Sound Level Meter
Class 2 / Class 1

LA-1410/1440/4440

Achieved the ease of use and high-performance measurement

LA-1410
(Class 2)

LA-1440
(Class 2)

LA-4440
(Class 1)

C E

ONO SOKKI

Sound Level Meter

Class1 LA-4440   **Class2 LA-1410/1440**

LA-1400 / 4400 Series provides full of support for on-site measurement with versatile functions.

LA-1400 / 4400 series Class1/Class2 Sound Level Meters conform to the requirements by the latest standard of IEC / JIS. And also they are designed to focus on field measurement in pursuing of easy operation and cost-effectiveness. All models can measure 14 items simultaneously including Leq, which is popularly used in sound measurement, and have a wide linearity range of 100dB.
Setting can be made with easy-to-follow menu. Depending on applications including work environment measurement, machine and product noise analyses, you can choose suitable model which meets your needs.

Analog output connector

Analog signal output can be selected from AC (conjunction with selected frequency weighting), AC-Z (fixed to Z-weighting), or DC (conjunction with selected frequency weighting and time weighting).

COMP / CTRL connector (LA-1440 / 4440)

Output the comparison result of sound level using comparator function (option). External input of control signal to start or pause measurement.

USB / RS-232C connectors (LA-1440 / 4440)

USB and RS-232C interfaces for communication with external devices are equipped. Communication with a PC enables to control and save data. The measurement result can be printed out to an exclusive printer.

*AC adapter (PB-7090)：Sold separately

All models with Equivalent Continuous Sound Pressure Level (Leq) measurement function

All models of LA-1400 / 4400 series can measure 14 measurement items including Equivalent Continuous Sound Pressure Level (Leq), which is widely used as an indicator at present sound measurement.

Multiple simultaneous measurements

LA-1400 / 4400 series can calculate all of 14 measurement items simultaneously. No need by selecting measurement item to calculate before measurement, no error by miss-setting. Only one pressing of START button is required to start measurement. All results of measurement items can be checked with several pressings of DISP (abbreviation of DISPLAY) button after measurement.

＊14 measurement items: L_p, L_{eq}, L_E, L_{max}, L_{min}, L_{peak}, L_{HI}, L_5, L_{10}, L_{50}, L_{90}, L_{95}, L_{LO}, L_{AVE}. The all items can be calculated simultaneously and saved as needed.
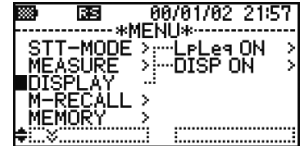
Wide linearity of 100dB without adjusting level range

Re-measurement is not necessary for over / under-range. LA-1400 / 4400 series feature a wide linearity range of 100dB and can measure the sound pressure level from 30 to 130dB at one range*.
It works effectively in the measurement of unpredictable or large fluctuation in sound level.

＊Sound pressure level from 30 to 130dB can be measured at the range of 40 to 120dB.
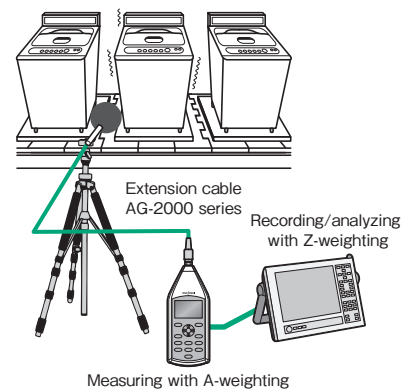
Easy-to-follow setting menu without referring to the manual

Each model can be operated with easy-to-follow setting menu, with just [+] and [ENTER] keys. Simply classified hierarchic structure leads to complete each setting by selecting menu items. Detailed settings including measurement conditions and selection of output signals can be made even though you do not have manual with you.

Microphone can be used away from main unit by BNC cable

Exclusive coaxial cable is selected as an extension cable between microphone and main unit. Using coaxial cable enables measurement of extension and the measurement place easier with small-type code reel. Even 100m extension measurement can be performed without annoyance of heavy multicore cable.
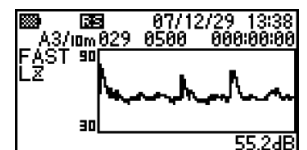
Displaying sound pressure level with A-weighting, AC output with Z-weighting

Not only the measurement of level in the field, but also recording data (time waveform) is required in order to analyze noise and sound in details. In the past sound level measurement, it needed troublesome procedure to measure the A-weighted sound pressure level and record the Z-weighted sound pressure level at the same time. Sound level had to be measured by sound level meter without frequency weighting, and then calculated and recorded at the same time by analyzer. This way required expensive instruments. LA-1400 / 4440 series enable to output signal with flat Z-weighting from analog output connector during displaying and measuring sound level with A-weighting in main unit.

