CEL63x Sound Level Meter

NoiseMeters

CEL632A, CEL632B, CEL632C and CEL633A, CEL633B, CEL633C
Class 1 or Class 2. Integrating. Advanced Logging. Audio Recording

Environmental Noise

- Boundary noise assessments
- Noise nuisance complaints
- Measurements to ISO1996, BS4142
- Short or long term assessments
- Noise source identification

Occupational Noise

- Workplace noise assessments
- Selection of hearing protection
- Noise exposure calculations
- Compliance with international regulations

Environmental and Occupational

The CEL63x complies with the latest IEC and ANSI international standards for sound level meters, as required for both environmental and occupational noise measurement.

By implementing the latest digital technology, the meter has a single measurement range so no range adjustment is required, ensuring the highest levels of performance with all noise sources. Models are available for both environmental and/or occupational noise with the availability of frequency analysis and advanced functions such as data markers, timers and the logging of time history data.

Key Features

- Easy to use
- Preconfigured setups
- Audio recording
- Single range
- Level triggered events
- Real-time 1/3 octave
- More than 1 year storage

All models have a voice notes capability, allowing you to speak into the microphone before or after a measurement in order to annotate the result, so you don't need to write things down. Data can also be 'marked' during a measurement to signify either an anomalous or significant event and can be recorded for later noise source identification. If the instrument is used for unattended measurements, audio recording can be triggered by a condition such as a given level being exceeded for a period of time.

Environmental Noise

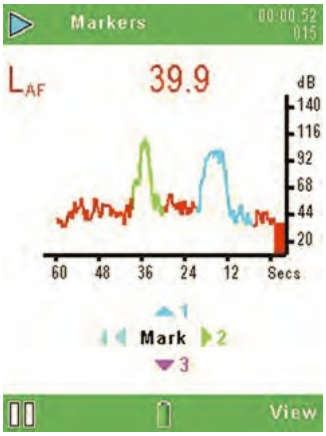
- Simultaneous broadband and frequency measurement
- Automatic repeating measurements
- Daily timers
- Data markers
- Real-time frequency analysis
- Single measurement range (no range selection needed)
- Triggered ‘event’ capture
- Audio recording

Outdoor Kit Option

Up to 60 hours of audio files can be stored, commonly used for noise source identification. Stored audio can be played back on the instrument using headphones or downloaded to the Insight software for playback over the computer’s speakers.

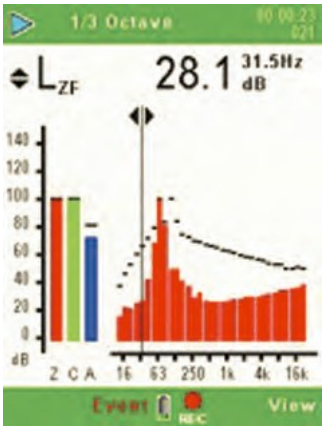
For unattended monitoring, event mode (CEL633) allows trigger levels (dB) to be set, so additional data (e.g. Leq, Lmax) is stored together with the audio file for later analysis, as well as an additional time history profile down to 10ms intervals.

An environmental noise monitoring kit is available to protect the instrument and microphone from the weather and allowing unattended monitoring for up 10 days.

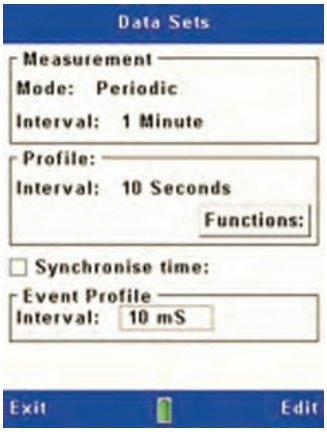


Marking significant noise events

Listen to audio recordings



Real-time 1/3 octave Single Range



Three simultaneous storage rates

The models for Environmental Noise are the CEL633A, CEL633B (octave band filters) and CEL633C (1/3 octave band filters). These meters include the environmental parameters (L10, L90, etc.).

