User's Manual

Sound Level Meter PCE-322A

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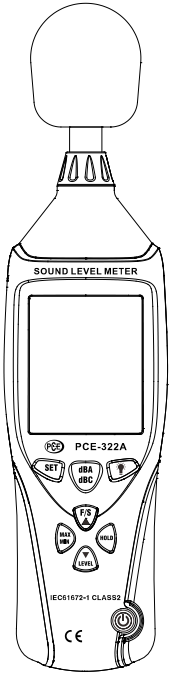

Please read this user's manual thoroughly before using this unit and keep it properly for your future reference.

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1. Safety

Read the following safety information carefully before attempting to operate or service the meter.

Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.

◆Environment conditions:

Altitude up to 2000 meters

RH≤90％（Non-Condensation）

Operating Temperature: -20～60℃

◆Maintenance

Repairs or servicing not covered in this manual should only be performed by qualified personnel.

Wipe the unit with a dry soft cloth. Do not use abrasives or solvents on this instrument.

◆Safety Symbol

CE Comply with EMC

2. General description

This Sound Level Meter is designed to meet the measurement requirements of safety Engineers, Health, Industrial safety offices and sound quality control in various environments like construction, factories, schools, offices, traffic access, household, stereos, etc.

◆Comply with IEC61672-1 CLASS2 standard

◆Max/Min record

◆Over range indication

◆Under range indication

◆Time, data transmission display

◆A & C Weighting

◆Selectable response time: FAST/SLOW

◆Analog AC/DC outputs for connection to frequency analyzer or X-Y shaft recorder

◆PC real-time monitoring, recording and memory

◆4digits LCD display with a resolution of 0.1dB

◆Sampling time: 2 times/second.

3. Specifications

Applied standard	IEC61672-1 CLASS2
Accuracy	±1.4dB
Frequency range	31.5Hz～8kHz
Dynamic range	50dB
Measuring level range	Lo：30dB～80dB
	Med：50dB～100dB
	Hi： 80dB～130dB
	Auto:30dB～130dB
Frequency weighting	A & C
Time weighting:	FAST 125ms;SLOW (1s)
Microphone	1/2 inch electret condenser microphone
Display	4digits LCD display with a resolution of 0.1dB
Sampling time	2 times/sec
Max Hold	MAX
Min Hold	MIN
HOLD:	Hold the readings
Alarm function	“OVER”is when input is more than upper limit of range.
	“UNDER”is when input is less than lower limit of range.

Analog output	AC/DC outputs from earphone outlet AC=1Vrms ， DC=10mV/dB
Data recording:	Meter memory： 262100 readings PC monitors and records in real-time, each 15,000 readings will be saved one time automatically.
Auto power off	Meter automatically shuts down after approx. 15 minutes inactivity.
Power supply	One 9V battery, 006P or IEC 6F22 or NEDA 1604.
Battery life	at least 30 hours
Operating conditions	-20~60℃; 10％RH～90％RH
Storage conditions	-20℃～60℃; 10％RH～75％RH
Dimension (L*W*H)	252*66 *33 mm
Weight:	262g

