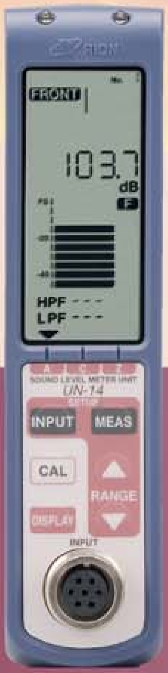
Multi-Channel

Sound/Vibration Measurement System

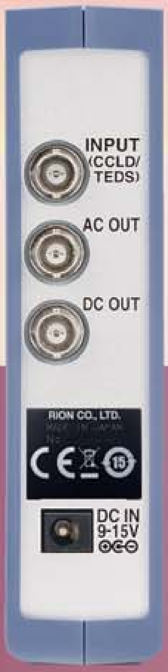
Flexible Multi-Channel Configuration Handles Many Measurement Scenarios

Sound Level Meter Unit	Vibration Level Meter Unit	Interface Unit
UN-14	UV-15	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〉

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

Sound Level Meter Unit

UN-14

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

〈Front View〉

〈Rear View〉

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

Vibration Level Meter Unit

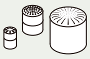
UV-15

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

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

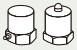
◎Accelerometer with integrated preamplifier

◎TEDS compliant accelerometer with integrated preamplifier

Sensitivity setting range

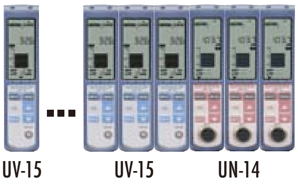
: 0.100 to 99.9 pC/ (m/s²)

: 0.100 to 99.9 mV/ (m/s²)

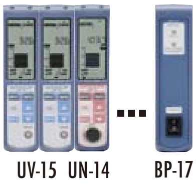


Combination ···▶

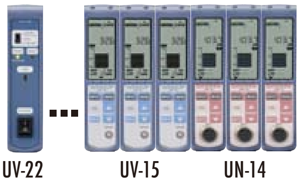
■ Link 1 to 16 units in any combination: Sound Level Meter Unit UN-14 and Vibration Level Meter Unit UV-15



■ 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

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	A, C, Z (JIS C 1509-1 Class 1 electrical 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)

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

Time weighting characteristics	F, S, 10 ms (JIS C 1509-1 Class 1 electrical characteristics)
Display	Segment-type LCD with backlight (constantly on)
Display contents	Unit settings, instantaneous value (1-s cycle), bar graph (100-ms cycle)
Warning indications	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
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 impedance 600 Ω
Output voltage	1 V (RMS) ±2 % at range full-scale point
Max. output voltage	±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 kΩ or more
DC output	Output impedance 50 Ω
Output voltage	+3.5 V±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 kΩ or more
Residual noise	Input converted residual noise 4 μV(RMS) or less (Z, 1 Hz to 80 kHz), 2 μV(RMS) or less (Z, 20 Hz to 20 kHz), 1.5 μV(RMS) or less (A, C)
Power supply	9 V to 15 V DC Suitable AC adapter: NC-99A (for up to 10 units), 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) × 36 (W) × 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 x $\sqrt{2}$), EQ P-P (EQ PEAK × 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	Segment-type LCD with backlight (constantly on)
Display contents	Unit settings, instantaneous value (1-s cycle), bar graph (100-ms cycle)
Alarm indication	LED×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
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	Sine wave 80 Hz ±2 %
Output signal	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 × 2
AC output	Output impedance 50 Ω
Output voltage accuracy (80 Hz full-scale)	ACC (acceleration) 1 V ±2 %, VEL (velocity) 1 V ±3 %, DISP (displacement) 1 V ±5 %
Maximum output voltage	±10 V (peak) or more
DC output	Output impedance 50 Ω
Output voltage accuracy	ACC (acceleration) 1 V ±2 %, VEL (velocity) 1 V ±3 %, DISP (displacement) 1 V ±5 %
Maximum output voltage	10 V or more
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-99A (for up to 10 units) , 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)


〈Front View〉


〈Rear View〉

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 (for max. 10 units)
- NC-99: 100 to 240 V AC, 12 V DC (for max. 16 units)


AC Adapter
NC-99A


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

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 *1) settings can also be made. When multiple UN-14/UV-15 units are connected, the Master/Slave function simplifies operation.

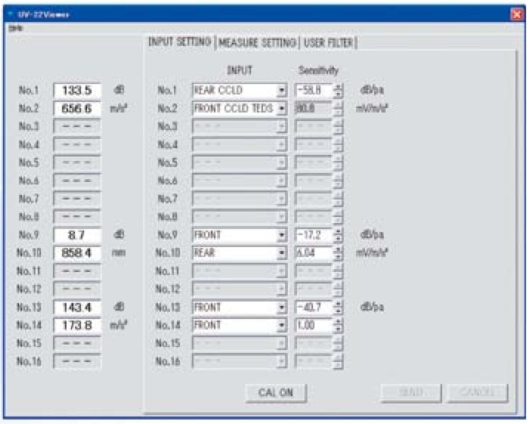
※ The 2-channel charge amplifier UV-16 cannot be connected.　*1 Can be set in 1/3 octave band steps within the specified frequency range.

〈Front View〉

〈Rear View〉

UV-22Viewer
(supplied)

Startup screen



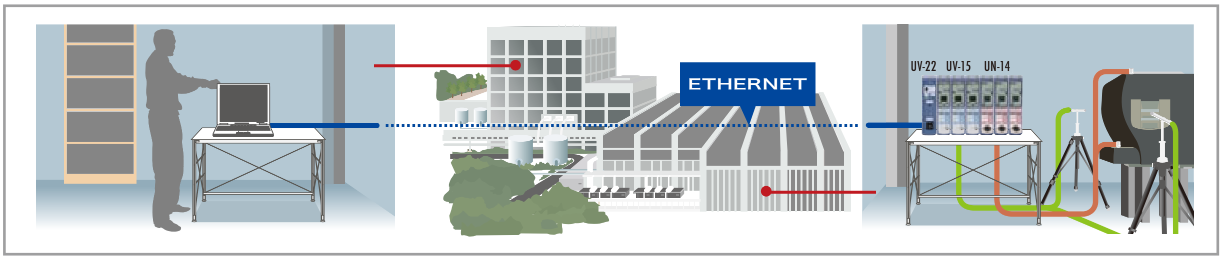
				INPUT	Sensitivity	
No.1	133.5	dB	No.1	REAR CCLD	-58.8	dB/pa
No.2	656.6	m/s²	No.2	FRONT CCLD TEDS	[illegible]	mV/m/s²
No.3	---		No.3			
No.4	---		No.4			
No.5	---		No.5			
No.6	---		No.6			
No.7	---		No.7			
No.8	---		No.8			
No.9	8.7	dB	No.9	FRONT	-17.2	dB/pa
No.10	858.4	mm	No.10	REAR	6.04	mV/m/s²
No.11	---		No.11			
No.12	---		No.12			
No.13	143.4	dB	No.13	FRONT	-40.7	dB/pa
No.14	173.8	m/s²	No.14	FRONT	1.00	
No.15	---		No.15			
No.16	---		No.16			

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 ℃ to +50 ℃, max. 90 % RH
Power supply	9 V to 15 V DC, Suitable AC adapter: NC-99A/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) x 36(W) x 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



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