Extension cable AG-2000 series

Recording/analyzing with Z-weighting

Measuring with A-weighting

Measuring the noise at L_{Aeq} by sound level meter and recording with flat Z-weighting by FFT Analyzer.

Auto memory function and Lₚ recording function (LA-1440 / 4440)

The LA-1440 / 4440 have Auto memory function which automatically store the data to the specified measurement time. Also the sound level with time weighting (Lp) is stored at 1ms interval (Lp recording function) . This function enables to check the fluctuation of sound level in short time.

＊Storing interval can be selected from 1ms, 2ms, 5ms or 10ms. Maximum of 200 seconds can be stored at 1ms interval.

Displays level on vertical axis, time on horizontal axis.

Resume function to activate with same settings as last time

Same as existing LA series, measurement conditions just before being powered OFF are automatically saved. Measurement can be started again quickly with previous measurement conditions (Resume function). The LA-1400 / 4440 series also have 9 condition memories and able to store each measurement condition as required by circumstances. Presetting the measurement conditions not only makes it smooth to restart measurement but also prevents from setting error in the field.

Easy data transfer and remote controll (LA-1440 / 4440). (required software: user preparation)

Communications via RS-232C and USB enable to transfer the measurement result to a PC and remote controll of LA-1440 / 4440 main unit with software (user preparation).

Peripherals

All-weather Windscreen
LA-0207+LA-0208

In measurement where the microphone is exposed to the wind, the windscreen must be used for protection.
This screen reduces noise caused by the wind in performing sound level measurement outdoors, and prevents the microphone from being damaged by rain or snow.

Screen diameter: ø200mm

∗ AG-2000 series extension cable and tripod are necessary for attachment.
∗ Applying standard : IEC 61672-1:2002
　　　　　　　　　　 JIS C 1509-1:2005

Windscreen　　Standard accessory

● Windscreen (ø70mm)

Sound Level Meter Tripod
LA-0203C

sold separately

Sound Level Meter Tripod
(made by SLIK corporation)

Sound Calibrator
SC-3120 / 2120A

sold separately

The SC-3120 / 2120A are sound calibrators conforming to JIS C1515: 2004, indispensable for determining the reference measurement for a sound level meter.
The SC-3120 is Class1/C piston phone-type, outputs sound pressure at 250Hz and 114dB, and recommended sound calibrator for LA-1410 / 1440 / 4440.
The SC-2120A is Class2 speaker-type sound calibrator used for 1kHz and 94dB output.

Extension cable
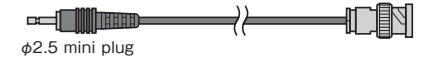### AG-2000 series (coaxial type)

sold separately

AG-2010	10 m
AG-2030	30 m
AG-2050	50 m with code reel
AG-2100	100 m with code reel

∗ MI-0301 Microphone holder is a standard accessory of each extension cable.
∗ Conjunction cable (5m) is attached to an extension cable with code reel for connection to a main unit of a sound level meter.
∗ Microphone can be used away from main unit of sound level meter by connecting several extension cables.
∗ CE marking: 30m or less

Signal output cable (2 m)
AX-501

sold separately

φ2.5 mini plug

Cable for AC / DC signal output, comparator output, and external control signal input.

Printer
Thermal Printer
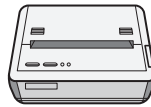with RS-232C connector
DPU-414

sold separately

Interface printer with RS-232C connector.
Manual printing, auto printing, and memory printing are possible.
Connection cable (AX-5042:2 m) between LA-1440 / 4440 and DPU-414 is provided as standard accessory.

AC adapter∗ : PW-4007J (100 to 120VAC) or PW-4007E (220 to 240VAC) (sold separately)
Recording paper : CX-050B (30m/roll, 10 rolls/box, sold separately)

∗ The adapter type to connect to DPU-414 is decided according to its production time. Please check the back sticker "TYPE No." of the DPU-414.

Thermal Printer
with USB connector
BL-112ⅡUI (from SANEI Electric Inc.)

Interface printer with USB connector.
By connecting the printer to a sound level meter, manual printing, auto printing, and memory printing are possible.
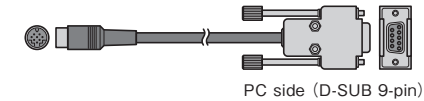Hard copy of display screen can be performed by connecting with LA-1440 / 4440.

Recommended cable for USB (manufactured by ELECOM CO., LTD)

USB-MAEA03 : mini A (male) = A (female)
USB-FS3　　 : A (male) = B (male)

∗ Please contact SANEI Electric Inc. for more details.