Occupational Noise

- Simultaneous measurement of all parameters
- Standard setups for workplace noise legislation
  - ISO (EU), OSHA, CGIH, DOD, Environmental
  - User custom setups saved
- Measures parameters for hearing protection selection by the SNR, HML and octave band method
- Analyse time history of noise levels
- Optional high range microphone, up to 165dB
- Audio recording

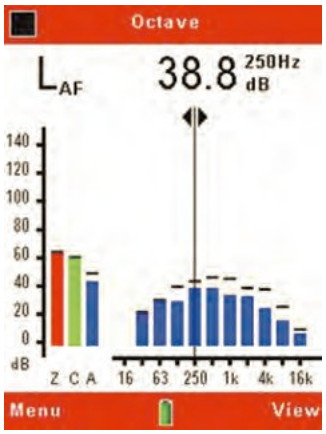
The CEL630 Series is designed to make workplace noise measurements as quick and simple as possible. The displayed information can be made as simple or comprehensive as required and all measurement parameters are stored simultaneously, so nothing gets missed.

When the unit is calibrated with the CEL120 calibrator, the calibration dates and times are stored and downloaded to the Insight software, validating the accuracy of measurements.

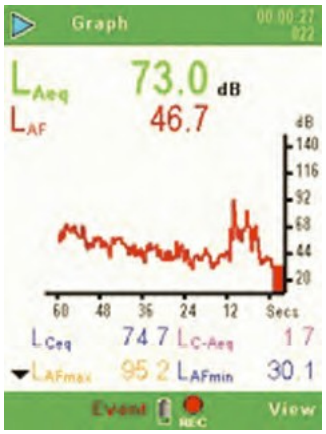
Average, peak, and octave band measurements are performed at the same time, so only one measurement needs to be made for all workplace noise applications.

Record voice notes to identify measurements

Icon based user interface



Octave measurements for selection of PPE



Time history of the noise levels

The models for Occupational Noise are the CEL632A, CEL632B (octave band filters) and CEL632C (1/3 octave band filters).

Four Easy Steps…

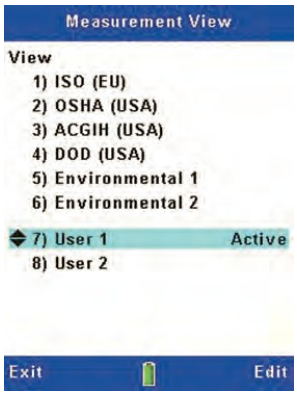
Using the CEL63x series meter is as easy as switching on and pressing Run. Sometimes you may need to change the viewed parameters so this is included here.

Of course there are more advanced settings in the meter's menu for setting up automatic measurements times, repeating measurements, audio recording triggers, and so on. But for a quick hand-held measurement there is little to do as the meter stores all parameters (no matter what is displayed on screen) and has a single measurement range covering 20 to 140 dB.

Step 1

Select the measurements you want to see. Only necessary if you want to change - as it remembers your last settings.

This only changes what is displayed on screen, all other measurements are still stored.



Step 2

Calibration is important to validate your measurement. The CEL63x detects the calibration tone and automatically switches into calibration mode.

The Calibration result is stored in the meter.

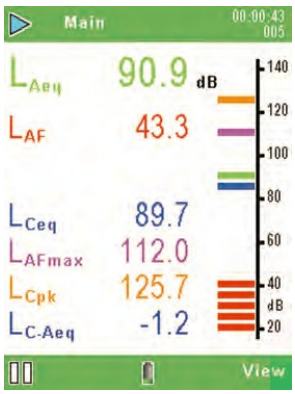
Step 3

Record Voice Notes so that you can identify the measurement after download to a computer - or even directly from the meter using headphones.

This helps if writing down details of the measurement is not convenient.

