User Manual

PCE-353N LEQ Sound Level Meter

User manuals in various languages (français, italiano, español, português, nederlands, türk, polski, русский, 中文) can be found by using our

product search on: www.pce-instruments.com

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Contents

1   Safety notes

Please read this manual carefully and completely before you use the device for the first time. The device may only be used by qualified personnel and repaired by PCE Instruments personnel. Damage or injuries caused by non-observance of the manual are excluded from our liability and not covered by our warranty.

- The device must only be used as described in this instruction manual. If used otherwise, this can cause dangerous situations for the user and damage to the meter.
- The instrument may only be used if the environmental conditions (temperature, relative humidity, …) are within the ranges stated in the technical specifications. Do not expose the device to extreme temperatures, direct sunlight, extreme humidity or moisture.
- Do not expose the device to shocks or strong vibrations.
- The case should only be opened by qualified PCE Instruments personnel.
- Never use the instrument when your hands are wet.
- You must not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth. Use only pH-neutral cleaner, no abrasives or solvents.
- The device must only be used with accessories from PCE Instruments or equivalent.
- Before each use, inspect the case for visible damage. If any damage is visible, do not use the device.
- Do not use the instrument in explosive atmospheres.
- The measurement range as stated in the specifications must not be exceeded under any circumstances.
- Non-observance of the safety notes can cause damage to the device and injuries to the user.

We do not assume liability for printing errors or any other mistakes in this manual.

We expressly point to our general guarantee terms which can be found in our general terms of business.

If you have any questions please contact PCE Instruments. The contact details can be found at the end of this manual.
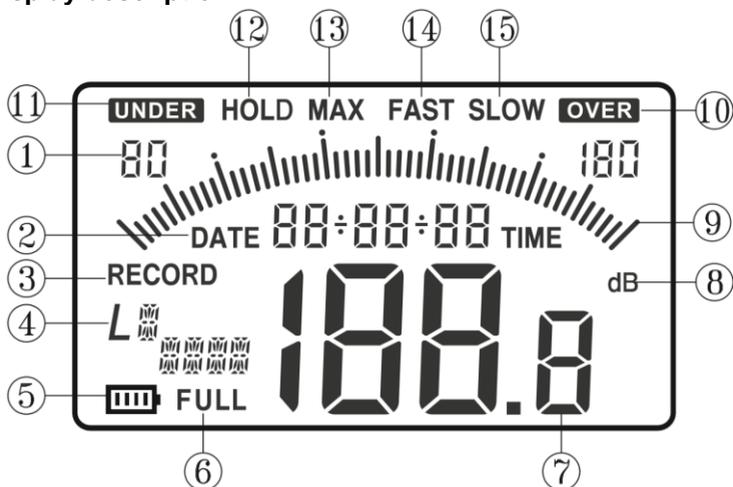

2   Delivery contents

1 x LEQ sound level meter PCE-353N
1 x Connection cable for DC output
1 x Windbreak
1 x 9V block battery
1 x Transport bag
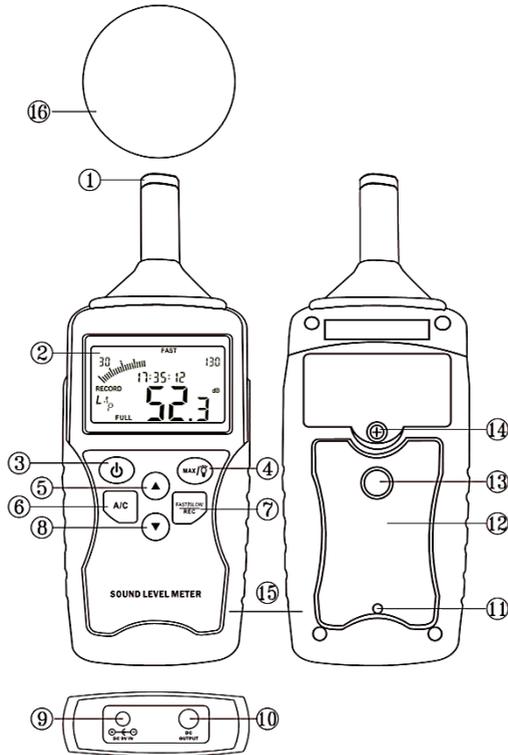1 x Operating Instructions

