

# CR=260

## Integrating Sound Level Meters

calibrate > start > measure > stop > review

# NoiseMeters.com

Your online supplier for  
Sound Level Meters



# Sound Level Meters

## Introduction

The CR:260 series is a range of very simple to use Integrating Sound Level Meters that comply with the very latest standards. 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:

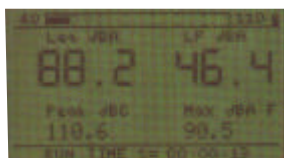
- ▣ Sound Level dB(A)
- ▣ Equivalent Continuous Sound Level ( $L_{Aeq}$ )
- ▣ Peak Sound Pressure ( $L_{CPeak}$ )
- ▣ Maximum Sound Level ( $L_{AFmax}$ )
- ▣ Minimum Sound Level ( $L_{AFmin}$ )
- ▣ Class 1 or Class 2 Performance

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

## Using the Instrument

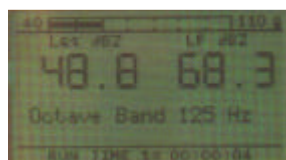
The very clear, simple interface and large display allows the instruments to be used quickly and with very little or no training.

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



During measurement the instrument displays all 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. For the CR:263 and CR:264, the Mode key is also used to switch between the Broadband and Octave Band Measurement modes.

## 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  $L_{AFmax}$  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 Octave Band Filters of the CR:263 and CR:264 Series can be used to determine the frequency content of the noise. In the **+Version** this data can be downloaded to the Deaf Defier software to aid in the selection of hearing protector.



## What are the Different Versions?

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

- |        |                                 |
|--------|---------------------------------|
| CR:261 | Type 1 Integrating              |
| CR:262 | Type 2 Integrating              |
| CR:263 | Type 1 with Octave Band Filters |
| CR:264 | Type 2 with Octave Band Filters |

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 installs the additional functions. The main features of the **+Version** are:

- ✘ Up to 100 measurements stored in memory
- ✘ 1 Second Time History (level against time)
- ✘ Download measurements to a PC and use the Deaf Defier software
- ✘ User selectable Frequency Weighting (A, C or Z) and Time Weighting (Fast, Slow or Impulse)
- ✘ Measurement of  $L_n$  levels and Sound Exposure Level ( $L_{AE}$ )

## Upgrading to the +Version

To upgrade to the **+Version**, a unique upgrade key must be purchased. This will install the extra functions to the instrument.

This unique number is entered into the Deaf Defier software, which then installs the functions.

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

Contact NoiseMeters Limited 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 memory can be downloaded to the Deaf Defier 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 be changed as required.

Please visit the NoiseMeters web site 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 software and upgrade code.



Typical Measurement Kit

## Ordering Information

### Instrument Only

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

### Instrument with Calibrator

SC:261	CR:261 meter with Calibrator
SC:262	CR:262 meter with Calibrator
SC:263	CR:263 meter with Calibrator
SC:264	CR:264 meter with Calibrator

### Measurement Kits

CK:261	Kit with CR:261 meter
CK:262	Kit with CR:262 meter
CK:263	Kit with CR:263 meter
CK:264	Kit with CR:264 meter

### Upgrade

MO:260/1	Upgrade to <b>+Version</b>
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## 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 adaptor  
Octave Band Filters: IEC 61260 Class 1 (where fitted)

**Microphone** Type 1 Pre-polarized Free Field 1/2" condenser  
Type 2 Pre-polarized Free Field 1/2" condenser  
Random Incidence to ANSI S1.4 with NK:70

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

**Time Weightings** 'F' (Fast)  
+Version also provides:  
'S' (Slow) and 'I' (Impulse)

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

**Freq. Bands** 31 Hz to 16 kHz octave bands (where fitted)

### Measurement Range (Typical)

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

Octave Bands 15 dB to 140 dB (1 kHz octave band)

### Noise Floor (Typical)

Broadband 21 dB(A) Class 1, 23 dB(A) Class 2  
Octave Band 15 dB(Z) at 1 kHz octave band

### Available Measurements

Broadband L<sub>AF</sub> Sound Level, dB(A), Fast  
L<sub>Aeq</sub> Equivalent Continuous Sound Level, dB(A)  
L<sub>AFmax</sub> Maximum Sound Level, dB(A), Fast  
L<sub>AFmin</sub> Minimum Sound Level, dB(A), Fast  
L<sub>CPeak</sub> Peak Sound Pressure, dB(C)  
Measurement Duration  
Octave Band Selected Frequency  
Filtered L<sub>ZF</sub>, dB(Z), Fast  
Filtered L<sub>zeq</sub> Equivalent Sound Level  
L<sub>Aeq</sub>, L<sub>Ceq</sub> & L<sub>zeq</sub> Equivalent Sound Level  
Measurement Duration

### +Version also allows the following measurements to be made:

Broadband L<sub>XY</sub> Sound Level  
L<sub>Xeq</sub> Equivalent Continuous Sound Level  
L<sub>XYmax</sub> Maximum Sound Level  
L<sub>XYmin</sub> Minimum Sound Level  
L<sub>CPeak</sub> Peak Sound Level  
L<sub>XE</sub>, L<sub>Xleq</sub> or L<sub>XFTeq</sub>  
L<sub>Xn</sub> (0.1 to 99.9) - five simultaneous values  
Date and Time of measurement  
L<sub>Xeq</sub> Short Leq Time History (1 second)

Where X = dB(A), dB(C) or dB(Z) Frequency Weighting  
Y = Fast, Slow or Impulse Time Weighting

Octave Band Selected Frequency  
Filtered L<sub>ZF</sub>, dB(Z), Fast Time Weighting  
Filtered L<sub>zeq</sub> Equivalent Sound Level  
L<sub>Aeq</sub>, L<sub>Ceq</sub> & L<sub>zeq</sub> Equivalent Sound Level  
Measurement Duration  
Date & Time of measurement

### Measurement Storage

The last measurement is stored

### +Version also provides:

100 broadband or octave band measurements  
Calibration records are automatically stored  
Short L<sub>eq</sub> Time History - 24 hours at 1 second

### Automatic Measurements (+Version only)

The unit can be preset to record over fixed times:

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-analog display  
Selected measurement parameter and level  
Warning for Overload and Under Range  
Battery level  
Time and Frequency weighting  
Elapsed time of measurement  
Short Leq (broadband mode)  
Graphical Octave Bands  
Last measurement recall  
Measurement Range  
Instrument Settings

### Dimensions

Type 1 - 340 x 75 x 25 mm  
Type 2 - 300 x 75 x 25 mm

### Weight

450 gms

### Batteries

2 x 1.5V Alkaline LR6/AA

### Battery Life

Broadband Typically > 24 hours  
Octave Band Mode Typically > 12 hours

### Environment

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: ZL:800 RS:232 Cable  
Optional: ZL:101 USB to RS232 Adaptor

### Software Support (+Version only)

Deaf Defier for Windows (v3.1.0 or later)  
Requires:

MS Windows 98SE or later  
6Mb available hard disk space  
CD-ROM Drive  
SVGA Display  
9 Pin RS232 Serial Port or  
USB using ZL:101 adaptor

### Electromagnetic Performance

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

## NoiseMeters Limited

West End, Muston, North Yorks  
YO14 0ES, England

Tel UK: 0845 680 0312  
Tel USA: 888-206-4377  
Tel Int: +44 84 56 80 0313

Email: info@noisemeters.com