Step 4

Start the measurement. The status bar turns green to show the meter is running. Press the **View** key to cycle through the different display screens.



Model Selection

There are two main models available:

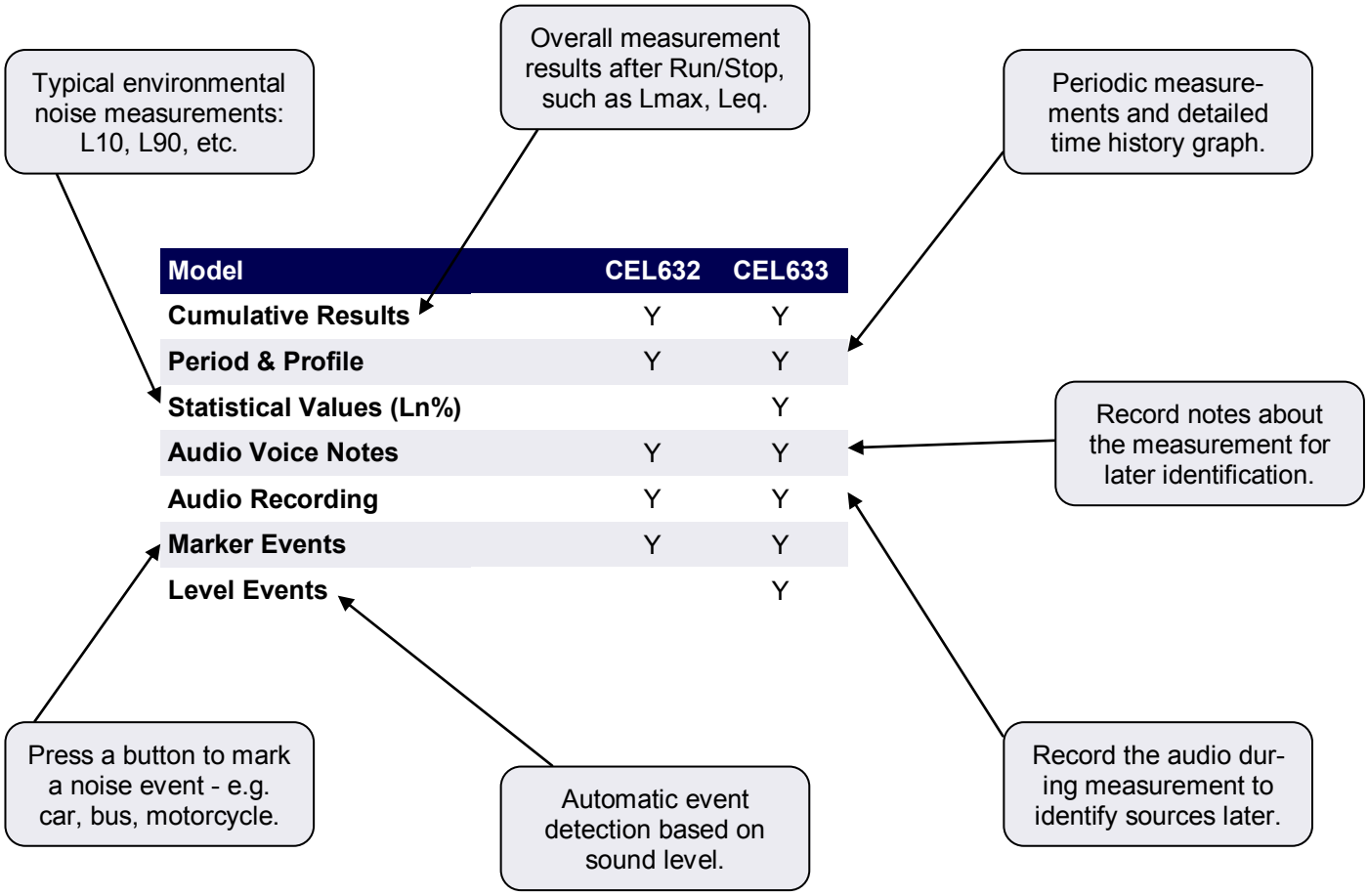
- CEL632 Occupational Noise
- CEL633 Environmental Noise

These models have the features shown below:

Class and Filters

To the CEL63x order code, add **A** for standard version, **B** for Octaves and **C** for 1/3 Octaves. For Class 1 add **1** and for Class 2 add **2**.

