

CEL-620 Integrating Real Time Analyzer

Introduction

Many industrial measurements of complex noises require a complete knowledge of the variable noise level climate over a period of time. The **CEL-620** meter is designed to satisfy this need and to enhance it by providing the capture and display of the highest maximum level and the lowest minimum level together with the integrated time average level.

A super wide 120 dB dynamic range means that the user does not need to worry about changing scales as it will always be on the right scale and the provision of all the popular frequency and time weightings allow many different measurements to be taken by new and experienced users alike. The full-color, high-precision, graphic LCD enhances the user experience with this new meter.



CEL-620.B Real time
Octave band analyzer

Key benefits

- Wide dynamic range from 20 to 140 dB on single span
- A, C and Z simultaneous frequency weightings
- Slow, Fast and Impulse rms. time responses
- Large 240 x 320 pixel color ¼ VGA graphic display
- Easy to use menu structure
- Integrating capability for time average values
- Available in ANSI/IEC class 1 and class 2 accuracy
- Available as A version with broad band levels only
- Available as B or C version with real time octave & 1/3 octave band filters plus 3 broad band results A, C & Z
- Storage of all results simultaneously in a huge non-volatile memory
- Available as complete measurement kits with acoustic calibrator and case

Applications

For measurements of simple noise levels the instantaneous sound pressure level is often adequate. However, in many real workplace situations the noise levels are variable or changing too quickly to accurately visually estimate the average level over a representative time period. The **CEL-620** is designed to assist in the correct interpretation of these

difficult noise climates by providing the time average noise level with the 3, 4 and 5 dB exchange rates. Changing noise levels are properly integrating into the overall time average answer and displayed as the Leq (with Q=3), LDOD (Q=4) or the Lavg (Q=5) exchange rates. This enables the **CEL-620** to correctly assess changing noise levels

and enables the comparison of results to the requirements of OSHA or ACGIH or NIOSH. Additional octave and third octave band filters in the B and C versions of the **CEL-620** provide for instant frequency analysis of workplace noise levels that is so important for the correct prescription of hearing protectors or noise reduction applications.

Ordering information

General purpose sound meters

CEL-620.A2
CEL-620.A2/K1
CEL-620.B2
CEL-620.B2/K1
CEL-620.C2
CEL-620.C2/K1

Precision sound meters

Analysis software

Insight B software

Wide range Type 2 sound level meter with wrist strap and windscreen

Type 2 Sound level meter kit with calibrator, USB cable and case

Wide range Type 2 octave band analyzer & wrist strap and windscreen

Type 2 octave band analyzer kit with calibrator, USB cable and case

Wide range Type 2 1/3 oct. band analyzer & wrist strap and windscreen

Type 2 1/3 oct. band analyzer kit with calibrator, USB cable and case

Type 1 versions of all the above meters are available by specifying the part number as CEL-620.B1/K1 for example

Casella Insight Data Management System software is available for the CEL-620 family of meters to further enhance downloads and reporting.

Technical Specification - General	
Accuracy:	ANSI S1.4 & S1.43, IEC 61672-1 2002-5
Frequency filters comply with:	ANSI S1.11 and IEC 61260
Microphone type:	Removable ½" Free field Electret microphone Type 1 or Type 2 as specified on fixed preamplifier
Reference Conditions:	68°F (20°C) air temperature, 65% Relative Humidity, 1013 mbar (101.325 kPa) atmospheric pressure.
Operating Temperature Range:	14 to 122°F (-10 to 50°C) (Class 1) 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 NiMH rechargeable types
Battery Life: (hours)	Up to 12 hours without backlight
Dimensions w x h x d: (in/mm)	2.8 x 9.0 x 1.2 in (71.5x 230.0x 31.0mm) including preamplifier and microphone
Weight including batteries: (oz/gm)	10.1 oz (< 291g)
Tripod socket for fixed measurements	Yes via standard camera thread (1/4" size)
Operator controls:	buttons for power On/Off and 2 x context sensitive menu selection + 4 navigation and confirm buttons

Technical Specification – Performance	
Total measurement range (dB)	20 to 140
Dynamic range on single measurement span (dB)	120
Noise floor (A weighted dB)	< 25 (Class 1) < 30 (Class 2)
Frequency weightings	A, C & Z (unweighted)
Time weightings	Slow, Fast and Impulse
Displayed parameters available as per user selected list or using pre-configured setups	Instantaneous level – Lp, peak level Lpk Maximum level Lmx, Minimum level – Lmn Average levels Leq, LDOD, Lavg, Ltm3, Ltm5
Narrow band real time measurements	(B version) 11 octave bands 16 Hz to 16 kHz (C version) 33 third octave bands 12.5 Hz to 20 kHz plus A & C & Z broad band levels
Display of octave and third octave band levels	Complete range to optimize dynamic span With listing of avg & max band levels in tabular format
Measurements made in octave (& 1/3) band mode include	Lmx and Leq with selected freq and time weightings
Reset of max/min/average level from key press by user	Yes – with non-decaying max/min hold
Display type	240 x 320 full color 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 60 seconds
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 With +/-1 dB span and 0.1 dB resolution by user
External power option (12 Vdc)	Yes via universal CEL-PC18 unit
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 of stored result sets	USB 2.0 format of memory results as .CSV text file via 'mini B' USB (meter acts as a USB memory card)