

CEL-430 Integrating sound level meter with memory

Introduction

The **CEL-430** Integrating sound level meter is a new design that encompasses many of the benefits of the existing CEL-450 and CEL-490 products in a simple and easy to use meter. All DSP technology ensures that the whole of the audio range of noise levels are covered by a single dynamic span. This eliminates the need to change ranges during a measurement and ensures that all the noise is captured faithfully and included in the overall result. All the most popular noise units are simultaneously calculated during the measurement and can be read off the large display or recorded for later download to the optional software package.



CEL-430.A Integrating sound level meter

Key benefits

- ❑ Single 120 dB dynamic range covers all noise levels
- ❑ Simple easy-to-use operation
- ❑ Pre-configured setups for the most popular measurements
- ❑ Available with ANSI/IEC type 1 and type 2 accuracy
- ❑ Automatic recognition of calibrator when applied to microphone
- ❑ Large custom LCD with automatic backlight
- ❑ Memory for result storage
- ❑ Pc software program for archiving and printing results
- ❑ Meter can be remotely configured for special measurements from dB30 PC software
- ❑ Fixed microphone and preamplifier for simplicity

Applications

- ❑ Short term hand held measurements
- ❑ workplace noise assessments
- ❑ community noise measurements
- ❑ noise nuisance monitoring
- ❑ vehicle noise certification
- ❑ simple survey meter for front line measurements
- ❑ noise mapping around machines in the workplace
- ❑ product noise testing
- ❑ compliance measurements to local noise ordinances
- ❑ real time output to personal computer



keypad and large LCD display on CEL-430 integrating meter

PC Software

The **CEL-430.A** meters are available with the optional dB30 dedicated Windows package download and control software. Record the measurements as normal and they will be stored in the meter's memory for later transfer to the computer for printing. The dB30 software also allows the meter to be reconfigured, labeled and stored to suit new measurement requirements. These user defined setups will be ready to go when the meter is next used. A real time output is available for viewing the noise readings on the computer.

Measurement functions simultaneously calculated

Freq Wtg.	LF	LS	LFmx	LSmx	LFmn	LSmn	Lpk	Leq Q=3	Lavg Q=4	Lavg Q=5	Ltm3	Ltm5	Le
A	√	√	√	√	√	√	√	√	√	√	√	√	√
C	√	√	√	√	√	√	√	√	√	√			
Z	√	√	√	√	√	√	√	√	√	√			

27 measured functions shown shaded above can be simultaneously calculated and stored by **CEL-430.A**

Product Information		
Broadband measured parameters	Instantaneous level L_{xy} , maximum level L_{xymx} , minimum level L_{xymn} , peak level L_{xpk} , average level (Q=3) L_{xeq} , average level (Q=4) L_{avg} , average level (Q=5) L_{avg} , takmaximal levels L_{tm3} & L_{tm5} , exposure level L_{xE} ,	
Acoustic accuracy	ANSI S1.4 (R1997) type 1 and type 2, ANSI S1.43 1997, IEC 61672:2002, IEC 60651 : 1994, IEC 60804 : 2000	
Microphone details	CEL-251 1/2" precision electret capsule for type 1 models, CEL-253 1/2" general purpose electret microphone for type 2 models (preamplifier is fixed with industry standard 1/2" thread)	
Broadband frequency weightings	'A', 'C' and 'Z' (linear, un-weighted, all-pass level) simultaneously	
Frequency response (Hz)	6.3 Hz to 30 kHz for -3 dB down points	
Time weightings (response)	Slow and Fast for rms.	
Peak frequency weighting	'A', 'C' or 'Z' separate from rms. weighting	
Dynamic range for display	120 dB	
Noise floor (dB)	16.5 'A' weighted, 19.7 'C' weighted, 23.4 'Z' weighted	
Maximum noise level (dB)	140 dB rms., 143 dB peak	
Resolution (dB)	0.1 dB across whole measurement range	
DSP sampling rate (Hz)	67,200 Hz sampling with true rms. values calculated digitally	
Memory storage capability	100 complete runs each with the overall values of all parameters selected in the setup (maximum of 9 per run plus start date & time)	
Storage method	Manually controlled by user via keypad Start and Stop keys	
Duration for measurement	Variable up to 24 hours maximum per run controlled by user	
Calibration method	Automatic detection of calibrator on microphone for both 1 kHz and 250 Hz frequency operation. Meter set to user pre-entered calibrator dB level, date, time and level of selected calibration is stored in meter	
Configurations saved in memory	3 factory defaults plus 2 user configured setups using optional dB30 software	
Analog outputs	AC signal 0.5 V rms. at 98 dB with 22 kΩ impedance (plus optional log DC output 0 to 2 V for 0 to 140 dB at 14.28 mV/dB)	
Digital output	Download of stored data to pc or remote control of operations of meter via dB30 software via RS232 port at 19200 baud maximum	
Keypad control	6 individual keys with auto backlight operation on key press	
Screen languages for display	English, French, German, Italian, Spanish menu selectable	
LCD screen display	128 x 64 pixel monochrome backlit display with icon indicators can show up to 9 parameters simultaneously on screen using Up/Down scroll keys	
Size	13.4 x 4 x 1.5 in (340 x 100 x 40 mm)	
Weight	19.3 oz (550 gm) plus batteries	
Tripod socket	Standard camera thread (1/4 inch)	
Internal power supply	4 off AA alkaline cells (15 hours typical maximum battery life)	
External power supply	12 V dc at 150 mA nominal via 2.1 mm power connector	
Instrument models available	ANSI Type 1 accuracy	ANSI Type 2 accuracy
Broadband model	CEL-430.A1	CEL-430.A2
Acoustic calibrator	CEL-110/1	CEL-110/2
Foam windscreen	CEL-2962	CEL-2962
Kit case for standard accessories	CEL-6672/2	CEL-6672/2
Download cable to computer	C6724	C6724
dB30 Windows™ software for pc	CEL-6830	CEL-6830
Measurement Kits available to complement the meter and accessories	Specify a standard noise measurement kit by adding /K1 after meter part number to include relevant acoustic calibrator, foam windscreen, and foam lined carrying case. Specify a special pc kit with software by adding /K2 after meter part number to include relevant acoustic calibrator, foam windscreen, pc cable, dB30 software and foam lined carrying case.	