3   Specifications

Measuring range	30 ... 130 dBA
	35 ... 130 dBC
Accuracy	± 1.5 dB (at 1 KHz and 94 dB), Class 2
Resolution digital display	0.1 dB
Resolution bar graph	1 dB
Frequency	A and C
Manual measuring range	30 ... 80 dB
	50 ... 100 dB
	60 ... 110 dB
	80 ... 130 dB
Dynamic display area	50 dB
Display outside the measuring range	"Over" at overrange
	"Under" at measuring range undershoot
Measurement functions	Lp, LAeq, LAe, LCpeak
Data storage	10 readings
DC output	0 ... 2.5V, 25mV / dB
Output resistance	600 Ω
Term review	Fast (125 ms)
	Slow (1 s)
Frequency range	31.5 Hz ... 8 kHz
Power supply battery	9V block battery
Power supply power supply	9VDC, 100-mA
Sound sensor	1/2" polarized condenser microphone
Display	LCD display, 4 digits
Operating conditions	0 ... 40°C / 32 ... 104°F, < 80% rh
working height	< 2000 m / 6561.7 ft
Dimensions	200 x 72 x 35 mm / 7.9 x 2.8 x 1.4 in
Weight	About 290 g / < 1 lb
Standard	IEC 61672-1: 2002 (Class II),
	JJG 188-2002

4   Display description

No.	Description
1	Set measurement range
2	Date
3	Record
4	Frequency weighting and measuring function
5	Battery level indicator
6	Memory full
7	Reading
8	Unit of measurement
9	Bar graph
10	Above measurement range
11	Below measurement range
12	Reading held
13	Maximum reading
14	Time weighting: fast
15	Time weighting: slow

5   Device description

No.	Description
1	Mikrophone
2	Display
3	For turning on/off the meter
4	- Backlight - Maximum reading
5	Increasing measurement range
6	Setting measuring function and frequency weighting
7	- Manual recording - Settig time weighting
8	Decreasing measurement range
9	Connection for 9 V voltage supply
10	DC output interface
11	Adjustment screw
12	Tripod
13	Tripod holder
14	Battery compartment
15	Case
16	Windbreak

6 Turning the meter on/off

To turn the meter on/off, short-press the ⏻ key. After powering on the meter, the measurement will start automatically with the following standard settings:
Measurement range: 30 … 80 dB
Time weighting: fast
Measurement mode: Lp
Frequency weighting: A

6.1 Automatic Power Off

If the meter is not used for more than 10 minutes, it will turn off automatically. This function cannot be disabled.

7 Backlight

To turn on the backlight, short-press the 💡 key. Press the same key again to turn off the backlight.

8 Maximum value

To view the maximum value, press and hold the "MAX" key for two seconds.
On the measuring display, the maximum value of the current measurement is displayed. The bar graph shows the current reading. To continue with the normal measurement, short-press the "MAX" key.

9 Setting the measurement range

To set the measurement range, use the ▲ ▼ keys. The following measurement ranges can be set:
30 ... 80 dB
50 ... 100 dB
60 ... 110 dB
80 ... 130 dB
If the measurement range is exceeded, "OVER" will be displayed. If it is fallen below, "UNDER" will be displayed.

10 Setting the frequency weighting and measuring function

To set the frequency weighting and the measuring function, repeatedly press the "A/C" key until the desired settings have been selected.
Possible settings:
LAp, LCp, LAeq, LAe and LCpeak

10.1 LEQ setting

After selecting the measuring function LAeq, set the measurement time. Use the arrow keys to set the displayed time. With the "MAX" key, you can go from hours to minutes and from minutes to seconds. When the settings have been made, press the "MAX" key again. The LEQ measurement will start directly.
To leave this measuring mode, press the "A/C" key.

