

CEL-480 Data Logging Sound Level Meter

Introduction

The CEL-480 is the latest in a long line of advanced data logging sound level meters from CEL Instruments. Careful design of the user interface has produced an instrument that is both powerful yet extremely easy to use, even by the inexperienced operator. This full specification sound level meter packs a whole lot of value into an ergonomically designed body and provides many different noise measurement functions into the compact instrument. The benefit of built-in octave and third octave band frequency filters mean that this meter can perform many tasks for a wide range of user applications.



Key Benefits

- Classic sound level meter with data logging function
- Built in octave band and third octave band filters
- Measurement range from 20 to 140 dB(A)
- 9 octave bands from 31Hz to 8kHz plus 2 overall levels
- 28 third octave bands from 25Hz to 12.5kHz plus overall
- Non volatile memory storage for up to 999 separate runs
- Each run can store up to 9999 regular period
- Graphic level recorder mode with 2 time history profiles
- External power for extended long term monitoring
- Ac output for tape recording and playback
- Direct print and pc download

Applications

A wide range of time intervals from 1 second to 1 hour allow the set of up to 14 different results to be stored in the meters memory. Up to 9999 periods allow a maximum continuous recording time at 5 minute intervals of over 1 month with maximum, minimum, time average, peak, sound exposure and 5 user selectable LN5 values saved.

Operation and use

A carefully designed menu structure groups the controls of the CEL-480 into 6 main logical headings; measurement bandwidth mode, instrument setup, calibration, recall of data from memory, meter configuration and instrument status. The navigation keys allow the user to access all the controls using a simple Up/Down, Left/Right methodology similar to using a personal computer program.

The graphic level recorder function permits one or two key time history parameters to be saved along with the period data. This allows a 5-minute period run to be made together with 1 second recording of the maximum and time average Leq values to properly document the changing noise climate for typical environmental surveys.

A comprehensive set of internal timers using the real time clock can be used automatically to control the storage of noise level data. Up to 7 sets of delayed start and stop times can be programmed up to a month in advance with or without synchronizing data capture to the clock and with repeats up to 999 times if required.



data logging screen in CEL-480

Any of the measured noise parameters can be displayed in the larger format at the top of the screen while the bottom half can show up to 4 secondary parameters at the same time. A backlight is provided for viewing in poor light and the signal is shown on a large quasi-analog bar graph to show the current level within the chosen dynamic span. Overload and under-range warnings are clearly displayed.

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 plus 9999 periods	999 cumulative runs or spectral frequency scans
Time weightings	Slow, Fast and Impulse & Peak	Fixed overall run measurement times	1, 5, 10, 15, 20, 30 mins 1, 2, 4, 8, 12, 24 hours
Frequency weightings (RMS and peak)	A, C & Z (lin) for rms, C & Z (lin) for peak	Interval times for regular periods (13)	1, 5, 10, 15, 20, 30 s 1, 5, 10, 15, 20, 30, 60 m
Amplitude weighting, Exchange rate (Q)	3, plus one from 4, 5, 6 or none	Delay timers for automatic operation and storage of data	7 pairs of user selectable start and stop times to the nearest minute up to 31 days 23 hours 59 mins in advance with 999 repeat
Threshold level dB or cutoff level for Lavg calculation	70 to 90 db in 1 dB steps (or none)		
Overall measurements	10-140 dB total range	Graphic level recorder operation of Time History Profiles	Optional storage of 1 or 2 parameters of at least 220,000 samples
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)	Time History Profile intervals (12)	1, 5, 10, 15, 20, 30 sec 1, 5, 10, 15, 20, 30 min profiles of Lmx, Lmn, Lpk, LAeq, Lav, LN%, LTm3, LTm up to period interval
Digital display	1 main plus 4 additional secondary parameters		
Noise floor limits	20 dB(A) type 1 25 dB(A) type 2 <35 dB(Z)	Dimensions & weight	13.5 x 4 x 1.5 in / 17 oz (340 x 100 x 40 mm / 500 gm)
Broad band mode measurements	L, LAeq, LAleq, Lav, LAE, Lmx, Lmn, LTm3, LTm5, 5 x LN%, LEP,d, TWA, LZpk plus histogram dist.	Battery type	4 x AA alkaline cells NiCad rechargeable cells may be used with shorter operational life
Octave band mode measurements	9 bands 31.5 Hz to 8 kHz, LAeq, Lmx Lp measured in each band	Battery life	25 hours in broadband mode (with alkaline cells)
1/3 octave band mode measurements	28 bands 25 Hz to 12.5 kHz, LAeq, Lmx Lp measured in each band	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-480.A model for -	Broadband data logging environmental noise applications
Choose CEL-480.B model for -	Octave band measurements for hearing conservation programs
Choose CEL-480.C model for -	1/3 Octave noise control measurement applications

Ordering Information (suffix 1 or 2 indicates ANSI accuracy specification)	
CEL-480.A1 or 480.A2 CEL-480.B1 or 480.B2 CEL-480.C1 or 480.C2	Broadband sound level meter with C6724 cable and CEL-6727 software Broadband & Octave band meter with cable and software Broadband, Octave & 1/3 Octave band meter with cable and software
CEL-480.A1/K1 or 480.A2/K1 CEL-480.B1/K1 or 480.B2/K1 CEL-480.C1/K1 or 480.C2/K1	Sound level meter kit with calibrator, windscreen, cable, software and case Octave band meter kit with calibrator, windscreen, cable, software and case 1/3 Octave band meter kit with calibrator, windscreen, cable, software and case