CEL-440 Sound Level Meter

Introduction

The CEL-440 sound level meter is designed to fulfill the requirement for a multi purpose meter with capabilities to perform octave or third octave frequency analyses. A fully functional broadband operational mode allows all of the popular noise measurement parameters to be obtained in terms of the overall noise levels. In addition where it is important to know the frequency distribution of a noise source then the built in octave or third octave band filters can be switched in to scan through the frequencies of interest and produce a sound spectrum. Results are stored in memory for later recall, printing or download to a personal computer.

Key Benefits

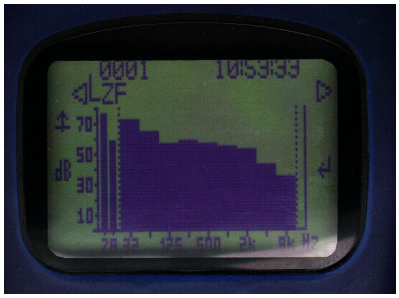
- Classic sound level meter operation with storage fro up to 999 separate runs
- A, C and the new Z (linear) frequency weightings
- Slow, Fast, Impulse and Peak time responses
- Built in frequency filters mean instrument does not need any bulky plug on additional filter sets
- Measures overall level plus A level plus 9 octave bands
- Measures overall level plus A level plus 28 1/3 oct bands
- User selectable start and stop bands for frequency scans to save time
- Automatic scanning, fixed time for each band or manual filter scanning control

Applications

The CEL-440 meter is ideally suited for use by busy industrial hygienists or safety professionals that require a quick and easy way to establish the noise levels in the workplace. The B or C version models provide the user with not only the overall noise levels in terms of the dB(A) result but also give a simple way to achieve octave band scans to gather the necessary information that allow the correct hearing protection to be specified. The built in filters eliminate the need to add on bulky filter sets yet provide a powerful means of collecting the data needed. The results of measurements made in the field are saved to the large memory for later recall to screen back in the office. Results may also be sent directly to a standard office printer to give a simple hard copy without the need for a personal computer. Every CEL-440 model comes with a download cable and Windows software to transfer run data to your pc for archiving purposes. The CEL-440 can act as a front-end device for tape recorders or pc based data logging systems using powerful CEL software Window packages available separately.

Operation and use

The heart of the CEL-440 system is a user interface based on a pc style menu system with all the most commonly needed choices grouped logically into 6 main headings. The navigation keys on the keypad guide the user through the menu structure so that the meter can be quickly configured for many different applications. User setups can be saved in memory for use next time saving the need to reconfigure each time. An Upgrade path is available for every CEL-440 user to provide the advantages of the CEL-480 data-logging meter using the same basic sound level meter hardware. Upgrade options can also be specified to add octave or third octave filters to the basic broadband only model.



Octave band screen in CEL-440

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TECHNICAL SPECIFICATIONS			
Applicable standards	ANSI S1.4-1983, IEC 61672:2002 class 1 & 2, DIN45657, IEC 1260 class 1	Memory Functions	512 kB total memory
		Stored data – overall	999 cumulative runs or spectral frequency scans
Time weightings	Slow, Fast and Impulse & Peak	Octave band mode measurements	9 bands 31.5 Hz to 8 kHz, LAeq, Lmx Lp per band
Frequency weightings (RMS and peak)	A, C & Z (lin) for rms, C & Z (lin) for peak	1/3 octave band mode measurements	28 bands 25 Hz to 12.5 kHz, LAeq, Lmx Lp per band
Amplitude weighting, Exchange rate (Q)	3, plus one from 4, 5, 6 or none	Overall measurement run times	Manual control of measurement duration using keypad controls
Threshold level dB or cutoff level for Lavg calculation	70 to 90 db in 1 dB steps (or none)		
		Unwanted data control by user	Pause button on keypad for deletion of unwanted noise levels from result
Overall measurements	10-140 dB total range	Dimensions & weight	13.5 x 4 x 1.5 in / 17 oz (340 x 100 x 40 mm / 500 gm)
Quasi-Analog display	1 dB steps, 70 dB range		
Measurement ranges	70-140, 60-130, 50-120, 40-110, 30-100, 20-90, 10-80 dB (7 ranges)	Battery type	4 x AA alkaline cells NiCad rechargeable cells may be used with shorter operational life
Digital display	1 main plus 4 additional		
Noise floor limits	20 dB(A) type 1 25 dB(A) type 2 <35 dB(Z)	Battery life	25 hours in broadband mode (with alkaline cells)
Broad band mode measurements	L, LAeq, LAIeq, Lav, LAE, Lmx, Lmn, LTm3, LTm5, 5 x LN%, LEP,d, TWA, LZpk plus histogram dist.	External power	12 V DC at 150 mA via 2.1 mm power connector from battery or mains
Statistical parameters	5 x LN% values, user selectable 0.1 – 99.9%	Tripod mounting	¼ in Whitworth camera tripod thread

Model selection table	Main measurement application
Choose CEL-440.A model for -	Broadband simple industrial noise applications
Choose CEL-440.B model for -	Octave band measurements for hearing conservation programs
Choose CEL-440.C model for -	1/3 Octave noise control measurement applications

Upgrade Options available	Description of upgrade option for CEL-440
Choose CEL-440/UP480 to -	Add data logging capabilities to basic CEL-440 meter
Choose CEL-440/UPAB to -	Add Octave band measurements to broadband instrument
Choose CEL-440/UPBC to -	Add 1/3 Octave to octave band instrument

Ordering Information (suffix 1 or 2 indicates ANSI accuracy specification)	
CEL-440.A1 or 440.A2	Broadband sound level meter with C6724 cable and CEL-6726 software
CEL-440.B1 or 440.B2	Broadband & Octave band meter with cable and software
CEL-440.C1 or 440.C2	Broadband, Octave & 1/3 Octave band meter with cable and software
CEL-440.A1/K1 or 440.A2/K1	Sound level meter kit with calibrator, windscreen, cable, software and case
CEL-440.B1/K1 or 440.B2/K1	Octave band meter kit with calibrator, windscreen, cable, software and case
CEL-440.C1/K1 or 440.C2/K1	1/3 Octave band meter kit with calibrator, windscreen, cable, software and case

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