

Optimus+ Industrial

Handheld Sound Level Meter

The comprehensive solution for industrial and occupational noise measurements

VoiceTag™

Audio note recording

AuditStore™

Data verification for your noise measurements

Bluetooth®

Key features:

- Measures all noise level parameters simultaneously, including L_{Xeq} and L_{XPeak}
- Optional 1:1 octave band filters for the selection of hearing protection
- Available with integrating functionality, providing average noise level data (Leq)
- Compliance with international noise at work regulations



Optimus+ Handheld Sound Level Meter



What is the Optimus+ Industrial?

The Optimus+ Industrial is an advanced handheld sound level meter, designed for accurate and effective occupational noise measurements. For occupational noise and industrial hygiene, measuring the noise exposure of employees quickly and reliably is essential. The Optimus+ Industrial sound level meter is the perfect instrument for these applications, with a clear high-resolution display, a wide 120dB measurement span and the simultaneous measurement of all parameters.

Applications

- Occupational and industrial hygiene noise evaluations
- Noise at work surveys and noise exposure calculations
- Hearing protection selection using HML or 1:1 octave band methods
- Machinery noise tests
- Noise ordinance and community noise assessments
- Vehicle noise measurements
- General noise measurements

Simple operation with advanced technology

We've designed the Optimus+ Industrial sound level meter with ease-of-use as its most important feature, to help you get on with the job of measuring and controlling noise effectively and efficiently.

The instrument uses the very latest in digital technology and industrial design techniques to make everything as clear and simple as possible. Its high-resolution colour screen can be seen in all conditions and the keypad illuminates in low-light environments, meaning it can be used almost anywhere!

Measurement data captured by the Optimus+ Industrial is displayed in a clear format along with a real-time noise chart, so you can see how the noise levels vary over time.

All noise parameters are measured simultaneously, and with a 120dB measurement span, you don't need to worry about choosing the right range. An Optimus+ Industrial can measure up to 140dB(A) and 143dB(C) peak in the single range.

There's no complicated setup procedure: simply switch on, calibrate and start measuring. It's that simple!

Key features

- Simple operation with an ergonomic design
- Simultaneous measurement of all workplace noise parameters with two additional "virtual" noise meters
- VoiceTag™ audio note recording
- AuditStore™ measurement verification
- Latest digital technology with a high-resolution colour display and back-lit keypad
- Measure up to 140dB(A) and 143dB(C) peak in a single measurement range
- Real-time 1:1 octave band filters
- NR and NC values and curves on-screen
- Pause and back-erase as standard
- 8GB memory with the option of 32GB
- Long battery life
- Measure up to 170dB with the optional high-range microphone system
- Bluetooth® connectivity

VoiceTag audio note recording

Before each measurement is made, you can record a VoiceTag by simply speaking into the microphone. You can record notes about the measurement location, describe what is being measured or simply store information that may be useful at a later date when analysing your data. What's more? You can then convert these audio notes into text automatically in our licence-free NoiseTools software to make it even easier to manage your noise data.

Remote operation with Bluetooth connectivity

With Bluetooth connectivity, the Optimus+ Industrial can be operated remotely from a compatible smartphone through the dedicated mobile app.

“With the Optimus+ Industrial, you just switch on, calibrate, and then download your results at the end. It's

Licence-free software that enhances your experience and makes your job easier

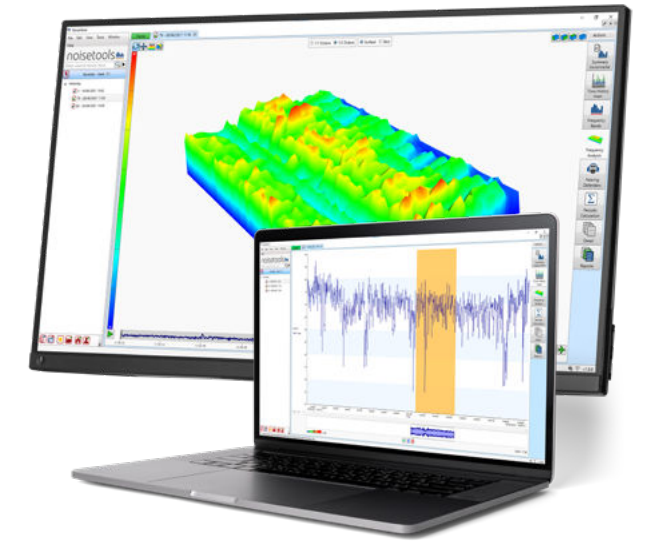
Reviewing noise data and audio recordings is an essential part of any noise monitoring operation, which is why we provide this functionality, and more, as standard with every Optimus+ Industrial sound level meter:

- Get access to all the functionality you need, as NoiseTools is supplied free of any licence restrictions.
- Enjoy a better and more comprehensive understanding of the noise with high-quality audio playback.
- Always have access to the latest features with free lifetime updates.

The NoiseTools software package gives you a quick and simple way to download, analyse and report your noise measurement information.

The initial summary screen shows you the most commonly used information and, through a simple navigation menu, provides access to more detailed measurement information.

Each and every function measured by the Optimus+ Industrial is available for review and analysis. You can



export your data into detailed reports, branded with your organisation's logo. You can also export data into spreadsheet file formats for further analysis and investigation.

You can play VoiceTag audio recordings back for reference and they are automatically stored with your measurement data. You can also convert them into text notes at the press of a button. Where octave band data is available, the program can calculate the correct level of hearing protection, from a range of industry-standard PPE manufacturers.

To help you keep your noise measurement data organised and easy to find, NoiseTools allows each measurement to be allocated to people, places and projects. Measurements can then be sorted or grouped by any parameter, person, place and project, allowing reports to be created quickly and easily.

Included with your Optimus+ Industrial noise measurement kit

You'll get everything you need to ensure you can instantly start measuring noise easily and effectively:

- Class 1 or Class 2 sound level meter
- Class 1 or Class 2 acoustic calibrator
- Microphone windshield
- Heavy duty carrying case
- Data transfer cable
- Software USB
- Batteries



Technical Specifications

Applicable standards*1

IEC 61672-1:2013 Class 1 or Class 2
 IEC 61672-1:2002 Class 1 or Class 2
 IEC 60651:2001 Type 1 I or Type 2 I
 IEC 60804:2000 Type 1 or Type 2
 IEC 61252:1993 personal sound exposure meters
 ANSI S1.4 -1983 (R2006), ANSI S1.43 - 1997 (R2007),
 ANSI S1.25:1991
 IEC 61260:1996 & ANSI S1.11-2004
 DIN 45657:2005-03

Microphone

Class 1 MK:224 pre-polarized, Class 2 MK:216 pre-polarized

Microphone preamplifier

MV:200F removable preamplifier (all versions)

Total measurement range:

20dB to 140dB RMS measurement single range
 24dB to 139dB linear range
 Noise floor: <18dB(A) Class 1, <21dB(A) Class 2

Frequency weightings

RMS & peak: A, C, & Z measured simultaneously

Frequency bands: 10 octave bands (31.5Hz to 16kHz)

Time weightings

Fast, Slow & Impulse measured simultaneously

Display

High resolution display. Ambient light sensor and illuminated keypad

Memory

8GB, 32GB factory-fit option

AuditStore

Measurement verification data stored in secure memory

Time history data rates (global settings)

10ms, 62.5ms, 100ms, 125ms, 250ms, 1/2 sec, 1 sec, 2 sec (user selectable)

VoiceTag audio recording

Up to 30 seconds of audio notes with each measurement

Integrators

Three simultaneous "virtual" noise meters. Integrator 1 is preset to Q3 for Leq functions. Integrators 2 & 3 can be configured with the following:

Exchange rate: 3, 4 or 5 dB

Threshold: 70dB to 120dB (1 dB steps)

Time weighting: None or Slow

Criterion level: 70dB to 120dB (1 dB steps)

