DIGITAL SOUND 8928

Owner's manual **Sound level meter**

Safety instructions

This device is designed and tested in accordance with the safety regulations for electronic measuring instruments. The proper functioning and operational safety of the device can only be guaranteed if the generally applicable safety measures and the device-specific safety instructions given in this manual are respected during operation.

Intended use

This device is only intended to be used for sound pressure metering. Use the device only as described in this user manual. Any other use or use under other operating conditions is considered to be improper and may result in personal injury or property damage. No liability will be assumed for damages resulting from improper use.

This device is not suitable for safety applications, emergency shut-down devices or applications where malfunction may result in personal injury or material damage. Not following this instruction may result in serious injury and material damage.

This device may be used only by persons with sufficient physical, sensorial, and intellectual abilities and having corresponding knowledge and experience. Other persons may use this device only if they are supervised or instructed by a person who is responsible for their safety.

Danger for children

Ensure that plastic bags, packaging, etc. are disposed of properly and are not within reach of babies and young children. Choking hazard!

Ensure that children do not detach any small parts (e.g. knobs or the like) from the unit. They could swallow the pieces and choke! Never let children unattended use electrical devices.

Possible hearing damage

When measuring high volume and over a long period may lead to permanent hearing damage. Always wear adequate hearing protection for the specific situation.

Operating conditions

This device has been designed for indoor use only. To prevent damage, never expose the device to any liquid or moisture. Avoid direct sunlight, heavy dirt, and strong vibrations.

Proper functioning and operational safety of the device can only be achieved under the climatic conditions that are specified in the chapter „Technical Specifications“.

If the device is transported from a cold to a warm environment condensation may result in device function failure. In this case you have to wait until the temperature of the device has adapted to the ambient temperature, before switching it on.

If it is assumed that the device can not be operated safely any more, it must be put out of operation and secured against further usage. Operator's safety may be compromised by the device when, for example:

- it has visible damage,
- it is not working as specified,
- it has been stored under unsuitable conditions for a longer time.

In cases of doubt, the device should always be returned to the manufacturer for repair or maintenance.

Connection to other devices

Conceive the wiring most thoroughly when connecting to other devices. Under certain circumstances, internal connections in third party devices (e.g. connection GND to earth) may result in not-permissible voltages that may affect the device itself or a connected device in its function or even destroy it.

Fire hazard due to incorrect polarity

Installing the battery incorrectly may damage the device and the battery. Pay careful attention to inserting the battery in the correct polarity.

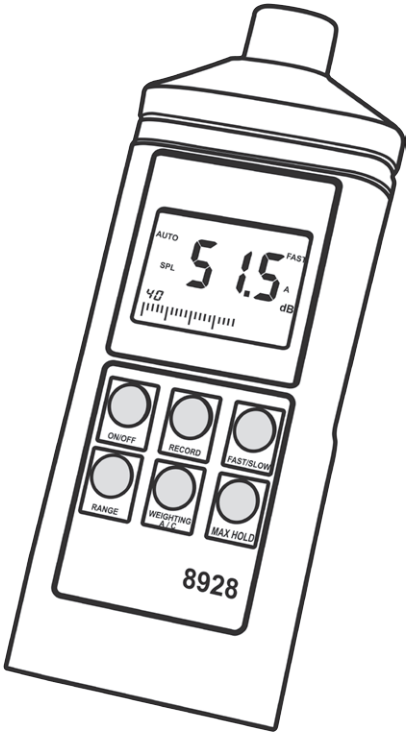
Possible damage caused by leaking battery

Battery leakage may damage the device permanently. Remove the battery from the device if it is not going to be used for a long time.

Introduction

Your digital sound level meter allows for automatic or manual range selection out of 4 ranges from 40 to 130 dB and offers a resolution of 0.1 dB.
The meter allows you to choose between fast and slow response times as well as A and C weighting.
A peak hold function and an analog AC output are available.

Operating elements



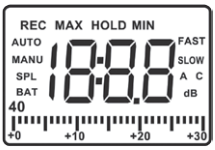
ON/OFF:	To turn the meter on / off
RANGE:	To switch between automatic and manual range selection
RECORD:	Starts the measurement of the maximum and minimum sound level
WEIGHTING A/C:	Button to select A or C weighting
FAST/SLOW:	Button to select faster or slower response time
MAX HOLD:	Activates the peak hold function

Operating

Sound level measuring

Sound levels are displayed both digitally and in bar form. The digital display is updated after 160 ms, while the bar display is updated after 40 ms.