E.g. The **CEL633C1** is the environmental meter, Class 1 with octave and 1/3 octave band filters.



Model	CEL632	CEL633
Cumulative Results	Y	Y
Period & Profile	Y	Y
Statistical Values (Ln%)		Y
Audio Voice Notes	Y	Y
Audio Recording	Y	Y
Marker Events	Y	Y
Level Events		Y

Accessories

CEL6840	Standard Case (included with meter)
196030C	Executive Case (included with kit)
CEL251	Microphone Class 1
CEL252	Microphone Class 2
CEL120/1	Calibrator Class 1
CEL120/2	Calibrator Class 2
PC18	Power Supply
MIC1	High Range Microphone (to 165dB)
MPA1	High Range adapter (use with MIC1)

Noise Measurement Kits

The Noise Measurement Kits include the following items:

- Sound Level Meter
- Calibrator
- Carrying Case

Add –**K** to the order code for a kit. For example, CEL633C1-K.

Insight Data Management Software

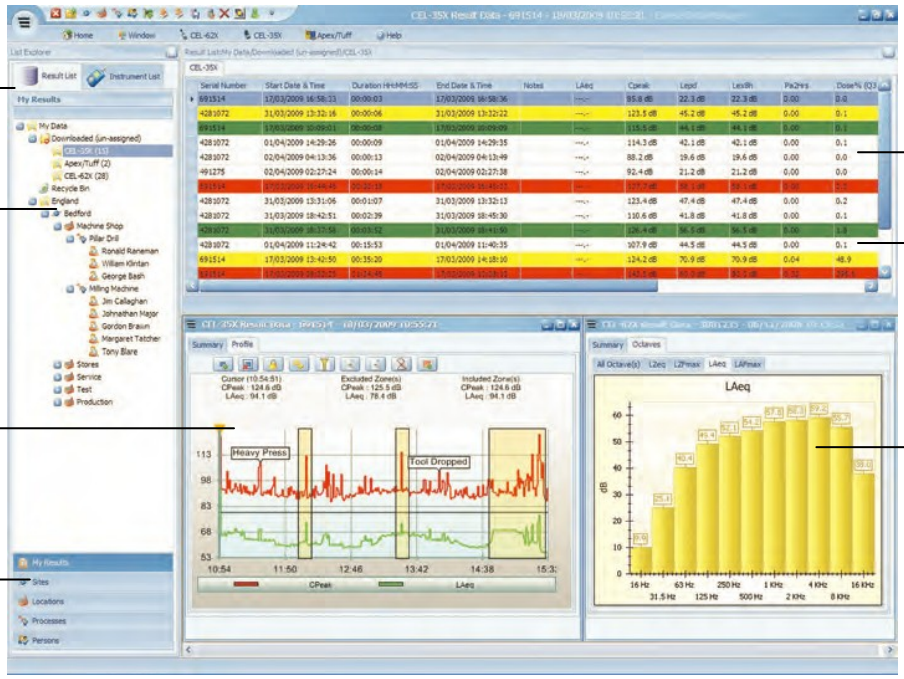
- Analysis of noise level time history
- Replay voice notes and event audio
- Intuitive user interface
- Remove anomalous data from results
- Analysis of time history
- Generate comprehensive reports
- Store data by, person, place, location
- Manage multiple instruments and calibration

Manage data or instruments

Tree structure to manage the data

Time history may be viewed, analysed and annotated

Sort data by person, process, place, etc.



