CASELLA CEL

CEL-350 *dB*adge

Personal Sound Exposure Meter

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Introduction

The CEL-350 *dB*adge is ideal for personal noise exposure measurements around the workplace. By using the latest digital technology, the CEL-350 *dB*adge achieves new standards of performance levels in noise dosimetry.

The *dB*adge design eliminates cables, unlike traditional dosimeters, and weighs only 68g. No other external equipment is needed to operate the CEL-350 *dB*adge. It is simply operated by the 2 keys on the side of the instrument.

All necessary workplace noise parameters are measured and stored simultaneously, for later download to a PC, no set-ups are required and no risk of measuring the wrong parameters.

Battery life and memory capacity are sufficient to perform many consecutive shift measurements without charging or downloading. Recharging the integral NiMH battery can be achieved in 90 minutes.

A variety of mounting options are available for all types of working conditions, making the CEL-350 *dB*adge very easy to fit to the shoulder of the employee and comfortable to wear.

Key Features

- Compact, rugged design weighs only 68g
- No cables to damage or get in the way
- Measures and logs all workplace noise parameters
- 32 hour battery life, fully charges in 90 minutes
- Integrated display and visual exposure alarm
- Simple auto-calibration function
- Comprehensive software package

Applications

- Measuring personal noise exposure
- Assessing and monitoring noise in the workplace
- Ensuring compliance with Workplace Noise Regulations

Built in Display

- Display shows measurement status and data
- Unique LED action level alarm function
- 'Fuel gauge' display for memory and battery information
- 1 minute values of average and peak noise levels stored

The CEL-350 is the first compact noise badge product to be designed with a display. This internal display makes it easy to perform calibration, provides status information and shows key measured data. The *dB*adge has a unique 'fuel gauge' to display memory and battery status, ensuring the exact remaining battery and memory capacity can be viewed on the display. Also a unique feature of the *dB*adge is the alarm function. An ultra-bright LED on the *dB*adge gives a visual indication of when exposure action levels have been exceeded by flashing at different rates. These action levels can be configured via the dB35 software and used to instantly see if noise control or hearing protection measures are needed. The alarm function can be switched on or off via the *dB*adge keys.

In addition to noise exposure parameters, the time history of the noise is logged in 1 minute values of both the average noise level and the peak value for subsequent analysis of how the noise exposure has occurred. This data can be viewed and analysed via dB35 software.

'Fuel gauge' display for memory and battery information

Simple 2 key operation

- Unique automatic calibration function
- Lockable keys and display
- Easy to mount on employees' shoulder

The CEL-350 *dB*adge is quick and easy to operate. After switching the *dB*adge on, place the calibrator over the microphone and the CEL-350 *dB*adge will auto-calibrate, and store the calibration data and time, ensuring accurate and validated results. The unique design of the windshield ensures it can be securely clipped into place to give protection in dusty environments and prevent air movement affecting the measurement. The *dB*adge can be started and the keypad locked before being placed on the shoulder of the employee. Overall, a measurement can be started within seconds of switching the *dB*adge on. At the end of the measurement run, simply unclip the *dB*adge. The data can be viewed on the easy to read graphic display to ensure the noise measurement was valid. Consecutive measurements can be taken without the need to charge or download the *dB*adge.

Comprehensive Software

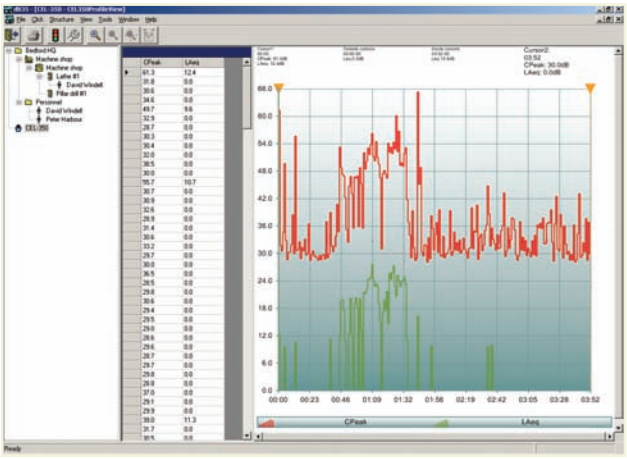
- Store results in simple tree structured database, by person, place or process etc
- Automatically colour codes results for exceeded noise action levels
- Graphical display and analysis of noise time history
- Automatic report generation
- Data can easily be exported to other applications

The *dB*adge downloads to a PC automatically using dB35 software, simply by pointing the *dB*adge at the infra-red download cable provided. Once downloaded, data can be stored under an employees' name, location or process so that a database of noise exposures can be built up.

