LA-7000 series Sound Level Meter

ονοζοκκι

Listen, measure, and identify the sound.



LA-7000 series High performance **Sound Level Meter**

The LA-7000 series enables sound recording, frequency analysis, and sound quality evaluation in addition to the original features of a sound level meter such as measurement of noise level. Recorded data is useful for confirming the reproducibility of phenomena and sharing measured sounds internally. By recording while listening to the sound by the main body, it is a great help for reliable measurement at measurement place where no mistakes can be allowed.



LA-7000 Promotion Movie



Easy to hold

Hand strap for portable use

The hand strap provided as an accessory prevents sound level meter from slipping down.

Compact

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



High sensitivity type : For measurement of weak sound in an anechoic room

LA-7700 Sound Level Meter Class 1

Measurement Measurement Self-noise leve

Wide band type : For measurement of wide range from very low frequency sound to audible range

LA-7500 Sound Level Meter Class 1

Measurement

Measurement Self-noise leve

High function type : For measurement of environmental noise

LA-7200 Sound Level Meter Class 2

Measurement Measurement Self-noise level

Easy to use

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/Japanease).

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 connection.

Windscreen correction function

When measuring with windscreen, the influence of the attachment can be corrected by this function. *Applicable to IEC 61672-1 when a windscreen is attached *It can be used without a windscreen correction

Feature

Easy to operate

4.3 inch color LCD

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

Starts 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 and experience the sound, not only as simple numerical values but also as a real feeling. Moreover, you can listen more clearly to only the intended sound through filtering and setting 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.)

frequency range	10 Hz to 20 kHz
level range (JIS, IEC)	A : 20 to 128 dB
	A : 12 dB or less

frequency range	10 Hz to 20 kHz
	1Hz to 20 kHz
	(when ultra low frequency sound measurement function is available.)
level range (JIS, IEC)	A : 24 to 138 dB
	A : 16 dB or less

frequency range	10 Hz to 8 kHz
level range (JIS, IEC)	A : 23 to 138 dB
	A : 17 dB or less

Capturing function

Captures 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. Helpful to go back to the home screen quickly from the deep hierarchy that you are operating.

External power supply ON/OFF function

When the LA-7000 series is used being incorporated in equipment, the ON/OFF power operation can be interlocked to an external power supply * The battery cells should be removed.

Key protection function

Press and hold Home key for 1 second.

By adding functions, frequency analysis and sound recording can be performed with

a single sound level meter to improve the measurement efficiency.

It is great help for investigating the cause to obtain not only sound level but also frequency characteristic.

Standard function



DUAL mode, QUAD mode

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.

Listening function (Phone output)

Measuring while listening to the sound

• Effective for the measurement in an anechoic room or distant place

• Effective for monitoring of environmental noise etc. at distant place *Extension cable, headphone: sold separately

1/1 Octave Band Analysis Function

Analysis band:

Applicable standard: IEC 61260-1:2014 Class1/ JIS C 1513-1: 2020 Class1 16 Hz to 16 kHz (11 bands), Allpass 1,2 *When ultra low frequency sound measurement function available: 1 Hz to 16 kHz (15 bands)[List only]. Allpass 1.2 Filter 1/1 mode By using the octave band filter, you can listen to only the interested sound even in noisy environment. It helps sound probing of abnormal sound.

IEC 61260-1:2014 Class1/ JIS C 1513-1:2020 Class1

*When ultra low frequency sound measurement function available:

Useful for probing of

abnormal sound

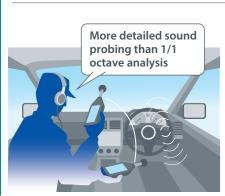
12.5 Hz to 20 kHz (33 bands), Allpass 1,2

0.8 Hz to 16 kHz (45 bands)[List only], Allpass 1,2

LA-0702

LA-0704

Optional function 1/3 Real-time Octave Analysis Function



measurement function available: same as Filter 1/1 RTA 1/3 Litt 1)

Alpast |

Lung

Conforming standard:

Analysis band:



Sound Recording Function Optional function



Memory mode: Record Sampling frequency: 64 kHz Recording time: approx. 8 hours at 4 GB max. (16-bit) approx. 5.5 hours at 4 GB max. (24-bit) (note) Up to 2 GB of recording by OS-2000 (recorded data with LA). wav. (acoustic data) File format: csv. (playback trend data: Lz in 1s interval)

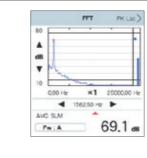
Simultaneous processing of analysis and recording in RTA or FFT mode is enabled. Offline analysis function such as recalculation, reanalysis can be performed.

