Sound Level Meter

LA-7000 series

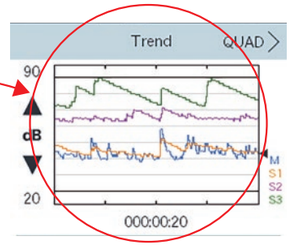
Listen, measure, and identify the sound.

ONO SOKKI

Easy to operate

4.3 inch color LCD

Clear and easy to see the display of overlay.
When the instantaneous value exceeds, the bar graph turns red and the letter of OVER is left as a measured history.



Start recording with one-touch operation

Calculation and recording are started just by tapping ▷ button(for auto memory) with a finger.

Listening function

You can measure while listening to the sound.
It enables you to realize the sound, not only as simple numerical values but also as a real feeling. Moreover, you can listen to only the sound which has been filtered by bandpass filter.
By aiming the microphone (sound level meter) toward the direction where the sound is heard loudly, the sound probing is easily performed.
(Refer to the Function page.)

Bottom cover removable

Easy to use

LA-7500	IEC 61672-1:2013 Class 1 10 Hz to 20 kHz
LA-7200	IEC 61672-1:2013 Class 2 20 Hz to 8 kHz

Intuitive operation by a touch panel

It provides intuitive operation in easily understandable manner by even a beginner touching the sound level meter for the first time. You can select and change items on the display including calculation, range, measurement time by tapping the panel.

Language selection

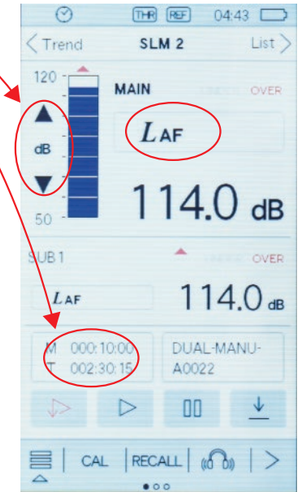
Language used on the display (menu, error message etc.) is selectable (English/Japanese).

USB power supply allows long time measurement

Approx. 12 hours of continuous operation by alkaline battery cells(depends on the selected mode). Longer continuous operation is allowed by USB bus power.
USB gets preference over battery cells when both USB and battery cells are used together. The battery power supply is automatically selected by removing USB.

Windscreen correction function

Windscreen correction function is provided for the measurement the windscreen is attached to.
*Applicable to IEC 61672-1 with a state a windscreen attached.
*The use without a windscreen is available.



Example of a screen captured

Capturing function

Capture the displayed screen by pressing Power key and Home key simultaneously.

Home key leads you to return to the first page

Pressing Home key returns the display to the home screen even though the hierarchy that you are operating is very deep.

External power supply ON/OFF function

When the LA-7000 series is used being incorporated in equipment, the ON/OFF selection of the power which has been interlocked to an external power supply is operated by switch.
* The battery cells should be removed.

MULTI I/O	: MULTI I/O connector
SD CARD	: SD card slot
USB	: USB connector
AC/DC OUT	: AC/DC output connector
AC OUT	: AC output connector
CTRL IN	: External control input connector
PHONE	: Headphone monitor output connector
DC IN	: External power supply input connector

Easy to hold

Compact

Achieves 35 % of size-reduction in volume of conventional model. Easy-to-hold design.

Short lanyard for portable use

The short lanyard provided as an accessory prevents the sound level meter from slipping down.

Sound level meter advancing with additional function

1/1 Octave band function which is effective for noise countermeasure is provided as standard.
High cost effective, high performance, and continues to advance sound level meter by adding further optional functions.

Optional Function

LA-0702 1/3 Real-time Octave Analysis Function
LA-0703 FFT Analysis Function (Scheduled to be developed.)
LA-0704 Sound Recording Function
LA-0708 Sound Quality Evaluation Function (Scheduled to be developed.)

Standard function

DUAL mode , QUAD mode

[Soundproof room]

Two (DUAL) or four (QUAD) of calculation values in the combination of various frequency weightings and time weightings can be displayed simultaneously. Useful when displaying several kinds of frequency weightings.

