

SP 22 Digital Sound Level Meter



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OEEG

1. Specification

The digital sound level meter SP 22 provides automatic or manual ranging in six measurement ranges from 30 to 130 dB. The unit meets ANSI S 1.4 and IEC 651 Type 2 standards, and features 0.1 dB resolution.

A background noise absorber permits you to measure sound levels accurately even in the presence of high background noise.

The meter allows you to select between fast and slow response times and A and C weighting. A maximum hold function is provided.

Jacks on the meter provide both AC and DC analog output, while an RS-232 interface allows you to use an optional cable to capture sound level data on a PC.

1.1 Measured Values

Applicable Standards	IEC 651 Type 2, ANSI S 1.4 Type 2
Measurement Frequency Range	31.5 Hz ... 8 KHZ
Accuracy	± 1,5 dB (under reference conditions)
Measurement Level A Weighting	30 dB ... 130 dB
Measurement Level C Weighting	35 dB ... 130 dB
Measurement Level Range	6 ranges in 10 dB steps: 30 ... 80 dB, 40 ... 90 dB 50 ... 100 dB, 60 ... 110 dB 70 ... 120 dB, 80 ... 130 dB
Automatic Range	30 ... 130 dB
Digital Display	3 1/2 digit LCD, resolution: 0.1 dB update: every 0.5 seconds
Quasi-Analog Bar Indicator	1 dB display steps, 50 dB display range, updated every 50ms
Range	50 dB
Time Weighting	FAST (F): 125 ms SLOW (S): 1 s

1.2 Technical Data

Microphone	6 mm diameter Electret condenser microphone
Analog Output	AC: 0.707 Vrms (at full scale) DC: 10 mVDC/dB

2. Operation

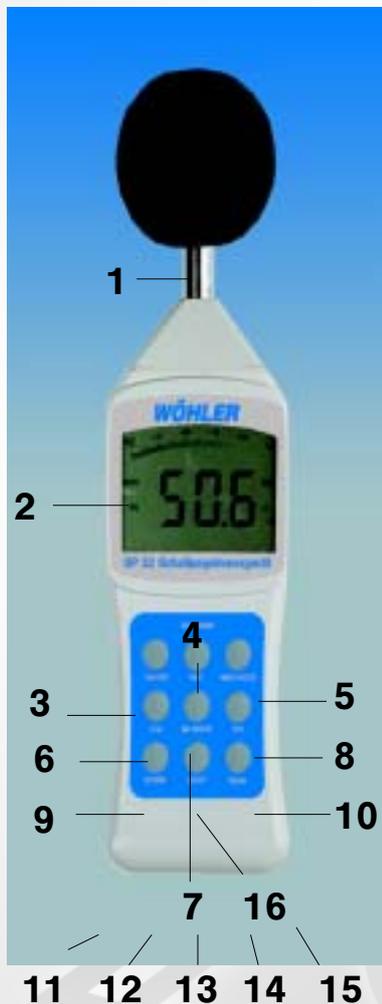
Manual instruction

WÖHLER

Size:	80 mm x 256 mm x 38 mm (3"x11"x1.5")
Weight	240 g (10.3 oz)
Operating Temperature	4 ... 50 °C, 10 ... 90 % Relative Humidity
Storage Temperature	-20 ... 60 °C
Battery	9V Battery
Battery Life	Approximately 20 hours

2. Operation

2.1 Front Panel Description



1. Microphone
2. LCD Display
3. ON/OFF - Power button
4. REC - Records sound level readings
5. MAXHLD - Freezes the maximum sound level reading
6. C/A - A/C Frequency weighting selector
7. BA MODE - Background noise absorber
8. F/S - Fast/slow response selector
9. DOWN - Adjusts the measurement range
10. UPPER - Adjusts the measurement range
11. DC 9V - DC adapter jack
12. CAL - Calibration screw
13. AC OUT - AC analog output jack
14. DC OUT -DC analog output jack
15. RS232 - RS-232 output jack
16. BACKLIT - Back light

English

2.2 Measuring Sound Levels

Sound levels are displayed both digitally and in a bar graph. The digital display is updated every 500ms, while the bar graph is updated every 50 ms.

Press the ON/OFF key to turn the meter on. The unit will first display the full screen and then count down to zero. The meter will now begin measuring the current sound levels.

Point the microphone toward the source of the sound to be measured.

2.3 Selecting A and C Weighting

When you turn the meter on, it will be in A weighting mode. A weighting enables the meter to respond in the same manner as the human ear, which increases and decreases amplitude over the frequency spectrum. Applications for A weighting include OSHA regulatory testing, environmental measurement, workplace design, and law enforcement.

C weighting is suitable for flat response measurements with no increase or decrease of amplitude over the frequency spectrum. Applications for C weighting include the sound level analysis of engines and machinery.

Press the C/A key to toggle between A and C weighting. A small A or C will be displayed on the right side of the screen to indicate the current mode.