Ultra low frequency sound measurement function Optional function LA-0709

Ultra low frequency sound (1 to 20 Hz) that is hard to hear with human ears can be measured.

Measurement frequency range:	1 Hz to 20 kHz (10 Hz to 20 kHz or 1 Hz to 20 kHz selectable by mode selection)
Frequency weighting:	G weighting selectable
Time weighting:	10 s selectable
Conforming standard:	ISO7196:1995 Acoustics - Frequency-weighting characteristic for infrasound measurements
Mode:	SLM (SINGLE, DUAL, QUAD), FILTER (1/1 Filter, 1/3 Filter), RTA (1/1 RTA, 1/3 RTA), FFT
*Can only be installed on LA-7500. For add	ding LA-0709 to LA-7500 after purchase, installation will be done by Ono Sokki. Please contact us for details.

Optional function FFT Analysis Function



Frequency range:

Number of lines:

Trigger:

Average mode: Measurement range: Applicable memory: Screen expand display (Expand): $\times 1$, $\times 2$, $\times 4$ *For LA-7700, trigger level (30.0 to 120.0 dB).

Level Judgment Function Optional function



Judging item: Lp instantaneous value in Main (Calculated value: not supported) Setting level: 30.0 dB to 130.0 dB DELAY setting: OFF, 10 ms, 100 ms, 1 s, 2 s, 3 s, 5 s, 10 s HOLD setting: 100 ms, 200 ms, 500 ms, 1 s, 5 s, 10 s, 30 s, Manual Output mode: OFF.

*For LA-7700: trigger level (30.0 to 120.0 dB).

Level Simulator Function Optional function



measures. Variable level: Display band:

Sound quality evaluation function Optional function

<sqe< th=""><th>List</th><th></th><th></th></sqe<>	List		
90	NGF	143	
A -	LNGF	78.4	
dB	SGF	1.3	
21	SAGE	19	
*	Spar	12	
20	Clar	7.3	
	LANG	60.3	d

available.	
Usage :	Stationary
Calculation lis:	Loudness (compliant (Complian (Aures), [SI Comfort in
*Comfort Index (CI) Currently the range	
*LA-7200 (Class 2) is	

and download the latest version. To add options, upgrade the sound level meter to the latest version.

LA-0703

This function can perform analysis with finer line resolution (narrow band analysis). Effective for frequency analysis of single-shot sound using trigger function.

1 k, 2.5 k, 5 k, 12.5 k, 25 kHz 400 (1024), 800 (2048), 1600 (4096) (number of sampling points) ON/OFF times (1 to 16), Level (40.0 to 130 dB), Position (-64 points fixed) SUM, MAXhold, EXP (exponential) Normal range (wide range: not supported) Manual, Auto, Logging, Record



ON (Mode1LOW), ON (Mode2HI-z) *Output cable (Multi-BNC connector) 2 m: provided as standard

LA-0707

Level simulator function that enables to lower the frequency value (level) by octave band and listen to sound after countermeasures (virtual sound) has been added. You can also obtain the overall value. It is very efficient to simulate before taking

Switching display: UD (Simulation possible) or AP (original sound)

- Adjustment range: -50 dB to +20 dB (1dB step)
 - 16 Hz to 16 kHz (11 bands) correspondence
 - 11 bands, Overall, Allpass (Through)
- Batch edit function: 0 dB (for reset), -50 dB (all cut)

Sound quality evaluation indexes such as Loudness, Sharpness and Comfort are

tionary sound Diffuse sound field(GD), Free sound field (GF) selectable udness [N], Loudness level [LN] ompliant with ISO532-1 stationary sound), Sharpness [S] ompliant with DIN45692), [SA]

- ures), [SB](Bismarck),
- mfort index*[CI]

ne of index studied by Ms. Kuwano Sonoko, Emeritus Professor of Osaka University. oplication is studied. Please use it as a reference value

*To upgrade the sound level meter after purchase, register the product on the user registration page