Sound Listening

Listening function (Phone output)

- Effective for the measurement in an anechoic room or distant place
- Effective for monitoring of environmental noise etc. at distant place
- Effective for sound probing by hearing the specified frequency in using phone output together with octave band filter.

*Extension cable, headphone: sold separately

Optional Function

Sound Recorder

Sound Recording Function Option : LA-0704

Easy recording by selecting "Record" in memory mode and pressing the ▷ button.

Specification

Memory mode: Record
Sampling frequency: 64 kHz
Number of bits and recording time:
approx. 8 hours at 4 GB max. (16-bit)
approx. 5.5 hours at 4 GB max. (24-bit)

*Up to 2 GB (L_A recording file) when read by OS-2000.
Recording time: within 4.5 hours (16-bit) or 3 hours (24-bit)

File format: wav. (acoustic data) + csv. (playback trend data: Lz in 1s-interval)

*Playing back is available in a main unit

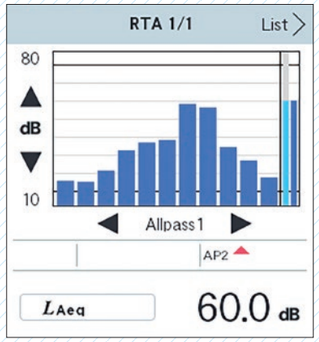
Standard function

1/1 Octave band Analysis Function

(RTA mode・Filter mode)

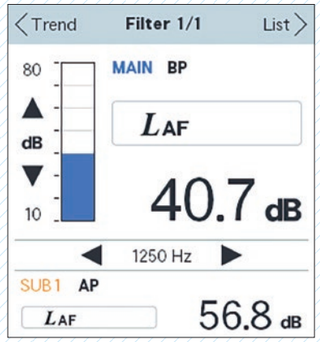
Applicable standard	IEC 61260-1:2014 Class1 JIS C 1513-1: 2002 Class1, JIS C 1514-1:2002 Class1
Analysis band	16 Hz to 16 kHz (11 bands), Allpass 1,2
Measurement item	Filter Mode (Bandpass, Allpass selectable): L_p, L_{eq}, L_E, L_{max}, L_{min}, L_{peak}, L_N list RTA Mode: L_p, L_{eq}, L_E, L_{max}, L_{min} (Main)
Measurement range	Normal range, excluding 20 to 130 dB
Memory mode	Manual, Auto,Logging, Record (LA-0704 is required.)

Sound Source Identification



RTA 1/1 mode

This is one of the frequency analysis modes which displays divided frequency by octave band. The vertical axis represents the sound pressure level (sound strength), and horizontal axis represents frequency (sound pitch). This mode clearly shows which sound of which height is the loudest. Data comparison of RTA 1/1 memory data and MAIN data is available by overlapping drawing.



Filter 1/1 mode

You can listen only to the disturbing sound through the octave band filter even in a noisy environment.
It helps sound probing of abnormal sound by aiming the microphone toward the direction where the large sound is heard.
Data comparison of Allpass (all ranges) and Bandpass (specified band) is available.

Easy sound probing by Bandpass filter!

Optional Function

Sound Analyzer & Source Identification

1/3 Real-time Octave Analysis Function Option : LA-0702

(RTA mode・Filter mode)

This function enables the sound analysis or sound evaluation of more detailed octave band. The sound through the 1/3 octave band filter can be heard. This is the analysis function and filter most commonly used.

Applicable standard	IEC 61260-1:2014 Class1 JIS C 1513-1: 2002 Class1, JIS C 1514-1:2002 Class1
Analysis band	12.5 Hz to 20 kHz (33 bands), Allpass 1,2
Measurement item	Filter Mode (Bandpass, Allpass selectable): L_p, L_{eq}, L_E, L_{max}, L_{min}, L_{peak}, L_N list RTA Mode: L_p, L_{eq}, L_E, L_{max}, L_{min} (Main)
Measurement range	Normal range, excluding 20 to 130 dB
Memory mode	Manual, Auto, Logging, Record (LA-0704 is required.)

