

CEL-320IS & CEL-360IS, CEL-320SIS & 360SIS Intrinsically Safe Meters

Introduction

Instruments in the innovative CEL-300 IS series offer the capability to make noise measurements in potentially hazardous environments. The series consist of the CEL-320IS & CEL-360IS dosimeters and the companion CEL-320SIS & CEL-360SIS sound level meters.

The measurement flexibility available within this series of meters ranges from general noise surveys, through the measurement of overall levels of workplace hearing risk, to the analysis of specific operator exposure to high noise levels.



Convertibility as standard

Sound level meter versions can easily be converted to personal noise dosimeters, simply by unplugging the CEL-425IS SLM Microphone (supplied) and replacing it with a CEL-6681IS Dosimeter Microphone.

In the same way instruments originally supplied as personal noise dosimeters with the CEL-6681IS cable microphone can be converted to hand held sound level meters by a simple replacement with the CEL-425IS stalk microphone assembly.

Features remain the same in both model configurations irrespective of the design of microphone actually fitted to the instrument to ensure ultimate flexibility in use. These instruments are lightweight, rugged, and easy to use.

Output options

At the end of the measurement sequence the meters can store the overall results from up to 50 separate measurements that can be recalled to the custom LCD display.

Noise Dosimeter Option

The CEL-320IS and CEL-360IS are pre-programmed with the required settings to measure noise dose in accordance with the relevant National and International Noise Exposure regulations. The US OSHA setup is the default measurement method used by the instruments when first taken out of the box.

All models also include the requirements to comply with DOD and ISO based measurement protocols if required. Up to 3 additional setups may be added to the dosimeters where local regulations require that specifically.

The CEL-360IS has the additional benefit of storing up to 10 time history profiles during the measurements.

In addition, if the logging function was employed in the CEL-360IS or 360SIS models then up to 220,000 time history profiles may be saved to give a better appreciation of the variation in the noise levels during the run.

Key benefits

- Intrinsically Safe to EEx ia IIC T4 for use in Zones 0, 1 & 2
- Certificate Number 05ATEX2027X
- Available as Personal Dosimeter (NDM) and Sound Level Meter (SLM)
- 2 SLM models - CEL-320SIS and CEL-360SIS
- 2 Dosimeter models - CEL-320IS and CEL-360IS
- Easily convertible between SLM and Noise Dosimeter models by microphone exchange
- ANSI and IEC Type 2 accuracy compliance
- Measurement of %dose, Proj%, TWA, LAeq, Lavg, LAE, Lmax, Lmin, Lpeak, 5 x LN%
- CEL-360IS and CEL-360SIS have 220,000 point data-logging option
- Delay start and stop timers up to 1 month in advance for 360IS and 360SIS models

Sound Level Meter Option

One of the default operating modes is a Sound Level Meter configuration storing the last used set of sound level time-, frequency- and amplitude- (or "Q" exchange rate) weightings, peak level frequency weighting, and the last selected measurement range.

Simply selecting this mode and starting the "Run" simultaneously measures and displays the instantaneous level, and gives the duration of the run, the maximum level, Leq, Lavg with the selected 4, 5 or 6 dB exchange rate and peak channel level. Any of these values can be displayed without interrupting the measurement. A pause function allows measurements to be stopped temporarily to prevent unrelated extraneous noise affecting results.

All models can be connected directly to standard office printers for a pre-formatted hard copy as well as to PCs running CEL dB10 or dB12 dosimeter software for further data processing, presentation and data archiving.

TECHNICAL SPECIFICATIONS

CEL-320IS & CEL-360IS Intrinsically Safe Noise Dosimeters and CEL-320SIS & CEL-360SIS IS Sound Level Meters

Intrinsic Safety standards	Rated Intrinsically Safe for hazardous area EEx ia IIC T4 II 1 G to EN500020, Certificate Number 05ATEX2027X.
Dosimeter standards	ANSI S1.25: 1992 IEC1252: 1993 BS EN 61252.
Sound level meter standards	IEC-651: 1979 (EN 60651) Type 21, IEC-804: 1985 (EN 60804) Type 2, ANSI S1.4 – 1983 Type S (2),
Electro-magnetic standards	EN 50081-1:1992, EN 50081-2: 1993, EN 50082-1:1992, EN 50082-2: 1995.