2.4 Selecting the Response Time

You can select fast or slow response time to suit different applications and standards. For example, most OSHA-related testing is done using slow response time and A weighting.

When you turn the meter on, it will be in fast response mode. Press the F/S key to toggle between fast and slow response. A small FAST or SLOW will be displayed on the right side of the screen to indicate the current mode.

2.5 Freezing the Maximum Sound Level Reading

1. Press the ON/OFF key to turn the meter on.
2. When measuring sound levels, press the MAXHLD key to freeze the maximum reading. MAX HOLD will be displayed. The digital display will remain unchanged until a higher reading is detected. Note that the bar graph will continue to record the current reading.
3. Press the MAXHLD key again to exit maximum hold mode.

2.6 Recording the Maximum and Minimum Measurements

1. Press the ON/OFF key to turn the meter on.
2. Press the REC key. REC will be displayed on the bottom of the screen. The meter will begin tracking the maximum and minimum sound level measurements.
3. Press the REC key again. MIN will appear on the bottom of the screen and the minimum sound level measurement will be displayed. The unit is not recording this time, but the bar graph will continue to show the current reading.
4. Press the REC key again. MAX will appear on the bottom of the screen and the maximum sound level measurement will be displayed. The unit is not recording at this time, but the bar graph will continue to show the current reading.
5. Press the REC key again to resume recording and repeat the process.
6. Press and hold the REC key until the REC indicator disappears to exit recording mode.

2.7 Using the Background Noise Absorber

This feature allows you to measure equipment noise accurately, even in the presence of high background noise.

1. Press the ON/OFF key to turn the meter on.
2. Press the MAXHLD key. MAX HOLD will be displayed.
3. Press the BA MODE key. F will be displayed to the left of the SPL (sound pressure level) icon. The digital display will show the background noise level.
4. Press the MAXHLD key again and MAX HOLD will be displayed. The meter is now ready to measure the actual machine noise.
5. Turn on the machine you want to measure and note the new sound level reading. This number represents the sound level of the device without the background noise. If there is no change in the reading, the background noise is greater than the noise of the device.
6. Press the MAXHLD key and then the BA MODE key to exit background noise absorber mode.

2.8 Backlit Key

Offer a light for approximate 5 seconds to make it easier to see the display in the dark.

2.9 Selecting Automatic and Manual Ranging

The meter features six measurement ranges in 10 dB steps: 30-80 dB, 40-90 dB, 50-100 dB, 60-110 dB, 70-120 dB, 80-130 dB.

When you turn the meter on, it will be in automatic range mode and a small AUTO will be displayed on the left side of the screen. In this mode, the meter will adjust the measurement range automatically for accuracy. The two digit number to the left of the bar graph on the LCD will show the low end of the current range.

You can also set the range manually. This is helpful when you know the measurement range in advance. The meter will be able to take readings more quickly, because the unit does not need to first establish the range before displaying the measurement.

To adjust the range manually:

1. When measuring sound levels, press the DOWN and UPPER keys as needed to adjust the measurement range. MANU will appear on the display. Note that the two digit number to the left of the bar graph will change to reflect the low of the newly selected range.
2. Press and hold the DOWN and UPPER key to switch back to automatic ranging.

If the meter is operating in manual range and UNDR is displayed, the sound is too low for the range. If UPPER is displayed, the sound is too loud. In either case, you must adjust the measurement range or your readings will be inaccurate.

2.10 Automatic Shutoff

The meter will turn off automatically after 20 minutes to preserve the battery.

To override this feature:

1. Make sure the unit is turned off.
2. Press the ON/OFF and MAXHLD buttons simultaneously.
3. When the full display appears, release the MAXHLD button first.
4. Release the ON/OFF key. The meter will remain on until the ON/OFF button is pressed again.

The automatic shutoff feature will resume the next time the meter is turned on.

3. Replacing the Battery

When the entire display flashes, the 9V battery has fallen to a critically low voltage level and should be replaced as soon as possible. Use a screwdriver to unscrew the back battery compartment cover. Insert a fresh 9V battery and replace the cover.

4. Warranty

The guarantee period for the meter is **24 months** from the sales date, provided that it is used correctly.

We see **SERVICE** as a very important element in our business. That is why we are still available to you even after the guarantee period has expired.

- An **immediate repair** will be carried out if you bring your meter to us in Bad Wünnenberg.
- If you send us the meter, it will be returned to you by our delivery service after repair **in just a few days**.
- We can **lend** you a device for a small standard fee.
- You can obtain **immediate help** from our engineers by telephone.

5. EG - Conformity Statement

For the following product:

SP 22 Digital Sound Level Meter

the importeur confirms, that it complies with the essential protection requirements of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compability.

Assessment of compliance of the product with the requirements relating to electromagnetic compability was based on the following standards:

EN 50082-1/1997 resistance to jamming

EN 50081-1/1992 emission