4. Meter description

①Windscreen microphone cover

②Metal Rod

③LCD display

④Frequency weighting A/C selection key

⑤Backlight ON/OFF key

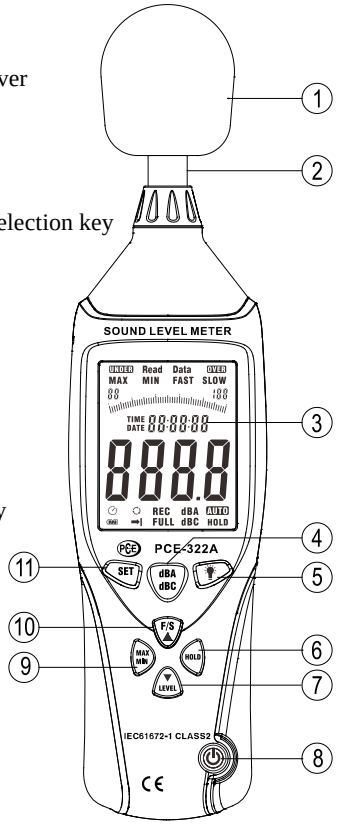
⑥HOLD key

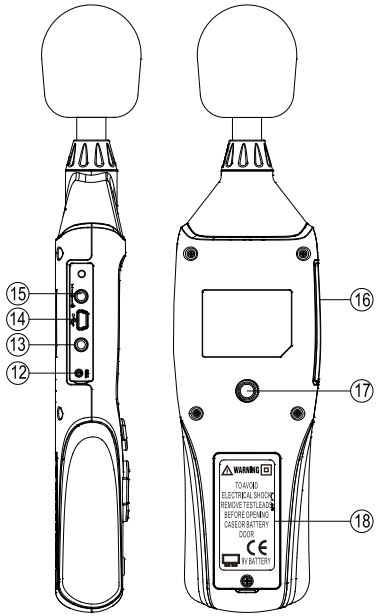
⑦Range selection key

⑧Power ON/OFF key

⑨MAX/MIN key

⑩Response time selection key





⑪SET key

⑫Potentiometer calibration

⑬AC/DC signal output earphone outlet

⑭USB interface

⑮External DC 9V power supply terminal

⑯Dustproof cover

⑰Tripod nut

⑱Battery Compartment

5. LCD display description

Icon	Function
LCD	4 digits
MAX	Maximum data hold
MIN	Minimum data hold
OVER	Input value is more than upper limit of range.
UNDER	Input value is less than lower limit of range.
FAST	Fast response
SLOW	Slow response
dBA	A frequency weighting(the noise that human ear can hear)
dBC	C frequency weighting (response to machine monitor)
88 ~188	Range display
TIME	Display current time(Hour-Minute-Second)
DATE	Display current date(Year-Month-Day)
AUTO	Auto level range selection
HOLD	Data hold function
REC	Data recording
Full	Memory is up to limitation
	Auto power off
	Low battery indication
	Real-time communication icon: it flashes when the meter is connected with PC to achieve data transmission.

6. Operation instruction

(1) **Frequency weighting selection:**

Press " 

" key to select A or C.

(2) **Backlit:** After turning the meter on, momentarily press "  " key, the backlit will be on/off, it will automatically turn off after approx. 30 seconds of inactivity.

(3) **HOLD:**

After turning the meter on, momentarily press " 

" button, "HOLD" icon will appear on the LCD, which indicates the data is freezed. To release the held reading, press the button again.

(4) **Level range selection:**

Press " 

" key, the level range will change from 'Lo', 'Med', 'Hi' to 'Auto' level circularly.

(5) **Power on/off:**

Press the"  " key for 1 second to turn on the meter, while keep pressing it for approx. 3 seconds, the meter will be off.

(6) **MAX/MIN**

Press the " 

" key for one time to enter MAX/MIN measurement, 'MAX' will appear on LCD, the captured maximum sound level will be displayed on the LCD. Press the key again, 'MIN' will appear on LCD and minimum sound level will be displayed on the LCD. Press the button one more time to exit MAX/MIN measurement mode.

(7) **FAST/SLOW**

Press " 

" to select FAST or SLOW time weighting measurement.

FAST: Fast sampling measurement, 1 time per 125ms.

SLOW: Slow sampling measurement, 1 time per second.

