

optimus

sound level meters

Product Information Pack

v1.0 December 2009



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Overview

What is optimus?

optimus is our new range of sound level meters that use the very latest digital technology and industrial design to bring an exciting range of new features and functions to hand held noise measurement instruments.

Over the years Cirrus has been working hard to research new technological advances with optimum user-friendliness. Our approach has been based on a clean and fresh look with paramount simplicity for our growing client base.

The results of our development work have lead to the new **optimus** range of instruments to meet the exact needs of customers of today and the future. We believe that the **optimus** instrument represents the very best in handheld sound level meters and we are very excited about the possibilities for these instruments.



Highlights of the optimus range include:

- Modular platform -
designed for future expansion, upgrade and development
- Simultaneous measurement of all parameters -
Never forget to select the correct function
- Multiple Integrators -
Allows the instrument to measure to a range of noise standards at the same time such as OSHA (HC & PEL), UK Noise at Work Regulations, EU Physical Agents Directive etc
- Meets the latest sound level meter standards -
a future proof investment for customers
- High resolution OLED colour screen -
the first hand held sound level meter in the world to have an OLED screen of this size and clarity
- Simple intuitive operation -
The display shows the most important functions in a clear, concise layout and a clear menu system
- Wide measurement range -
120dB dynamic span with a single measurement range
- Ergonomically designed case with a soft-touch finish -
Small, lightweight and easy to use
- VoiceTag Audio Recording -
Record comments and notes using the microphone before each measurement
- Very large memory -
2GB as standard with data logging instruments. This can store over 10,000 measurements
- Real-time frequency filters -
Quickly assess the frequency content of noise and select hearing protection
Real-time 1:1 Octave Bands in the CR:162C & CR:161C,
- Language and regional measurement options -
The instrument can be set up for any market or country with multiple languages available
- Removable preamplifier standard on Class 2 and Class 1 instruments -
Microphone extension cables can be used with all instruments
- Software compatible with the very latest Microsoft Windows 7 operating system
Upgrades and updates are available through the internet. NoiseTools is compatible with Windows XP, Vista & Windows 7 with both 32bit and 64bit versions supported

Future additions to the range

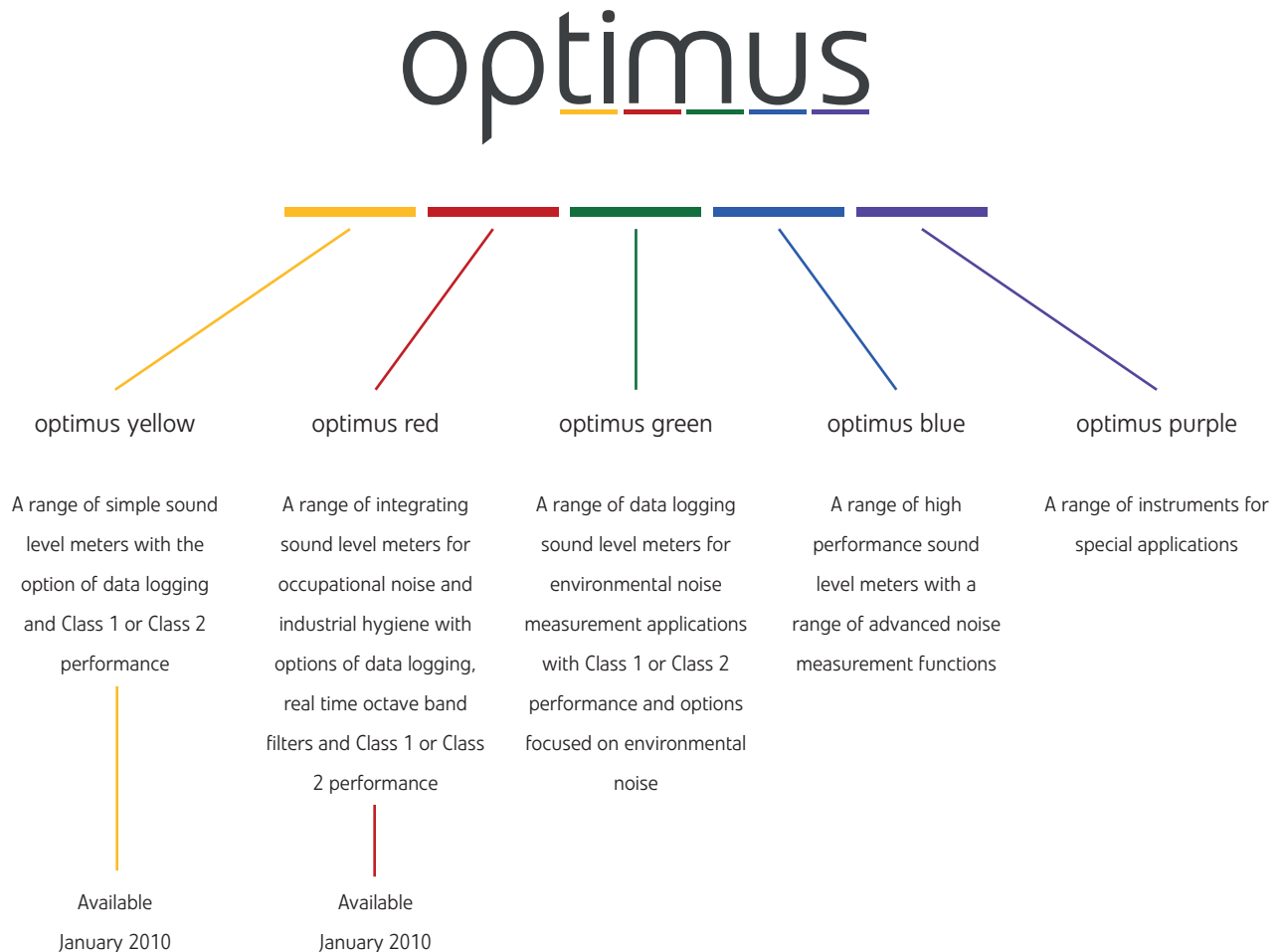
The next members of the optimus family will add new functions and features to those already available from the yellow and red ranges including 1:3 Octave Band Filters, Timed start and stop for measurements, calculation of Ln values and the LifeTime Archive. More details of these functions will be provided as and when the next instrument ranges are released.

To help you learn about and understand the optimus instruments, we've put together this pack which contains a range of data about the units along with pricing, technical and sales related information. This information pack covers the first two ranges in the optimus family, the optimus yellow and the optimus red. As we introduce the next set of instruments this information pack will be updated.

Your contacts at Cirrus will be able to answer any questions that you may have so please contact us if you need any help, information or assistance.

What instruments are in the optimus range?

The optimus family has been designed to be a modular range which can be expanded when new functions and features are added.



We have planned for five ranges in total, with each range represented by a unique colour. In November 2009 we are launching the first two parts of the optimus family, optimus yellow and optimus red.

optimus yellow

The optimus yellow instruments measure sound level functions and have been designed for simple noise level measurements.

optimus red

The optimus red instruments have the same sound level functions as the optimus yellow instruments well as integrating and octave band functions and have been designed for Noise at Work and Occupational Hygiene measurements.

Product Range Overview

Feature Matrix

	optimus yellow				optimus red					
	CR:152A	CR:151A	CR:152B	CR:151B	CR:162A	CR:161A	CR:162B	CR:161B	CR:162C	CR:161C
Class 1		✓		✓		✓		✓		✓
Class 2	✓		✓		✓		✓		✓	
Sound Level (SPL & Max)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Simultaneous Time Weighting (F,S,I)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Simultaneous Frequency Weighting (A,C,Z)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Integration & Peak (Q=3)					✓	✓	✓	✓	✓	✓
Multiple Simultaneous Integrators (Q3,4,5)					✓	✓	✓	✓	✓	✓
Real-time 1:1 Octave Band Filters									✓	✓
Data Logging			✓	✓			✓	✓	✓	✓
Voice Tagging of Measurements			✓	✓			✓	✓	✓	✓
Memory			2GB	2GB			2GB	2GB	2GB	2GB
Instrument Price	£699	£1299	£899	£1499	£895	£1459	£1095	£1695	£1545	£2145
Kit Price	£1023	£1723	£1223	£1923	£1219	£1883	£1419	£2119	£1869	£2569

The prices that are shown in this table are the UK list prices, ex-works, in Pounds Sterling (GBP).

To confirm pricing in your own currency, please contact Jonathan Phillips (Export Sales) or Gill Cussons (UK & Ireland) at Cirrus.

Product Range Overview

Application Matrix

	optimus yellow				optimus red					
	CR:152A	CR:151A	CR:152B	CR:151B	CR:162A	CR:161A	CR:162B	CR:161B	CR:162C	CR:161C
Basic noise measurements with Sound Level, Lmax, Lmin	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Occupational/Industrial Hygiene Noise Measurements with Integrated Noise Parameters					✓	✓	✓	✓	✓	✓
Noise at Work Regulations (UK)					✓	✓	✓	✓	✓	✓
Noise at Work (EU Physical Agents Directive)					✓	✓	✓	✓	✓	✓
OSHA (HC & PEL) L _{AVG} /TWA					✓	✓	✓	✓	✓	✓
Frequency Analysis using Octave Band Filters									✓	✓
Selection of PPE using the C-A (HML) method					✓	✓	✓	✓	✓	✓
Selection of PPE using octave band analysis									✓	✓
Precision noise measurement where Class/Type 1 instruments are required		✓		✓		✓		✓		✓
Noise measurements where Class/Type 2 instruments are required	✓		✓		✓		✓		✓	
Download measurements to a PC for reporting & analysis			✓	✓			✓	✓	✓	✓

Key features of the optimus range



The features shown above are common to all versions of the optimus sound level meters.

Technical

Feature	Benefit
Meets the very latest standards for sound level meters	Ensures that the instruments can be used to meet current and future standards, regulations and guidelines
Simultaneous measurement of all parameters	- Removes the need to choose which functions are stored in the memory - All of the functions are measured at the same time and the user only has to press a button to change between the different viewing options
The latest high-resolution OLED full-colour display technology with a large, visible screen	- The first sound level meters to have this large, high resolution display making it very easy for the user to read the important information - The optimus instruments will change the brightness of the display to suit the ambient light conditions - Excellent viewing angles make it simple to read in all conditions
Multiple Simultaneous Integrators	- Multiple integrators which run simultaneously - Allows the instrument to measure to a range of noise standards at the same time such as OSHA (HC & PEL), UK Noise at Work Regulations, EU Physical Agents Directive etc - Integrator 1 is preset to 3dB to give Leq functions Integrators 2 and 3 can be configured to meet different standards, regulations & guidelines such as OSHA (HC & PEL), ACGIH, DOD etc
Single span measurement range from 20-140dB	- Removes the need to change the measurement range and eliminates the risk of overload and under-range in most applications - This helps to eliminate the number of false or inaccurate noise measurements - Makes the operation of the instruments simpler
VoiceTag audio recording of notes and comments (Available with data logging instruments)	- Store audio information about where and when the measurement is made by simply talking into the microphone - Removes the need to carry a note pad when making measurements - VoiceTags are automatically stored with the noise measurement data and downloaded into the NoiseTools software
Real-time octave band filters (CR:162C & CR:161C)	- Measure frequency data to help choose hearing protection or to evaluate noise control products - The NoiseTools software can automatically calculate the effective attenuation of hearing protection using the octave band filter data
C-A Information (LCeq - LAeq) available with CR:160 instruments	Use the HML method to select hearing protection
Very large memory to store thousands of measurements - 2GB in the optimus yellow and red instruments	There is enough memory for the instrument to store all of the measurements automatically without the user worrying about what is stored

Design & Ergonomics

Feature	Benefit
Attractive, innovative design	Using the very latest display and industrial design technology, the optimus instruments are attractive and easy to use, saving time on training
Ergonomically-designed case	- Lightweight and easy to hold - Can be held easily by right or left-handed users - Very robust injection moulded PC-ABS plastic with a soft-touch back and a tactile keypad which can be used with gloves
Simple, intuitive user interface	- Makes the instruments easy to use whilst giving you all of the information you need at your fingertips - Simple menu structure makes configuration quick and simple - Hot keys give access to the essential functions quickly
Illuminated keypad with ambient light sensor	- The instrument can be used in low light conditions and at night - The keypad will automatically illuminate when the ambient light level falls, saving power and energy

Help & Support

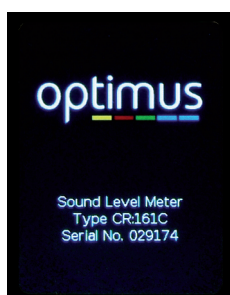
Feature	Benefit
Brand new licence-free NoiseTools software for quick and easy reporting and analysis	- Simple and easy to use with a wide range of new functions to match the optimus instruments - Download, configuration and reporting functions for all data logging optimus instruments - Compatible with Windows XP, Vista & Windows 7 (32bit and 64bit versions) with future support for other Cirrus instruments - Updates available for download from the Cirrus website with automatic updating available
On-line help	Information about the instrument and measurement functions is always available when needed
Switchable language settings	- Quickly setup and change the instrument language settings - New languages can be added through the NoiseTools software when available
Upgradable instrument software	- Updates to the internal instrument software can be carried out without the instrument having to go to a service centre - New functions and features can be added by simply purchasing an upgrade pack - When noise measurement standards change, the instrument can be upgraded
Our industry-leading 2-12-year warranty	Future proof your customers' investment in a Cirrus instrument

These are the features and benefits that are common across the whole optimus family. Each range of instruments has its own unique features and benefits which are listed in the following sections.

Example display screens

Shown below are some example display screens from a CR:162C Sound Level Meter.

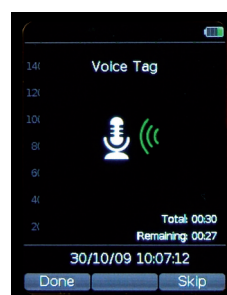
Please note that these are for example only and to show the type of information displayed. Other screens are available on the instruments depending upon the functions available.



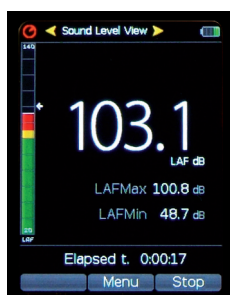
Start up screen with instrument type and serial number



Calibration screen



VoiceTag audio recording screen



Sound Level Measurement Screen with Lmax & Lmin



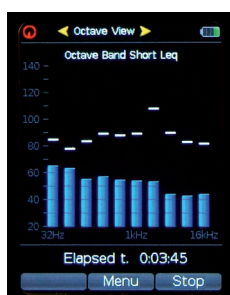
Leq screen with LAeq,t, Peak(C) & C-A values



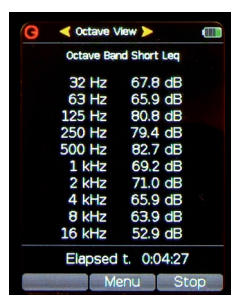
Leq screen with LAeq,t, Peak(C) & C-A values with the Leq value settled



Leq screen with LAeq,t, Peak(C) and LAE

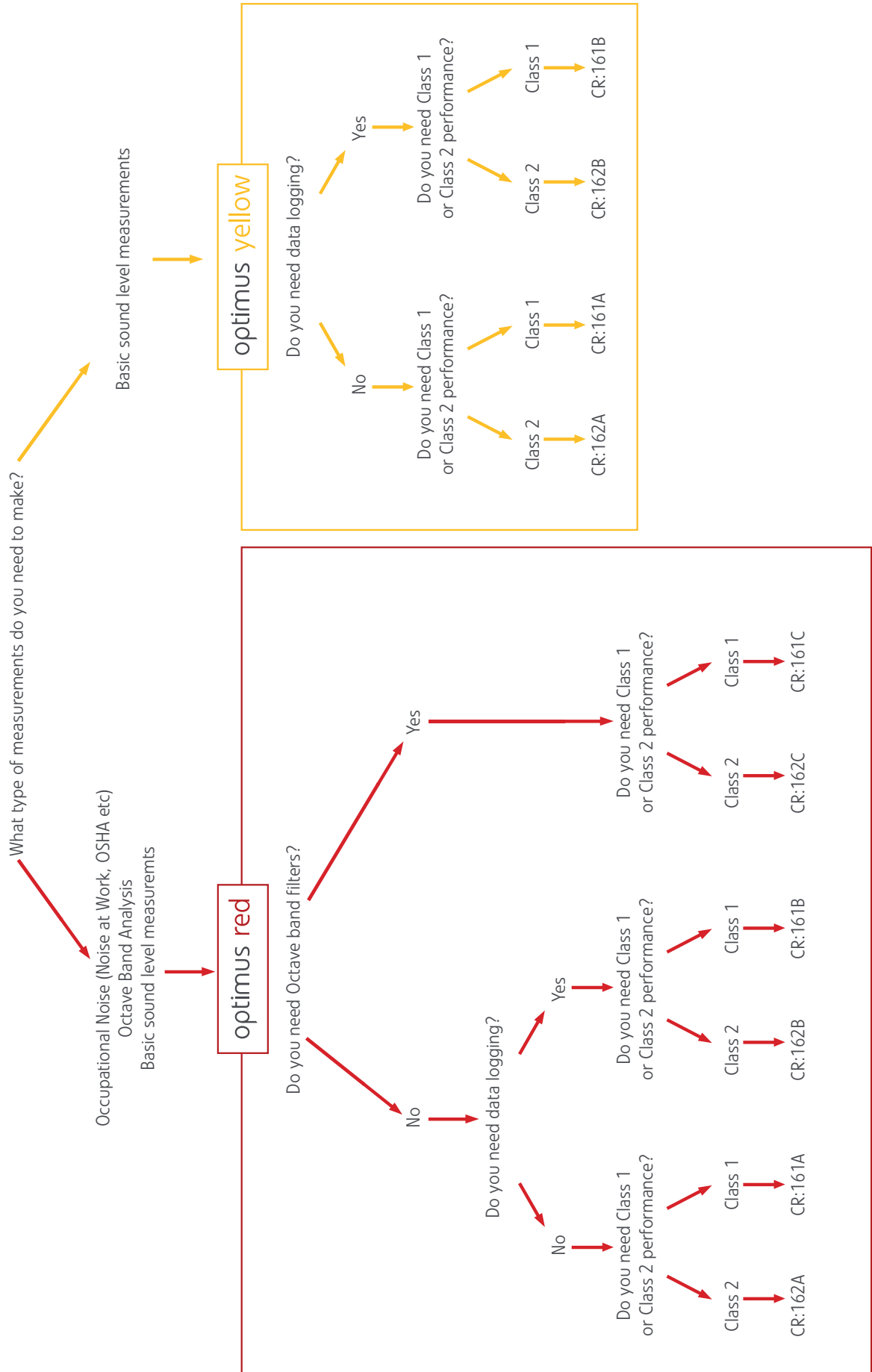


Real-time octave band screen with graphical display



Real-time octave band screen with numerical display

Quick product selector for the optimus sound level meters



optimus yellow

Sound Level Meters

Product Range Information

The optimus yellow instruments are the first range in the optimus family.

All of the unique features of the optimus range are present including ease of use, an ergonomically designed case, a high resolution colour display and a 120dB dynamic range.

Data logging is available with the B version instruments and with this, measurements can be downloaded to the NoiseTools software for reporting and analysis.

Class 1 and Class 2 versions are available.

Applications

- Simple Noise Level Testing
- Noise Ordinance Enforcement
- Community Noise Assessment
- Fire Alarm Testing
- Servicing, Maintenance & Trouble-Shooting

There are many noise measurement applications where integrated noise levels, such as L_{eq} or L_{AVG} , are not required and where basic noise summary data such as the Sound Level (SPL) or the Maximum Sound Level (L_{max}) are all that is required.

These include simple noise level testing, community and noise ordinance enforcement and testing of fire and emergency alarms.

The optimus yellow instruments are ideal for these applications and can be upgraded to add further functions, future proofing a customer's investment.

The optimus yellow instruments meet the very latest standards for sound level meters and can measure, **at the same time**, the dB(A), dB(C) and dB(Z) sound level values with Fast, Slow and Impulse Time Weightings.

The maximum (L_{max}) and minimum (L_{min}) values for each of these combinations are also available.

Where a precision instrument is needed, the Class 1 CR:151A and CR:151B instruments are available.



optimus yellow

CR:151B Class 1 Sound Level Meter

If there is a need to record and download measurements to a PC, data logging is available with the CR:152B and CR:151B instruments.

These are supplied with the NoiseTools software and a USB data cable to allow the measurement information to be downloaded. This can often be useful where reports of noise tests are required or where documented evidence of noise levels is required.

Features & Benefits of the optimus yellow Sound Level Meters

Simple and easy to use with all of the important information displayed on one clear screen	- Save time making noise measurements - Get the important information at your finger tips quickly and easily
Intuitive operation with simple, clear controls	Reduces learning time for new users
Ergonomically designed case	Comfortable to hold with a soft touch back and tactile keypad
Latest generation technology which meets the very latest sound level meters standards with Class/Type 1 and Class/Type 2 performance	- Future proof your investment - Comply with the latest noise measurement standards, regulations and guidelines
120dB Measurement Span with a single range	- No under-range or overload problems - All noise measurement situations can be covered with a single measurement range - Simplifies the operation of the instrument
Simultaneous measurement of A,C & Z Frequency Weightings and F, S & I Time Weightings	Always have the information you need even if the instrument is not set up correctly
High resolution OLED colour display	The colour coded measurement information and sound level bar chart makes it simple to check the status of a noise measurement
Ambient Light Sensor with illuminated keypad	Allows noise measurements to be made in low light conditions and saves power
Data Logging option with NoiseTools software (B Versions)	Download measurements to the NoiseTools software to analyse measurements, create reports and print information
Help information available on the instruments	Information about the instrument and measurement functions is always available when needed
Language support	English, French & German available at launch. Additional languages can be added from the NoiseTools software

Instrument range

The optimus yellow range consists of four instruments.

- CR:152A Class 2 Sound Level Meter
- CR:151A Class 1 Sound Level Meter
- CR:152B Class 2 Data Logging Sound Level Meter with Voice Tagging
- CR:151B Class 1 Data Logging Sound Level Meter with Voice Tagging

	CR:152A	CR:151A	CR:152B	CR:151B
Class 1		✓		✓
Class 2	✓		✓	
Sound Level (SPL, Lmax & Lmin)	✓	✓	✓	✓
Simultaneous Time Weighting (F,S,I)	✓	✓	✓	✓
Simultaneous Frequency Weighting (A,C,Z)	✓	✓	✓	✓
Data Logging			✓	✓
Voice Tagging of Measurements			✓	✓
Memory			2GB	2GB

Measurement Kits

The optimus measurement kits are supplied in the new CK:280 Carrying Case which has been designed to fit the optimus sound level meters along with the accessories. Pictures of a Sound Level Meter Kit are shown below.



Price information

optimus yellow Sound Level Meters

	GBP (£)	EUR(€)	USD(\$)
CR:152A Class 2 Sound Level Meter	£699.00	€ 944.00	\$1,188.00
CR:151A Class 1 Sound Level Meter	£1,299.00	€ 1754.00	\$2,208.00
CR:152B Class 2 Sound Level Meter with Data Logging	£899.00	€ 1,214.00	\$1,528.00
CR:151B Class 1 Sound Level Meter with Data Logging	£1,499.00	€ 2,024.00	\$2,548.00

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 Data Logging Version to download measurements)

optimus yellow Sound Level Meter Measurement Kits

	GBP (£)	EUR(€)	USD(\$)
CK:152A Class 2 Sound Level Meter Kit	£1,023.00	€ 1,381.00	\$1,739.00
CK:151A Class 1 Sound Level Meter Kit	£1,723.00	€ 2,326.00	\$2,929.00
CK:152B Class 2 Sound Level Meter Kit with Data Logging	£1,223.00	€ 1,651.00	\$2,079.00
CK:151B Class 1 Sound Level Meter Kit with Data Logging	£1,923.00	€ 2,596.00	\$3,269.00

CR:514 Class 2 Acoustic Calibrator (Class 2 Versions)

CR:515 Class 1 Acoustic Calibrator (Class 1 Versions)

UA:237 90mm Windshield

CK:280 Carrying Case

User Manual

Certificates of Calibration

USB Data/Power Cable

Windshield

NoiseTools Software CD (Requires Data Logging Version to download measurements)

These are the UK list prices in Pounds Sterling (GBP £), Euros (EUR €) and US Dollars (USD \$) and are ex-works. These prices are subject to carriage and VAT at the prevailing rate where applicable.

Instrument Comparison

The table below shows the closest equivalent instrument in the new optimus ranges to the current products. These may not be direct equivalents as the optimus instruments have a much higher performance and specification.

Current	optimus	Comments
CR:306	CR:152A	Much higher performance with F,S,I and A,C,Z, Max, Min. Data logging is available with the CR:152B. Also available as Class 1 CR:151A
CR:306/S	CR:152A	Much higher performance with F,S,I and A,C,Z, Max, Min. Data logging is available with the CR:152B. Also available as Class 1 CR:151A
CR:252B	CR:152A	Higher performance with A,C,Z and F,S,I. Max, Min. Data logging is available with the CR:152B
CR:251B	CR:151A	Higher performance with A,C,Z and F,S,I. Max, Min. Data logging is available with the CR:151B

Specifications

Applicable Standards

IEC 61672-1:2002 Class 1 or Class 2 Group X

IEC 60651:2001 Type 1I or Type 2I

[This standards has been withdrawn and is superseded by IEC 61672]

ANSI S1.4 -1983 (R2006)

Microphone

Class 1 Instruments MK:224 pre-polarized Free-field 1/2" Condenser [Typically]

Class 2 Instruments MK:216 pre-polarized Free-field 1/2" Condenser [Typically]

Microphone Preamplifier

MV:200E Removable Preamplifier for Class 1 & Class 2 instruments

Total Measurement Range:

20dB to 140dB RMS Single Range

Noise Floor: <18dB(A) Class 1, <21dB(A) Class 2 (typical)

Frequency Weightings

RMS: A, C, & Z Measured Simultaneously

Peak: A, C, & Z Measured Simultaneously

Time Weightings

Fast, Slow & Impulse Measured Simultaneously

Display

High resolution OLED (Organic Light Emitting Diode) with ambient light sensor & illuminated keypad

Display of

- Measured parameters

- Recalled Measurement Parameters (B Versions)

- Battery Level & External Power Connection

- Overload & Under Range

- Time & Frequency Weighting

- Elapsed Measurement Time

- Instrument status

Memory

2GB Expandable with up to 10,000 measurements stored (B Versions)

Time History Data Rates (Global settings)

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

VoiceTag Audio Recording

User selectable recording of voice notes before each measurement for download to NoiseTools software (B Versions)
30 seconds per recording with audio files downloaded with noise measurement information.

Size

283mm x 65mm x 30mm, 11" x 2.5" x 1.1"

Weight

300gms/10oz

Batteries

4 x AA Alkaline

Battery life

Typically 16 hours

External Power

5v via USB Socket from PC or Power Supply

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 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)

Parameters Displayed & Stored

CR:152A & CR:151A

Displayed Functions: Sound Level View

Sound Level: L_{XY} X=A, C, Z; Y= F, S, I

Maximum Sound Level: L_{XYMax} where x=A, C, Z; y= F, S, I

Minimum Sound Level: L_{XYMin} where x=A, C, Z; y= F, S, I

Measurement Run Time

The instrument will display one set of Time Weighting values at a time, ie all Fast time weighted values

Parameters Displayed & Stored

CR:152B & CR:151B

Displayed Functions: Sound Level View

Sound Level: L_{XY} X=A, C, Z; Y= F, S, I

Maximum Sound Level: L_{XYMax} where x=A, C, Z; y= F, S, I

Minimum Sound Level: L_{XYMin} where x=A, C, Z; y= F, S, I

Measurement Run Time

The instrument will display one set of Time Weighting values at a time, ie all Fast time weighted values

Stored Functions: Sound Level

Overall: L_{XYMax} where X = A, C, Z; Y = F, S, I (9 items).

Time History: L_{XYMax} where X = A, C; Y = F, S (4 items).

Measurement Run Time

Time & Date of Measurement Start

Time History data rate is user configurable in the global settings

All values, figures and performance statements are typical and are subject to change without notice.

optimus red

Sound Level Meters

Product Range Information

Overview

The optimus red instruments are the second range in the optimus family and are designed for occupational and industrial hygiene noise as well as for basic noise measurements.

All of the unique features of the optimus range are present including ease of use, an ergonomically designed case, a high resolution colour display and a 120dB dynamic range combined with integrated noise functions and real time octave band filters.

Data logging is available with the B & C version instruments and real-time octave band filters are available on the C version instruments.

Class/Type 1 and Class/Type 2 versions of the optimus red instruments are available.

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 Enforcement
- Community Noise Assessment
- General Noise Measurements
- Servicing, Maintenance & Trouble-Shooting

The optimus red sound level meters are the ideal sound instruments for occupational noise and industrial hygiene measurements.

UK Control of Noise at Work Regulations & EU Physical Agents (Noise) Directive

The optimus red instruments are ideal for compliance with the UK Control of Noise at Work Regulations and the EU Physical Agents (Noise) Directive.



optimus red

CR:162C Class 2 Sound Level Meter &
CR:161C Sound Level Meter

They will measure the L_{Aeq} and L_{Cpeak} values 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 at the same time as well as the Sound Exposure (L_{AE}) value.

The C-A value can be used to select hearing protection using the HML method and where octave band filters are fitted (CR:162C and CR:161C), this information can be used to select hearing protection using the octave band method. The C-A values are available on all versions of the optimus red range.

OSHA, MSHA, DOD, ACGIH & Other standards, regulations & guidelines

The optimus red instruments are also ideal for measuring noise exposures to meet, for example, the OSHA HC & PEL standards. The Dose view gives access to Integrators 2 and 3 which run simultaneously with Integrator 1 (Leq). This function is available on all versions of the optimus red instruments.

These can be configured to meet any noise regulation or standard, such as ISO85, ISO90, OSHA, MSHA, DOD, ACGIH and provide L_{AVG} , TWA, % Dose, Estimated % Dose and a graph of projected noise exposure.

Because all three integrators run simultaneously, users can make measurements to three different standards or regulations at the same time. For example, noise exposures to ISO85, OSHA HC and OSHA PEL can be measured and calculated at the same time.

To allow the optimus red instruments to meet regulations in other countries, such as Australia, the Peak Sound Pressure is also measured as L_{ZPeak} . All of the functions and parameters detailed above are measured simultaneously and, where data logging is available (B & C versions), are stored ready for download to the NoiseTools software.

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 are supplied with the NoiseTools software and a USB data cable to allow the measurement information to be downloaded. This can often be useful where reports of noise tests are required or where documented evidence of noise levels is required.

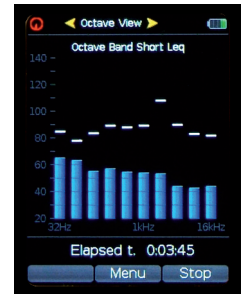
Select hearing protection using the HML or Octave Band methods

All versions of the optimus red range will measure the $L_{Ceq} - L_{Aeq}$ value which allows hearing protection to be selected using the HML method.

Where more detailed or precise selection of hearing protection is required, the CR:162C and CR:161C instruments provide for the measurement of real time octave bands. Over a measurement, the instruments will measure the overall Leq in the frequency bands from 31.5Hz to 16kHz as well as storing a time history, or noise profile, of the frequency data.

This information can be downloaded into the NoiseTools software where it can be used to select hearing protection or to evaluate the effectiveness of noise control measures.

Details of these functions are available in the NoiseTools section of this information pack.



Real-time octave band screen with graphical display

Features & Benefits of the optimus red Sound Level Meters

Simple and easy to use with all of the important information displayed on one clear screen	- Save time making noise measurements - Get the important information at your finger tips quickly and easily
- Intuitive operation with simple, clear controls - Multiple Simultaneous Integrators	- Reduces learning time for new users - Multiple integrators which run simultaneously - Allows the instrument to measure to a range of noise standards at the same time such as OSHA (HC & PEL), UK Noise at Work Regulations, EU Physical Agents Directive etc - Integrator 1 is preset to 3dB to give Leq functions - Integrators 2 and 3 can be configured to meet different standards, regulations & guidelines such as OSHA (HC & PEL), ACGIH, DOD etc
Real-time octave band filters (CR:162C & CR:161C)	- Measure frequency data to help choose hearing protection or to evaluate noise control products - The NoiseTools software can automatically calculate the effective attenuation of hearing protection using the octave band filter data
C-A Information ($L_{Ceq} - L_{Aeq}$)	Use the HML method to select hearing protection
Ergonomically designed case	Comfortable to hold with a soft touch back and tactile keypad
Latest generation technology which meets the very latest sound level meters standards with Class/Type 1 and Class/Type 2 performance	- Future proof your investment - Comply with the latest noise measurement standards, regulations and guidelines
120dB Measurement Span with a single range	- No under-range or overload problems - All noise measurement situations can be covered with a single measurement range - Simplifies the operation of the instrument
Simultaneous measurement of A, C & Z Frequency Weightings and F, S & I Time Weightings	Always have the information you need even if the instrument is not set up correctly
High resolution OLED colour display	The colour coded measurement information and sound level bar chart makes it simple to check the status of a noise measurement
Data Logging option with NoiseTools software (B & C Versions)	Download measurements to the NoiseTools software to analyse measurements, create reports and print information
VoiceTag audio recording of notes and comments (B & C Versions)	- Store information about where and when the measurement is made by simply talking into the microphone - Remove the need to carry a note pad when making measurements - VoiceTags are automatically stored with the noise measurement data and downloaded into the NoiseTools software
Language support	English, French & German available at launch. Additional languages can be added from the NoiseTools software
Help information available on the instruments	Information about the instrument and measurement functions is always available when needed

Instrument range

The optimus red range consists of six instruments.

CR:162A	Class 2 Integrating Sound Level Meter
CR:161A	Class 1 Integrating Sound Level Meter
CR:162B	Class 2 Integrating Data Logging Sound Level Meter with Voice Tagging
CR:161B	Class 1 Integrating Data Logging Sound Level Meter with Voice Tagging
CR:162C	Class 2 Integrating Data Logging Sound Level Meter with Real-time Octave Band Filters & Voice Tagging
CR:161C	Class 1 Integrating Data Logging Sound Level Meter with Real-time Octave Band Filters & Voice Tagging

	CR:162A	CR:161A	CR:162B	CR:161B	CR:162C	CR:161C
Class 1		✓		✓		✓
Class 2	✓		✓		✓	
Sound Level (SPL, Lmax & Lmin)	✓	✓	✓	✓	✓	✓
Simultaneous Time Weighting (F,S,I)	✓	✓	✓	✓	✓	✓
Simultaneous Frequency Weighting (A,C,Z)	✓	✓	✓	✓	✓	✓
Integration & Peak (Q=3)	✓	✓	✓	✓	✓	✓
Multiple Simultaneous Integrators (Q3,4,5)	✓	✓	✓	✓	✓	✓
Real-time 1:1 Octave Band Filters					✓	✓
Data Logging			✓	✓	✓	✓
Voice Tagging of Measurements			✓	✓	✓	✓
Memory			2GB	2GB	2GB	2GB

Measurement Kits

The optimus measurement kits are supplied in the new CK:280 Carrying Case which has been designed to fit the optimus sound level meters along with the accessories. Pictures of a Sound Level Meter Kit are shown below.



Price information

optimus red Sound Level Meters

	GBP (£)	EUR(€)	USD(\$)
CR:162A Class 2 Integrating Sound Level Meter	£895.00	€1,208.00	\$1,522.00
CR:161A Class 1 Integrating Sound Level Meter	£1459.00	€1,970.00	\$2,480.00
CR:162B Class 2 Integrating Sound Level Meter with Data Logging	£1095.00	€1,478.00	\$1,862.00
CR:161B Class 1 Integrating Sound Level Meter with Data Logging	£1695.00	€2,288.00	\$2,881.00
CR:162C Class 2 Integrating Sound Level Meter with Data Logging & Real-time Octave Bands	£1545.00	€2,086.00	\$2,627.00
CR:161C Class 1 Integrating Sound Level Meter with Data Logging & Real-time Octave Bands	£2145.00	€2,896.00	\$3,647.00

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 Data Logging Version to download measurements)

optimus red Sound Level Meter Measurement Kits

	GBP (£)	EUR(€)	USD(\$)
CK:162A Class 2 Integrating Sound Level Meter Kit	£1,219.00	€1,646.00	\$2,072.00
CK:161A Class 1 Integrating Sound Level Meter Kit	£1,883.00	€2,542.00	\$3,201.00
CK:162B Class 2 Integrating Sound Level Meter Kit with Data Logging	£1,419.00	€1,916.00	\$2,412.00
CK:161B Class 1 Integrating Sound Level Meter Kit with Data Logging	£2,119.00	€2,861.00	\$3,602.00
CK:162C Class 2 Integrating Sound Level Meter Kit with Data Logging & Real-time Octave Bands	£1,869.00	€2,523.00	\$3,177.00
CK:161C Class 1 Integrating Sound Level Meter Kit with Data Logging & Real-time Octave Bands	£2,569.00	€3,468.00	\$4,367.00

CR:514 Class 2 Acoustic Calibrator (Class 2 Versions)

CR:515 Class 1 Acoustic Calibrator (Class 1 Versions)

UA:237 90mm Windshield

CK:280 Carrying Case

User Manual

Certificates of Calibration

USB Data/Power Cable

Windshield

NoiseTools Software CD (Requires Data Logging Version to download measurements)

These are the UK list prices in Pounds Sterling (GBP £), Euros (EUR €) and US Dollars (USD \$) and are ex-works. These prices are subject to carriage and VAT at the prevailing rate where applicable.

Instrument Comparison

The table below shows the closest equivalent instrument in the new optimus ranges to the current products. These may not be direct equivalents as the optimus instruments have a much higher performance and specification.

Current	optimus	Comments
CR:272	CR:162A	Simultaneous measurement of all functions, frequency & time weightings. Q5 available for OSHA measurements
CR:271	CR:161A	Simultaneous measurement of all functions, frequency & time weightings. Q5 available for OSHA measurements
CR:274	CR:162C	Simultaneous measurement of all functions, frequency & time weightings. Q5 available for OSHA measurements. Includes data logging as standard
CR:273	CR:161C	Simultaneous measurement of all functions, frequency & time weightings. Q5 available for OSHA measurements. Includes data logging as standard
CR:262A	CR:161A	C-A result measurement for HML calculations
CR:261A	CR:161A	C-A result measurement for HML calculations
CR:264A	CR:162C	C-A result measurement for HML calculations. Real-time octave bands. Includes data logging as standard. VoiceTag audio recording
CR:263A	CR:161C	C-A result measurement for HML calculations. Real-time octave bands. Includes data logging as standard. VoiceTag audio recording
CR:262A+	CR:162B	C-A result measurement for HML calculations. Includes data logging as standard. VoiceTag audio recording
CR:261A+	CR:161B	C-A result measurement for HML calculations. Includes data logging as standard. VoiceTag audio recording
CR:264A+	CR:162C	C-A result measurement for HML calculations. Real-time octave bands. Includes data logging as standard. VoiceTag audio recording
CR:263A+	CR:161C	C-A result measurement for HML calculations. Real-time octave bands. Includes data logging as standard. VoiceTag audio recording
CR:812C	CR:162B	Data logging as standard. Simultaneous A,C,Z and F,S,L. For Noise at Work applications. Not environmental (No Ln's values or repeating measurements) C-A result measurement for HML calculations. Includes data logging as standard. VoiceTag audio recording
CR:811C	CR:161B	Data logging as standard. Simultaneous A,C,Z and F,S,L. For Noise at Work applications. Not environmental (No Ln's values or repeating measurements) C-A result measurement for HML calculations. Includes data logging as standard. VoiceTag audio recording
CR:822C	CR:162C	For Noise at Work applications. Not environmental (No Ln's values or repeating measurements). optimus green will provide these. Includes data logging as standard. C-A result measurement for HML calculations. Includes data logging as standard. VoiceTag audio recording
CR:821C	CR:161C	For Noise at Work applications. Not environmental (No Ln's values or repeating measurements). optimus green will provide these. Includes data logging as standard. C-A result measurement for HML calculations. Includes data logging as standard. VoiceTag audio recording

Specifications

Applicable Standards

IEC 61672-1:2002 Class 1 or Class 2 Group X

IEC 60651:2001 Type 1I or Type 2I

[This standards has been withdrawn and is superseded by IEC 61672]

IEC 60804:2000 Type 1 or Type 2

[This standards has been withdrawn and is superseded by IEC 61672]

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 Free-field 1/2" Condenser [Typically]

Class 2 Instruments MK:216 pre-polarized Free-field 1/2" Condenser [Typically]

Microphone Preamplifier

MV:200E Removable Preamplifier for Class 1 & Class 2 instruments

Total Measurement Range:

20dB to 140dB RMS Single Range

Noise Floor: <18dB(A) Class 1, <21dB(A) Class 2

Frequency Weightings

RMS: A, C, & Z Measured Simultaneously

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

Amplitude Weightings

Q3 for Integrator 1, Q3, Q4 & Q5 available for integrators 2 & 3

Thresholds

70dB to 110dB in 1dB Steps (available for integrators 2 & 3)

Exceedence Level

115dB or 117dB LASmax (available for integrators 2 & 3)

Display

High resolution OLED (Organic Light Emitting Diode) display with ambient light sensor & illuminated keypad

Display of

- Measured parameters
- Recalled Measurement Parameters (B & C Versions)
- Battery Level & External Power Connection
- Overload & Under Range
- Time & Frequency Weighting
- Elapsed Measurement Time
- Instrument status
- Integrator configurations

Memory

2GB 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

User selectable recording of voice notes before each measurement for download to NoiseTools software (B & C Versions)
30 seconds per recording with audio files downloaded with noise measurement information.

Integrators

Three simultaneous integrators

Integrator 1 is preset to Q3 for Leq functions

Integrators 2 & 3 can be configured with the following:

- Amplitude Weighting: 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: 0 to 12 hours

Size

283mm x 65mm x 30mm, 11" x 2.5" x 1.1"

Weight

300gms/10oz

Batteries

4 x AA Alkaline

Battery life

Typically 16 hours

External Power

5v via USB Socket from PC or Power Supply

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 as standard

Other language options may be available

Quick settings

EU, OSHA (HC & PEL), MSHA

All other settings are user configurable

Software Support

NoiseTools Download, Configuration & Analysis software supplied as standard.

Compatible with Microsoft Windows XP, Vista & 7 (32bit & 64bit)

Parameters Displayed & Stored

CR:162A & CR:161A

Displayed Functions: Sound Level View

Sound Level: L_{XY} $X=A, C, Z$; $Y= F, S, I$
Maximum Sound Level: L_{XYMax} where $x=A, C, Z$; $y= F, S, I$
Minimum Sound Level: L_{XYMin} where $x=A, C, Z$; $y= F, S, I$
Measurement Run Time
The instrument will display one set of Time Weighting values at a time, ie All Fast time weighted values

Displayed Functions: Leq View

$L_{Xeq}, L_{CPeak}, L_{ZPeak}, L_{Ceq}, L_{Aeq}, L_{XE}$ where $X= A, C, Z$
Graphical: Short L_{Aeq}, L_{CPeak}
Measurement Run Time

Displayed Functions: Dose View

Integrator 1	Integrator 2	Integrator 3
Run Time	Run Time	Run Time
L_{eq1}	L_{AVG}	L_{AVG}
$L_{EP,d} (L_{EX,d})$	TWA	TWA
Dose %	Dose %	Dose %
Est Dose %	Est Dose %	Est Dose %
Configuration	Configuration	Configuration
	Graphic of Est Dose	Graphic of Est Dose
Measurement Run Time		

Where the configuration of integrators 2 and 3 is not identical to integrator 1, the values will be displayed as LAVG and TWA. If the configurations of these two integrators is identical to integrator 1, the values will not be displayed.

Parameters Displayed & Stored

CR:162B & CR:161B

Displayed Functions: Sound Level View

Sound Level: L_{XY} X=A, C, Z; Y= F, S, I

Maximum Sound Level: L_{XYMax} where x=A, C, Z; y= F, S, I

Minimum Sound Level: L_{XYMin} where x=A, C, Z; y= F, S, I

Measurement Run Time

The instrument will display one set of Time Weighting values at a time, ie All Fast time weighted values

Displayed Functions: Leq View

L_{Xeq} , L_{CPeak} , L_{ZPeak} , L_{Ceq} , L_{Aeq} , L_{XE} where X = A, C, Z

Graphical: Short L_{Aeq} , L_{CPeak}

Measurement Run Time

Displayed Functions: Dose View

Integrator 1

Run Time

L_{eq1}

$L_{EP,d}$ ($L_{EX,d}$)

Dose %

Est Dose %

Configuration

Integrator 2

Run Time

L_{AVG}

TWA

Dose %

Est Dose %

Configuration

Graphic of Est Dose

Integrator 3

Run Time

L_{AVG}

TWA

Dose %

Est Dose %

Configuration

Graphic of Est Dose

Measurement Run Time

Where the configuration of integrators 2 and 3 is not identical to integrator 1, the values will be displayed as LAVG and TWA. If the configurations of these two integrators is identical to integrator 1, the values will not be displayed.

Stored Functions: Sound Level

Overall: L_{XYMax} where X = A, C, Z; Y = F, S, I (9 items).

Time History: L_{XYMax} where X = A, C; Y = F, S (4 items).

Measurement Run Time

Time & Date of Measurement Start

Time History data rate is user configurable in the global settings

Stored Functions: Leq (Integrator 1)

Overall: L_{CPeak} , L_{ZPeak} , L_{Aeq} , L_{Ceq} , L_{Zeq}

Time History: L_{CPeak} , L_{ZPeak} , L_{Aeq} , L_{Ceq} , L_{Zeq}

Time History data rate is user configurable in the global settings

Measurement Run Time

Time & Date of Measurement Start

Stored Functions: Dose (Integrators 2 & 3)

Overall: L_{Aeq2} , L_{Aeq3} .

Time History: L_{Aeq2} , L_{Aeq3}

Time History data rate is user configurable in the global settings

Measurement Run Time

Time & Date of Measurement Start

Integrator 1 values are stored in the Leq module

Where the configuration of integrators 2 and 3 is not identical to integrator 1, the values will be displayed as L_{AVG}

Parameters Displayed & Stored

CR:162C & CR:161C

Displayed Functions: Sound Level View

Sound Level: L_{XY} , $X=A, C, Z$; $Y= F, S, I$

Maximum Sound Level: L_{XYMax} where $x=A, C, Z$; $y= F, S, I$

Minimum Sound Level: L_{XYMin} where $x=A, C, Z$; $y= F, S, I$

Measurement Run Time

The instrument will display one set of Time Weighting values at a time, ie All Fast time weighted values

Displayed Functions: Leq View

L_{Xeq} , L_{CPeak} , L_{ZPeak} , L_{Ceq} , L_{Aeq} , L_{XE} where $X= A, C, Z$

Graphical: Short L_{Aeq} , L_{CPeak}

Measurement Run Time

Displayed Functions: Octave Band View

Graphical display of real time octave band L_{eq} with the highest value for each band (updated every 0.5 seconds)

Numeric display of real time octave band L_{eq} (updated every 0.5 seconds)

Graphical display of cumulative L_{eq} for each octave band

Numeric display of cumulative L_{eq} for each octave band

Measurement Run Time

Displayed Functions: Dose View

Integrator 1

Run Time

L_{eq1}

$L_{EP,d}$ ($L_{EX,d}$)

Dose %

Est Dose %

Configuration

Measurement Run Time

Integrator 2

Run Time

L_{AVG}

TWA

Dose %

Est Dose %

Configuration

Graphic of Est Dose

Integrator 3

Run Time

L_{AVG}

TWA

Dose %

Est Dose %

Configuration

Graphic of Est Dose

Where the configuration of integrators 2 and 3 is not identical to integrator 1, the values will be displayed as LAVG and TWA. If the configurations of these two integrators is identical to integrator 1, the values will not be displayed.

Stored Functions: **Sound Level**

Overall: L_{XYMax} where X = A, C, Z; Y = F, S, I (9 items).

Time History: L_{XYMax} where X = A, C; Y = F, S (4 items).

Measurement Run Time

Time & Date of Measurement Start

Time History data rate is user configurable in the global settings

Stored Functions: **Leq (Integrator 1)**

Overall: $L_{CPeak}, L_{ZPeak}, L_{Aeq}, L_{Ceq}, L_{Zeq}$

Time History: $L_{CPeak}, L_{ZPeak}, L_{Aeq}, L_{Ceq}, L_{Zeq}$

Time History data rate is user configurable in the global settings

Measurement Run Time

Time & Date of Measurement Start

Stored Functions: **Octave Band**

Overall L_{eq} for each octave band (10 items)

Time History: L_{eq} for each octave band. (10 items) stored at the Global data rate (minimum duration of 0.5 seconds)

Measurement Run Time

Time & Date of Measurement Start

Stored Functions: **Dose (Integrators 2 & 3)**

Overall: $L_{Aeq2}, LAeq3$.

Time History: L_{Aeq2}, L_{Aeq3}

Time History data rate is user configurable in the global settings

Measurement Run Time

Time & Date of Measurement Start

Integrator 1 values are stored in the Leq module

Where the configuration of integrators 2 and 3 is not identical to integrator 1, the values will be displayed as L_{AVG}

Integrator 1 values are stored in the Leq module

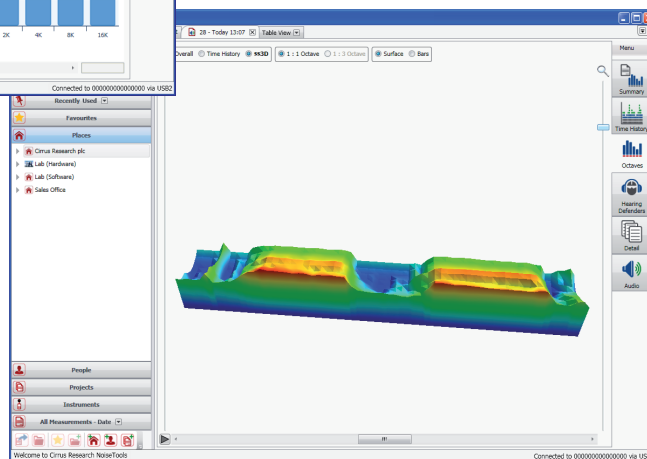
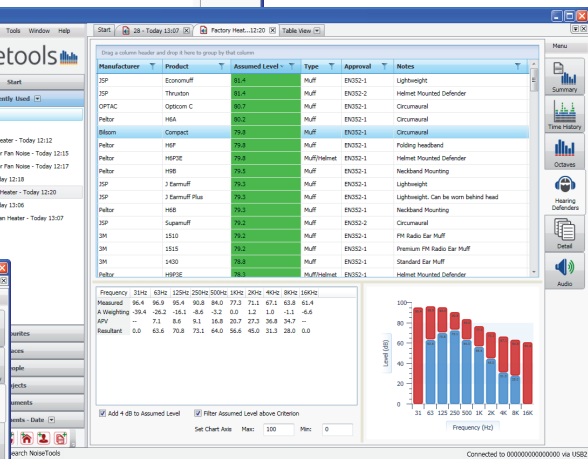
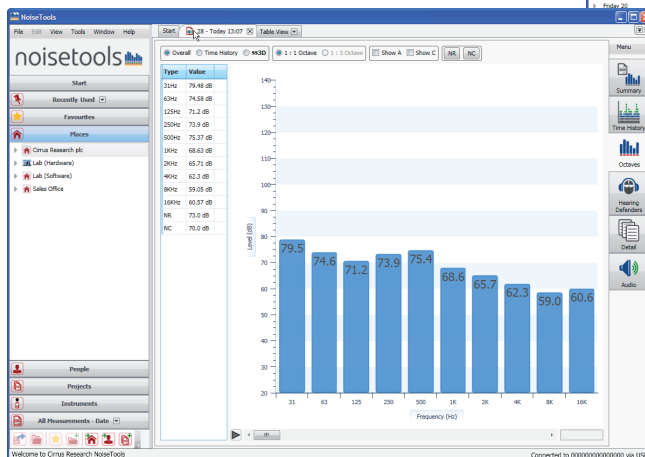
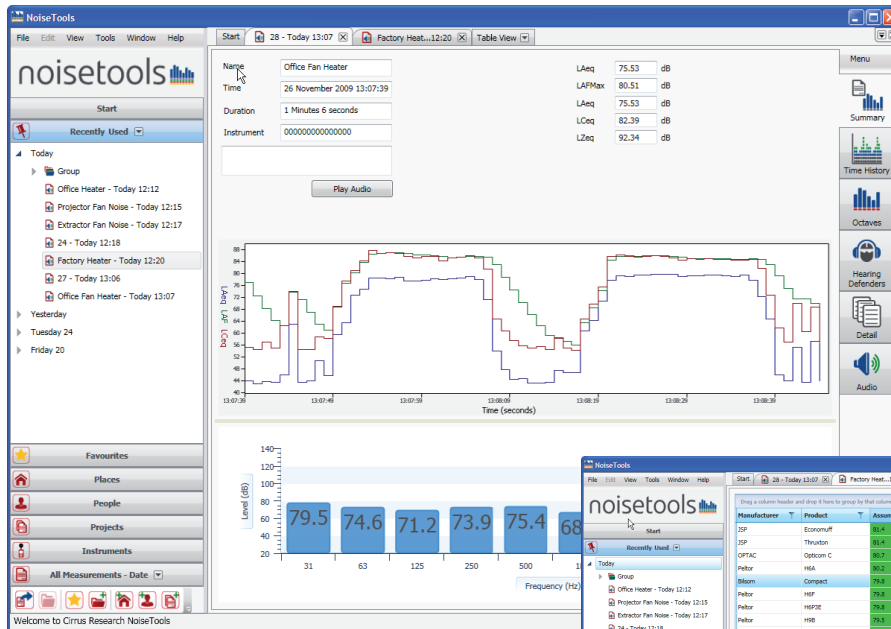
Where X is the frequency weighting A, C or Z and Y represents time weighting Fast (F), Slow (S) or Impulse (I).

All values, figures and performance statements are typical and are subject to change without notice.

noisetools

Software for the optimus sound level meters





NoiseTools Software

NoiseTools is the software package that is supplied with the optimus sound level meters which allows measurements to be downloaded, reports created and the instruments configured.

This is a completely new software program and is compatible with the latest Microsoft Windows Operating System, Windows7. It is also compatible with Windows XP and Vista in both 32bit and 64bit versions.

Features of the NoiseTools software

• Download measurements from an optimus sound level meter	• Store measurements into the NoiseTools database for reporting and analysis
• Configure an optimus sound level meter	• Set the instrument to meet local standards and regulations
• Create measurement reports	• Generate quick and simple reports based on the measurement data available
• Selection of hearing defenders using octave band measurement data	• Calculate the effective protection from a range of hearing defenders and ear plugs
• Playback of VoiceTag recordings	• Review any audio recordings made and create notes from these recordings
• Organise measurement data	• Assign downloaded measurements to: • People • Places • Projects
• Web enabled upgrades & updates	• Keep NoiseTools up to date with software updates, available free of charge from the Cirrus website
• Group Measurements	• Quickly summarise measurement data and sort noise levels to find any problems or high exposure levels
• Data tabs with different functions	• Quickly access the information needed to create effective reports and analysis
• Start Screen	• Give quick access to the most commonly used functions and features including: • Measurement Wizards • Organise databases • Configure Instruments • Download Measurements • View Measurement Report • View the most recently downloaded measurements
• Summary Screen	• View the most important and commonly used measurement parameters for a range of different measurement standards, guidelines and regulations including: • UK Control of Noise at Work Regulations • EU Physical Agents Directive • OSHA HC & PEL

Sort & view measurements	- View by - Recently used measurements - Favourites - tag measurements as favourites - Places - People - Projects - Instruments - All measurements
--	---

The data logging instruments will automatically store measurements into the internal memory and these can be downloaded into the NoiseTools software.

Example screens from the NoiseTools software

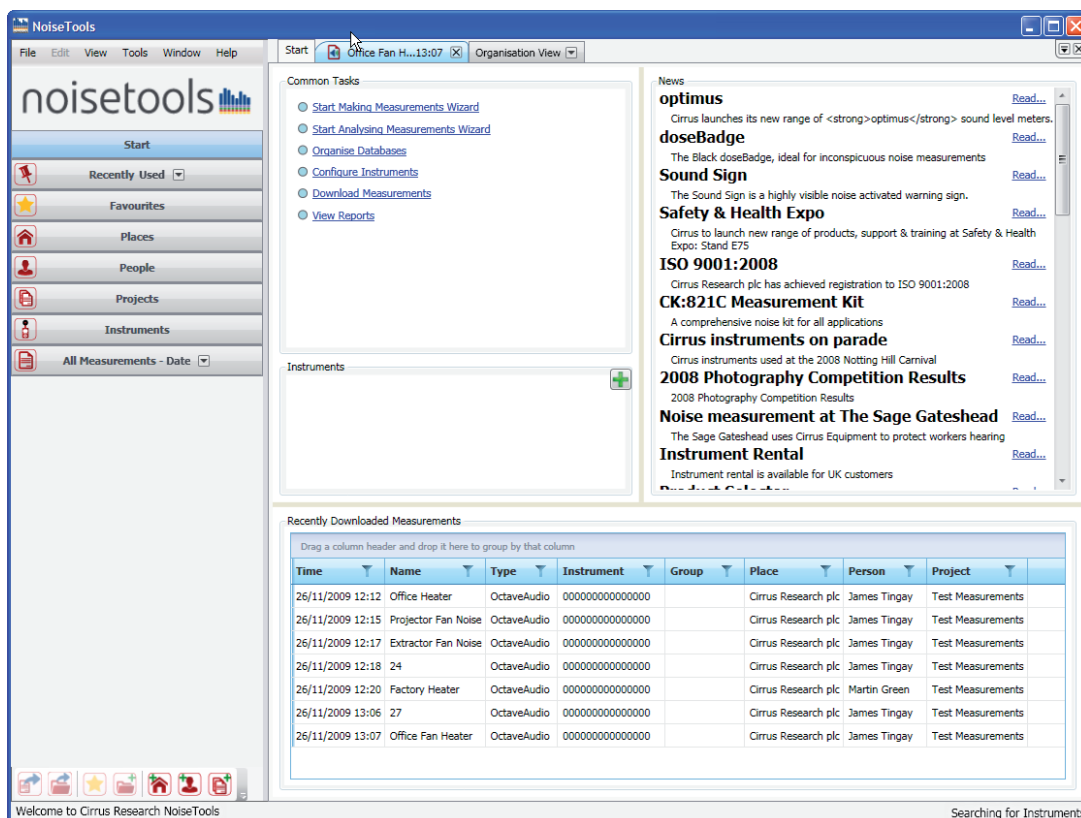
In the following pages are some example screens from the NoiseTools software.

Please note that these images do not represent the entire functionality of the software and the screens may be different depending upon regional settings and software updates.

Start Screen

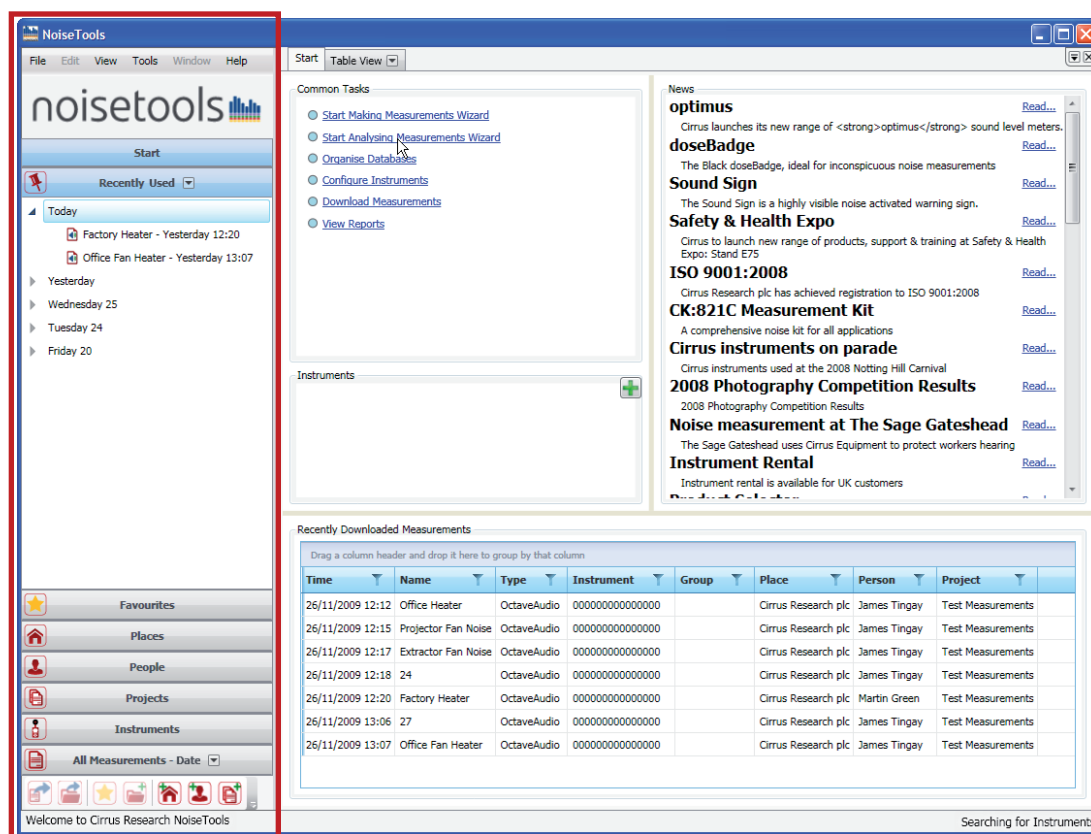
This screen gives access to the commonly used functions such as the Wizards, Download and Reporting options.

Recently downloaded measurements are shown at the bottom of the screen with the database information shown on the left side.



The database tree allows measurements to be viewed in a number of different ways.

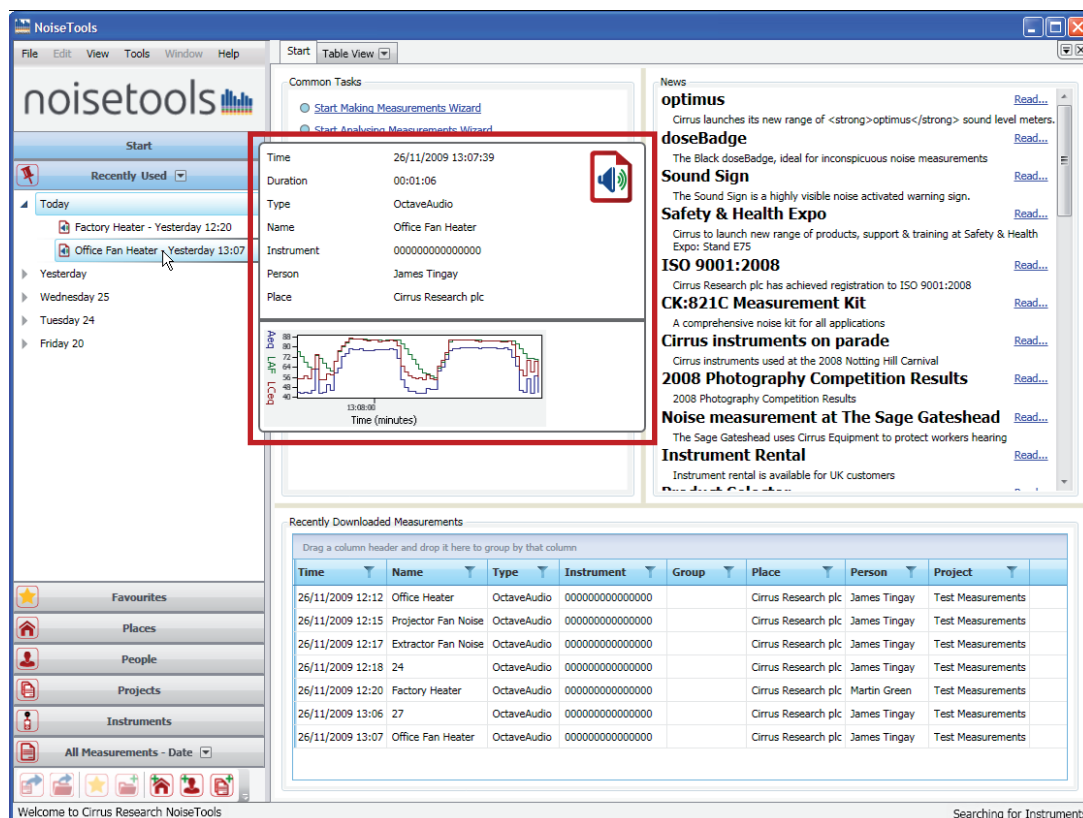
This view shows the recently used noise measurement files which can be opened by clicking on the icon or description.



Start Screen

Details of the measurements can be seen by putting the cursor over the measurement.

A window will open to show the information about the selected measurement and this will show a summary graph of the information contained in the file.



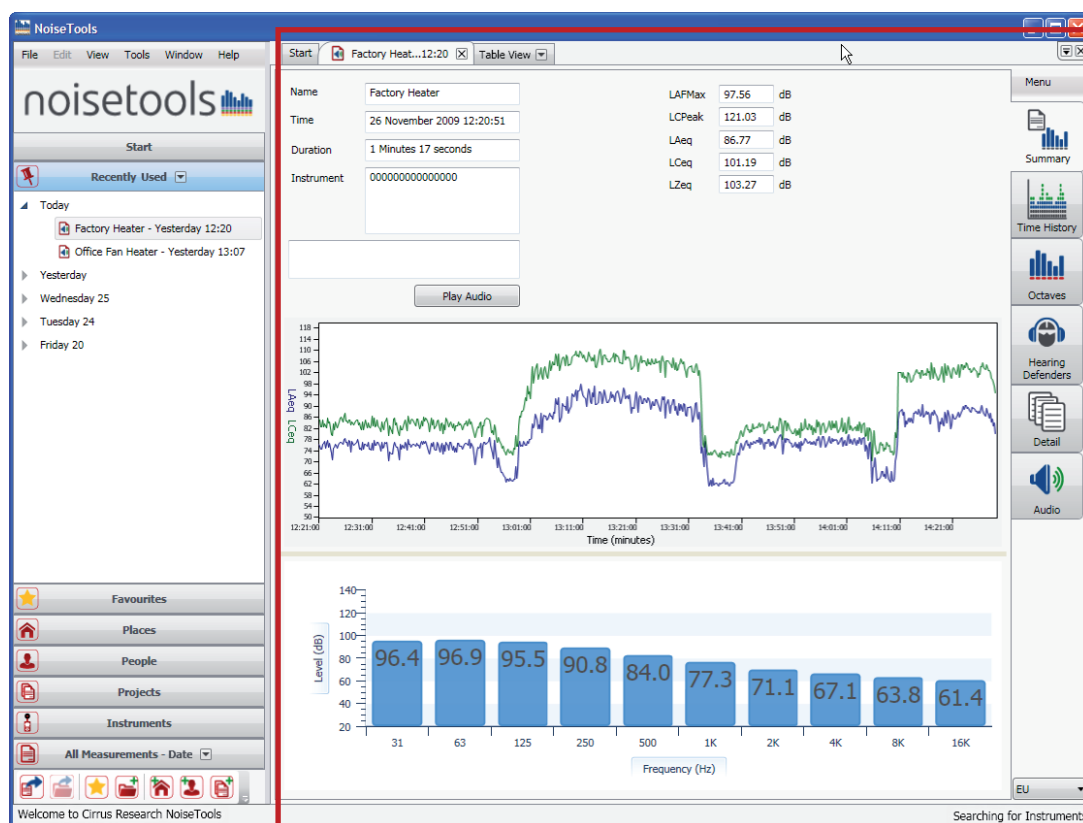
Measurement Screen

In this screen, a measurement has been opened and the summary data is shown.

This example measurement includes octave band data (shown at the bottom of the screen) and an audio VoiceTag.

On the right hand side are the measurement tabs which give quick access to the screens with the different sets of measurement information.

These tabs are displayed according to the type of measurement that has been downloaded.



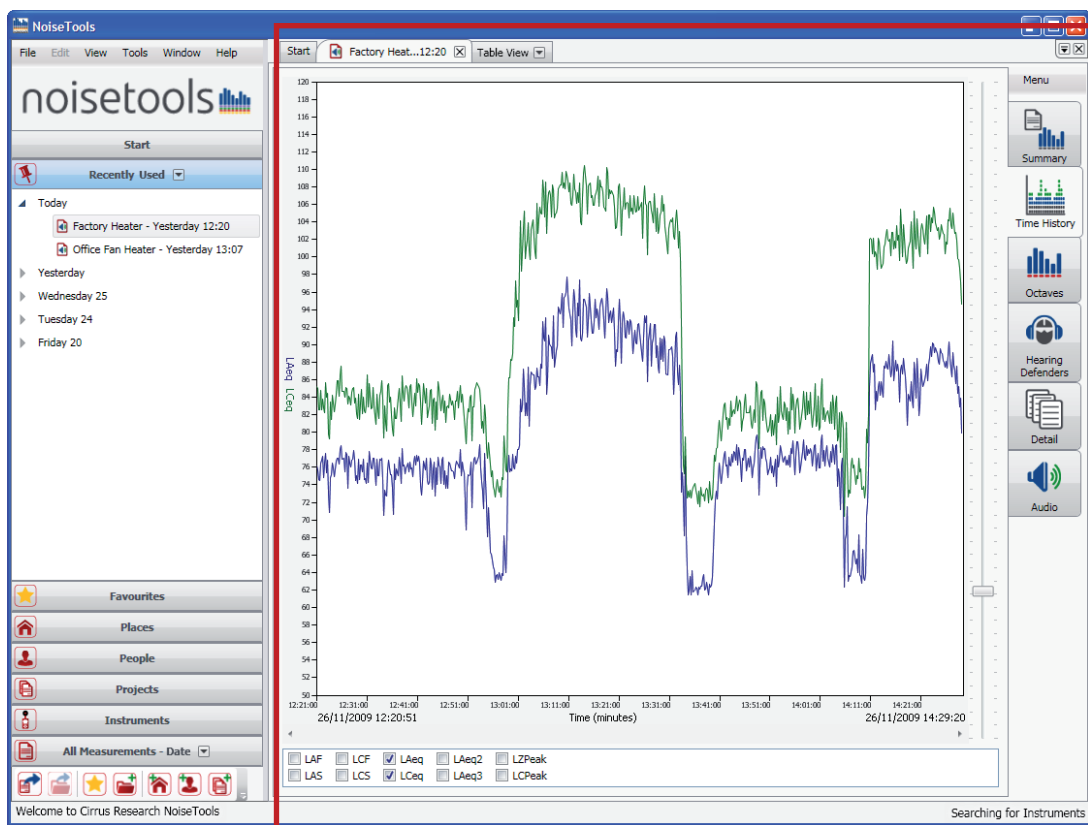
Time History Screen

The Time History screen shows the noise profile data available for the selected measurement.

The parameters shown on the graph can be changed using the selection buttons at the bottom of the chart area.

Zoom and pan functions are available along with axis settings and the graph can be exported as an image or the data exported as a .CSV file

The values available will be determined by the type of measurement that has been downloaded.



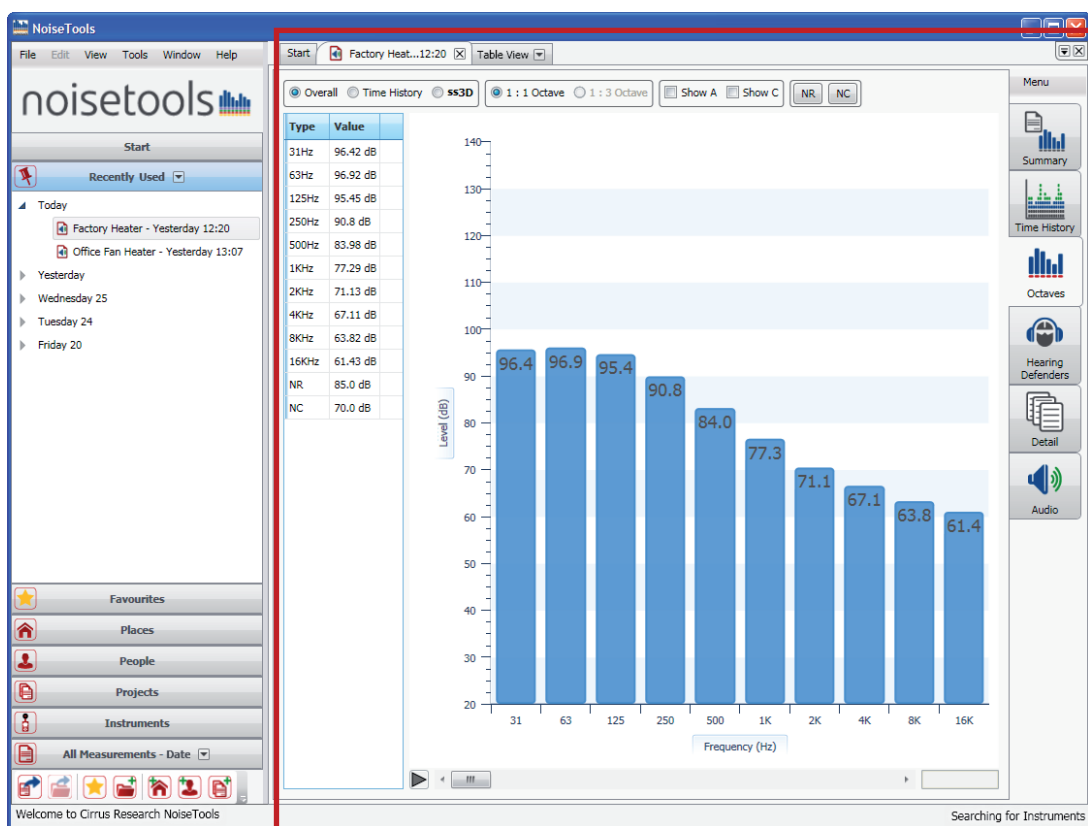
Octave Band Screen

Octave Band measurements are displayed

The overall Leq for each band is shown by default and the corresponding A and C weighted levels can be overlaid onto this chart.

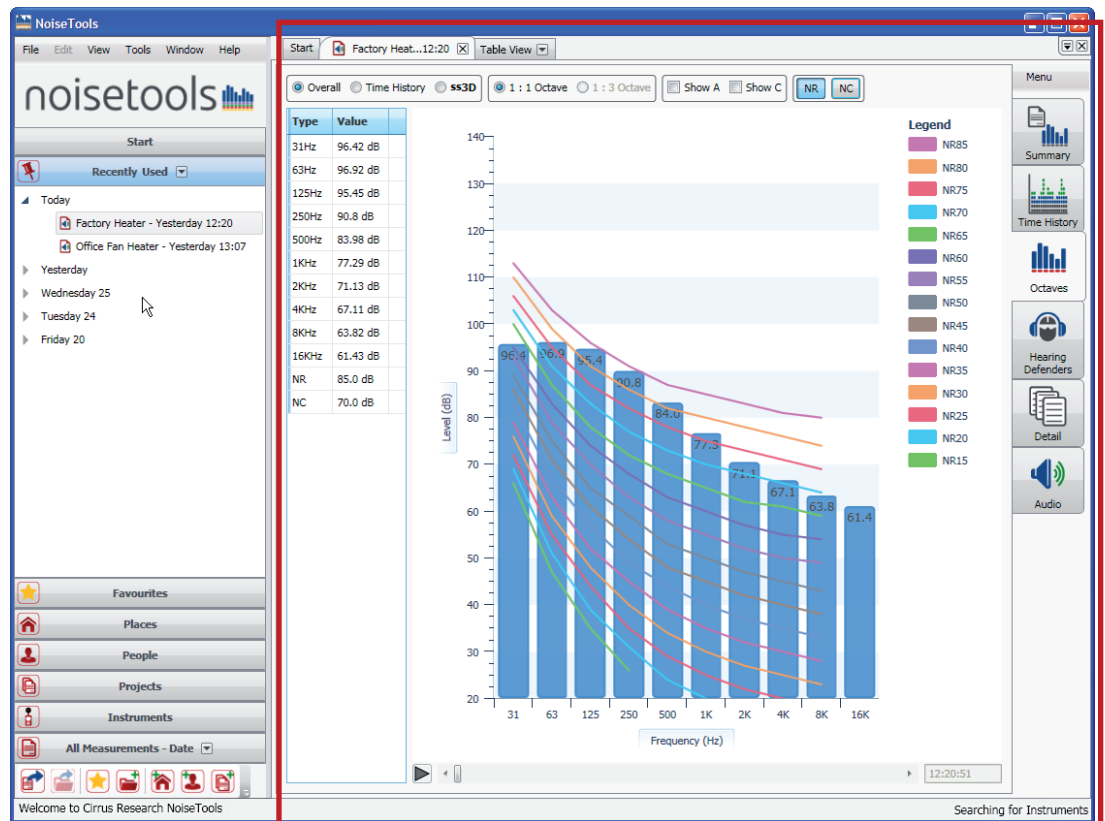
The CR:161C and CR:162C instruments will also store a time history of the octave band information and the software can replay this in real time.

NR and NC information can be overlaid onto the octave band information which can be used in noise control applications.



Octave Band Screen

NR and NC information can be overlaid onto the octave band information which can be used in noise control applications.

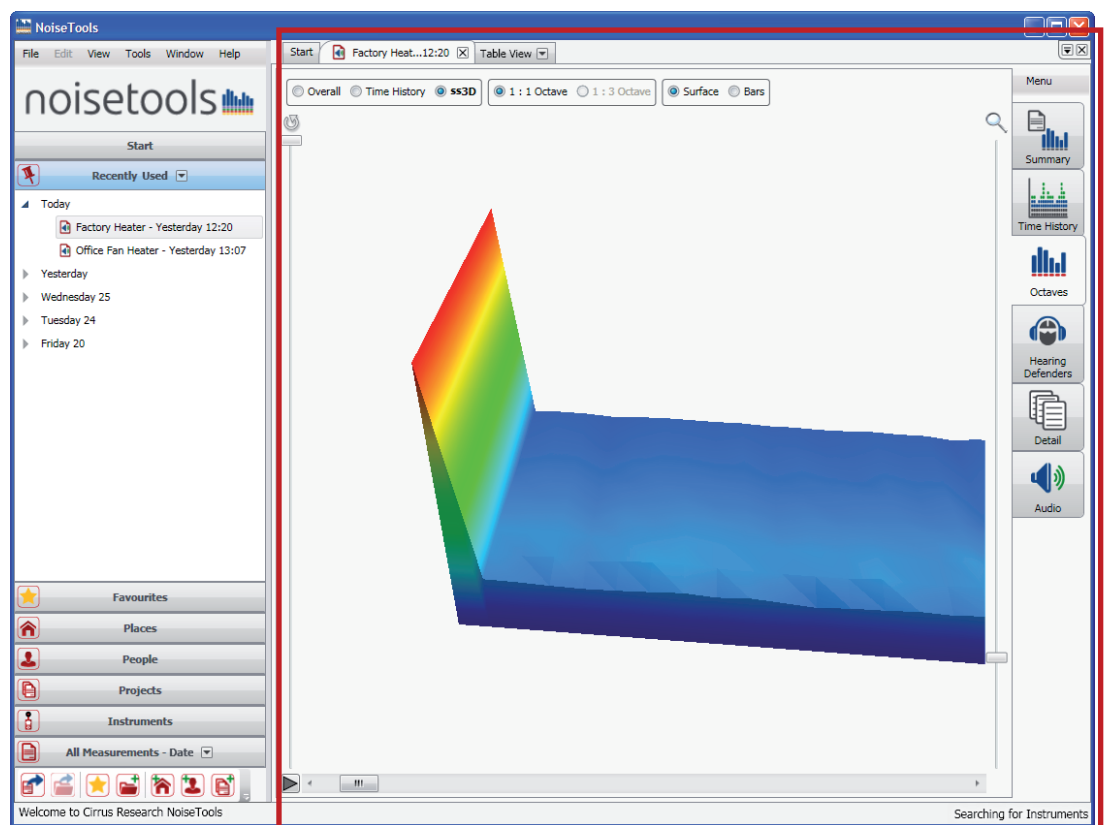


Octave Band Screen

A 3D plot of the octave band time history data is also available either as a static image or as a moving display.

This graph shows high noise levels as brighter colours (blue through to red) with the time shown along the x axis and the frequency on the y axis.

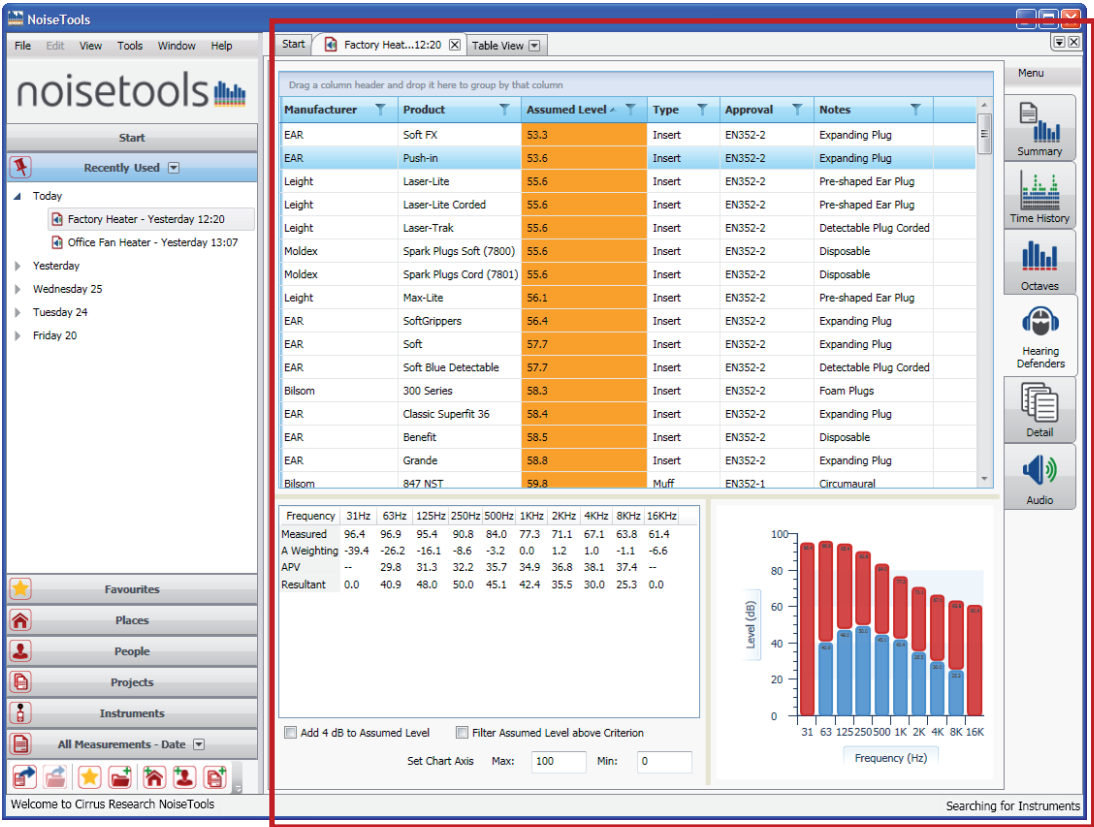
This type of display can be useful in locating where in a measurement a high level tone occurred.



Hearing Protection Selector

Where octave band data is available, the hearing defender selection tool can be used.

This uses the measurement data from an instrument with a database of hearing protection products to calculate the effective protection for selected products.



Measurement Detail Screen

This screen allows users to view all of the measurement data that has been downloaded including the Time History or Noise Profile information for both broadband and octave band measurements.

This data can be exported for further analysis in programs such as Microsoft Excel.

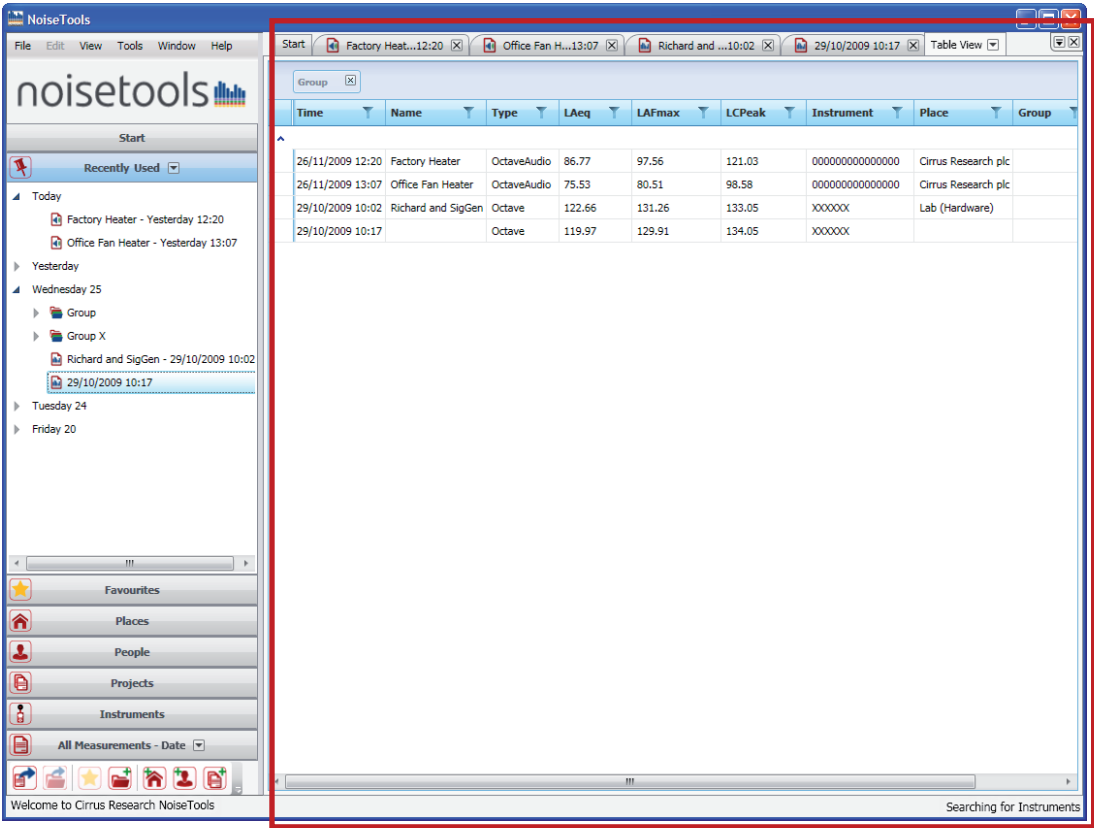
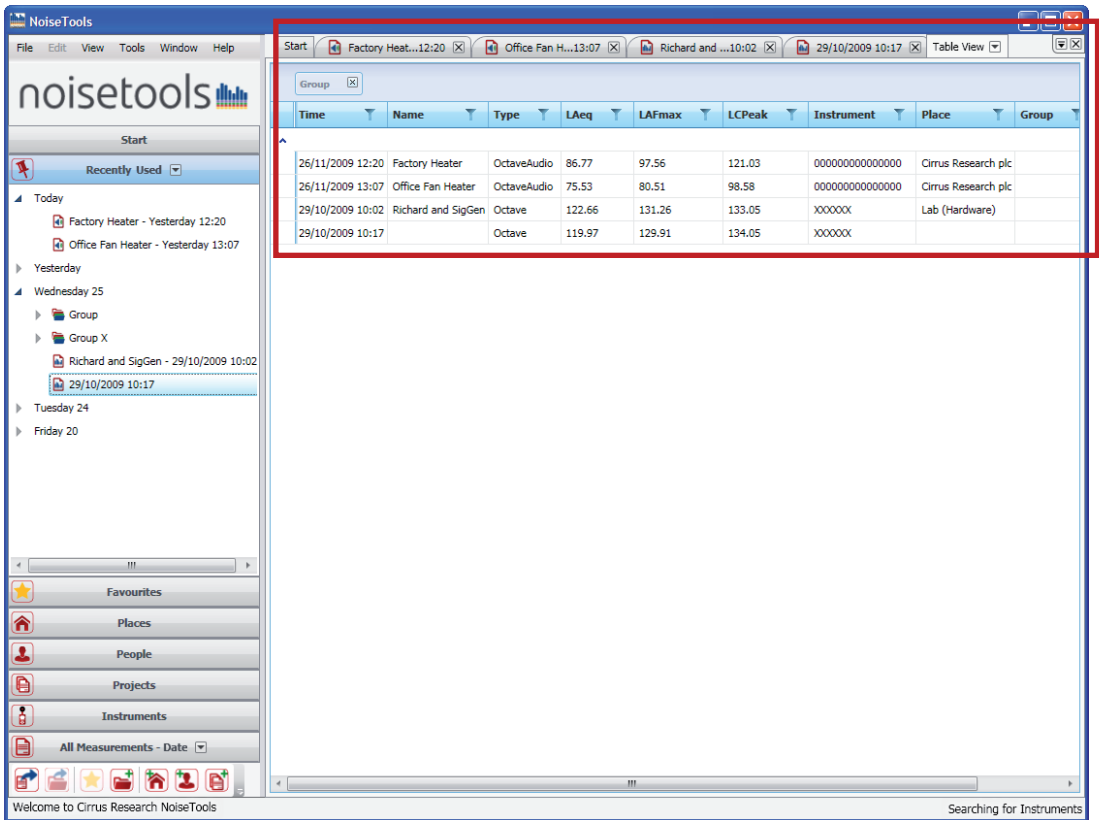


Table View Screen

This screen allows multiple measurements to be viewed in a tabular view.

Measurements can be grouped and sorted as required with any of the fields used to sort the information.

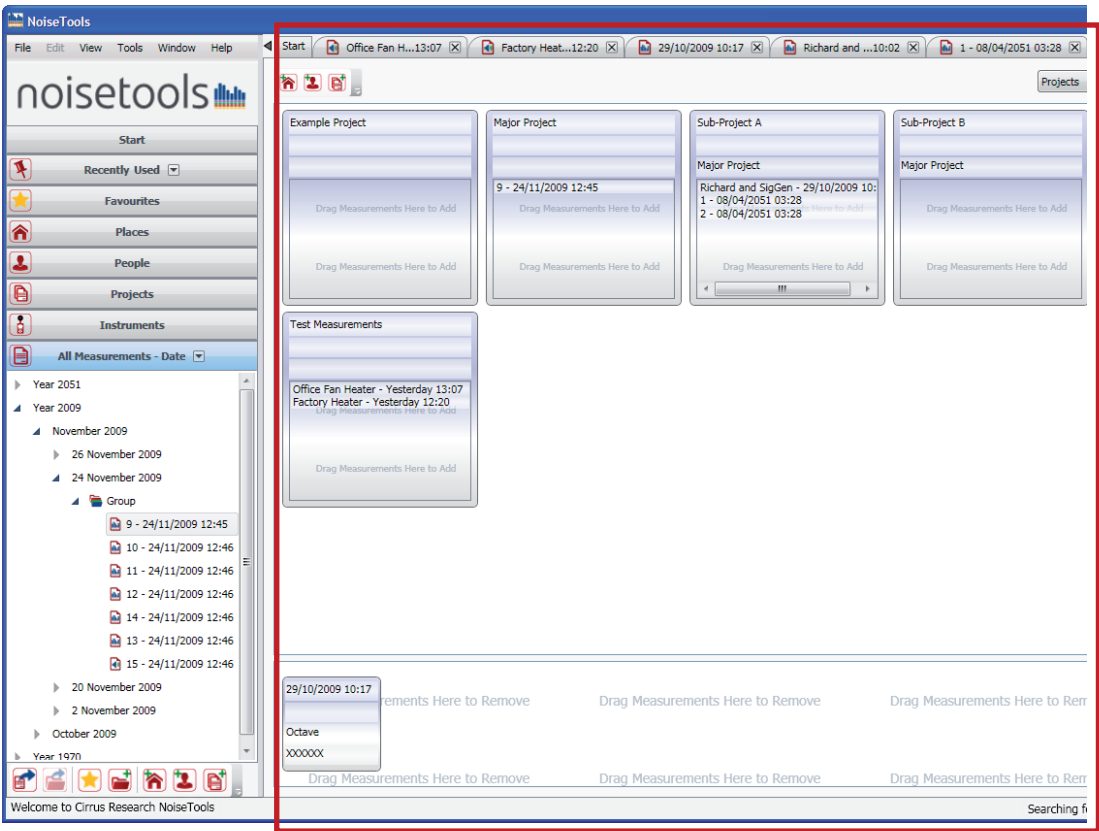


Organisation Screen

This screen allows the measurements to be organised and attached to people, places or projects.

Measurements can be dragged between the different sections to organise the data as required.

People, places and projects can be added and edited as required.





Cirrus Research plc Corporate Information

Company Profile

Mission Statement

"Cirrus is dedicated to the development and supply of high quality, simple to use, accurate sound level instrumentation to help businesses in their efforts to avoid noise induced deafness in their staff and to improve the quality of life of members of the public affected by excessive noise."

History

Cirrus Research plc was founded in 1970 and is an ISO 9001:2008 registered company which focuses on noise measurement instrumentation. The company provides comprehensive solutions for monitoring occupational and environmental noise, helping to identify and control problem areas.

Current areas include:

- » Sound Level Meters
- » Personal Noise Dosemeters
- » Environmental & Airport Noise Monitors
- » Acoustic Calibrators
- » Microphone Capsules & Preamplifiers

Cirrus Research plc's milestones include the world's first Type 1 Data Logging Sound Level Meter and the first Wireless Noise Dosemeter, the doseBadge.

Cirrus was also the first manufacturer to gain Pattern Approval to IEC 61672-2:2002 for the CR:261S Vehicle Noise Sound Level Meter and to IEC 61942:2003 for the CR:515 and CR:514 Acoustic Calibrators.

Cirrus Research plc has been awarded 8 separate research grants by the United Kingdom Department of Trade and Industry, under the MAPCON scheme (Micro-processor Applications) and SMART (Small Firms Merit Award for Research and Technology).

These were firstly to design the original Short Leq Meter, the CRL 236, and then the CRL 243/1 Noise Monitoring Terminal.

Customer Reference List

Over many years, Cirrus Research plc has supplied a customers, including some of the world's leading companies and organisations, with a wide range of sound level meters, noise dosimeters and environmental noise monitoring equipment.

Some of these are listed below.

3M plc	Philips Petroleum Co UK Ltd.
Aesica Pharmaceuticals Ltd	Pratt & Whitney
Amoco UK Exploration Co	Proctor & Gamble
Analog Devices	Rio Tinto Mining Ltd
BAE Systems	Rolls Royce Plc
BASF	Royal Shakespeare Company
BP Oil	S C A Packaging Ltd
British Nuclear Group	Saint Gobain Glass
British Sky Broadcasting Ltd	Saint Gobain Pipelines PLC
Coca-Cola Enterprises	Saint-Gobain Ceramic materials
Dubai Aluminium Co Ltd	Saint-Gobain Quartz SAS
Esso Petroleum Co Ltd	Shell UK Limited
Formula One Management Ltd	Singapore Airlines Ltd
GE International Inc	Sony Manufacturing Co UK
GlaxoSmithKline	St Gobain Cristaux & Detecteur
Goodyear G B Ltd	Total Lindsey Oil Refinery
Hewlett Packard Ltd	Total Oil Marine p.l.c.
Hyundai Motor Company	Toyota Motor Manufacturing UK
ICI Polymers & Chemicals Ltd	Tyco Electronics UK Ltd
Kvaerner Oil & Gas Ltd.,	UCAR Carbon Company
Lear Corporation (UK) Ltd	Union Pacific Railroad
LG Electronics Wales Ltd	US Coast Guard
Logitech Inc.	World Health Organisation
Michelin Tyre plc	Zeneca Pharmaceuticals
Nestle Company Ltd.,	Weyerhaeuser Co
P & O Princess Cruises Plc	
Pfizer Ireland Pharmaceuticals	

Customer Application List

Cirrus noise measurement equipment is used across the world in a wide range of applications and industries. Some examples of these are listed below.

Aerospace Manufacturing	Instrumentation Manufacturing
Agriculture & Food Science	Local, Regional & National Governments
Aircraft Engine Manufacturing	Logistics
Aircraft Maintenance	Medical Research
Airlines	Mining
Airports	Motorsport Noise
Aluminium Refining	Music & Entertainment Noise
Bottling Plants	Noise Mapping
Car Manufacturing	Oil & Gas Shipment
Chemical Production	Oil Exploration
Construction	Oil Refining
Consumer Electronics Manufacturing	Packaging Manufacturing
Cruiseships	Pharmaceuticals
Electronic Component Manufacturing	Power Generation
Engineering Services	Research & Development
Facilities Management	Shipbuilding
Food & Drink Manufacturing	Steel Production
Fuel Distribution	Toy Manufacturing
Glass Manufacturing	Transportation
Health & Safety Consultancy	TV Broadcasting

Customers Comments

Listed below are a few comments from our customers:

“ We want to ensure that The Spa is not only the region’s premier entertainment venue, but also a safe environment to work in.

Cirrus doseBadge personal noise dosimeters will be issued to our ground and barstaff during performances over the next few weeks to effectively determine the noise protection we will be providing them with. With noise protection projects like these, it is important that the data we get is accurate and easy to record.

Cirrus equipment allows us to do that, and the company also offers good after sales service and support, and calibrate equipment regularly, so that we can be sure that we provide the correct level of protection to our staff.

Richard Irvine
Health & Safety Officer
East Riding of Yorkshire Council

“ We started using the Cirrus noise badges in 2002 at our North American facilities and have had such great success that we purchased additional kits to use at our sites globally!

Employees appreciate that the noise badges are light weight and cord free!

Christa Morphew
Corporate Industrial Hygienist
Cabot Corporation

“ We have used Cirrus equipment since 1991 to monitor noise from our developments to ensure that we protect both local communities and our workforce from the effects of noise, and so far have used Cirrus equipment on over 50 similar developments.

Mark Dowdall
Environment and Community Director
Banks Developments

“ What struck me when the new generation of doseBadges came on the market was not just the technical advances of the new units. It was in fact the open-mindedness of the Cirrus team and their unwavering confidence in this new product. They listened to what we had to say when we expressed our concerns. In turn, this helped us. To end up with such a collaboration was simply a win-win situation. And the proof is that the doseBadge is now used in the majority of areas of the world where our sites are located.

Saint-Gobain

Cirrus Research plc Quality Policy

The overall objective of Cirrus Research plc is to achieve long-term profitability by providing sound meters and associated products that conform to the requirements of our customers.

The quality policy and objectives are as follows:

Cirrus Research plc is a UK based company that designs, manufactures, supplies and services a wide range of electronic products, although primarily sound monitoring equipment. This range of products includes intrinsically safe devices for use in hazardous environments.

The Company objectives are centred on producing products that

a) meet the needs and expectations of our customers in all respects of quality, cost, performance, safety and reliability, and

b) ensure that intrinsically safe product comply with the type described in the EC type-examination certificate. All of this will be carried out in accordance with relevant statutory and regulatory (legal) requirements.

To achieve these objectives a Quality Management System has been implemented that satisfies the requirements of ISO 9001:2008 "Quality management systems – Requirements" and BS EN 13980: 2002 "Potentially explosive atmospheres – Application of quality systems".

Cirrus Research plc is committed to a policy of continuous improvement in quality, service, cost and technology that will increase efficiency and customer satisfaction.

The Company demonstrates the commitment by reviewing measurable Quality objectives, allocating suitably qualified resources, developing employees through on-going education, training and the identification of growth opportunities for individuals and by promoting improvement programmes consistent with the Quality Policy.

ISO 9001:2008 Certificate

Contact Details for Cirrus Research plc

Listed below are the contact details for the Cirrus offices

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Tel: 0845 230 2434 (UK)
+44 1723 891655 (International)

Fax: 01723 891742 (UK)
+44 1723 891742 (International)

Email: sales@cirrusresearch.co.uk

Web: www.cirrusresearch.co.uk
www.cirrusresearch.com
www.cirrus-optimus.com
www.soundsign.co.uk
www.ruidoambientalyocupacional.com

Cirrus Research plc
Karl-Marx-Str. 11a
01109 Dresden
Germany

Telefon: +49 351 316 0950
(0351) 316 0950

Fax: (0351) 31609-49

Email: vertrieb@cirrusresearch.de

Web: www.cirrusresearch.de

Cirrus France Ltd
40 Bis Avenue Gabriel Fauré
09500 Mirepoix
France

Tél : +33 5 61 67 40 01
05 61 67 40 01

Fax : 05 61 67 40 56

Email: info@cirrusresearch.fr

Web: www.cirrusresearch.fr

Cirrus Environmental Ltd
Unit 2 Bridlington Road Industrial Estate
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Tel: +44 1723 891722 (Int)
01723 891722 (UK)

Fax: 01723 891742

Email: sales@cirrus-environmental.com

Web: www.cirrus-environmental.com



ISO 9001:2008
FM 531001

Pricelist

Valid from 1st November 2009

optimus yellow

	GBP (£)	EUR (€)	USD (\$)
CR:152A Class 2 Sound Level Meter	£699.00	€944.00	\$1,188.00
CR:151A Class 1 Sound Level Meter	£1,299.00	€1754.00	\$2,208.00
CR:152B Class 2 Sound Level Meter with Data Logging	£899.00	€1,214.00	\$1,528.00
CR:151B Class 1 Sound Level Meter with Data Logging	£1,499.00	€2,024.00	\$2,548.00

optimus red

CR:162A Class 2 Integrating Sound Level Meter	£895.00	€1,208.00	\$1,522.00
CR:161A Class 1 Integrating Sound Level Meter	£1459.00	€1,970.00	\$2,480.00
CR:162B Class 2 Integrating Sound Level Meter with Data Logging	£1095.00	€1,478.00	\$1,862.00
CR:161B Class 1 Integrating Sound Level Meter with Data Logging	£1695.00	€2,288.00	\$2,881.00
CR:162C Class 2 Integrating Sound Level Meter with Data Logging & Real-time Octave Bands	£1545.00	€2,086.00	\$2,627.00
CR:161C Class 1 Integrating Sound Level Meter with Data Logging & Real-time Octave Bands	£2145.00	€2,896.00	\$3,647.00

Upgrade Options

UP:160/1 Data Logging upgrade for CR:162A & CR:161A	£200.00	€270.00	\$280.00
UP:160/2 Real-time Octave Band upgrade for CR:162B & CR:161B	£450.00	€608.00	\$765.00
UP:160/3 Data Logging & Real-time Octave Band upgrade for CR:162A & CR:161A	£650.00	€878.00	\$1,105.00

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 Data Logging Version to download measurements)

The prices shown in this pricelist are subject to change without notice and are valid for a period of 60 days from the 1st November 2009. All prices are ex-works and are subject at carriage VAT where applicable.



optimus Pricelist – Valid from 1st November 2009



Measurement Kits

optimus yellow

	GBP (£)	EUR (€)	USD (\$)
CK:152A Class 2 Sound Level Meter Kit	£1,023.00	€1,381.00	\$1,739.00
CK:151A Class 1 Sound Level Meter Kit	£1,723.00	€2,326.00	\$2,929.00
CK:152B Class 2 Sound Level Meter Kit with Data Logging	£1,223.00	€1,651.00	\$2,079.00
CK:151B Class 1 Sound Level Meter Kit with Data Logging	£1,923.00	€2,596.00	\$3,269.00

optimus red

	GBP (£)	EUR (€)	USD (\$)
CK:162A Class 2 Integrating Sound Level Meter Kit	£1,219.00	€1,646.00	\$2,072.00
CK:161A Class 1 Integrating Sound Level Meter Kit	£1,883.00	€2,542.00	\$3,201.00
CK:162B Class 2 Integrating Sound Level Meter Kit with Data Logging	£1,419.00	€1,916.00	\$2,412.00
CK:161B Class 1 Integrating Sound Level Meter Kit with Data Logging	£2,119.00	€2,861.00	\$3,602.00
CK:162C Class 2 Integrating Sound Level Meter Kit with Data Logging & Real-time Octave Bands	£1,869.00	€2,523.00	\$3,177.00
CK:161C Class 1 Integrating Sound Level Meter Kit with Data Logging & Real-time Octave Bands	£2,569.00	€3,468.00	\$4,367.00

The **optimus** measurement kits contain the following accessories:

CR:514 Class 2 Acoustic Calibrator (Class 2 Versions)
 CR:515 Class 1 Acoustic Calibrator (Class 1 Versions)
 UA:237 90mm Windshield
 CK:250 Carrying Case
 User Manual
 Certificate of Calibration
 USB Data/Power Cable
 Windshield
 NoiseTools Software CD (Requires Data Logging Version to download measurements)

The prices shown in this pricelist are subject to change without notice and are valid for a period of 60 days from the 1st November 2009. All prices are ex-works and are subject at carriage VAT where applicable.

optimus_pricelist/12/09/r4