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Manual
Sound level indicator PCE-353

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Contents

1 Introduction

Thank you for purchasing a PCE-353 sound level indicator from PCE Instruments.
With this sound level indicator, you are able to measure the sound exposure level (SEL), as well as the equivalent continuous sound level (L_{eq}), which is commonly used for industrial noise measurements. This enables you to determine the noise pollution at workplaces. You can also set alarm thresholds, which trigger an alarm signal when certain sound levels are exceeded.
The measured data can be transferred to a PC via the RS-232 interface.

2 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. There is no warranty of damages or injuries caused by non-observance of the manual.

- If the device is not used for a longer period of time, you should remove the batteries.
- Do not use the device in areas with extreme temperature or humidity conditions.
- Do not expose the device to direct sunlight or water.
- Do not use the device with wet hands.
- Do not expose the device to chemicals or explosive gases.
- You must not make any technical changes to the device.
- The case should only be opened by qualified personnel of PCE Instruments.
- To clean the device, use a damp cloth.
- The device may only be used with PCE accessories or equivalent.
- Before using the device, please make sure that it is not damaged. If you notice visible damage on the device, you must not use it.

This manual is published by PCE Instruments without any guarantee.

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.

3 Specifications

Parameters measured	L_p, L_{max}, L_{eq}, L_N
Measurement range	**L_p**: 30 … 130 dB (A) 35 … 130 dB (B) 35 … 130 dB (F) **L_{eq}:** 30 … 130 dB (10 s, 1 min, 5 min, 10 min, 15 min, 30 min, 1 h, 8 h, 24 h) **L_N:** 0 … 100 %
Resolution	0.1 dB
Accuracy	± 1 dB
Frequency weighting	'A', 'C', 'F' (flat)
Time weighting	fast (125 ms) slow (1 second)
Microphone	½ inch electret condenser
Frequency range	20 … 12500 Hz
Integrated calibration signal	94 dB at 1 kHz (sinusoidal)
Memory	30 groups with measuring conditions
Display	14 mm (0.55") LCD with backlight
Alarm value	30 … 130 dB
Alarm output	LED
PC interface	RS-232C
Low battery indication	included
Power supply	4 x 1.5 V AAA (UM-4 battery)
External DC power supply	6 V dc, 100 mA
Dimensions	36 x 63 x 26 mm
Weight	170 g (including batteries)

3.1 Delivery contents

1 x PCE-353
1 x carrying case
1 x instruction manual
1 x wind noise suppressor (foam plastic ball)

3.2 Optional accessories

- sound calibrator PCE-SC41
- RS-232C cable and PC software
- mains adaptor

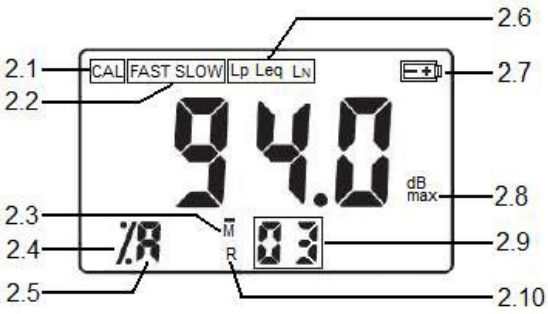
4 System description

4.1 Front

1.1 Microphone with wind noise suppressor
1.2 Display
1.3 Alarm LED
1.4 Function button
1.5 MAX HOLD button
1.6 ON / OFF button
1.7 Delete / menu button
1.8 Weighting button
1.9 Fast / slow button
1.10 Up / save button
1.11 Down / read button
1.12 Calibration screw
1.13 RS-232C interface
1.14 Alarm signal output
1.15 Connection for mains adaptor

4.2 Display

2.1 Calibration icon
2.2 Time Weighting
2.3 Memory status
2.4 L_N icon
2.5 Weighting icon
2.6 Function icon
2.7 Battery level indicator
2.8 Max Hold icon
2.9 Number of readings stored
2.10 Browsing icon



5 Instructions

5.1 How to perform a measurement

1. Press the ON/OFF button (1.6) to turn on the device.

2. Use the function button (1.4) to choose the desired measuring mode.

L_P	Current sound pressure level
L_{eq}	Equivalent continuous A-weighted sound pressure level, i.e. arithmetic mean value in a period of time set
L_N	Statistic analysis, i.e. what percentage of all measurement values is larger than or equal to the alarm value set by the user. For setting the alarm value , please read chapter 5.4

3. Use the weighting button (1.8) to change the frequency weighting.

A	The frequency response of the meter is similar to the response of the human ear. This setting is commonly used for environmental or hearing conservation programs such as OSHA regulatory testing and noise ordinances.
C	This weighting is a much flatter response and is suitable for the sound level analysis of machines, engines, etc.
Flat	Choose this if you do not need frequency weighting.