*You can listen to the sound with 1/3 Octave band width.

Optional functions scheduled to be developed

FFT Analysis Sound Quality Evaluation

FFT Analysis Function

This function enables narrow-band analysis which line resolution is finer than octave band analysis. Effective for frequency analysis of single-shot sound by using trigger function.

Sound Quality Evaluation

The values of Loudness of steady sound and A-weighting average sound pressure level are simultaneously displayed. Effective for sounds with no numerical difference in the result of A-weighting.

Accessories & Related products

Windscreen

φ70 mm

(Provided as standard)

All-weather windscreen

LA-0207A

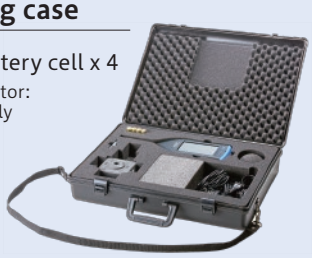
Screen: φ200 mm

*Extension cable, tripod: sold separately

Carrying case

Alkaline battery cell x 4

*Sound calibrator: sold separately



●Instruction manual (CD), setup guide (booklet)

(Provided as standard)

Instruction manual (booklet:sold separately)

- Basic operation (color)
- Technical References (color)
- Interfaces (color)
- Options

* The contents above are same as the instruction manuals (CD) provided as standard.

Tripod

LA-0203D

Airy L100
made by SLIK corporation

Reduction length : 417 mm
Lowest position : 170 mm
Highest position : 1543 mm
Weight : 980 g

Headphones

(Recommended product)

- MDR-7506 : made by Sony Corporation
- ATH-M50, ATH-M30x : made by Audio-technica Corporation

AC adapter (with 100 VAC concent cable)

PB-7090

* Worldwide type cable: Consult your nearest distributor or Ono Sokki sales office nearby.

(Provided as standard)

Sound calibrator

SC-2500

IEC 60942 Class1, JIS C1515 Class 1
Sound pressure level 114 dB Frequency 1000 Hz

SC-3120

IEC 60942 Class1/C, JIS C1515 Class 1/C
Sound pressure level 114 dB Frequency 250 Hz

SC-2120A

IEC 60942 Class2, JIS C1515 Class 2
Sound pressure level 94 dB Frequency 1000 Hz

Microphone extension cable

AG-3400 series

AG-3401	5 m
AG-3402	10 m
AG-3403	20 m
AG-3404	30 m

*MI-0301 Microphone holder is provided as standard.
*Please use the extension correction mode when using extension cable.

Offline Analysis Software

●OS-2000 series
Sound simulator (IIR filter), Sound quality evaluation, Frequency analysis, Trend graph

●DS-3000 series
Frequency analysis
(FFT analysis, 1/N analysis)

*Please contact your nearest distributor or Ono Sokki sales office nearby for more details.

USB cable(recommended)

U2C-AMBF2UBK(1.2 m)
with ferrite core, 2A supported
(made by ELECOM.CO.,LTD)

SD (memory)

SD card :(sample)
Small capacity (Provided as standard)

Large capacity SD card(recommended)

SD memory card
Large capacity
Up to 32 GB

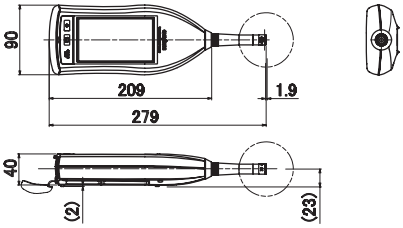
Multi-interface

MULTI I/O cable 2m (PS-D10758)
PC side (serial port) : D-sub 9-pin connector

Analog signal cable 2 m

AX-501 (Provided as standard)

Outline drawing (unit: mm)



