

CEL-352 Plus & 352 Plus IS *d*Badge Micro Noise Dosimeter

Introduction

The **CEL-352 PLUS** is a completely new interpretation of the classic noise dosimeter. It has all the advantages of earlier CEL *d*Badge badge designs such as small size and light weight and in addition it offers the direct calculation of the LC-La value. Fully featured and able to satisfy all current noise at work measurement protocols during a single run the **CEL-352 PLUS** will be an ideal instrument for experienced and new user of dosimeters in the workplace. No setup to worry about since the unit stores all results for later investigation and reporting however required.



*CEL-352 PLUS dBadge
micro noise dosimeter*

**Now available with intrinsic
safety approval.**

Key benefits

- ❑ Lightweight less than 2.4 oz
- ❑ Small size only 2.8 in long and 1.7 in wide and 2.0 in tall
- ❑ Quick battery recharge in less than 90 mins from completely empty
- ❑ Calculates all the popular noise dose parameters
- ❑ Calculates the LC-LA value
- ❑ Time history profiling of 4 results at fixed 1 m intervals
- ❑ Wide dynamic range from 65 to a full 140 dB
- ❑ Measures simultaneously 3 dB and 5 dB exchange rates
- ❑ Lockable for security
- ❑ Direct automatic calibration with standard acoustic calibrator with 1/2" cavity

Applications

The **CEL-352 PLUS dBadge** micro noise dosimeter is designed to satisfy all current workplace noise protocol methods for the collection of personal noise data. Careful attention to the requirements of both US and European noise dosimetry methodologies provides for the simultaneous storage of the noise levels in such a way that the dose values can be obtained with both the

widely used exchange rates (or Q factor) using the 5 and 3 dB doubling rates. This means that a single measurement run can be taken and the noise levels assessed to both the US OSHA and the NIOSH or the European ISO legislation. Four time history profiles are saved with the Q=3 and Q=5 time average value plus the C and the Z peak levels. The dosimeter calculates and displays the % noise dose values

plus the Lavg for the run. The **CEL-352 PLUS** model also calculates and stores the LC-LA value based on the whole run. The **CEL-352 PLUS** will be an ideal unit for industrial hygienists or company safety officers charged with monitoring the noise exposure of workers in situations where a conventional noise dosimeter with a remote cable microphone might not be the most convenient method.

Operation and use

A simple drop in rapid battery charger system provides a quick 90 min maximum recharging time for the built in NiMH battery pack. The *dBadge Plus* can run for up to 32 hours giving 4 full 8-hour shifts under normal conditions. A 30 min charge will give adequate operational time for a full 8-hours run. An integral 2-line display shows the main noise results and confirms the acoustic calibrations before and after the actual run. The unit can be easily locked to prevent tampering by the wearer.



*CEL-6362
drop in charger for dBadge Plus
system - completely recharges
up to 3 units in under 90 mins*

A brand new dedicated download database program called Insight compliments the *dBadge Plus* allowing all the stored data to be downloaded and analyzed according to whatever format the user requires. Multiple reports can be obtained from the same data without needing to re-measure the noise. This saves both data collection time and analysis time on the pc. Unique identities can be uploaded to the *dBadge Plus* to identify units in multiple measurement kits

Technical Specifications	
Acoustic accuracy	ANSI S1.25, IEC61252 2002 Personal sound exposure meters
Dynamic range (dB)	65 to 140
Frequency weightings	A for rms values plus Z and C for peak measurements
Time weightings	Slow for Q=5 data plus non for Q=3 data as required for standards
Exchange rate (Q dB)	5 and 3 simultaneously
Threshold level (dB)	Any levels from 70 to 90 in 1 dB steps
Criterion level (dB)	Any level between 70 and 90 in 1 dB steps
Microphone capsule	Removable ½" type 2 device can be calibrated with any standard acoustic calibrator using ½" diameter cavity
Calibration method	Automatic recognition and calibration to user set dB level
Display screen	96 x 26 pixel graphics LCD with 2 line text messages
Alarm warning indicators	Red and blue LED's showing level noise exceedances during run
Parameters measured in run	Noise dose%, projected noise dose%, TWA, LC-La, max, min, peak
User controls	2 push buttons for On/Off and OK/Accept
Weight (oz, g)	< 2.4 oz (68 g)
Size (in, mm)	< 2.8 x 1.7 x 2.0 in (72 x 42 x 52 mm)
Case molding	High impact ABS plastic molding
Battery pack	Two half AAA size NiMH rechargeable cells
Battery life (hr)	32 hours continuous, unit gives expected remaining battery life in hours when switched on by "fuel gauge" display icon
Charging unit	3 way <i>dBadge</i> master charger base with drop in charging via connections on back of <i>dBadge</i> casing
Memory storage (results)	At least 180 hours at 4 profiles every minute with unit showing remaining memory recording time in hours when switched on
Stored profile values	Lavg(Q=5), LZpk, Leq(Q=3), LCpk
Storage interval	Fixed 1 minute for all 4 results simultaneously
Real time clock	Date and time stamp on all calibration data and profile results
Fixing method to worker	Various fixing clips provided for clothing and hard hat mounting
Microphone protection	Lockable foam windscreen to protect microphone
Security features	<i>dBadge</i> can be locked prior to being left on worker to prevent tampering - showing only duration and run in progress on display
Localization of menus	Up to 5 standard languages can be selected for screen prompts, English, Spanish, French, German, Italian
Identification of multiple units	2 line text string can be uploaded from dB35 pc program

Ordering information

CEL-352/K1	Single pack <i>dBadge Plus</i> noise dosimeter kit with standard accessories
CEL-352/K2	Twin pack <i>dBadge Plus</i> noise dosimeter kit with standard accessories
CEL-352/K5	Five pack <i>dBadge Plus</i> noise dosimeter kit with standard accessories
CEL-352/K10	Ten pack <i>dBadge Plus</i> noise dosimeter kit with standard accessories
CEL-352	Single <i>dBadge Plus</i> micro noise badge unit with mounting clips and windscreen
CEL-110/2	Class 2 acoustic calibrator 114 dB at 1 kHz
CEL-6362	3 way drop in rapid master charger including PC18 universal power supply (can be "daisy chained" together for multiple kits with CEL-6363 slave charger)
CEL-6363	Slave charger unit and link cable to master charger for up to 3 additional <i>dBadges</i>
Insight	Windows based download and database software package supplied on CD
193200B	USB Infrared adaptor for pc download and programming
CEL-6355	Multi pack kit case with space for up to 12 <i>dBadge</i> dosimeters and accessories

All kits include CEL-352 PLUS *dBadge* dosimeter(s) with various fixing clips and foam windscreen, CEL-110/2 acoustic calibrator, 3 way charger base unit and power supply, slave charger unit(s), USB infrared download adaptor, Insight pc software, kit case
Add IS after part number for the intrinsically safe version of the *dBadge Plus*. E.g. CEL-352IS