

CEL-250 1/2" measurement microphone capsule

Introduction

The **CEL-250** 1/2" measuring microphone capsule is designed for acoustical measurements in research and development and also for industrial use. Some typical applications include audiometry, the measurement of architectural acoustics and general noise levels in the environment. The microphone capsule is used as the preferred transducer for the CEL-440, 450, 480 & 490 series of meters and the CEL-553, 573 & 593 analyzers



CEL-250 microphone capsule

Key benefits

- Pre polarized design can be used with preamplifiers that do not supply bias voltage
- Frequency range 3,5 Hz to 20 kHz \pm 2 dB
- Free-field response
- Rugged design for long trouble free operating life
- Standard thread size for interchangeability with many popular measurement devices
- Measurements up to 146 dB
- Low noise floor for quiet background measurements

Applications

The microphone capsule has a fixed layer of back-electret to supply the polarization voltage. It is designed and very carefully constructed to ensure excellent long-term stability of the electroacoustical parameters. All essential components including the diaphragm are made of nickel and the diaphragm is bonded by a special galvanic process. The rear electrode, holder of the back-electret, is insulated from the capsule housing by a quartz glass plate. The diaphragm is protected against mechanical

damage by a protection grid into which is built an insulated calibration grid. This allows convenient measurement of each capsule's frequency response curve by applying a well-defined electrostatic field (400 volts/dc, 30 volts/ac) without removing the protection grid or requiring special spacers. The microphone capsules have been artificially aged by treatment under defined temperature and humidity. This ensures the long-term stability. The equalization of the static air pressure between the inside and

outside of the **CEL-250** capsule is by means of a capillary tube rear-vented into the preamplifier. This enables the use of an optional screw-on dehumidifier for use in very damp situations. The capsule uses the international standard thread 60 UNS which ensures compatibility with a wide range of microphone preamplifiers and measurement instruments such as the CEL-400 and CEL-500 series of sound level meters and real time analyzers.

Ordering information

CEL-250

1/2" pre polarized measurement microphone capsule supplied in wooden box with individual calibration certificate

Recommended calibrator
CEL-110/1

Dual level acoustic calibrator
Class 1 (114 and 94 dB at 1 kHz)

CEL-284

Single level acoustic calibrator
Class 1 (114 dB at 1 kHz)

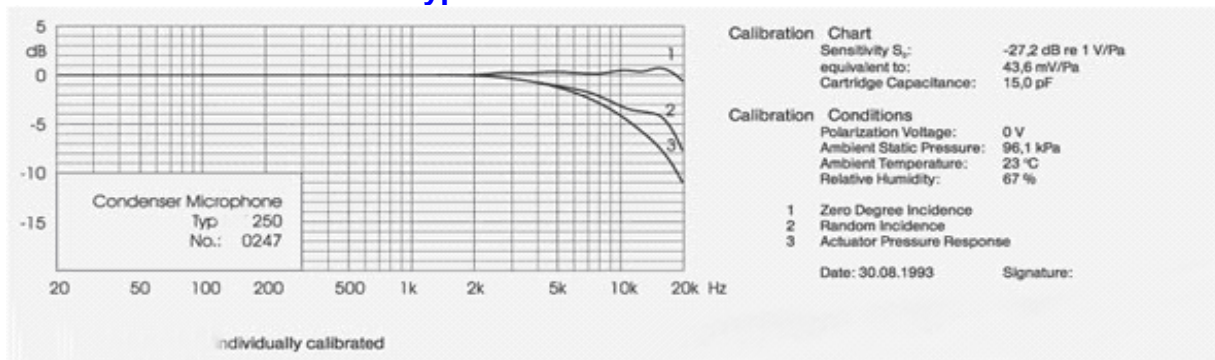


CEL-250 in presentation wooden box with calibration certificate

Technical Specifications

Transducer type	Capacitive pressure transducer
Frequency range (free-field response)	3,5 Hz ... 20 kHz (± 2 dB)
Sensitivity at 1 kHz	50 mV/Pa*
Max. SPL for THD $\leq 3\%$ at 1 kHz	146 dB
Inherent 'A' weighted noise level with CEL-400 or 500 sound level meter	15 dB
Polarization voltage used	Back-electret (200 V dc not required)
Polarized cartridge capacitance (at 1 kHz)	17 pF*
Operating temperature range	-50 ... +100 °C
Main ambient temperature coefficient	$\leq 0,01$ dB/K
Main ambient pressure coefficient	-1×10^{-5} dB/Pa
Diameter (with protection grid)	13,2 \pm 0,02 mm
Diameter (without protection grid)	12,7 \pm 0,02 mm
Height	16,4 mm
Weight	9 g
Preamplifier thread	11,7 mm 60 UNS
Protection grid thread	12,7 mm 60 UNS

Typical calibration certificate



every CEL-250 microphone is supplied with an individual calibration certificate

Polar response curves