Accessories & Related products



Specification

		LA-7700 (Class1)	LA-7500 (Class1)	LA-7200 (Class2)		
		JJIS C 1509-1: 2017 Class	1 / JIS C 1516: 2020 Class1	JIS C 1509-1: 2017 Class2 / JIS C 1516: 2020 Clas		
Applicable star	ndard	IEC 61672-1	: 2013 Class 1	IEC 61672-1: 2013 Class2		
		ANSI 51.4-201	4 / Part1 Class1	ANSI S1.4-2014 / Part1 Class2		
Measurement f	frequency range	10 Hz to 20 kHz	10 Hz to 20 kHz / 1 Hz to 20 kHz*1	10 Hz to 8 kHz		
Measurement I	level range (IEC, JIS)	A: 20 to 128 dB / C: 28 to 128 dB / Z: 34 to 128 dB	A: 24 to 138 dB / C: 32 to 138 dB / Z: 38 to 138 dB Z: 50 to 138 dB*1 / G: 35 to 138 dB*1	A: 23 to 138 dB / C: 30 to 138 dB / Z: 36 to 138 d		
elf-noise level	l	A: 12 dB or less / C: 20 dB or less / Z: 26 dB or less	A: 16 dB or less / C: 24 dB or less / Z: 30 dB or less / G: 27 dB or less*1	A: 17 dB or less / C: 24 dB or less / Z: 30 dB or le		
Microphone		MI-1281	MI-1271	MI-1471		
Nicrophone pr	reamplifier		MI-3270			
inearity range	<u> </u>		Wide range: 110 dB / Normal range: 80 dB			
evel range		10 to 120 dB (wide) / 50 to 120 dB / 40 to 110 dB / 30 to 100 dB / 20 to 90 dB / 10 to 80 dB / 0 to 70 dB		to 130 dB/50 to 120 dB / 8 / 20 to 90 dB / 10 to 80 dB		
Reference rang	je		50 to 120 dB			
Time weighting	g (e.g.: LAF)	F (fast), S (slow), I (impulse) and 10 ms	F (fast), S (slow), I (impulse), 10 ms and 10 s *1	F (fast), S (slow), I (impulse) and 10 ms		
requency wei	ghting (e.g.: LAF)	A, C and Z	A, C, Z and G*1	A, C and Z		
Aeasurement i	items	Lp, Leq, LE, Lmax, Lm	nin, Lpeak, LN (L5, L10, L50, L90, L95, Lhigh, Llow, Lave. and two more	e of any L⊨ value)		
Sampling inter	val		15.6 $\mu s \left(L_p, L_{eq}, L_E, L_{max}, L_{min}, L_{peak}\right)$,100 ms $\left(L_N\right)$			
			o measure for 10 minutes every hour on hour and conti M.T. shall be 10 min, P.T. shall be 1 h, and T.T. shall be 24			
Measurement	Maggurament time (Magg Time)		ser-specified setup: 0.1 to 199 hour 59 min. 59.9 sec. / re			
time	Measurement time (Meas.Time)	Manual (OFF), u		solution: 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			
itart mode			Manual start, timer start, count down start, level start			
No. 1	Display device		4.3-inch LCD with color backlight (touch panel type)			
Display	Digital display		4-digit/ resolution: 0.1 dB/ update cycle: 1 s			
unction	Bar indicator	Wide ran	ge: 100 dB of display range / Normal range: 70 dB of disp	play range		
	Remaining battery level display		4-step display			
peration	(Online) mode	Standard: SLM-single, Dual, Quad, Filter 1/1, RTA1/1 Option: Filter 1/3 (LA-0702), RTA 1/3 (LA-0702), FFT	1 . (LA-0703), LSIM (LA-0707), SQE stationary sound (LA-07	'08A) *LA-0708A is not applicable to LA-7200.		
node	Offline mode (LA-0704 required)	Standard: SLM-single, Dual, Quad, Filter 1/1, RTA1/1 Option: Filter 1/3 (LA-0702), RTA 1/3 (LA-0702), FTF (LA-0703) * LSIM (LA-0707) and SQE stationary sound (LA-0708A) are supported in Ver4. 0 or later.				
	Quadau diaslau					
Dverlay display	Overlay display	Standard: RTA 1/1 Option: RTA 1/3 (LA-0702)				
ispiay	Background noise correction		Standard: RTA 1/1 Option: RTA 1/3 (LA-0702)			
			red in an SD/SDHC card (SDHC card: up to 32 GB is availa			
			(instantaneous value, calculated value, CSV file)			
	Memory mode	LOGGING (instantaneous value 10 ms or 100 ms, CSV file)standard function				
		RECORD (WAVE file: 64 kHz sampling)				
Memory	Panel condition memory	Internal memory (optional condition: 5, EZ condition: 5, power off memory: 1), SD or SDHC card memory (number depends on the capacity)				
unction	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), Continuous operation time: 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, used sound calibrator or internal reference signal, calibration date)				