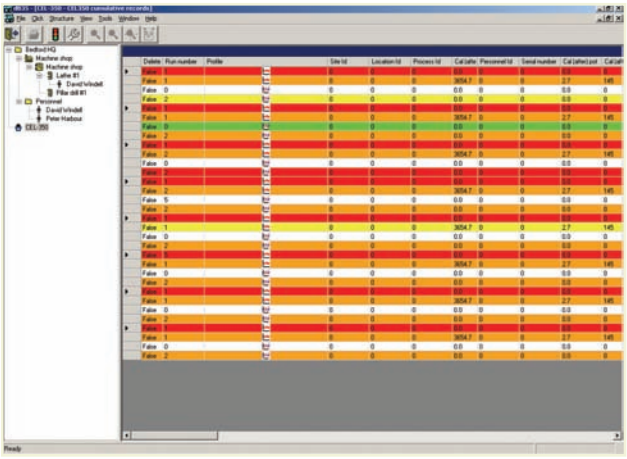
An automatic colour coding system can be used to highlight which employees have been exposed to specific noise action levels. The time history of the noise exposure is displayed graphically and can be analysed to see when the majority of an employees' exposure has occurred.

Report templates provided with the software can be customised and saved, so that user-defined reports can be easily generated.

Data can be viewed according to different measurement protocols, either ISO (Europe) or OSHA (USA). Alternatively the data displayed can be customised to a specific users own requirements.



Graphical analysis of noise time history



Tree style database of results with colour coding for exceeded noise action levels

Variety of Mounting Options

- Safe and secure
- Comfortable for the wearer
- Can be fitted to all clothing types

The choice of mounting clips, ensures that through it's combined light weight and size, the *dB*adge is both unobtrusive and comfortable to wear on the shoulder. The CEL-6351 pin clip is provided as standard; the alternative harness or crocodile clips are available for protective clothing that should not be pierced. A hard hat mount is also available.

Mounting Options:

- CEL-6351 Standard Pin Kit
- CEL-6352 Crocodile Clip Kit
- CEL-6353 Harness Kit
- CEL-6354 Hard Hat Kit

Note: CEL-6351 is supplied as standard with all CEL-350 *dB*adges

Intelligent Fast Charging System

The CEL-6350 3-way charger with 3 *dB*adges

- Full charge gives the *dB*adge a 32 hour operating time
- Fully charges in 90 minutes
- Charger units can be linked together
- Single mains supply can supply up to 12 *dB*adge units
- Visual display of charge progress with unique 'fuel gauge'

Due to the battery technology and intelligent charging method used, the *dB*adge unit does not have to be continually on charge. The standard 3-way charger can be used to manage many *dB*adge units.

When placed on the charger, the *dB*adge will display a 'fuel gauge' which shows how much operating capacity, in hours, is currently held in the batteries. When fully charged, the blue LED on the front of the *dB*adge illuminates.

The *dB*adge does not have to be fully charged prior to use. A 30 minute charge will give an operating time of greater than 8 hours, enough for a typical working day.

A single CEL-6350 3-way charger is required. The number of charging points can be increased using the CEL-6358 3-way charger extension kit. Up to 12 *dB*adge units can be charged in this way.

Measurement Kits

- Standard kits of 1, 2, 3, 5 and 10 *dB*adge units
- Additional *dB*adges can be added to make any quantity of kit
- Robust kit case holds up to 10 *dB*adges and accessories

*dB*adge measurement kits are available with various quantities of *dB*adges and include all items necessary for workplace noise dosimetry measurements. Each kit is complete with the appropriate number of *dB*adge units, as well as a CEL-110/2 Acoustic Calibrator, infra-red download cable, 3-way charger, power supply and dB35 software. The CEL-350 *dB*adges and the CEL-110/2 Acoustic Calibrator are supplied with calibration certificates.

