CR:260 Series

calibrate > start > measure > stop > review

Cirrus Research plc

dedicated to noise measurement

Sound Level Meters

Introduction

The CR:260 Series is a range of very simple to use Integrating Sound Level Meters which comply with the very latest standards for Sound Level Meters. The instruments are designed to be used without the need for complicated setup, and provide the essential functions needed from a modern Sound Level Meter.

All versions of the CR:260 Series provide the following measurements:

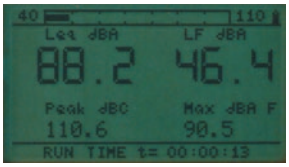
> Sound Level dB(A)
> Equivalent Continuous Sound Level (L_{Aeq})
> Peak Sound Pressure (L_{CPeak})
> Maximum Sound Level (L_{AFmax})
> Minimum Sound Level (L_{AFmin})
> Class 1 or Class 2 Performance

In addition, the CR:264 and CR:263 versions add 1:1 Octave Band Filters. If required, all of the instruments can be upgraded to the ***+Version***, which unlocks extra features in the Sound Level Meters, and allows up to 100 measurements to be stored in the memory and downloaded to a PC.

Using the instrument

The very clear, simple interface and large display allows the instruments to be used quickly and with very little or no training.

Press the Cal key to calibrate the instrument, and select an appropriate measurement range using the arrow keys. The Start & Stop keys control the measurement, and the Graph key allows the user to switch between the numerical and graphical display.



During the measurement, the instrument displays all of the current parameters, with a quasi-analog bar graph representing the current Sound Level.

At the end of the measurement, all of the parameters are displayed on the screen at the same time. The last measurement is stored and is displayed when the instrument is next switched on.

The ***+Versions*** of the instruments will store up to 100 measurements in memory, which can be downloaded to a PC for analysis and reporting.

The Mode key allows the user to view the instrument settings, and for the CR:264 and CR:263, switch between Broadband and 1:1 Octave Band Measurement Mode.

Applications

> Assessment of noise in the workplace
> Measurement of environmental noise levels
> General purpose noise measurements and assessments
> Selection of hearing protection

The CR:260 Series are ideal instruments for the measurement and assessment of noise exposure in the workplace. The measurement of L_{Aeq} and L_{CPeak} allow for compliance with most regulations and guidelines. The addition of the L_{AFmax} and L_{AFmin} levels provide more detail which may be useful for analysing the measurement. The ***+Version*** also provides 5 L_n values for environmental assessments.

The 1:1 Octave Band Filters of the CR:264 & CR:263 Series can be used to determine the frequency content of the noise. In the ***+Version*** this data can be downloaded to the Deaf Defier 3 software to aid in the selection of PPE.

What are the different versions?

The CR:260 Series consists of four different instruments which provide different functions. The instruments that are available are:

Instrument	Type
CR:262	Type 2 Broadband Measurements
CR:261	Type 1 Broadband Measurements
CR:264	Type 2 Broadband & 1:1 Octave Band Measurements
CR:263	Type 1 Broadband & 1:1 Octave Band Measurements

In addition to these four standard instruments, all of the CR:260 Series can be upgraded to the ***+Version***.

Features of the *+Version*

All of the CR:260 Sound Level Meters can be upgraded to the ***+Version*** which unlocks the additional functions of the instruments. The main features of the ***+Version*** are:

> Up to 100 Measurements stored in memory with 1 second Time History
> Download Measurements to a PC and the Deaf Defier 3 Software
> User selectable Frequency Weighting (A, C or Z) & Time Weighting (F,S or I)
> Measurement of L_n levels & Sound Exposure Levels (L_{AE})

Upgrading to the *+Version*

To upgrade to the +Version, a unique upgrade key must be purchased which will unlock the extra functions of the instrument.

This unique number is entered into the Deaf Defier 3 software which then unlocks the instrument.

The upgrade can be carried out by the user without the need for the instrument to be returned.

Contact Cirrus Research plc or your local representative for further details of upgrading the CR:260 Series to the ***+Version***.

Software Support for the *+Version*

If the CR:260 Sound Level Meter has been upgraded to the ***+Version***, measurements that have been made and stored in the memory can be downloaded to the Deaf Defier 3 software.

This program allows the measurements to be presented as reports and all of the parameters viewed for analysis. In addition, the configuration of the instrument can changed as required.

Please visit the Cirrus website for more information.

Measurement Kits

All versions of the CR:260 Series can be supplied as a complete measurement kit. The kit includes the following parts:

> CR:260 Series Sound Level Meter
> CR:511E Acoustic Calibrator
> UA:237 Windshield
> CK:250 Carrying Case

If the Sound Level Meter has been upgraded to the ***+Version***, the measurement kit will also include an RS232 Cable to connect to a PC and the Deaf Defier 3 Software, along with the upgrade code.

