

## CEL-631 Environmental Integrating Real Time Noise Analyzer

### Introduction

While many industrial hygiene professionals are interested in noise measurements inside the workplace there is also an increasing demand to measure environmental noise outdoors as well. The **CEL-631** environmental noise analyzer has been designed to satisfy this need by providing overall data storage of varying noise levels during the day. The comparison of the different LN% values is useful in describing the variability of the noise over time. A super wide 120 dB dynamic range means that the user does not need to worry about selecting scales as the meter will always be on the right range. The provision of all the popular frequency & time weightings and exchange rates allow many different noise measurements to be taken by new and experienced users alike. The **CEL-631** has a full-color, graphic LCD for complete clarity.

### Applications

For measurements of many industrial noise levels the time average sound pressure level is often adequate. However, in many situations noise levels are variable or changing too quickly to accurately estimate the background level over a representative time period. The **CEL-631** is designed to assist in the correct interpretation of these

non-steady noise climates by including the percentile noise levels that have occurred during the run. The changing noise levels are sampled and the various percentile values such as the LN10%, LN50% and LN90% are calculated. This enables the **CEL-631** to correctly record the key maximum, minimum, time average and 5 x percentile noise

### 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. simultaneous time responses
- ❑ Q=3, Q=4 and Q=5 simultaneous exchange rates
- ❑ Large 240 x 320 pixel color ¼ VGA graphic display
- ❑ Easy to use menu structure
- ❑ Storage of complete overall run results inc. 5 x LN%
- ❑ Manual or fixed duration recording possible
- ❑ Available in ANSI/IEC class 1 and class 2 accuracy
- ❑ Available as B or C version with real time octave & 1/3 octave band
- ❑ Storage of all results simultaneously in a huge non-volatile memory
- ❑ Up to 999 runs stored
- ❑ Available as complete measurement kits with acoustic calibrator and case



*CEL-631.C Real time third octave band environmental noise analyzer*

### Ordering information

General purpose analyzers

- CEL-631.A2**
- CEL-631.A2/K1**
- CEL-631.B2**
- CEL-631.B2/K1**
- CEL-631.C2**
- CEL-631.C2/K1**

Precision sound meters

- Environmental** Type 2 sound level meter with wrist strap and windscreen
- Type 2 Sound level meter kit with calibrator, USB cable, software and case
- Env.** Type 2 octave band analyzer & wrist strap and windscreen
- Type 2 octave band analyzer kit with calibrator, USB cable, s'ware and case
- Env.** Type 2 1/3 oct. band analyzer & wrist strap and windscreen
- Type 2 1/3 oct. band analyzer kit with calibrator, USB cable, s'ware & case
- Type 1 versions of all the above meters are available by specifying the part number as **CEL-631.B1/K1** for example

<b>Technical Specification - General</b>	
Accuracy:	ANSI S1.4 & S1.43, IEC 61672-1 2002-5
Frequency filters comply with:	ANSI S1.11 and IEC 61260
Microphone type:	½" Free field Electret microphone & preamplifier Type 1 or Type 2 on a removable CEL-495 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 31 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 10.5 x 1.2 in (71.5x 267.0x 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:	8 buttons for power On/Off + 2 x context sensitive menu selection + 4 navigation + confirm selection

<b>Technical Specification – Performance</b>	
Total measurement range (dB)	20 to 140
Dynamic range on single measurement span (dB)	120
Noise floor (A weighted dB)	< 20 (Class 1), < 25 (Class 2)
Frequency weightings	Simultaneous A, C & Z (unweighted)
Time weightings	Simultaneous Slow, Fast and Impulse
Amplitude weightings (Exchange rate)	Simultaneous Q=3, Q=4 and Q=5 dB
Displayed parameters available as per user selected list or using pre-configured setups	Lp, Lmx, Lmn, Lpk Leq, Lleq, LDOD, Lavg, LAE, Ltm3, Ltm5 4 fixed LN% values plus 1 user selectable % value
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 with cursor readout plus A & C & Z broad band levels
Display of octave and third octave band levels	Graphical spectrum including broad band values & With listing of individual band levels in tabular format
Measurements made in octave (& 1/3) band mode include	Lmx and Leq with selected freq and time weightings Plus 5 LN% spectra
Display type	240 x 320 full color dot matrix LCD digital including real-time analog bar graph scale
Data storage 1 Gb internal memory	999 run maximum memory storing all parameters over the whole of the run – overall results are recorded
Direct printing of results on site	To portable battery operated printer on 3 in paper roll
Displayed time span for time history graph on LCD	Last 60 seconds
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) or via USB 5V line	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	Via USB 2.0 mini B connector to Casella Insight program
Audio recording	Voice notes can be stored at the start of a run in wav file format for later identification and annotation