A typical measurement kit

SPECIFICATION

Technical:

Linear operating range:	65.0 to 140.0dB RMS
Peak measurement range:	95.0 to 143.0dB Peak
Frequency weightings RMS:	A
Frequency weightings Peak:	C, A, Z (Linear)
Time weightings:	Slow, Fast & Impulse
Amplitude weightings:	Q=3 & Q=5
Selectable thresholds :	2 (70 to 90dB), selectable in 1dB steps
Selectable criterion:	1 (70 to 90dB), selectable in 1dB steps
Memory capacity:	64kB (180 Hours of measurements)
Default modes:	ISO or OSHA
Calibration information:	Calibration dates, times and levels
Security:	Lock via keys
Power supply:	Internal NiMH cells
Battery life:	32 Hours run capacity
Size mm (in):	72x47x52 (2.8x1.8x2.0) inc windshield
Weight g (oz):	68 (2.4)
Data storage:	Non-volatile, 10 years of storage
Display:	Graphic LCD 96 x 26 pixels
Output (PC):	Infra-red download cable (supplied) to dB35 software

Casella CEL have a continuous product improvement policy and therefore reserve the right to change the specification without notice

Applied Standards:

IEC 61252:2002 Personal Sound Exposure Meters
ANSI S1.25:1991 Personal Noise Dosimeters

Measured Parameters:

ISO:	L_{Aeq}, L_{Cpeak}, $L_{AEP,d}$, Pa^2Hours
OSHA:	L_{Aavg} (Q=5), L_{Zpeak}, L_{ASmax}, %dose (Q=5), TWA (Q=5)
General:	L_{AFmax}, L_{AFmin}, L_{ASmin}
(via dB35)	L_{AIeq}, L_{AImax}, L_{AImin}, L_{Apeak}
Time history:	L_{Aeq}, L_{Zpeak}, L_{Cpeak}, L_{Aavg} (Q=5) Stored as 1 minute values
Storage:	All parameters simultaneously stored

Environmental Conditions:

In storage:	Temperature: -10 to +50°C, Humidity: 30 to 95% RH (non-condensing)
In operation:	Temperature: 0 to +40°C

INSTRUMENT KITS

CEL-350/K1	*dB*adge Measurement Kit with 1x CEL-350 and 3-way charger
CEL-350/K2	*dB*adge Measurement Kit with 2x CEL-350 and 3-way charger
CEL-350/K3	*dB*adge Measurement Kit with 3x CEL-350 and 3-way charger
CEL-350/K5	*dB*adge Measurement Kit with 5x CEL-350 and 3-way charger
CEL-350/K10	*dB*adge Measurement Kit with 10x CEL-350 and 2x 3-way chargers

Kits include: CEL-350 *dB*adge(s), CEL-110/2 Acoustic Calibrator, CEL-6355 kit case, CMC39 download cable, CEL-6357 *dB*35 software, CEL-6351 pin mounting kit, CEL-6350 3-way charger and 1x CEL-6358 3-way charger extension unit on CEL-350/K10, HK111 screwdriver for changing mounting clips. All kits include calibration certificates for the *dB*adge(s) and CEL-110 Acoustic Calibrator.

ORDERING INFORMATION

CEL-350	*dB*adge Personal Sound Exposure Meter
CEL-6350	3-Way Charger (inc PC18 power supply)
CEL-6358	3-Way Charger Extension (inc C6359/0.2)
CEL-110/2	Class 2 Acoustic Calibrator
CEL-6355	Kit Case for 10x *dB*adges
CMC39	Infra-red Download Cable
CEL-90336	USB Adaptor
CEL-6357	dB35 Software
CEL-6351	Pin mounting kit (5 pack)
CEL-6352	Crocodile clip mounting kit (5 pack)
CEL-6353	Harness mounting kit (5 pack)
D8147/Z	3 point harness
CEL-6356	Spare windshield assembly
C6359/0.2	Spare lead for connecting CEL-6350 to CEL-6358
HK111	Spare screwdriver for changing mounting clips

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