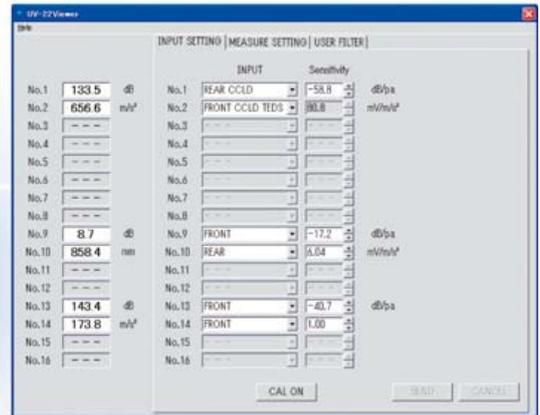
<Front View>

<Rear View>

### UV-22Viewer (supplied)



Startup screen

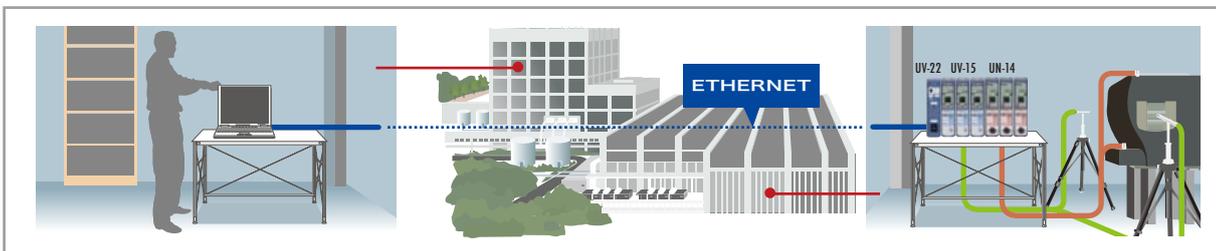


Measurement value/setup screen

### 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-99A, 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**  
JCSS 0197

RION CO., LTD. is recognized by the JCSS which uses ISO/IEC 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 Accreditation Cooperation (APAC) as well as the International Laboratory Accreditation Cooperation (ILAC). The Quality Assurance Section of RION CO., LTD. is an international MRA compliant JCSS operator with the accreditation number JCSS 0197.



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

\* Specifications subject to change without notice.

Distributed by:

**RION CO., LTD.**  
<https://rion-sv.com/>

3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan  
Tel: +81-42-359-7888 Fax: +81-42-359-7442