optimus
sound level meters

Sound Level Meters for Noise at Work Measurements

Cirrus

Leq View
89.3
settled   LAeq dB
LC Peak 122.8 dB
C-A   6.1 dB

— Short LAeq — LCPeak
▲ 1 of 4 ▼
Elapsed t. ---
Menu   Stop

The **optimus red** sound level meters use the very latest digital technology and industrial design to give you the ideal instrument for Occupational and Industrial Hygiene noise measurements.

Applications

- Occupational & Industrial Hygiene Noise Evaluations
- Noise at Work Surveys & Noise Exposure Calculations
- Hearing Protector Selection using HML or Octave Band Methods
- Machinery Noise Tests
- Noise Ordinance & Community Noise Assessments
- General Noise Measurements

Key Features

- Simple operation with an ergonomic design
- Simultaneous measurement of all workplace noise parameters with additional two "virtual" noise meters
- VoiceTag audio recording
- Latest digital technology with a high resolution colour OLED display and back-lit keypad
- Measure up to 140dB(A) and 143dB(C) Peak with a single measurement range
- Real-time Octave Band Filters
- Very large 4GB memory which can store over 10,000 measurements
- Long battery life

For Occupational Noise and Industrial Hygiene, measuring the noise exposure of employees quickly and reliably is essential. The optimus red sound level meters are the ideal instrument for these applications with a clear, high resolution OLED colour screen, a wide 120dB measurement span (up to 140dB(A) and 143dBC Peak) and simultaneous measurement of all available parameters.

There's no setup or complicated configuration needed. Just switch on, calibrate and press start.

It's that simple.

VoiceTag audio 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.

The ideal instrument for any application

With two additional "virtual" noise meters running at the same time, you can meet any noise regulation, guideline or standard.

Whether you need to meet the UK and EU Regulations, measure to OSHA HC & PEL, MSHA, ACGIH or any other regulation, an **optimus red** is the ideal instrument.

Cirrus
Research plc
dedicated to noise measurement

Simple operation with advanced technology

When you are making a noise measurement, the instrument you are using should not get in the way of getting reliable and useful information.

The optimus sound level meters have been designed with ease of use as the most important feature which lets you get on with measuring and controlling the noise.

The instruments use the very latest in digital technology and industrial design techniques to make everything as clear and simple as possible. We've used a high resolution colour OLED screen which can be seen in any conditions, and the keypad will illuminate automatically in low light. The case is robust and covered with a tactile finish so it can be used even if you're wearing gloves.

The measurement data is displayed in a clear and simple format along with a real-time noise chart so that you can see how the noise varies with time.

All of the functions of the instrument are measured simultaneously, and with a wide 120dB measurement span you don't need to worry about choosing the right range. An optimus can measure up to 140dB(A) and 143dB(C) Peak in this single range.

Just switch on, calibrate and you are ready to go.

The ideal solution for occupational noise

The optimus red sound level meters are the ideal sound instruments for occupational noise and industrial hygiene measurements, as well as for basic noise surveys, and will give you all of the information you need, right at your finger tips.

UK & EU Noise at Work Regulations

If you are working to the UK Control of Noise at Work Regulations or the EU Physical Agents (Noise) Directive, the Leq View gives you the information that you need.

The L_{Aeq} and L_{CPeak} values are measured at the same time which allow the $L_{EP,d}$ ($L_{EX,8h}$) and the Peak Action Levels to be determined.

The L_{Ceq}-L_{Aeq} (C-A) value is also measured which can be used to select PPE using the HML method. L_{AE} is also measured along with L_{ZPeak} for regulations that use this rather than L_{CPeak}.

OSHA, MSHA & other regulations

If you need to meet regulations such as OSHA HC & NC, MSHA HC or ACGIH, the two "virtual" noise meters in the Dose View can be quickly configured to provide you with this information.

The Quick Setup gives access to a number of preset functions including OSHA HC & NC, OSHA HC & ACGIH and MSHA HC & EC.

The custom settings can be used to choose any other setup or configuration that you may need.

Once you've chosen the setup needed it will be stored so each time you use the meter you will have the information you need.

For the two "virtual" noise meters, the L_{AVG}, TWA, % Dose and Estimated % Dose are displayed.

Octave Band Filters for Noise Control & Selecting Hearing Protection

The CR:162C and CR:161C instruments also feature real-time octave band filters which will measure the noise in 10 different frequency bands.

The octave band measurement is made at the same time as the other measurements and includes the overall level in each band along with a time history of the bands across the measurement period.

Basic noise level measurements

The **optimus red** instruments can also be used for basic noise measurements where the Sound Level is required, such as community and noise ordinance enforcement and testing of fire and emergency alarms.

Where precision measurements are needed, Class/Type 1 instruments are available as well as the General Purpose Class/Type 2 instruments.

Data logging & PC download

If there is a need to record and download measurements to a PC, data logging is available with the B & C version instruments.

These units are supplied with the NoiseTools software and a USB data cable to allow the measurement information to be downloaded.

NoiseTools Software

For many users, the most challenging part of a noise survey is the reporting and analysis of the results, and so having a simple way to view, analyse and print the information is essential.

The new NoiseTools software package, supplied with the B & C versions, gives you a quick and simple way to download, analyse and report your noise measurement information.

Intuitive and simple to use

The initial summary screen shows you the most commonly used information and, through simple icons, gives you access to the detailed measurement data. You can simply print the summary screen to get a quick measurement report.

For advanced users, each and every function measured by the instrument is available for review and analysis and the data can be exported for further use.

VoiceTag audio recordings can be played back for reference and are automatically stored with the measurement data.

Where Octave Band data is available, this information can be used by the program to calculate the level of protection from a range of hearing defenders and ear plugs.

Helping you keep you data organised

Over time, you may find that you have a large number of measurements, information and notes.

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 be sorted or grouped by any parameter, person, place or project and measurement reports created quickly and easily.

NoiseTools is fully compatible with the latest versions of Microsoft Windows and, as with all Cirrus software, updates are available free of charge from the Cirrus website.

NoiseTools is supplied free from any licensing restrictions or limits allowing you to install the program on as many PC's as needed at no additional cost.

Instrument Range & Measurement Kits

The **optimus** red sound level meters can be used for a wide range of occupational noise applications and you can choose from 3 simple options to get the instrument that meets your needs. Choose from Class 1 or Class 2 performance, Data Logging with PC download and 1:1 Octave Band Filters.

All of the instruments can measure Sound Level functions plus Lmax and Lmin with all frequency and time weightings.

The A versions measure the Integrated noise levels such as Leq and LAE, C-A, Peak Sound Pressure and the virtual noise meters for OSHA/MSHA/ACGIH.

The B versions provide the same functions as above but with the addition of **Data Logging** so that measurements can be downloaded to the NoiseTools software. The VoiceTag audio recording is available on the B versions.

The C versions add **Real Time Octave Band Filters** to the functions of the B versions which can be used for the selection of hearing protection.
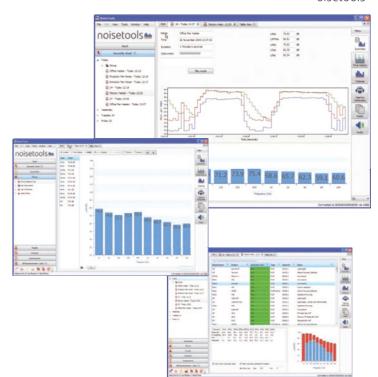
Specifications and a selection chart are available on the following page.

Complete measurement kits are available for the optimus instruments which contain the instrument, an acoustic calibrator, windshield, cables, batteries and accessories. The measurement kits contain all of the accessories needed to carry out a noise survey.

Applicable Standards
IEC 61672-1:2002 Class 1 or Class 2 Group X
IEC 60651:2001 Type 1 l or Type 2 l
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
1:1 Octave Band Filters to IEC 61260 & ANSI S1.11-2004 (C
variants)

Microphone
Class 1 Instruments MK:224 pre-polarized
Class 2 Instruments MK:216 pre-polarized

Microphone Preamplifier
MV:200E Removable Preamplifier

Total Measurement Range:
20dB to 140dB RMS Single 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, C
Versions only)

Time Weightings
Fast, Slow & Impulse Measured Simultaneously

Display
High resolution OLED display with ambient light sensor &
illuminated keypad

Memory
4GB Expandable with up to 10,000 measurements stored (B
& C Versions)

Time History Data Rates (Global settings)
10ms, 62.5ms, 125ms, 250ms, 1/2 sec, 1 sec, 2 sec (User
selectable)

VoiceTag Audio Recording (B & C Versions)
30 seconds of audio recording 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:
Q3, 4 or 5   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