Multiple parameters displayed and sorted simultaneously

Data can be dragged and dropped to the tree structure

Data is graphed and can be copied to other applications

The Insight software is a powerful yet simple tool to download, analyse and generate reports.

The software automatically recognises that the meter is connected and downloads and saves the data.

Noise exceedance levels can be colour coded by a simple ‘traffic light’ system, it is easy to see which measurements have exceeded specific levels.

For the CEL632 and CEL633, the stored data can be graphed and zoomed in to look at specific times. These graphs can be further analysed by recalculating levels inside and outside defined zones, to investigate ‘what if’ scenarios.

Data can be managed by person, place or process by dragging and dropping to the relevant tree location. Templates are provided to view data for local legislation or can be customised, Reports can be stored in multiple formats (e.g .pdf, .jpg, or .csv) allowing them to be shared and viewed easily, as well as exported to other applications.

The report wizard allows creation of a report for people, processes etc. It allows measurement parameters to be selected as required and report settings are retained for the next time it is used.

Written notes can be added to data (on top of any audio notes recorded when taking a measurement), to appear on the reports.

Technical Specifications

Standards

IEC61672: 2002 Class 1 and 2
ANSI S1.4: Type 1 and 2 (1983)
Filters: IEC61260: Class 0, ANSI S1.43: (1996)
Note: IEC61672 replaces 2 obsolete standards IEC60651 and IEC60804

General

Range:	20-140dB RMS (143.3dB peak)
Noise floor:	19dB(A) Class 1 25dB(A) Class 2
Time wgts:	Fast, Slow and Impulse simultaneously
Frequency wgts:	A, C and Z (un-weighted) simultaneously
Frequency bands:	11 Octave bands 16Hz-16kHz (B&C models) 33 Octave bands 12.5Hz-20kHz (C models)
Amplitude wgt (Q):	3, 4 and 5 simultaneously
Back erase:	Last 10s in cumulative mode
Timers:	Duration 1s-24h,
On/Off timers:	6 sets with selectable times and a repeat function

Physical

Tripod mount:	1/4" Whitworth socket
Batteries:	3x AA Alkaline, 10-15 hours dependent on back light
External power:	9-14V DC at 150mA
Weight:	332g including batteries
Size:	230x72x31mm inc preamp and microphone

Environmental

Relative humidity:	5 to 90% (non condensing)
Temp:	Class 1: -10 to +50°C Class 2: 0 to 40°C
Atmos. pressure:	65 to 108kPa

Memory

Memory: 2GB (>1 year logging when set to 1 second interval). All parameters stored and accessible via Casella insight. Total measurement runs: 999.

Events: 999 events/run. 10 hours of audio recording in high quality mode, 60 hours in low quality mode. For long term unattended monitoring the CEL-630 takes a new run daily for up to a total of 400 days.

Audio Recording

Low Quality: 8,000 samples/s @ 8bit (64kb/s)
High Quality: 24,000 samples/s @ 8 bit (192kb/s)

Languages

User interface can be changed via the menu: English, French, German, Spanish, Italian, Portuguese, Chinese.

Measured Parameters

Broadband: LXY, LXYmax, LXYmin, LXeq, LXpeak, Lavg, LC-LA, LXIeq, LTM3, LTM5, LAE. Workplace dose values are calculated within Insight software.

Octaves & 1/3 octaves: LXY, LXeq, LXYmax, 5x Ln% (on CEL633). Where X is the frequency weighting A, C or Z and Y represents time weighting Fast (F), Slow (S) or Impulse (I). All weightings simultaneously measured where appropriate.

CEL633 models additionally store 5x Ln values in broadband and octave modes.

CEL632 and CEL633 models additionally stores time history data, all parameters are logged for period times plus 6 selectable profile parameters (plus 5x Ln values on CEL633).

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