Specification

			LA-7500	LA-7200
Applicable standard			IEC 61672-1:2013 Class1	IEC 61672-1:2013 Class2
			JIS C 1509-1:2017 Class1 / JIS C 1516: 2014 Class1	JIS C 1509-1:2017 Class2 / JIS C 1516: 2014 Class2
			ANSI S1.4-2014/ Part1 Class1	ANSI S1.4-2014/ Part1 Class2
Measurement frequency range			10 Hz to 20 kHz	10 Hz to 8 kHz
Measurement level range (IEC, JIS)			A: 24 to 138 dB C: 32 to 138 dB Z: 38 to 138 dB	A: 23 to 138 dB C: 30 to 138 dB Z: 36 to 138 dB
Inherent noise level			A: 16 dB or less C: 24 dB or less Z: 30 dB or less	A: 17 dB or less C: 24 dB or less Z: 30 dB or less
Microphone			MI-1271	MI-1471
Microphone preamplifier			MI-3270	
Linearity range			Wide range: 110 dB/ Normal range: 80 dB	
Level range			20 to 130 dB (wide)/60 to 130 dB/50 to 120 dB / 40 to 110 dB/30 to 100 dB/20 to 90 dB/10 to 80 dB	
Reference range			50 to 120 dB	
Time weighting (e.g.: LAF)			F (fast), S (slow), I (impulse) and 10 ms	
Frequency weighting (e.g.: LAF)			A, C and Z	
Measurement items			L_p, L_{eq}, L_E, L_{max}, L_{min}, L_{peak}, L_N (L_5, L_{10}, L_{50}, L_{90}, L_{95}, L_{high}, L_{low}, L_{ave}. and two more of any L_N value)	
Sampling interval			15.6 μs (L_p, L_{eq}, L_E, L_{max}, L_{min}, L_{peak}), 100 ms (L_N)	
Measurement time			e.g.: If you want to measure a fixed 10-minute period every hour, and wish to measure this for 24 hours, M.T. shall be 10 minutes, P.T. shall be 1 hour, and T.T. shall be 24 hours.	
	Measurement time (Meas.Time)		Manual (OFF), user-specified setup: 0.1 to 199 hour 59 min. 59.9 sec. resolution: 0.1 sec.	
	Period time (Period Time)		1 min. to 24 hours resolution: 1 min.	
	Total time (Total Time)		0.1 sec. to 999 hour 59 min. 59.9 sec. resolution: 0.1 sec.	
Start mode			Manual start, timer start, count down start, level start	
Display function	Display device		4.3-inch LCD with color backlight (touch panel type)	
	Digital display		4-digit/ resolution: 0.1 dB/ update cycle: 1 s	
	Bar indicator		Wide range: 100 dB of display range/ Normal range: 70 dB of display range	
	Remaining battery level display		4-step display	
Memory function	Memory function		Stored in an SD/SDHC card (SDHC card: up to 32 GB is available.)	
	Memory mode		MANUAL (CSV file), AUTO (instantaneous value, calculated value, CSV file) ·····standard function LOGGING (instantaneous value 10 ms or 100 ms, CSV file)·····standard function RECORD (WAVE file: 64 kHz sampling) ·····required for the LA-0704	
	Panel condition memory		Internal memory of Panel Condition (Internal condition: 5, EZ condition: 5/SD, power off memory), or SDHC card memory	
	Basic measurement mode		5 modes (EZ1: LAeq+LCpeak, EZ2: Record, EZ3: Logging 100 ms, EZ4: NC, EZ5: Loudness)	
	Clock function		Built-in (Year/ month/ day/ hour/ minute), retention time of content: approx. 1 year (charging time: 24 hours from entire discharge state)	
	Calibration history function		Built-in memory (number of stored points: approx. 100 points), content (calibration value, VR position for control, internal reference signal of used sound calibrator, calibration date)	
	Resume function		Stores measurement conditions into the built-in memory	
Calibration	Reference signal (when connecting external device)		Electronic calibration by built-in transmitter (1 kHz sine wave) / normal range: -6 dB of full-scale, wide range: -16 dB of full-scale	
