

CEL-244 Digital Integrating Sound Level Meter

Introduction

The **CEL-244** is a completely new design of integrating sound level meter featuring the power of Digital Signal Processing (DSP) technology and the simplicity and low cost of a traditional analog instrument. It can be used for a wide range of noise measurement tasks and is suitable for many everyday applications. Complying with all the ANSI and IEC accuracy specifications in the Type 2 category the **CEL-244** will appeal to new and experienced users alike.

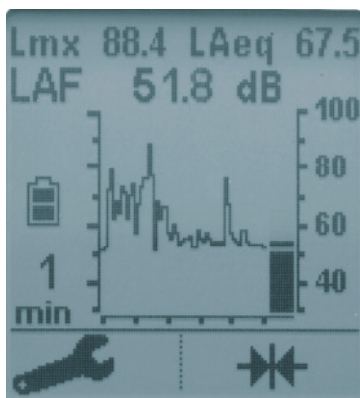
Applications

The **CEL-244** will be an ideal instrument for industrial hygiene measurements of noise in the workplace. The meter has a low and high measurement range that each covers a full 70dB. It can be used for machinery noise surveys as well as all general purpose workplace noise level measurements. With the A and C frequency scales and the S, F and I time response the meter can be used to assess the right hearing protectors using the NRR method. The non-decaying maximum hold and the integrated Leq/Lavg time average value of variable noises are displayed on the screen until reset by the user.



Key benefits

- Simple 2 button operation
- Wide range from 30 to 130dB
- Large graphic LCD screen 128 x 128 pixels
- Slow, Fast and Impulse time weightings
- Current, highest and time average noise levels shown in monochrome LCD display
- Large numeric and analog bar graph display
- Output to computer for simple data logging with pc
- Auto calibration at either 114 or 94.1 kHz decibel level
- Scrolling sound level display



main display with scrolling time history trace and simultaneous instant, maximum and average levels displayed

The new **CEL-244** features a standard 1/4" threaded socket on the back of the meter to allow it to be mounted on a tripod for fixed measurement applications. The meter is powered from 3 x AA alkaline batteries and will run for up to 35 hours on its own or continuously when powered from a mains-to-USB style adaptor or from a computer. Digital output via a USB mini A socket is available plus analog ac (or dc) voltage output through a 2.5mm jack socket to connect the **CEL-244** to other external computers or recorders or to the optional Windows dB24 software package. Standard or computer output kits are available.

Ordering information

CEL-244
CEL-110/2
CEL-6841
CEL-6840
CMC51
CEL-6842
Other items available -
CEL-244/K1

CEL-244/K2
CEL-244/6

Integrating Sound Level Meter Type 2 with foam windscreen and wrist strap
Acoustic calibrator Class 2 including 1/2" to 1/4" microphone coupler
Foam windscreen to protect against wind induced interference
Attaché kit case for meter and standard accessories
USB mini A cable from meter to computer for remote power/download
dB24 software for data logging in spreadsheet format file

Standard sound level meter kit including meter, calibrator, windscreen and kit case plus various accessories, batteries, wrist strap etc.

All items in K1 kit plus CMC51 USB cable to pc plus dB24 software
Pack of 6 x **CEL-244** sound level meters for larger bulk purchases

Technical Specification - General	
Accuracy:	ANSI S1.4 & S1.43 Type 2, IEC 61672-1 2002-5
Microphone type:	1/4" Electret mic. in standard 1/2" fixed housing
Reference Conditions:	68°F (20°C) air temperature, 65% Relative Humidity, 1013 mbar (101.325 kPa) atmospheric pressure.
Operating Temperature Range:	32 to 104°F (0 to 40°C) (Class 2)
Effect of Humidity:	Less than ±0.5dB over the range 30 to 90% RH (non-condensing), rel. to value at ref. conditions
Operating pressure range:	650 to 1080 mbar (65 to 108 kPa)
Batteries:	3 x AA Alkaline or rechargeable types
Battery Life: (hours)	Up to 35 hours
Dimensions w x h x d: (in/mm)	2.8 x 8.3 x 1.2 in (71.5 x 212.0 x 31.0 mm) including preamplifier and microphone
Weight including batteries: (oz/gm)	8.8 oz (< 250g)
Operator controls:	buttons for power On/Off and 2 x context sensitive menu selection plus initial configuration screen

*** Every CEL-244 is supplied with an initial individual calibration and conformance certificate

Technical Specification - Performance	
Total measurement range (dB)	30 to 130
Dynamic span on single range (dB)	70
Number of measurement ranges - 2 ranges (Low and High dB)	(30 – 100 & 60 – 130)
Noise floor (A weighted dB)	< 33
Frequency weightings	A and C
Time weightings	Slow, Fast and Impulse
Displayed parameters available on all user screens	Instantaneous level - Lp, Maximum level – Lmx Time average value – Leq or Lavg
Reset of maximum and average level by user	Yes – with non-decaying max hold
Display type	128 x 128 dot matrix LCD digital including real-time analog bar graph scale
Display resolution – numeric (dB)	0.1
Display resolution – graphical (dB)	1
Update rate for display (seconds)	0.5
Displayed time span for time history chart (minutes)	Last 1 or 5
Calibration method	Automatically recognized by meter
Signal detected when calibrator placed over microphone at 1 kHz frequency	Calibration level set to 114.0 or 94.0 dB without the need for user adjustment
External power option (5 Vdc)	Yes with CMC51 cable via USB socket
Analog outputs	AC (and optional DC) via 2.5 mm jack socket
AC output characteristics - (Provided for DAT tape / PC wav file recording or headphone applications)	Approx 0.85V RMS FSD output on selected sound level measurement range. Minimum load impedance 22kΩ.
DC output characteristics - (Provided at time of order as option for connection to chart recorder or pc data logging system)	0 to 1.3V DC for FSD on selected range. Output corresponds to selected frequency and time weighting. 2kΩ Output impedance
Digital output	USB 2.0 format of instantaneous sound level via 'mini A' USB socket (also powers meter)
Digital output characteristics – (value output once per second)	Instantaneous SPL output (software required) as per selected frequency and time weightings.