RS-232C cable (2 m)
AX-5022

sold separately

PC side（D-SUB 9-pin）

AC adapter　CE
PB-7090

sold separately
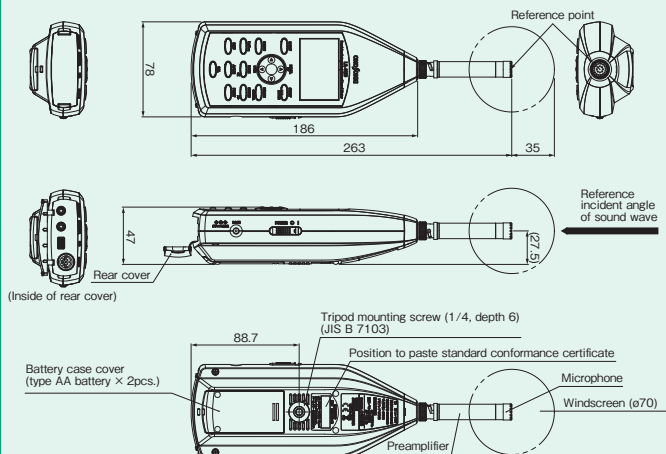
∗ Please specify the AC cord depending on the area used.
∗ Made by Adapter Technology Co.,Ltd

Input voltage 　　 : 100 to 240VAC, 50 / 60Hz
Output voltage 　　: 5.9VDC
Output connector : EIAJ RC-5320A Voltage category2
Rated output current : 3.5A
Length 　　　　　 : 3.5 m

Outer Dimensions

Unit: mm

LA-1410/1440/4440

Reference point
Reference incident angle of sound wave

78
186
263
35
47
(27.5)

Rear cover
(Inside of rear cover)

88.7
Tripod mounting screw (1/4, depth 6) (JIS B 7103)
Position to paste standard conformance certificate
Battery case cover (type AA battery × 2pcs.)
Microphone
Windscreen (ø70)
Preamplifier

Weight: approx. 375 g (including battery cells)

Sound Level Meter Function Table

●:Provided as a standard ○:Provided as an option

| | Linearity range 100dB | |
	Manual memory	Continuous measurement [Auto memory/Block memory]
Class 2 (20 Hz to 8 kHz)	—	—
Long distance extension [BNC type]	LA-1410	LA-1440
Class 1 (20 Hz to 12.5 kHz)	—	—
Long distance extension [BNC type] wide band	—	LA-4440
General purpose (Lp,Lmax,Leq)	●	●
Fluctuation noise (Leq, LN, LE)	●	●
Working environment (Leq for 10 minutes)	●	●
Factory noise	●	●
Mechanical noise	●	●
Time weighting of 10 ms	—	●(LA-4440 only)
External control function RS-232C connection	—	●
External control function USB (virtual COM port connection)	—	●
Trigger function (Starting of measurement·data storage)	—	●
Trend display of sound data	●(Realtime data only)	●(Realtime data+storage data)
Data storage into an internal memory	●(Manual memory 100 data)	●(Manual memory 100 data+ Block memory max. 200,000 data)
Level judgment [comparator output]	—	○
External control	—	●
Storage cycle of sound data	—	Calculation value 1 s / instantaneous value 1 ms or more