	Recommended calibrator		SC-3120, SC-2500	SC-3120, SC-2500, SC-2120A
Output/Input	Phone output (Headphone output)		Actual sound or recorded sound (playback sound) Selected 1 band of actual sound or recorded sound (playback sound) in 1/1 octave filter (standard function) or 1/3 octave filter mode (option: LA-0702) is used. Maximum output: 0.03 mW (63Ω: at 1kHz), connector: stereo φ3.5	
	AC output		Outputs one of A, C, or Z interlocked with the main display	
		AC output level	Output level: 0.707 Vrms ±5 % (normal range), 2.236 Vrms ±5 % (wide range), range full scale input, when 1 MΩ load, distortion factor (range full scale) 0.2 % or less, load resistance 10 kΩ or more, offset voltage ±30 mV or less, output impedance 50 Ω±2 %	
	AC/DC output		Selectable from DC, AC-Z or Through	
		DC output level	2.5 V ±20 mV (normal range, wide range), range full scale input, when 1 MΩ load, scale factor 0.25 V±10 mV/10 dB, load resistance 10 kΩ or more, output impedance 50 Ω±2 %	
		AC-Z output level	Output level: 0.707 Vrms±5 % (normal range), 2.236 Vrms±5 % (wide range), range full scale input, when 1 MΩ load, distortion factor (range full scale) 0.2 % or less, load resistance 10 kΩ or more, offset voltage ±30 mV or less, output impedance 50 Ω±2 %	
		Through output level	0.707 Vrms ±5 % (normal range, wide range), range full scale input, when 1 MΩ load, distortion factor 0.2 % or less output	
	External control input		Operation: Reset and start, control voltage: non-voltage contact input, input pulse width: 200 ms or more, absolute max. input voltage: 24.0 V	
Interface	RS-232C		Baud rate: 9600, 115200 bps, Multi I/O cable (sold separately)	
	USB		Ver. 2.0: Compliant with USB high speed storage class specification, USB connection cable: USB (A) male-micro USB male (sold separately)	
	External memory		SD/SDHC memory card (up to 32 GB is available)	
Microphone extension *1			103 m (CE marking compliant: up to 30 m)···AG-3400 series	
Power supply			・Size AA battery (alkaline battery cell or Ni-MH secondary battery) x 4 pieces ・USB bus power (operating input voltage range: 4.75 to 5.25 VDC) ・AC adapter (PB-7090, power consumption: approx. 7 VA when using 100 VAC)	
Interlocking on/off function with an external power supply			The main unit is activated automatically when the power is supplied from an AC adapter. (When this function is installed, LA-7000 series do not operate on battery power.) Switch on/off can be done with the switch in the battery box (standard function).	
Windscreen correction function			Function to correct the influence of windscreen *Applicable to the IEC61672-1 even if the windscreen is installed.	
Battery life (continuous use) *2			Alkaline battery cell LR6: approx. 12 hours, Ni-MH secondary battery: approx. 12 hours	
Operating (storage) temperature range			-10 to 50 °C (-20 to 60 °C)	
Operating (storage) humidity range			20 % to 90 %RH (10 % to 90 %RH) with no condensation	
Outer dimensions			Approx. 90(W)×279(H)×42(D)mm	
Weight			Approx. 540 g (including batteries)	
Accessories			AC adapter (PB-7090), signal cable (AX-501), windscreen (φ70 mm), short lanyard, size AA battery cell x 4 pieces, carrying case (including shoulder belt), SDHC memory card, instruction manual (CD), setup guide	