Note: When the measuring mode L_{eq} is active, A weighting is set automatically.

4. Use the Fast / slow button (1.9) to change the time weighting.

Fast	125 ms – Choose this setting when you need to measure noises which appear very quickly or abruptly.
Slow	1 second – Choose this setting if you want to determine a mean value or measure sources with a steady sound pressure level.

Note: Slow weighting is adequate for most applications.

5. Press the MAX HOLD button (1.5) to activate the display hold of the maximum value. The device now shows only the particular maximum value on the display. Press the button again to deactivate this function.

5.2 Memory options

1. Press the save button (1.10) to save the current reading.

2. Press the read button to retrieve the saved data. The “M” icon disappears and the “R” icon appears on the display. Now you can choose between the saved readings by using the save (1.10) and the read (1.11) buttons.

3. Press the delete button (1.7) while you are in read mode to delete the selected value. If you delete all saved readings, an “Err0” notification appears on the display. This means that the memory is empty.

5.3 L_{eq} measurements

By using the L_{eq} measuring mode, you can perform RMS average noise level measurements over a pre-set period of time.

1. Press and hold the delete / menu button (1.7) for about 8 seconds until the L_{eq} indication appears on the display.

2. Use the up (1.10) and down (1.11) buttons to set the time. You can choose between 10 s, 1 min, 5 min, 10 min, 15 min, 30 min, 1 h, 8 h or 24 h.

3. To exit this menu, press any button but the up or down button.

5.4 Alarm settings

The alarm LED flashes when the current reading is equal to or higher than the alarm threshold. The pre-set alarm threshold is 85 dB. You can change it to values between 30 and 130 dB.

1. Press and hold the delete / menu button (1.7) for about 5 seconds until the “AL” indication appears on the display.

2. Now you can choose a threshold level by using the up (1.10) and down (1.11) buttons.

4. To exit this menu, press any button but the up or down button.

5.5 Auto Power Off

The pre-set time for the Automatic Power Off is 5 minutes. This means, that the device shuts down automatically after 5 minutes if no buttons are pressed during this period. You can change this time period to values between 1 and 9 minutes.

1. Press and hold the delete / menu button (1.7) for about 10 seconds, until “AUTO” appears on the display.

2. Now you can change the time by using the up (1.10) and down (1.11) buttons.

3. To deactivate the Automatic Power Off function, set the time to “0”. Now the device can only be turned off by using the ON / OFF button (1.6).

4. To exit this menu, press any button but the up or down button.

5.6 Calibration

The device can be calibrated in two different ways:

5.6.1 Calibration via the integrated calibration signal

1. Turn on the device.

2. Use the function button (1.4) to select the calibration function. Now, “CAL” appears in the upper left corner of the display.

3. Turn the calibration screw (1.12) until the value shown on the display is 94 dB.

5.6.2 Calibration via the optional sound calibrator PCE-SC41

1. Turn on the device and set the frequency weighting to “A” and the time weighting to “slow”.

2. Use the function button (1.4) to choose the calibration function. Now, a “CAL” indication appears in the upper left corner of the display.

3. Turn the calibration screw (1.12) until the value shown on the display is 94 dB.

5.7 How to replace the batteries

When you see the battery indication in the upper right corner of the display, the batteries need to be replaced. To do so, open the cover of the battery compartment on the back of the device, remove the old batteries and put in 4 new 1.5 V AAA batteries.

Note: If you do not use the device for a long period of time or if you use it in combination with a mains adaptor, you should remove the batteries.

6 Contact

If you have any questions about our range of products or measuring instruments please contact PCE Instruments.

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