Press **ON / OFF** to turn the unit on. The unit will first display all on-screen elements as well as '18:18.8' and then counts down from 99.9 to zero. The meter will now begin measuring the current sound level. 'SPL' (**S**ound **P**ressure **L**evel) appears on the left side, 'A' and 'dB' on the right side of the screen.



Point the microphone towards the sound source to be measured.

Select the response time

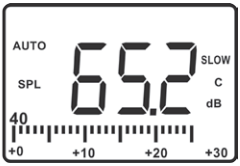
You can select a fast or slow response time for different applications and standards. For example, most tests for statutory noise insulation regulation are performed with slower response time and an A-weighting. When you turn on the device, it is in 'fast response time' mode. Press **FAST / SLOW** button to switch between fast and slow reaction time.

On the right side of the screen, a small 'Fast' or 'SLOW' shows the current mode.

Selecting A or C-weighting

After switching on, the device is in measurement mode 'A-weighting'. In this mode, the signal spectrum is evaluated according to the sensitivity of the human ear, with increasing and decreasing amplitude over the frequency spectrum.

A-weighting should be used for environmental measurements or measurements in the workplace. In particular, this filter should be used when sound level measurements are carried out in the context of legal noise insulation regulations.

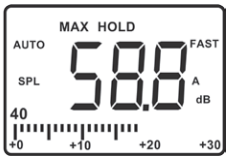


The C-type weighting filter is mainly for the lower ranges of advantage. The signal spectrum is evaluated linearly. For example, C-weighting is suitable for noise analysis of engines or machines.

To switch between the two weighting filters, press the **WEIGHTING A / C** button. The currently selected weighting filter is indicated by an 'A' or 'C' on the right side of the display.

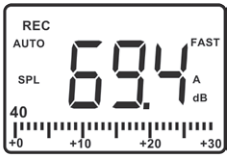
The peak hold function

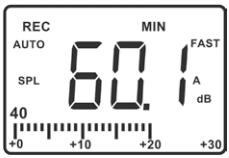
1. Press **ON / OFF** to turn the unit on.
2. During measurement, press the **MAX HOLD** button to hold the maximum reading. The display shows „MAX HOLD".
   The digital display remains unchanged until a higher reading is detected. Note that the bar graph continues to display the current measurements.
3. Press **MAX HLD** again to deactivate this mode.

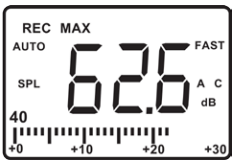


Recording minimum and maximum measured value

1. Press **ON / OFF** to turn the unit on.
2. Press **RECORD**. 'REC' appears on the top left of the screen. The meter starts recording the maximum and minimum sound level measurements.
3. Press **RECORD** again. 'MIN' appears at the top centre of the screen and the measurement value of the minimum noise level is displayed.
   The device will not record, but the bar still displays the current measured value.
4. Press **RECORD** again. 'MAX' appears next to the „REC" indicator and the measured value of the maximum noise level is displayed.
   The device will not record, but the bar still displays the current measured value.
5. Press **RECORD** again to resume recording and repeat the process.
6. To exit the recording mode, keep **RECORD** pressed until the REC indicator goes out.







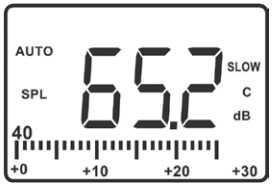
Selecting automatic or manual range selection

The meter offers 4 measurement ranges in steps of 10 dB:
40 ~ 70 dB, 60 ~ 90 dB, 80 ~ 110 dB and 100 ~ 130 dB.

When you turn on the device, it is in automatic range selection mode and the AUTO indicator appears on the left side of the screen. In this mode, the machine automatically adjusts the measuring range for maximum accuracy.

The two-digit number on the left side of the bar in the display shows the lower end of the current range. You can also set the range manually.

The meter will perform measurements faster because it does not have to determine the range first. This is helpful if you know the range in advance.



So you set the measurement range manually:

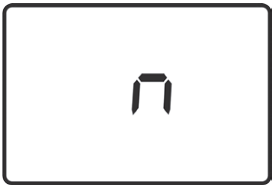
1. When measuring sound levels, press **RANGE** to set the measurement range. „MANU“ appears in the display. Note that the two-digit number to the left of the bar display changes to show the lower limit of the newly selected range.
2. Press **RANGE** to switch back to automatic mode. If the meter operates in manual mode and „LO“ is displayed, the level is too low for the selected range. If „HI“ is displayed, the level is too high. In both cases, you have to adjust the measuring range, to obtain an accurate measurement result.

Automatic shut-off

The meter automatically turns off after 20 minutes to conserve battery life.

