SOUND LEVEL METER

INSTRUCTION MANUAL



1. SAFETY INFORMATION

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

Use the meter only as specified in this manual:

- **Environment conditions**
  - ① Altitude lower than 2000 meters
  - ② Relatively humidity ≤90％RH
  - ③ Operation Ambient 0 ~ 40°C
- **Maintenance & Clearing**
  - ① Repair or servicing not covered in this manual should be performed by qualified personnel.
  - ② Periodically wipe the case with a dry cloth. Do not use solvents or harsh chemicals on this instrument.
- **Safety symbols**

  Comply with EMC

2. FUNCTIONS DESCRIPTION

This Sound Level Meter is designed for noise project; quality control; illness prevention and cure and all kinds of environmental sounds measurement. It is applied to the sounds measurement at factory; school; office; traffic access and household, etc.

- This unit confirms to the IEC61672-1 CLASS2 for Sound Level Meters.
- MAX & MIN measurements
- Over range display
- Under range display

- A & C Weighting
- FAST & SLOW response
- Analog AC/DC outputs for connection to frequency analyzer or X-Y shaft recorder

3. SPECIFICATION

Standard applied: IEC61672 -1 CLASS2
Accuracy:±1.4dB
Frequency range:31.5HZ ~ 8KHZ
Dynamic range:50dB
Memory:32700
Level ranges: 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: 4 digits LCD display with a resolution of 0.1dB
Display Update: 2 times/sec.
MAX hold: Hold the Maximum reading
MIN hold: Hold the Minimum reading
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 output: USB data traffic

Auto power off: Meter automatically shuts down after approx. 15 minutes of inactivity.

Power supply: One 9V battery, 006P or NEDA1604 or IEC 6F22.

Power life: About 30hours

Operation temperature and humidity:

0°C~40°C,10％RH~90％RH

Storage temperature and temperature:

-10°C ~+60°C，10％RH~75％RH

Dimension: 280 (L) x 95 (W) x 45 (H) mm

Weight：329 g

Accessories： Instruction manual, battery, screwdriver, 3.5mm dia. earphone plug, windscreen, software, USB cable.

4. NAME AND FUNCTIONS



When you measure at wind velocities of >10m/ s, use the wind protection on the microphone.

1. Rec
2. Setup
3. Backlight
4. Fast/Slow
5. A / C
6. Max / Min
7. Hold
8. Level
9. Power
10. 9 VDC power supply / mini USB interface / analogue output / calibration screw



MAX:	Maximum indication
MIN:	Minimum indication
OVER:	Out of range indication (value too high)
UNDER:	Out of range indication (value too low)
FAST:	Fast response
SLOW:	Slow response
dBA:	A-weighting
dBC:	C-weighting
88 – 188 :	Range selection
Battery indicator:	Battery low
FULL:	Memory full
REC:	Data are recorded
	Auto Power On/Off
	„Setup“ key activated / deactivated

„REC“ button

DATALOGGER function

Press “REC” button after it power on, the display will show “REC” to start Data Recording，press the button again to exit the record (Note: In order to avoid data error, please don’t power it off under REC condition, when the REC function is deleted then it can power off).

Adjusting DATALOGGER response

Press the button continuously before power it on，then press ,it will be displayed as following: Press ’LEVEL’ button to adjust sample time, press ‘HOLD’ button to hold the setup.

Data zero function

Press the “REC” button continuously before power it on，loosen the
button when the display showing’CLR’ after the meter power on,which indicates that the data in DATALOGGER has been deleted.



“SETUP” button

The time chip adjustment

Press ‘SETUP’ button and then power it on，when ‘TIME’ symbol displays then loosen ‘SETUP’，the meter will be under time adjustment mode，at the time the display will show the date as following:



Press the ‘SETUP’ button second time, the display showing：

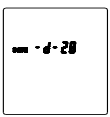


The display showing “minute” adjustment mode, press ‘LEVEL’ to make the adjustment，press ‘HOLD’ to keep the setup；

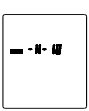
Press the ‘SETUP’ button third time, the display showing：



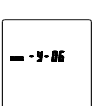
The display showing “hour” adjustment mode, press (h-P=P.M,h-A=A.M)
‘LEVEL’ to make the adjustment，press‘HOLD’to keep the setup；
Press the‘SETUP’button fourth time, the display showing



The display showing “date” adjustment mode, press ‘LEVEL’ to make the adjustment，press ’HOLD’ to keep the setup；
Press the ‘SETUP’ button fifth time, the display showing：



The display showing “month” adjustment mode, press ‘LEVEL’ to make the adjustment，press ‘HOLD’ to keep the setup；
Press the ‘SETUP’ button sixth time, the display showing：



The display showing “year” adjustment mode, press ‘LEVEL’ to make the adjustment，press ‘HOLD’ to keep the setup；

Only if you need to factory reset the “TIME” should the following seventh step be used. Press “POWER” to end setup and restart to verify settings.