Measurement ranges		
Display range	Primary RMS range at 1 kHz	Peak
30 – 100 dB	41 – 86 dB	63 – 103 dB
50 – 120 dB	55- 106 dB	83 – 123 dB
70 – 140 dB	75 – 125 dB Defined from 10 dB above noise floor to a crest factor limit of 5	103 – 143 dB

Dosimeter microphone*	CEL-6681IS ¼" electret microphone with clip, on 32in (0.8 m) plug-in cable.
Sound level meter microphone*	CEL-425IS ¼" electret microphone on 3in (75 mm) stalk.
Windscreen for microphone protection	Both microphones may be used with CEL-6225 Windshield that has no measurable effect on acoustic performance between 31.5 Hz - 8 kHz.
Frequency weightings	A, C, linear 20 Hz – 20 kHz.
Time weightings	Fast, Slow, Impulse, Peak.
Amplitude weightings (Q)	3, 4, 5, 6 dB exchange rates.
Displayed information	Lp, LAeq, LAE, Leq1, Lav, Lmx, Lmn, Lpeak, 5 x Ln%, %DOSE1, projected %DOSE1, TWA1, %DOSE2, projected %DOSE2, TWA2, LEP,d, Duration, Date, Time, Run #, Wait, Pause, Battery state.
Battery*	Duracell MN 1604 (9 V), Approximately 40 hours lifetime.
Physical (excluding microphone)	(120 x 65 x 30 mm, 300 g), 4.8 x 2.6 x 1.2 in, 11 oz.

Note * Microphone and battery may be installed only in non-hazardous area for IS units.

	CEL-320IS CEL-320SIS	CEL-360IS CEL-360SIS
Maximum number of measurement runs	50	50
Number of pre-configured Set-Ups	7	7
Number of user configurable Set-Ups using CEL software	13	13
Threshold levels (dB) 70 to 90 dB in 1 dB steps	2	2
Criterion level (dB) 80 to 90 dB in 1 dB steps	1	1
Number of Ln% values	5 values user settable from 0.1% to 99.9%	

Extra features in CEL-360IS and 360SIS only	
Profile memory size	>220,000 data points
Profiles per period	10 from Leq, Max, Peak, Ln%
Profile intervals	1, 2, 5, 10, 15, 20, 30 s 1, 2, 5, 10, 15, 20, 30 & 60 m
Fixed duration timers	5, 10, 15, 30 m 1, 2, 4, 8h
Delay start and stop timers With 16 pairs settable to the nearest minute	Up to 31 d 23 h 59 m in advance
Variable time for daily noise exposure level TWA _v (hh:mm)	1 min to 23 hr 59min in 1 min intervals

INTRINSICALLY SAFE DOSIMETER KITS

CEL-320IS/K1 and CEL-360IS/K1 kits are available that include the Dosimeter, CEL-110/2 Acoustic Calibrator, CEL-6681IS ¼" Dosimeter Microphone including clip and cable, CEL-6225 Foam Microphone Dust Cover and CEL-6682 Kit Case. Both kits include the PC download cable C6671 and dB10 or dB12 pc analysis software.

Multiple kits are available in 5 or 10 packs using the CEL-6679 case.

INTRINSICALLY SAFE SOUND LEVEL METER KITS

CEL-320SIS/K1 and CEL-360SIS/K1 kits are available which include the SLM, CEL-110/2 Acoustic Calibrator, CEL-425IS ¼" SLM Microphone, CEL-6225 Microphone Dust Cover, CEL-6682 Kit Case. Both kits include the C6671 PC download cable and dB10 or dB12 software.

OPTIONAL ACCESSORIES

Both CEL-6681IS and CEL-425IS microphones are available as spares.

Windows manipulation, graphing and reporting software dB10, is standard in the CEL-320/K dosimeter. The dB12 software is standard in the CEL-360IS/K1 logging dosimeter kits.

- C6672/0.5 Printer adaptor (requires C6671 cable).
- C6671 PC download cable (9 way D type connector).
- CEL-6225/5 Pack of 5 Foam dust covers for microphone.
- CEL-110/2 Acoustic calibrator and ½" to ¼" coupler
- CEL-6682 Kit case for single dosimeter/sound level meter and accessories.
- CEL-6679 Kit case for up to 10 instruments and single calibrator and accessories.
- CEL-6760 Environmental kit case for long-term surveys using CEL-360IS logging dosimeter.