Please use a recommended SD card when you use the SD memory function. For more details about the recommended SD card, please contact your nearest distributor or send an e-mail (overseas@onosokki.co.jp) to us.

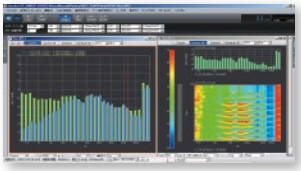
*1: The described value is extendable length when the exclusive cable is used.

*2: It depends on the using status such as operation mode, memory mode, and backlight.

Products for further analysis

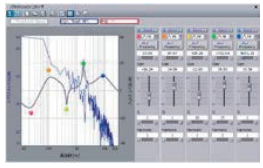
Offline Software for analysis

●DS-3000



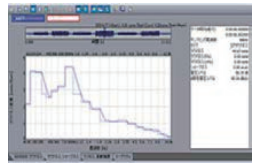
The DS-3000 can import the WAVE file which has been recorded by LA-7000 series and LA-0704, and perform FFT analysis. It is useful that the unit is automatically calibrated at the time of installation.

●IIR Filter (OS-2000 series)



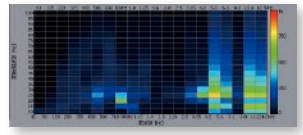
The OS-2000 series can import the WAVE file which has been recorded by LA-7000 series and LA-0704. You can hear the fluctuation of the frequency level by increase or decrease.

●Sound Quality Evaluation (OS-2000 series)



The sound quality evaluation software can import the WAVE file which has been recorded by LA-7500 and LA-0704, and calculate the loudness, non-constant loudness, sharpness, and fluctuation strength.

●Fluctuation Sound Analysis (OS-2000 series)



OS-2000 series can show the sound feature by two axes of frequency and fluctuation frequency. This software enables wide freuency range of sound quality evaluation that cannot be performed by "roughness" and "fluctuation strength" fields.

Sound Source Visualization System BF-3100, MI-5420 etc.

Sound Source Visualization Probe Microphone

The sound source visualization system has more advanced function than the LA-7000 series, which identifies and visualizes the sound that you are curious about.(frequency of the 1/3 octave bandpass filter)

Sound Level Meter　LA-1411/1441/4441

This series has simple function which measures the sound level, equivalent continuous sound level(L_{eq}), sound exposure (L_E), maximum, minimum, peak level(L_{peak}), percentile noise level (L_N) etc. Recommended calibrators (Class1 and Class2) are also provided.

- ●LA-4441 (IEC 61672-1 Class 1)
- ●LA-1441 (IEC 61672-1 Class 2)
- ●LA-1411 (IEC 61672-1 Class 2)

*Extension(BNC) cable for microphone is sold separately.

Acoustic sensor (microphone, preamplifier) MI series

- ●MI-1271+MI-3170
  1/2-inch High performance microphone
  (Operating temperature: -30 ℃ to 80 ℃)
  (Frequency range: 1 Hz to 20 kHz)
  (Inherent noise A-weighting: 14 dB)
- ●MI-1235 + MI-3111
  1/2-inch Microphone for general usage
  (Equivalent to Class1, 10 Hz to 20 kHz)
- ●MI-1433 + MI-3111
  1/2-inch Microphone for general usage
  (Equivalent to Class1, 20 Hz to 8 kHz)
- ●MI-1531 + MI-3140
  1/4-inch High performance microphone
  (1/4-inch diameter, 10 Hz to 100 kHz)

Reliable and high level calibration JCSS*1 Accredited Calibration Laboratory

Ono Sokki provides reliable and high level calibration as "Accredited Calibration Laboratory", which is certificated by JCSS calibration laboratory accreditation system, base on the skills and know-how of quality assurance system which has been acquired through many years of practice. Under the JCSS of calibration laboratory accrediation system, Ono Sokki is assessed and accredited as Accredited Calibration Laboratories to meet the requirements of the Measurement Law, relevant regulations and ISO/IEC.

*1: JCSS (Japan Calibration Service System)
*2 ilac: International Laboratory Accreditation Conference
*3 MRA: Mutual Recognition Arrangements

Accreditation Scope

- ●Acoustics & Ultrasound
- ●Acceleration
- ●Torque
- ●Fluid flow
- ●Electricity (Direct Current & Low Frequency)

JCSS 0170

Ono Sokki can issu the calibration certificates with the JCSS accreditation symbol, which assures the traceability to National Measurement Standards as well as a laboratory's technical and operational compentence, and is acceptable in the world through the ilac*2-MRA*3.

ONO SOKKI

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*Outer appearance and specifications are subject to change without prior notice.
URL: https://www.onosokki.co.jp/English/english.htm

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