Size
283mm x 65mm x 30mm

Weight
300gms/10oz

Batteries
4 x AA Alkaline

Battery life
Typically 16 hours

External Power
5v via USB Socket from PC or Power Supply
5v-15v via MultiIO socket

Tripod Mount
1/4" Whitworth socket

Connections
USB Type B to PC
Multi-pin IO for external power

Case
Material: High Impact ABS-PC with soft touch back & keypad

Environmental
Temperature   Operating -10°C to +50°C
                        Storage -20°C to +60°C
Humidity   Up to 95% RH Non Condensing

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

Language options
English, French, German, Spanish as standard
Other language options may be available

Software Support
NoiseTools Download, Configuration & Analysis software
supplied as standard.
Compatible with Microsoft Windows XP, Vista & 7 (32bit &
64bit)

Measurement Functions

CR:162A & CR:161A
Displayed Functions
L_{XY}, L_{XYMax}, L_{XYMin}
L_{Xeq}, L_{CPeak}, L_{ZPeak}, L_{Ceq}-L_{Aeq}, L_{XE}
Graph of Short L_{Aeq}, L_{CPeak}
Integrators 2 & 3: TWA, Dose%, Est Dose%
Measurement Run Time

CR:162B & CR:161B
Displayed Functions
L_{XY}, L_{XYMax}, L_{XYMin}
L_{Xeq}, L_{CPeak}, L_{ZPeak}, L_{Ceq}-L_{Aeq}, L_{XE}
Graph of Short L_{Aeq}, L_{CPeak}
Measurement Run Time
Integrators 2 & 3: TWA, Dose%, Est Dose%

Stored Functions
L_{XYMax} & Time History of L_{XYMax}
L_{Aeq}, L_{Ceq}, L_{Zeq}, L_{CPeak}, L_{ZPeak}
Time History of L_{Aeq}, L_{Ceq}, L_{Zeq}, L_{CPeak}, L_{ZPeak}
Integrators 2 & 3: L_{AVG}, TWA. %Dose
Time History of L_{AVG}

CR:162C & CR:161C
Displayed Functions
L_{XY}, L_{XYMax}, L_{XYMin}
L_{Xeq}, L_{CPeak}, L_{ZPeak}, L_{Ceq}-L_{Aeq}, L_{XE}
Graph of Short L_{Aeq}, L_{CPeak}
Measurement Run Time
Integrators 2 & 3: TWA, Dose%, Est Dose%
Real-Time Octave Band Filters

Stored Functions
L_{XYMax} & Time History of L_{XYMax}
L_{Aeq}, L_{Ceq}, L_{Zeq}, L_{CPeak}, L_{ZPeak}
Time History of L_{Aeq}, L_{Ceq}, L_{Zeq}, L_{CPeak}, L_{ZPeak}
Integrators 2 & 3: L_{AVG}, TWA. %Dose
Time History of L_{AVG}
Octave Bands: Overall L_{eq} & L_{eq} Time History for each band
Measurement Run Time
Time & Date of Measurement Start

where x=A ,C ,Z; y= F, S, I

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

Notes
1. For details of the displayed and stored parameters, please refer to the
optimus red technical specification datasheet.

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

Instrument Selection

Function	Class 1	Class 2	Sound Level Functions	Leq/Peak Functions	TWA/Dose Functions	Data Logging	VoiceTag Recording	1:1 Octave Band Filters	Software Support	Measurement Kit
Instrument										
CR:162A		Yes	Yes	Yes	Yes					CK:162A
CR:161A	Yes		Yes	Yes	Yes					CK:161A
CR:162B		Yes	Yes	Yes	Yes	Yes	Yes		Yes	CK:162B
CR:161B	Yes		Yes	Yes	Yes	Yes	Yes		Yes	CK:161B
CR:162C		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	CK:162C
CR:161C	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	CK:161C

Standard Accessories
The **optimus** sound level meters are supplied, as standard, with the following
accessories:
User Manual
Certificate of Calibration
USB Data/Power Cable
Windshield
NoiseTools Software CD (Requires B or C Version to download measurements)

Measurement Kits
The **optimus** sound level meters are available as a complete measurement kit
with the following accessories:
optimus Sound Level Meter
CR:514 Class 2 or CR:515 Class 1 Acoustic Calibrator
UA:237 90mm Windshield
CK:280 Carrying Case
User Manual & Certificates of Calibration
USB Data/Power Cable & NoiseTools Software CD (Requires B or C Version to
download measurements)

Repræsentant i Danmark :

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BSI

ISO 9001:2008
FM 531001