Ordering Information

Instrument Only:

CR:262 Integrating Averaging Class 2 Sound Level Meter
CR:261 Integrating Averaging Class 1 Sound Level Meter
CR:264 Integrating Averaging Class 2 Sound Level Meter with 1:1 Octave Band Filters
CR:263 Integrating Averaging Class 1 Sound Level Meter with 1:1 Octave Band Filters

Measurement Kits

CK:262 Integrating Averaging Class 2 Sound Level Meter
CK:261 Integrating Averaging Class 1 Sound Level Meter
CK:264 Integrating Averaging Class 2 Sound Level Meter with 1:1 Octave Band Filters
CK:263 Integrating Averaging Class 1 Sound Level Meter with 1:1 Octave Band Filters

MO:260/1 Upgrade to ***+Version*** Performance

Specifications

Applicable Standards

Sound Level Meter: IEC 61672-1:2002 Class 1 or 2 Group X
IEC 60651:1979 Type 1 I or Type 2 I
IEC 60804:1985 Type 1 or Type 2
ANSI S1.4 with NK:70 Random Incidence Adaptor Fitted

1:1 Band Filters: IEC 61260 Class 1 (where fitted)

Microphone: Type 1 Class+ Pre-polarized Free-field 1/2" Condenser
Type 2 Class+ Pre-polarized Free-field 1/2" Condenser
Random Incidence to ANSI S1.4 with NK:70 Adaptor

Microphone Preamplifier: Type 1 MV:200C Removable Preamplifier
Type 2 MV:200 Integral Preamplifier

Time Weightings: 'F' (Fast) to IEC 61672-1:2003 Class 1 or 2
+ Version also provides
'S' (Slow) to IEC 61672-1:2003 Class 1 or 2
'I' (Impulse) to IEC 61672-1:2003 Class 1 or 2

Frequency Weightings: Channel 1 'A',
Channel 2 'C' for Peak
+ Version also provides
'A', 'C' or 'Z' for Channel 1
Channel 2 'C' for Peak

Frequency Bands (Nominal Frequencies)

1:1 Octave Band Filters: 31Hz to 16kHz

Measurement Range (Typical)

Broadband: 24dB(A) to 140dB(A) Class 1
26dB(A) to 140dB(A) Class 2
143dB(C) Peak (70 to 140dB Range)

1:1 Octave Band Filters: 15dB to 140dB (1kHz 1:1 Octave Band)

Noise Floor (Typical)

Broadband: 21dB(A) Type 1, 23dB(A) Type 2

1:1 Octave Band Filters: 15dB(Z) @ 1kHz 1:1 Octave Band

Available Measurements

Broadband Mode:
L_{AF} Sound Level (Not Stored), dB(A), Fast Time Weighting
L_{Aeq} Equivalent Continuous Sound Level, dB(A)
L_{AFmax} Maximum Sound Level, dB(A), Fast Time Weighting
L_{AFmin} Minimum Sound Level, dB(A), Fast Time Weighting
L_{Cpeak} Peak Sound Pressure, dB(C)
Measurement Duration

1:1 Octave Band Mode:
Selected Frequency
Filtered L_{ZF} (Not stored), dB(Z), Fast Time Weighting
Filtered L_{Zeq} Equivalent Sound Level
L_{Aeq}, L_{Ceq} & L_{Zeq} Equivalent Sound Level
Measurement Duration

+ Version also allows the following measurements to be made

Broadband Mode:
L_{XY} Sound Level (Not Stored)
L_{Xeq} Equivalent Continuous Sound Level
L_{XYmax} Maximum Sound Level
LXYmin Minimum Sound Level
L_{Cpeak} Peak Sound Level
L_{XE}, L_{XIeq} or L_{XFTeq}
L_{Xn} (0.1 to 99.9) Five Simultaneous values
Date & Time of measurement
L_{Xeq} Short Leq Time History

Where: X= dB(A), dB(C) or dB(Z) Frequency Weighting.
Y = Fast(F), Slow(S) or Impulse(I) Time Weighting

1:1 Octave Band Mode:
Selected Frequency
Filtered L_{ZF} (Not stored), dB(Z), Fast Time Weighting
Filtered L_{Zeq} Equivalent Sound Level
L_{Aeq}, L_{Ceq} & L_{Zeq} Equivalent Sound Level
Measurement Duration
Date & Time of Measurement

Measurement Storage

The Last measurement is stored.
+ Version also provides
100 broadband or 1:1 Octave Band measurements
Calibration records are automatically stored
Short Leq Time History (L_{Aeq},L_{Ceq}, or L_{Zeq}).
Up to 24 hours at 1 second

Automatic Measurements (+ Version Only)

The unit can be set to record and store data over fixed times of:

1 minute	5 minutes
10 minutes	15 minutes
30 minutes	1 hour
8 hours	12 hours

or a user defined period

Display: Graphical LCD with Quasi-Analogue Display
Selected measurement parameter with level
Warnings for Overload, Under Range
Battery Level
Time & Frequency Weighting
Elapsed measurement time
Real time short Leq (broadband mode)
Graphical 1:1 Octave Bands
Recalled Last Measurements
Measurement Range
Instrument settings

Dimensions: Type 1 340mm x 75mm x 25mm
Type 2 300mm x 75mm x 25mm

Weight: 450 gms

Batteries: 2 x 1.5v Alkaline LR6/AA

Battery Life: Broadband Typically >24 hours
1:1 Octave Band Mode Typically >12 hours

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

External Connections (+ Version Only)

RS232 via 8 pin mini Din socket

Output Cables (+ Version Only)

Standard:	RS232 ZL:800 RS232 Cable
Optional:	ZL:101 USB to Serial Adaptor

Software Support (+ Version Only)

Deaf Defier3 for Windows. (Version v3.1.0 or later)
The Deaf Defier3 for Windows requires the following:
Microsoft Windows 98SE or later
6Mb of available hard-disk space for program files
CD-ROM Drive
SVGA Display
Microsoft compatible mouse or pointing device
9 Pin RS232 (Serial) Port or USB using ZL:101(optional)

Electromagnetic Performance: EN 55022:1998
EN 61000-4-2:1995
EN 61000-4-3:2002
EN 61000-4-8:1994

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dedicated to noise measurement

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