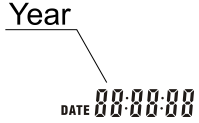
(8) **Date & Time Set**

(8.1) Keep pressing the " 

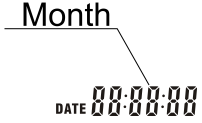
" key before power the meter on, then power the meter on and release this key when the DATE icon

and data flash,enter into the Date & Time Set mode, the display will be YEAR-MONTH-DAY, see fig. as below:

When the YEAR data flashes continuously, press "▲" key to increase the value and press the "▼" key to decrease the value.See fig.as below:



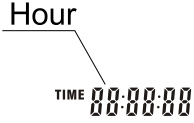
Press "SET" the second time, the MONTH data will flash continuously, then press "▲" or "▼" to increase or decrease the value. See fig. as below:



Press "SET" the third time, the DAY data will flash continuously, then press "▲" or "▼" to increase or decrease the value. See

fig.as below:

Press "SET" the fourth time, the TIME icon and HOUR data flash, then press "▲" or "▼" to increase or decrease the value. See fig.as below:



Press "SET" the fifth time, the MINUTE data flash, then press "▲" or "▼" to increase or decrease the value. See fig.as below:

After finish the Date & Time set, press "PEAK" key to save the data and exit this mode.

(8.2)TIME/DATE Display

After power the meter on, press "SET" key one time to convert

TIME or DATE display.

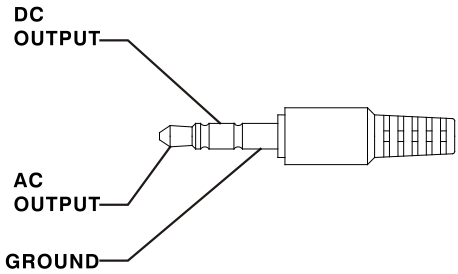
(8.3) REC recording function

Keep pressing the "REC" key for 3 seconds until "REC" icon appears on LCD, then the meter will start recording automatically according to the set sampling rate. When the memory is up to limitation, "Full" icon will appear on LCD and the meter stop recording automatically. The meter will restart recording after the memory data is cleared up.

During recording, keep pressing the "REC" key for 3 seconds will exit recording mode.

Note: External power supply must be connected for long-time recording to avoid the meter shut down suddenly and the recorded data lost.

(9) **AC/DC Signal Output Earphone Outlet**



AC: Output voltage: 1Vrms corresponding to each range step.

Output impedance: 100Ω

DC: Output voltage: 10mv/dB

Output impedance：approx.1KΩ

(10) **External power supply:**

DC 9V input

External DC 9V, positive inside and negative outside

Pore size：OD 3.5mm, ID 1.35mm

7. Calibration procedure

(1) Make the following switch settings:

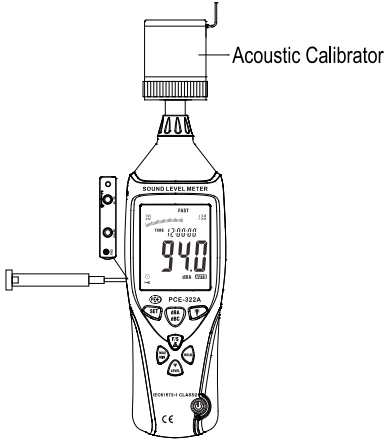
a) Frequency weighting: A-weighting

b) Time weighting: FAST

c) Level range: 50 ~100dB

(2) Insert the microphone housing carefully into the 1/2 inch insertion hole of the calibrator（94dB @ 1kHZ）.

(3) Turn on the switch of calibrator and adjust the CALL potentiometer until 94.0dB is displayed.



NOTE: This meter has already been calibrated before delivery.

The recommended recalibration cycle is one year.

8. Basic operation

(1) Open battery cover and install a 9-volt battery in the battery compartment.

(2) Close the battery compartment.

(3) When the low battery icon "  " appears, replace the meter's battery.

(4) when the AC adapter is used, insert the plug of the adapter （3.5φ） into the DC 9V connector on the side panel.

9. Operating procedures

(1) Power on the meter.

(2) Press ‘  ’ button to select desired level range.

(3) Select ‘dBA’ for general noise sound level and ‘dBC’ for measuring sound level of acoustic material.

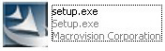
(4) Select ‘FAST’ for instant sound and ‘SLOW’ for average sound level.

(5) Select ‘  ’ button for measuring maximum and minimum noise level.

(6) Hold the meter in hand or use the tripod to fix the meter in the desired location. The best measuring distance is 1~1.5m away from the microphone to the sound source.

(7) To view the current time or date, press the 'SET' key to select the display function: TIME: current time; DATE: current date.

10. Software installation

Insert the CD into the CD-drive. The software will directly run the setup file, follow the installation tips to install the PC professional software; if the software can not run the setup file directly, open the CD contents, double-click the file 

and follow the installation tips to install the software.

11. Software interface introduction

(1) Menu & Toolbar

As show below:

The icons on the toolbar from left to right are as below:

 File opening

Open the saved data file, the data and curve drawing will be displayed on the PC interface to be analyzed and evaluated.

 File saving

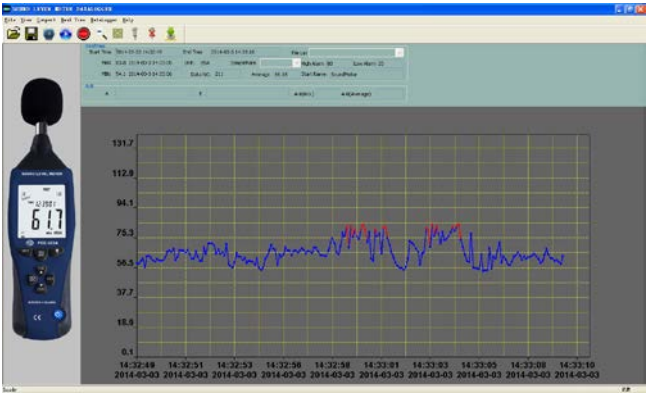
Save the measuring data to the hard disk of a PC, saving address and name can be defined by the user.

 Time adjustment

This function is to adjust the meter's time in accordance with the PC time, the date can be set in three kinds of common format to facilitate the user's habit of different areas.

Start real-time data recording

This function is to monitor the real-time environmental sounds and draw the curve after the meter and PC connected successfully. As show below:



Stop real-time data recording

Zoom out

Zoom out the display ratio of the graph when analyzing it.

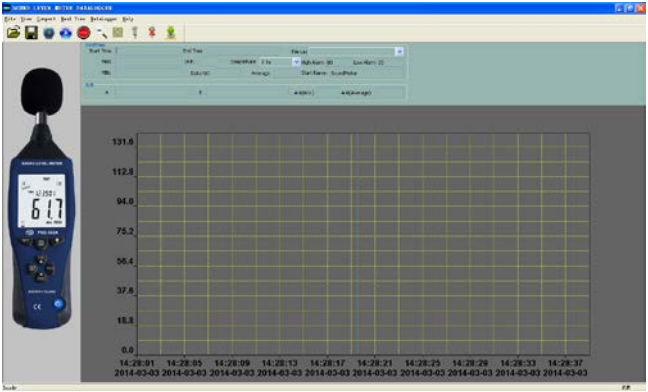
Zoom A

This function is to ensure the zoomed in graph to return to the normal ratio.

 Connection

Connect the meter with the PC

As show below:



 Disconnection

Disconnect the meter with PC

 Download

Upload the recorded data in the meter to PC

(2) Real Time Display Description

Star Time：Display measuring start time

End Time：Display measuring stop time

File List: Data list of continuously measuring record

MAX：Display maximum measuring data

MIN：Display minimum measuring data

Unit ：Measuring unit

Sample Rate：Display sample rate

High Alarm：Set upper limit alarm data

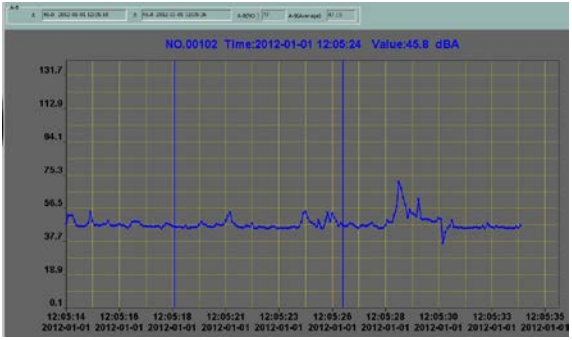
Low Alarm：Set low limit alarm data

Data No.：Display data number

Average：Display average data

Start Name：Set save name

(3) A-B Graph



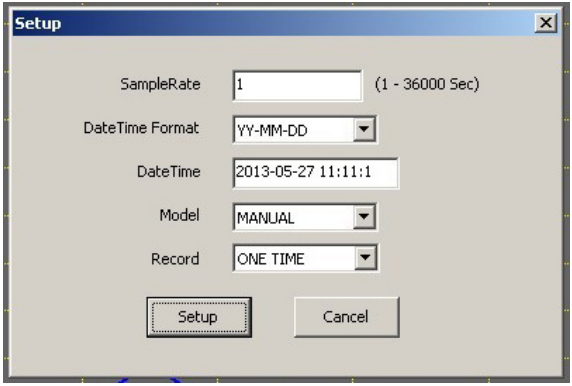
Double-click the left mouse button on the curve interface, and then click to select intervals shown in the figure above,

Form A-B will show the start time, start value, end time, end value, and the amount and average value between the selected points.

Right-click is to cancel this function;

(4) Datalogger Function

①SETUP



Set data sampling rate, Date and Time format in the above shown table. Other options can be the same as default settings.

②Down Load

This function is to upload the recorded data in the meter to PC.

③Clear Memory

This function is to clear up the recorded data in the meter.

Note: All the recorded data will be lost after clearing memory. Please upload the data to PC before operation.

12. Operation

(1) Click "  " on the desktop to open the software, connect the meter and PC by matched USB cable, then power on the meter.

(2) Click"  " to connect the communication.

(3) Click "  " to set the time and date firstly if the time and data is incorrect.

(4) Set the sample rate, high alarm, low alarm and start name in REAL TIME list firstly, then click  to start real-time measuring and monitoring.

(5) Select different working status of the meter by the the virtual keys on the PC (MAX/MIN/HOLD function is an exception)

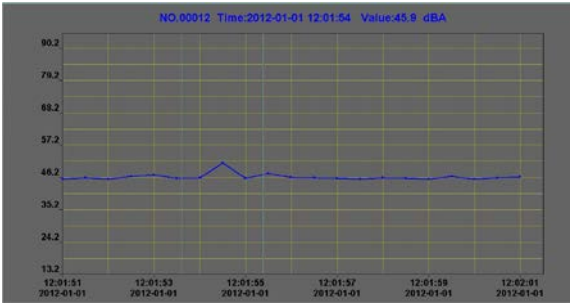
(6) Get information between two data, after the data record or the data file is opened, information between the two data can be get by clicking the two points.

Operation steps as below:

Double-click the graph area→click to select point A→click to select point B → right-click to cancel.

(7) Zoom out, zoom in, zoom A

As show below: Press and hold the left button to enlarge the selection area



Click  in toolbar to zoom out the graph, click  in toolbar to display full graph.

(8) Power off

When measurement finished, click the virtual shutdown button on the PC to shut off the meter to save battery.

13. Notes

(1) Do not store or operate the meter in high temperature or humidity.

(2) Remove the battery when the meter is to be stored for long periods of time to avoid battery leakage.

(3) Wind blowing across the microphone increases the noise measurement. Use the supplied windscreen to cover the microphone when appliance.

(4) Keep microphone dry and avoid severe vibration.

(5) If the date and time automatically resume to default setting after power the meter on, which indicates the battery power is low, replace the meter's battery.

14. Accessories

- User's manual
- Windscreen
- Regulator rod
- 9V battery
- Φ3.5 earphone plug
- Software
- USB cable
- Adaptor
- Tripod (optional)