	Resume function	Stores measurement conditions into the built-in memory				
	Reference signal (when connecting external device)		insmitter (1 kHz sine wave) / normal range: -6 dB of full-s	, 		
Calibration	Recommended calibrator	SC-2500, SC-2500A	SC-3120, SC-2500, SC-2500A	SC-3120, SC-2500, SC-2500A, SC-2120A		
	Phone output		r recorded sound (playback sound), 1/1 octave filter (sta			
			und (playback sound) when using 1/3 octave filter mode			
	Headphone output		When "AP" is selected, the real sound. Maximum output			
	AC output		Dutputs one of A, C, or Z interlocked with the main displ			
	Acouput					
	AC output level		normal range), 2.236 Vrms ±5 % (wide range), range full :			
	AC/DC output	distortion rate (range full scale): 0.2 % or less, load resistance: 10 kΩ or more, offset voltage: ±30 mV or less, output impedance: 50 Ω ±2 % Selectable from DC, AC-Z or Through				
Dutput/Input	DC output level	2.5 V ± 20 mV (normal range, wide range), range full scale input, (when 1 M Ω loaded),				
		scale factor: 0.25 V ± 10 mV/10 dB, load resistance: 10 k Ω or more, output impedance: 50 $\Omega \pm 2$ %				
	AC-Z output level	Output level: 0.707 Vrms \pm 5 % (normal range), 2.236 Vrms \pm 5 % (wide range), range full scale input, (when 1 M Ω loaded), distortion rate (range full scale): 0.2 % or less, load resistance: 10 k Ω or more, offset voltage: \pm 30 mV or less, output impedance: 50 Ω \pm 2 %				
	Through output level	-	de range), full-scale input (when 1MΩ loaded), distortio	-		
	External control input		: non-voltage contact input / input pulse width: 200 ms			
	Level judgment output (LA-0705)	Open collector (output withstand voltage: DC+24 V or less, sink current: 20 mA or less) Output cable (Multi I/O-BNC connector 2 m): provided as standard				
	Level judgment comparison item RS-232C	SLM mode (Main: Lp), Filter 1/1,1/3 (Main (BP): Lp), RTA1/1,1/3 (AP1 : Lp), FFT (OVERALL: Instant)				
nterface	USB		aud rate: 9600, 115200 bps, Multi I/O cable (sold separate cation, USB connection cable: USB (A) male-micro USB (B) male (s			
	External memory		SD/SDHC memory card (up to 32 GB)*3			
Applicable exte	ension cable (for microphone extension)*4	AG-3400 series (CE compatible within 30 m)), cable extension up to 103 m (AG-3305) *Cable extens	ion exceeding 5 m: with correction function.		
Vindscreen co	rrection function	Function to correct the influence of windscreen (ϕ	70) or all-weather type windscreen (LA-0207A). All-weat	her type windscreen is not applicable to LA-7700		
ower supply			attery (alkaline battery cell or Ni-MH secondary battery) power (operating input voltage range: 4.75 to 5.25 VDC)	× 4 pieces		
			er (PB-7090, power consumption: approx. 7 VA when usi			
External power	r operation function		y when the power is supplied from an AC adapter. (This i ff can be done with the switch in the battery box (stand			
Battery life (cor	ntinuous use) *5	Alkaline battery	cell LR6: approx. 12 hours, Ni-MH secondary battery:	approx. 12 hours		
	rage) temperature range		-10 to 50 °C (-20 to 60 °C)			
Operating (stor			20 % to 90 % RH (10 % to 90 % RH) with no condensatio			
	rage) humidity range		20 /0 to 50 /0101 (10 /0 to 50 /0101) within condensatio	Approx. 90(W)×279(H)×42(D)mm		
Operating (stor			Approx. 90(W)×279(H)×42(D)mm Approx. 540 g (including batteries)			
Operating (stor Outer dimensio		AC adapter (PB-7090)*7, sigr	Approx. 90(W)×279(H)×42(D)mm Approx. 540 g (including batteries) nal cable (AX-501), windscreen (\$70 mm), hand strap, siz	ze AA battery cell × 4 pieces,		
Operating (stor Duter dimensio Veight Accessories	ons	AC adapter (PB-7090)*7, sigr	Approx. 90(W)×279(H)×42(D)mm Approx. 540 g (including batteries) nal cable (AX-501), windscreen (\$70 mm), hand strap, siz g shoulder belt), SDHC memory card (4 G), instruction m	ze AA battery cell × 4 pieces,		