Press the ’SETUP’ button seventh time to reset to factory settings, the display showing:



Press ‘HOLD’ to keep the setup；time and date have returned to factory setup.

When the battery is exhausted or replaced, if the time can’t be adjusted then please initialize the time chip first.

USB communications setting:

Turn on the meter, connect the meter with the computer correctly, choose the software COM3（COM4）,then press ‘SETUP’ , ‘ ’ disappears from the display to indicate and disable auto power off, that the USB data is transmitting.

Auto Power ON/OFF

Press ‘SETUP’ , ‘ ’ disappears from the display to indicate you have disabled auto power off.

“**FAST/SLOW” button:**

Time weighting selection
FAST: Fast sampling measurement, 1 time per 125mS.
SLOW: Slow sampling measurement, 1 time per second.

"**MAX/MIN" button:**
Maximum and Minimum hold Press this button for one time to enter MAX/MIN measurement, 'MAX' will appear on LCD, maximum sound level will be captured and held until higher sound level is captured. Press the button again, 'MIN' will appear on LCD and minimum sound level will be captured and held until new lower sound level is captured. Press the button one more time to exit MAX/MIN measurement.

"LEVEL" button: Level range selection
Each time you press "LEVEL" button, the level range will change between 'Lo' level, 'Med' level, 'Hi' level and 'Auto' level in the circular.

Backlight button

8.0. Turn the backlight on/off

8.1. DATALOGGER response setting;



During power on press the backlight button continuously until 'INT' symbol appears, press 'LEVEL' to set up the data

memory response, then press‘HOLD’to keep the setting.

“A/C” Frequency weighting select button

A：A-Weighting

C：C-Weighting

“HOLD” button:

Press “HOLD” button, The hold function freezes the reading in the display.

Power button

Turn the meter power ON/OFF

External DC 9V power supply terminal

For connection with DC 9V power supply.

Aperture size: external diameter: 3.5mm, internal diameter: 1.35mm

USB interface

USB signal output is a 9600 bps serial interface.

5. Software

Driver

Download the software via the following website:

https://www.pce-instruments.com/english/download-win_4.htm

Install the driver first and connect the device afterwards to the computer using the USB interface.
For USB connection, observe step 8!

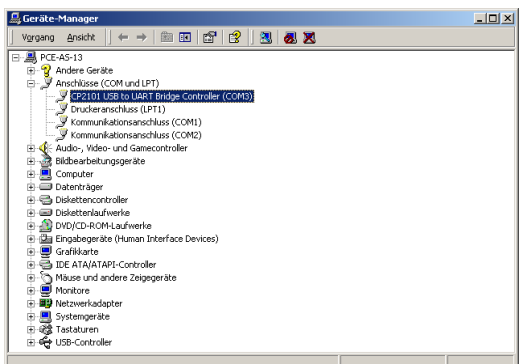
1. Start your computer.
2. Run the file **„CP210xVCPInstaller.exe“** in the directory**..\driver\Windows[YOUR VERSION OF THE OPERATING SYSTEM]** with a double click.



3. Hit „Install“.
4. Restart your computer after the installation is made.

5. The device can be switched on after the computer has restarted.
6. Connect the device to a USB serial port.

   The driver will then be installed automatically and can then be found in the Device Manager of your computer.



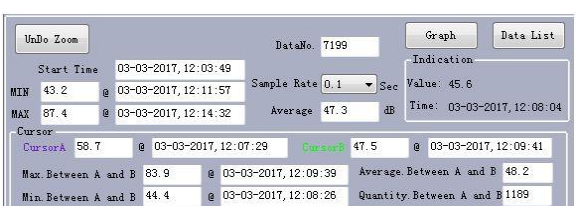
7. If the driver is installed completely, the computer will show “CP2101 USB to UART Bridge Controller (COMX).“ in the device manager submenu COM and LPT. Note the COM-connection (COM 3 in the picture above) This has to be set within the software.
8. **Push “Setup” button to initiate communication**. After the software is installed, start the application “Sound Level Meter“.

