

## CEL-231 Digital Sound Level Meter

### Introduction

The CEL-231 Digital sound level meter is ideal for the measurement of steady or non-transient noise sources.

These include such sources as fan, pumps, compressors, heating and ventilation systems or machinery that runs at constant speed.

A large, easy to read digital display indicates the noise level with a resolution of 0.1 dB over a wide range of noise levels.

The CEL-231 even has two analog outputs that can be used to feed other devices.

### Applications

This is the best instrument in the CEL noise meter range for satisfying the requirements of low cost and simplicity of use.

Two overlapping measurement ranges cover the noise levels from 30 dB(A) to 135 dB(A) in 70 dB dynamic spans.

The CEL-231 fulfils all the requirements of an ANSI or IEC sound level meter in the type 2 classification making it the ideal starting point for those on a limited budget but who want to have a fully complying instrument for OSHA surveys or other simple standards.

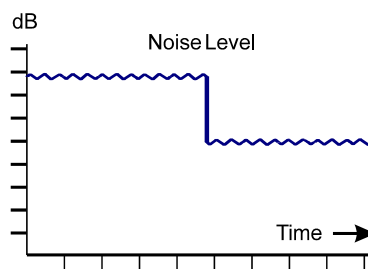
### Ordering Information

CEL-231	Digital Sound Level Meter
CEL-110/2	Acoustic calibrator type 2 with CEL-4627 calibration adaptor for ¼" microphones
CEL-4672	3 ½" foam windscreen for outdoor measurements
CEL-5894	Carrying case for meter and accessories
CEL-231/K1	Complete measurement kit with all items above



### Key Benefits

- Lightweight and slim design fits in the pocket
- Two wide measurement ranges cover all noise levels between 30 and 135 dB(A)
- 'A' frequency weighting cover the majority of noise measurement applications
- Slow and Fast time responses available
- Large liquid crystal display with 0.1 dB resolution
- Long battery life using 4 AAA alkaline cells
- AC and DC outputs provide analog signals to other pieces of equipment



steady noise levels

The CEL-231 is not recommended for use in assessing impulsive noise sources such as piling or gunfire that may contain rapid transient levels of noise.

The CEL-231 can be used to its best advantage when an estimate of the decibel level is required from noise sources that are constant in their output.

Simply point the sound level meter at the main noise source and visually average the fluctuating readings shown on the large digital display.

It is usually possible to get a good representative estimate of a variable noise level of a pump or fan when the noise is changing by less than about +/- 2 dB about a mean level.

TECHNICAL SPECIFICATION - GENERAL	
Accuracy	±1 dB under IEC 651, 804 Type 2 and ANSI S1.4 Type 2 ref. conditions
Microphone	1/4" Electret microphone capsule with fixed preamplifier
Reference Conditions	114 dB SPL, free field perpendicular incidence, 1 kHz, 20°C, 65% RH
Operating Temp. Range	-10°C to +50°C operating (-20°C to +60°C storage)
Effect of Humidity	<0.5 dB 30% to 90% RH
Batteries	4 x AAA Manganese Alkaline Cells
Battery Life	20 hours typical (low battery indicator)
Dimensions	258 mm x 70 mm x 21 mm, 10.2 x 2.8 x 0.8 in
Weight:	230 grams, 8 oz (with batteries)

TECHNICAL SPECIFICATION - PERFORMANCE	CEL-231
30 – 135 dB(A) measurement range for instantaneous sound level	√
70 dB overall dynamic range in 2 sub-ranges: 30 - 100 dB and 65 – 135 dB	√
Frequency Weighting "A"	√
Time Weightings "Slow" and "Fast"	√
Pre-weighting overload detector	√
Compliance with ANSI S1.4 Type 2A Standard	√
Compliance with IEC 651 Type 2	√
3½ digit Display, 12.7 mm high character LCD	√
Low battery indicator in display	√
AC Conditioned 7.25 V RMS FSD Auxiliary Output. Minimum load impedance 39 kΩ	√
DC Log RMS output nominally 25 mV/dB. Minimum load impedance 27 kΩ	√

Typical accessories for CEL-231 Sound level meter	
 CEL-231 sound level meter	 matching CEL-110/2 acoustic calibrator
 CEL-4672 foam windscreen on microphone	 typical instrument kit