

CEL-24X Digital Sound Level Meter Series

Introduction

The **CEL-24x** series is a completely new range of general purpose sound level meters featuring the power of Digital Signal Processing (DSP) technology and the simplicity and low cost of a traditional analog instrument. They can be used for most simple noise measurement tasks and are suitable for many everyday noise applications. Complying with all the ANSI and IEC accuracy specifications in the Type 2 category the **CEL-24X** will appeal to new and experienced users alike.

Applications

The **CEL-24X** series includes 4 main models. In addition there are 2 main models: the **CEL-240** basic meter and the 244 integrating basic meter with 2 additional variants called the **CEL-242** and the **CEL-246**. They will be ideal instruments for industrial hygiene measurements of noise in the workplace. The **CEL-242** is a simple data logging version of the basic meter while the **CEL-246** is a logging version of the integrating meter. All versions have 2 measurement ranges and can display the instantaneous and maximum values while the CEL-244/246 includes the time average value Leq or Lavg.

Ordering information

CEL-240
CEL-242
CEL-244
CEL-246
CEL-110/2
CEL-6840
CMC51
CEL-6842

Other items available -
CEL-24X/K1

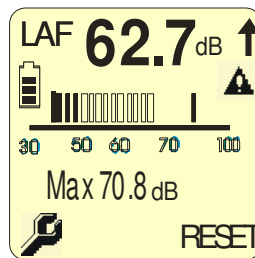
Sound Level Meter Type 2 with foam windscreen and wrist strap
Logging sound Level Meter Type 2 with foam windscreen and wrist strap
Integrating Sound Level Meter Type 2 with foam windscreen and wrist strap
Logging integrating Sound Level Meter Type 2 with foam w/screen and strap
Acoustic calibrator Class 2 including 1/2" to 1/4" microphone coupler
Small 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

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

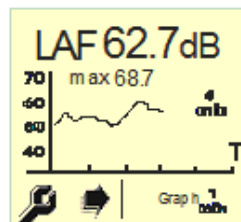


Key benefits

- 4 models in the range
- Wide range from 30 to 130dB
- Large graphic LCD screen 128 x 128 pixels
- Slow, Fast and Impulse time weightings on A or C scale
- 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



scrolling time history display

All **CEL-24X** instruments features a standard 1/4" threaded socket on the back of the meter, plus a wrist strap. The meters are powered from 3 x AA alkaline batteries and will run for up to 35 hours. When powered from a mains-to-USB style adaptor or from a computer they will run continuously. Digital output is available via a USB mini A socket plus analog ac (or dc) voltage output through a 2.5mm jack socket to connect the **CEL-24X** to other external computers or recorders or to the optional Windows dB24 software package. Standard measurement or optional computer output kits are available as required.

Technical Specification - General

Features available on meter	CEL-240	CEL-242	CEL-244	CEL-246
Accuracy to ANSI S1.4 and IEC 61672 type 2	√	√	√	√
Accuracy to ANSI S1.43 and IEC 61672 type 2	---	---	√	√
Basic sound level measurements	√	√	√	√
A or C frequency weighting	√	√	√	√
Slow, Fast or Impulse time response	√	√	√	√
Instantaneous sound level value displayed Lp	√	√	√	√
Maximum value displayed Lmx	√	√	√	√
Time history trend graphically displayed on screen	√	√	√	√
Q=3 or 5 dB exchange rate available	---	---	√	√
Time average level calculated Leq or Lavg	---	---	√	√
Sound level samples output to external computer	√	√	√	√
Basic data logging to internal memory	---	√	---	√

*** Every CEL-24X meter 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 * (244&246 models) - Time avg. value – Leq, 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.