Software operation

Symbols

	Open file
	Save data as .txt-file
	Save data as .xls-file
	Start real time measurement
	End real time measurement
	Print measurement data
	Information on the software version

Real time measurement



Start Time	Beginning of the measurement series
MIN	Lowest measured volume of the measurement series with the exact time
MAX	Lowest measured volume of the measurement series with the exact time
DataNo.	Amount of measurement points
Sample Rate	Sampling rate
Average	Average sound level of the measurement series
Graph	Visualization as a graph
Data List	Visualization as a data list
UnDo Zoom	Zoom out





In order to compare two measurement points you can set two different cursors. The data can then be analyzed.

Cursor A	Wert Cursor A
Max. Between A and B	Maximal ermittelter Wert zwischen A und B
Min. Between A and B	Minimal ermittelter Wert zwischen A und B
Cursor B	Wert Cursor B
Average. Between A and B	Gemessener Durchschnittswert zwischen A und B
Quantity. Between A and B	Gemessene Messpunkte zwischen A und B

You can zoom certain part of the graph. Klick with the left mouse button, hold it and adjust the area that has to be zoomed. Release the mouse button again and the software will zoom in.

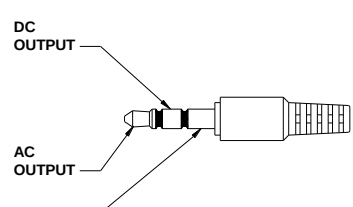
Function tabs

The function tabs can perform more actions in addition to the functions that are described above. They help you to analyze the data:

File(F)	Open: open file Save as: save data in .txt-format Export To Excel: save data in .xls.-format Print Graph: print graph Print Data: print table Exit: close software
Real Time(R)	Run: start real time measurement Stop: end real time measurement Clear Data: delete data

	Setup: set sampling rate and maximum measurement value
DataLogger(D)	Read out internal data logger
Com Port(C)	Manual: Choose communication interface manually Auto: Choose communication interface automatically
View(V)	ToolBar: activate / deactivate symbol bar StatusBar: activate / deactivate status bar Color Setting: Change the colour of the graph, background or grid
Help(H)	Contents: Run help function About: Show information on the software version.

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: 1kΩ

6. CALIBRATION PROCEDURES

① Make the following switch settings:
Frequency weighting: A-weighting
Time weighting: FAST
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 calibration screw of the unit 94.0dB is displayed.

NOTE: All products are well calibrated before shipment. Recommended recalibration cycle: 1 year.

7. MEASUREMENT PREPARATION

① Remove the battery cover on the back and put in one 9V battery.

② Recover the back cover.

③ When battery voltage drops below the operating voltage or battery aging, this symbol  will appear on LCD. Replace the 9V 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.

8. OPERATING PROCEDURE

① Power on the meter.

② Press ‘LEVEL’ button to select desired level, base on ‘UNDER’ or ‘OVER’ do not appear on LCD.

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

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

⑤ Select ‘MAX/MIN’ button for measuring maximum and minimum noise level.

⑥ Hold the instrument comfortable in hand or fix on tripod and measure sound level at a distance of 1~1.5 meter.

9. NOTICE

i. Do not store or operate the instrument at high temperature and high humidity environment.
ii. When not in use for long time, please take out the battery to avoid battery liquid leakage and cautery on the instrument.
iii. When using the instrument in the presence of wind, it is a must to mount the windscreen to not pick up undesirable signals.
iv. Keep microphone dry and avoid severe vibration.

10. Accessories:

1 x sound level meter PCE-322A
1 x wind protection
1 x screwdriver
1 x AC power adaptor
1 x 9 V battery
1 x downloadable software (PCE instruments downloads)
1 x USB cable
1 x mini tripod
1 x carrying case
1 x user manual

11. Contact

If you have any questions, suggestions or technical problems, please do not hesitate to contact us. You will find the relevant contact information at the end of this user manual.

12. Disposal

For the disposal of batteries in the EU, the 2006/66/EC directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.
In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law.

For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations.

please contact PCE Instruments.