11 Time weighting

To select "FAST" or "SLOW", repeatedly press the "FAST/SLOW" key until the desired time weighting is displayed.

12   Saving the reading

To save a reading, you first have to activate the memory function. To do so, press and hold the "REC" key until "RECORD" appears in the display. To save the currently displayed value now, press the "REC" key again. When the memory is full, "FULL" will be displayed.

The reading will be saved along with the time and the measuring function with time weighting.

13   Viewing the readings

To view the saved readings, press the "REC" key until "CAL" is displayed. The oldest reading will then be displayed. You can now navigate through the saved values with the arrow keys. If " - - - " is displayed, this means that no further data are available. To return to measurement mode, press the "REC" key again.

14   Clearing the memory

To delete all readings, go to normal measurement mode. Now press and hold the "A/C" key. "CL" will flash on the display. Press the "A/C" key again to confirm the deletion. To cancel the procedure, turn off the meter.
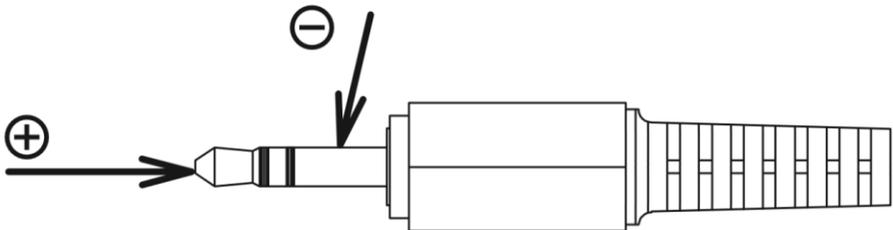
15   Setting date and time

To set the current time, first turn off the meter. Now press and hold the "MAX" key and power on the meter. With the arrow keys, you can now change the parameters. Press the "MAX" key to go to the next parameter. After setting the date and time, press the "MAX" key again to enter measurement mode.

16   Inserting/replacing the battery

When the battery is flat, the battery level indicator 🔋 will be displayed. Turn off the meter and open the battery compartment at the rear side of the meter. Now replace the battery and close the battery compartment. The meter can now be used again.

17   DC output interface

The meter has a 3.5 mm jack connection that outputs the measuring signal linearly converted between 0 and 2.5 V. The 3.5 mm jack connection is polarised as follows:

18   Calibration

To make a calibration, use a 94 dB, 1 KHz noise calibrator.
Set the meter as follows:
Frequency weighting: A
Time weighting: FAST
Measurement range: 50 … 100 dB
Turn on the calibrator and choose the 94 dB option. Now remove the windbreak from the microphone and place the noise calibrator on the microphone. Compare the reading that is displayed on the device with the value set in the calibrator. If there is a deviation between the values, you can change the displayed value with the adjustment screw.
Note: it is recommended to calibrate the meter on an annual basis.

19   Further measurement errors

There are two possible sources of error causing incorrect readings. It is possible that the human body as well as the case of the meter absorb and reflect sound waves. The difference can be up to 6 dB at a distance of 1 m and a frequency of 400 Hz.
The absolute ambient pressure is the second source of error. The absolute ambient pressure can change depending on the altitude of the meter. The displayed reading must then be compensated using the following chart.

Altitude (m)	Pressure (mbar)	Compensation (dB)
0 … 250	1013 … 984	0.0
>250 … 850	983 … 915	-0.1
>850 … 1450	914 … 853	-0.2
>1450 … 2000	852 … 795	-0.3

Alternatively, you can calibrate the meter before each measurement made at a different ambient pressure.

20 Warranty

You can read our warranty terms in our General Business Terms which you can find here: https://www.pce-instruments.com/english/terms.

21 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.

If you have any questions, please contact PCE Instruments.

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