Criterion time: 1 to 12 hours in 1 hour steps

Integrator quick settings

EU, OSHA HC & OSHA NC, OSHA HC & ACGIH, MSHA HC & MSHA EC, Custom 1 & Custom 2

Measurement control

Pause & back erase with user-selectable duration

Dimensions

Size: 283mm x 65mm x 30mm

Weight: 300gms/10oz

Batteries

4 x AA alkaline

Battery life

Typically 12 hours with alkaline AA
 Typically 20 hours with lithium AA non-rechargeable.
 Battery life is dependent upon the battery type, quality and screen brightness

Connections

USB Type B to PC
 AC & DC output via ZL:174 (2 x Phono, 1m)
 Multi-pin IO for external power via ZL:171 cable (2.1mm socket)
 External power: 5v-15v via MultiIO socket via ZL:171 cable (2.1mm socket)

Tripod mount

1/4" Whitworth socket

Case

High impact ABS-PC and soft touch back and keypad

Environmental

Operating temperature -10°C to +50°C

Storage temperature

-20°C to +60°C

Humidity

Up to 95% RH non-condensing

Electromagnetic performance

IEC 61672-1:2002, IEC 61672-2:2003, IEC 61672-1:2013 & IEC 61672-2:2013
 Except where modified by EN 61000-6-1:2007 & EN 61000-6-1:2007

Language options

English, French, German, Spanish, Italian. Other language options may be available

Software support

NoiseTools analysis software supplied as standard.
 Compatible with Microsoft Windows 7, 8, 10 & 11 (32bit & 64bit)

Bluetooth

BLE compatible with Android and iOS devices
 Cirrus mobile applications available from Google Play and the App Store.

All specifications, features and values are typical and are subject to change without notice.

Measurement functions²

CR:152B & CR:151B

Displayed functions

LXY, LXYMax, LXYMin
 Measurement run time

Stored functions

LXYMax & time history of LXYMax

CR:162B & CR:161B

Displayed functions

LXY, LXYMax, LXYMin, LXeq, LCPeak, LZPeak, LCEq-LAeq, LXE, LAleq

Graph of short LAeq, LCPeak

Measurement run time

Integrators 2 & 3: TWA, dose%, est dose%

Stored functions

LXYMax & time history of LXYMax
 LAeq, LCEq, LZeq, LCPeak, LZPeak, LAPeak
 Time history of LAeq, LCEq, LZeq, LCPeak, LZPeak, LAPeak, LAleq
 Integrators 2 & 3: LAVG, TWA, %dose
 Time history of LAVG

CR:162C & CR:161C

Displayed functions

LXY, LXYMax, LXYMin, LXeq, LCPeak, LZPeak, LCEq-LAeq, LXE, LAleq

Graph of short LAeq, LCPeak

Measurement run time

Integrators 2 & 3: TWA, dose%, est dose%

Real-time octave band filters

NR & NC values & curves

Stored functions

LXYMax & time history of LXYMax
 LAeq, LCEq, LZeq, LCPeak, LZPeak, LAPeak
 Time history of LAeq, LCEq, LZeq, LCPeak, LZPeak, LAPeak, LAleq

Integrators 2 & 3: LAVG, TWA, %dose

Time history of LAVG

Octave Bands: Overall Leq & Leq Time History for each band

NR & NC values & curves

Measurement run time

Time & date of measurement start

where $x = A, C \text{ or } Z$
 $y = F, S \text{ or } I$

Other functions may be calculated by the NoiseTools software and displayed on download.

Notes

1. Please contact Cirrus Research plc for details of the standards and approvals that are available on specific instrument types.

2. For details of the displayed and stored parameters, please refer to the optimus user manual for full specifications.

All specifications, features and values are typical and are subject to change without notice.

Which Optimus+ is right for you?

| | Key Features | | | | | | | | | |
|---------------------------------------|--------------|---------|----------------------|---------------------------|------|-------|------------------|------------------------|---------------------------|-----------|
| | Class 1 | Class 2 | Sound pressure level | Average noise level (Leq) | Peak | %Dose | 1:1 octave bands | On-screen NR/NC curves | Single measurement timers | Bluetooth |
| Optimus+ Industrial | ✓ | ✓ | ✓ | | | | | | | ✓ |
| Optimus+ Industrial with Leq Values | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ |
| Optimus+ Industrial with Octave Bands | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |