CEL-242 Digital Logging Sound Level Meter

Introduction

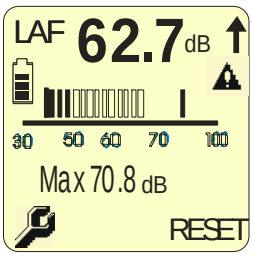
The **CEL-242** is a completely new design of a noise meter with memory. It features the power of Digital Signal Processing (DSP) technology and the simplicity and low cost of a traditional analog instrument. It can be used for a wide range of simple noise measurement roles and is suitable for many everyday tasks. Complying with all the ANSI and IEC accuracy specifications in the Type 2 category the **CEL-242** will appeal to new and experienced users alike who need data logging of noise levels.

Key benefits

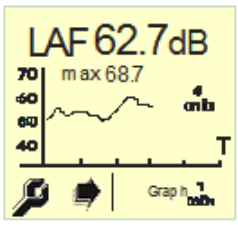
- Wide range from 30 to 130dB
- Large graphic LCD screen 128 x 128 pixels
- Slow, Fast and Impulse time weightings
- Current and highest noise level shown in display
- Large numeric and analog bar graph display
- Output to computer for simple data logging with pc
- Simple data logging to on-board memory
- Auto calibration at either 114 or 94 1 kHz decibel level
- Scrolling sound level display

Applications

The **CEL-242** has a low and high measurement range that covers a full 70dB on each range. 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. A non-decaying maximum hold feature on every display captures and displays the highest sound pressure level of any noise until reset by the user. The on-board memory allows for simple data logging to be performed with up to 65,000 samples in each of 100 runs.



main display



scrolling time history display

The new **CEL-242** features a standard ¼" 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 B socket is available plus analog ac (or dc) voltage output through a 2.5mm jack socket to connect the **CEL-242** to other external computers or recorders. Standard or computer output kits are available to the optional Windows dB24 software package.

Ordering information

CEL-242	Digital Logging Sound Level Meter Type 2 with standard accessories
CEL-120/2	Acoustic calibrator Class 2 114 dB at 1 kHz
CEL-6841	Foam windscreen to protect against wind induced interference
CEL-6840	Attaché foam lined kit case for meter and standard accessories
CMC51	USB mini B cable from meter to computer for remote power/download
CEL-6842	dB24 software for data logging in spreadsheet format file
Other items available -	
CEL-242/K1	Standard sound level meter kit including meter, calibrator, windscreen and kit case plus various accessories, batteries, wrist strap etc.
CEL-242/K2	All items in K1 kit plus CMC51 USB cable to pc plus dB24 software
CEL-242/6	Pack of 6 x CEL-242 sound level meters for larger bulk purchases

Technical Specification - General	
Accuracy:	ANSI S1.4 Type 2, IEC 61672-1 2002-5
Microphone type:	¼" Electret mic. in standard ½" 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)	At least 35 hours
Dimensions w x h x d: (in/mm)	2.8 x 8.3 x 1.2 in (71.5x 212.0x 31.0mm) 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-242 is supplied with an initial individual calibration and conformance certificate plus a foam windscreen and wrist strap and 3 x AA batteries + operator manual on cdrom*

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 always available on all user available screens	Instantaneous level - Lp, Maximum level - Lmx
Reset of maximum level from key press 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 mic.	Calibration level set to 114.0 or 94.0 dB
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 B' USB socket (also powers meter)
Digital output characteristics – (real time current value output once per second)	Instantaneous SPL output (software required) as per selected frequency and time weightings.
Memory storage in up to 100 separate runs with date and time from internal real time clock	Up to 65,000+ samples per run of fixed 1 sec. instant sound level to a max. of 419,000 samples