To disable this feature:

1. Make sure that the device is turned off.
2. Press **ON / OFF** and **MAX HOLD** simultaneously.
3. If the display of all screen elements appears, first let go of the **MAX HOLD** button. Then '⊓' appears instead of the full display.



4. Now release the **ON / OFF** button.
   The meter will now stay on until you press **ON / OFF** again. The auto power-off function will be activated again when turning on next time, though.

Calibration

Use a standard sound calibrator (we recommend the B & K model 4231), which generates a noise level of 94 dB.

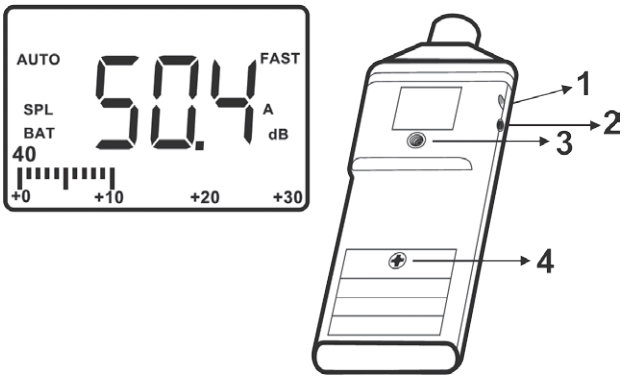
1. Whether you choose fast or slow response time is not relevant.
2. Select the measuring range '80 ~ 110 dB'.
3. Select A or C weighting.
4. The peak-hold function 'Max.Hold' remains deactivated.
5. It is best to calibrate at about 60 dB ambient noise.

Plug the microphone into the opening. Press the **ON / OFF** button on the calibrator to turn it on and adjust the **CAL** potentiometer. The level display then shows the desired level.

If you select C-weighting a display accuracy of + / -0.3 dB is realistic.

Replacing the Battery

When the screen indicates 'BAT' in the lower left corner the voltage of the 9 V battery has dropped to a critical level. The battery should be replaced as soon as possible. Unscrew the battery cover on the rear of the unit with a screwdriver. Take out the old battery and insert a fresh 9 V battery. Then put the cover back on and tighten it.



1. Adjust the calibration (on side of unit)
   Adjust the calibration using a Phillips screwdriver (follow the calibration instructions).
2. Analog output (on side of unit)
   Here you can connect an external test unit or data recorder for recording measurements.

3. Tripod mounting
   Install the device on a camera tripod for increased stability and measuring accuracy, as handling noise and sound reflections caused by the user are eliminated.
4. Battery compartment
   Use a screwdriver to remove the cover of the battery compartment.

Authorization of returns

Prior to returning the product, you must apply for an authorization from the supplier. Please include the reason for the return. Returned merchandise must always be insured against damage or loss and carried out in a sufficiently stable packaging, preferably in the original packaging to prevent damage in transit.

CE certification

The meter complies with the following standards:

EN 50081-1/1992 : EN 55022
EN 50082-1/1997 :
(EN 61000-4-2/-3/-8,ENV 50204)

The measuring device complies with the essential protection requirements of Council Directive 89/336/EEC on the approximation of the laws of member states relating to Electromagnetic Compatibility.

Technical specifications

Measuring range	A-weighting: 40 dB ~ 130 dB C-weighting: 45 dB ~ 130 dB
Accuracy @ 94 dB, 1 kHz	±2 dB
Analog output	AC 0.707 Vrms (F/S)
Quasi-analogue bar display	1 dB display step, 30 dB display range, Updated every 50 ms
Microphone	6 mm ø, condenser mic
Permissible ambient temperature	in operation: 0 ~ 50 °C for storage: -20 ~ 60 °C
Permissible humidity	10 ~ 90 % RH
Specific functions	Auto shutdown (after approx. 20 min.) Peak hold function, Mini / max. value display
Battery	1 × 9 V, lifespan 30 h, typical
Dimensions	72 × 182 × 30 mm
Weight	150 g
Standard accessories	1 × 9 V battery, user manual

Disposal

- This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE). Do not dispose with your normal household waste. Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.
- For the transport and protective packaging, environmentally friendly materials have been chosen that can be supplied to normal recycling. Ensure that plastic bags, packaging, etc. are properly disposed of. Do not just dispose of these materials with your normal household waste, but make sure that they are collected for recycling. Please follow the notes and markings on the packaging.
- Batteries must not be disposed of as domestic waste or thrown into fire. Dispose of the batteries according to national or local regulations regarding hazardous waste. To protect the environment, dispose of empty batteries at your retail store or at appropriate collection sites.