◼ Basic Specifications

	LA-1410	LA-1440	LA-4440
Applying standards	IEC 61672-1 :2002 Class 2 JIS C 1509-1 :2005 Class 2		IEC 61672-1 :2002 Class 1 JIS C 1509-1 :2005 Class 1
Microphone	1/2-inch back electret-type condenser type MI-1432 Nominal sensitivity level: −29dB		1/2-inch back electret-type condenser type MI-1234 Nominal sensitivity level: −29dB
Preamplifier	MI-3111		
Linearity range	100 dB		
Frequency range	10Hz to 8kHz (JIS, IEC)		10Hz to 20kHz (JIS, IEC)
Measurement range	A : 26 to 137dB(JIS, IEC) C : 31 to 137dB(JIS, IEC) Z : 36 to 137dB(JIS, IEC)		A : 27 to 137dB(JIS, IEC) C : 30 to 137dB(JIS, IEC) Z : 35 to 137dB(JIS, IEC)
Frequency weighting	A, C, Z		
Intrinsic noise	A: 20dB or less, C: 25dB or less, Z: 30dB or less		A: 19dB or less, C: 22dB or less, Z: 27dB or less
Level range	20 to 90dB, 30 to 90dB, 40 to 100dB, 50 to 110dB, 60 to 120dB, 70 to 130dB (Normal range) / 40 to 120dB (Wide range)		
Time weighting	Fast, Slow		Fast, Slow, Impulse, 10ms
Measurement items	L_P, L_{eq}, L_E, L_N (L_5, L_{10}, L_{50}, L_{90}, L_{95}, Hi, Low, Ave), L_{max}, L_{min}, L_{peak}		
Sampling interval	$31.25\mu s$ (other than L_N), 100ms (L_N)		$20.8\mu s$ (other than L_N), 100ms (L_N)
Measurement time	Manual, arbitrary setup (199h59m59s max.)		
Total measurement time	—	Arbitrary setup (199h59m59s max.)	
Start mode	Manual	Manual, Timer (time setting: in increment of 1 second) Trigger (Can be started after a lapse of specified time (0 to 10 seconds, in increment of 1 second) after trigger detection: Trigger delay function)	
Calibration	Electrical calibration by internal calibration signal (1kHz sine wave), calibration by external sound calibrator		
Recommended sound calibrator	SC-3120		
Display device	Semitransparent LCD with LED backlight (124 x 64-dot), measurement value display by numeric and bar indicator. List display and trend graph display for various kinds of calculated values, displays of day, time, measurement time and conditions of various kinds of instruments.		
Displayed update time	Numeric: 1s, bar indicator : 0.1s, trend graph: 0.2s		
Memory function — Manual memory	Total calculated values: 100 addresses		
Memory function — Auto memory	—	Total calculated values: 100 addresses x 200 blocks, L_{eq}: 1000 addresses x 200 blocks	
Memory function — Lp record	—	Sound pressure level with time weighting (L_P) is automatically recorded at the specified interval. (1000 addresses x 200 blocks) Recording interval: Select one from 1ms, 2ms, 5ms, and 10ms.	
Measurement condition memory function	Condition memory: 9 kinds		
Measurement condition memory function — Resume	Settings activated at power ON can be selected from three; Settings used at previous power OFF, factory settings, any condition memory number which is set from menu		
Analog output	Select one from three; AC output with selected frequency weighting, AC output with Z-weighting, DC output with selected frequency weighting and time weighting		
Analog output — Rated AC output	0.707Vrms / F.S. (normal range), 2.238Vrms / F.S. (wide range)		
Analog output — Rated DC output	2.5V / F.S., 0.25V / 10 dB		
Analog output — Electrical specification	Output impedance: 50Ω, load resistance: 10kΩ or more, applicable cable: AX-501 (sold separately)		
External control input	—	Operation: Toggle operation of start / place in pause. Hardware specification: Negative logic pulse input (Voltage level: Low 0.0 to 0.5V, Hi 3.0 to 5.0V) Pulse width: 100ms or more Absolute maximum rated input voltage: 5.0V	
Comparator function (LA-0141:option)	—	Comparison level: Set to 40.0 to 130.0dB (in increment of 0.1dB) Comparison measurement item: L_{max} or L_{peak} Delay time: 0ms,100ms,1s, 5s Hold time: 100ms, 1s, 5s, manual Output logic: Negative or positive logic Output signal specification: Open collector (Applied voltage: +3 to +24VDC, current: 50mA or less)	
Clock function	Current calendar year / month / day / hour and minute can be displayed and set, with leap year adjustment		
RS-232C	—	Control of main unit and data output, output to an exclusive printer (DPU-414:sold separately) Baud rate: 9,600 / 115,200 bps	
USB	—	Control of main unit and data output, output to an exclusive printer (BL-112ⅡUI:sold separately) USB2.0 FULL SPEED (connect to virtual COM port)	
Microphone extension*1	305m max.		105m max.
Print function	—	Menu: Measurement value, start / stop time of measurement, actual measurement time, frequency weighting, time weighting Mode: Normal (alpha-numeral) or image data displyed on LCD Applicable printer: DPU-414 / BL-112ⅡUI (sold separately)	
Power supply	Type AA battery x 2pcs. or AC adapter (PB-7090, sold separately, power consumption: approx. 4VA at 100VAC)		
Battery life	Approx. 8 hours (LR-6 alkaline batteries in used)		
Operating temperature / humidity range	−10 to 50℃ / 25 to 90%RH (with no condensation)		
Storage temperature / humidity range	−20 to 60℃ / 10 to 90%RH (with no condensation)		
Outer dimensions	Approx. 78(W) x 263(H) x 47(D)mm		
Weight	Approx. 375g (including batteries)		
Accessories	Windscreen (ø70mm) x 1, carrying case x 1, hand strap x 1, battery cell x 2pcs., Manual: 1 copy for each (Basic Operation, Interface (LA-1440 / 4440), Technical Guidance, Simple Operation Guide)		

*1. The cable length given here is the length when each of the exclusive cable sold by Ono Sokki is used.

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