*1: Available with the LA-0709 Ultra low frequency sound measurement function *2: Supported ver.2.0 or higher version of firmware *3: Please use a recommended SD card when you use the SD memory function. *4: The described value is extendable length when the exclusive cable is used.

*5: It depends on the using status such as operation mode, memory mode, and backlight. *6: Conforms to IEC 61672-1: 2013 when the all-weather type windscreen is attached to the sound level meter. *7: Please contact your nearest distributor or Ono Sokki sales office nearby for the outlet cable used for overseas.

Offline Software for analysis

Sound and vibration analysis system O-Solution/ DS-5000





By importing the data (wav format) recorded by the LA-7000 series (+LA-0704, option) into the O-Solution, you can play back sounds, perform frequency analysis, and octave analysis on your PC. By using the digital filter function (option), it is possible to listen to the sound after passing through the filter while playing back the recorded sound.

Sound Source Visualization System BF-3200, MI-5420A etc.



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-1411/1441A/4441A



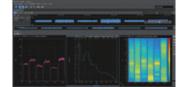
This series has simple function which measures the sound level, equivalent continuous sound leve (L_{eq}), sound exposure (L_{E}), maximum, minimum, peak leve (L_{peak}), percentile noise level (L_{N}) etc. Recommended calibrators (Class1 and Class2) are also provided.

•LA-4441A (IEC61672-1 Class1)

- LA-1441A (IEC61672-1 Class2)
- •LA-1411 (IEC61672-1 Class2)

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

Sound quality evaluation function OS-0525



By importing WAVE files recorded with LA-7500, LA-7700 (+LA-0704, option), This function enables to obtain sound quality evaluation indicators such as loudness, loudness of non-stationary sounds, sharpness, fluctuation strength, etc.

Fluctuation sound analysis function OS-0526



Adding a new concept of "time fluctuation" to sound quality evaluation, this function can clearly express the features of sound on the two axes of frequency and fluctuation frequency, and evaluate temporal fluctuations that were difficult to detect with roughness or fluctuation strength.

Acoustic sensor (microphone, preamplifier) MI series



 MI-1271 + MI-3170 1/2-inch High performance microphone (Operating temperature - 30 °C to 80 °C) (Frequency range: 1 Hz to 20 kHz) (Self-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)
- ※上記マイク価格にはケーブル費用は含まれておりません。

JCSS Calibration Service

Ono Sokki provides reliable and high level calibration results, based on the international reference "General requirements for the competence of testing and calibration laboratories" and the skills and know-how of quality assurance system that has been acquired through many years of practices.

Under the JCSS of calibration laboratory accreditation system, Ono Sokki is assessed and accredited as Accredited Calibration Laboratories to meet the requirements of the Measurement Law, relevant regulations and ISO/IEC.

We support 6 accreditation scopes, which is industry-leading in measurement instruments manufacturers.

THAILAND

A.Pakkred

Fax

*1 JCSS: Japan Calibration Service System

*2 ilac: International Laboratory Accreditation Conference

*3 MRA: Mutual Recognition Arrangements



Accreditation Scope • Electricity (Direct Current & Low Frequency) • Speed

•Time & Frequency & Rotational speed

Ono Sokki can issue 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 ilac⁸²-MRA*3.

(Under the calibration laboratory accreditation system JCSS, Ono Sokki is officially certificated by NITE.)

*Microsoft® Windows® are registered trademarks of Microsoft Corporation in the United States and other countries. Other product names are trademarks or registered trademarks of each individual company. The copyrights are reserved by each individual company

> WORLDWIDE ONO SOKKI CO., LTD. 3-9-3 Shin-Yokohama, Kohoku-ku, Yokohama, 222-8507, Japan Phone: +81-45-476-9725 Fax: +81-45-476-9726 E-mail: overseas@onosokki.co.jp

Ono Sokki (Thailand) Co., Ltd.

1/293-4 Moo.9 T.Bangphud

Nonthaburi 11120, Thailand Phone: +66-2-584-6735

: +66-2-584-6740

E-mail : sales@onosokki.co.th



U.S.A.

Ono Sokki Technology Inc. 2171 Executive Drive, Suite 400 Addison, IL. 60101, U.S.A. Phone: +1-630-627-9700 Fax : +1-630-627-0004 E-mail: info@onosokki.net https://www.onosokki.net





An eco-friendly waterless printing method was used which does not yield harmful waste water VOC free ink was used to print this report.

INDIA

Fax

Ono Sokki India Private Ltd.

IMT Manesar Gurgaon-122050,

: +91-124-421-1809

Haryana, INDIA Phone : +91-124-421-1807

E-mail : osid@onosokki.co.in

Plot No.20, Ground Floor, Sector-3,

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

P.R.CHINA

Ono Sokki Shanghai Technology Co., Ltd. Room 506, No.47 Zhengyi Road, Yangpu District, Shanghai, 200433, P.R.C. Phone : +86-21-6503-2656 Fax : +86-21-6506-0327 E-mail : admin@shonosokki.com