



1/2" Prepolarized Free-Field Microphone

Model 377B02 is recommended for high accuracy applications where high sensitivity is required for free-field response type measurements.

Applications

- Precision sound level measurements
- Research & development
- Hearing preservation and safety
- Vehicle pass-by noise
- Machinery preventative maintenance
- Transfer path analysis
- Environmental noise monitoring
- Anechoic chamber measurements
- Loudspeaker measurements

Highlights

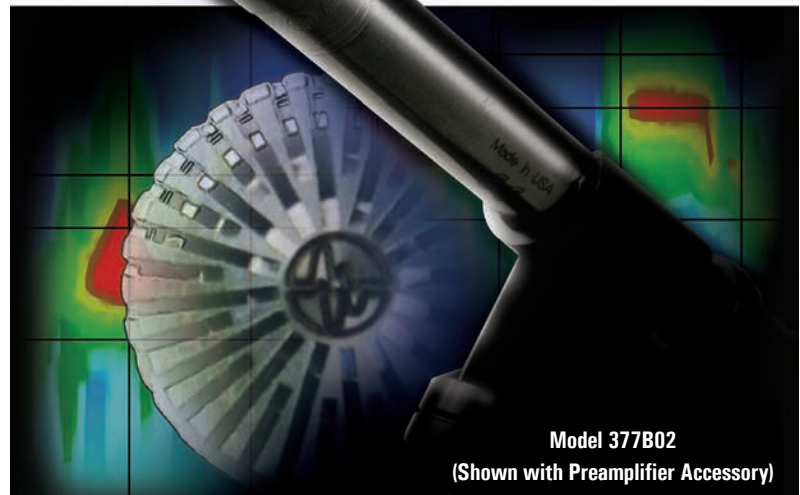
- Sensitivity: 50 mV/Pa
- Frequency: 3 Hz – 20 kHz
- Dynamic Range: 15 – 146 dB
- Temperature: -40 to +120° C
- Polarization: Prepolarized (0V)

Standards Compliance

- IEC 61094-4 type WS2F compliant
- IEC 61672 class 1 compliant for premium sound level meter use
- IEC 60651 type 1 compliant
- Calibration reference microphone traceable through PTB, compliant with ISO 9001 & 17025, A2LA approved



Model 377B02



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(Shown with Preamplifier Accessory)

Use of Model 377B02 Free-field microphones

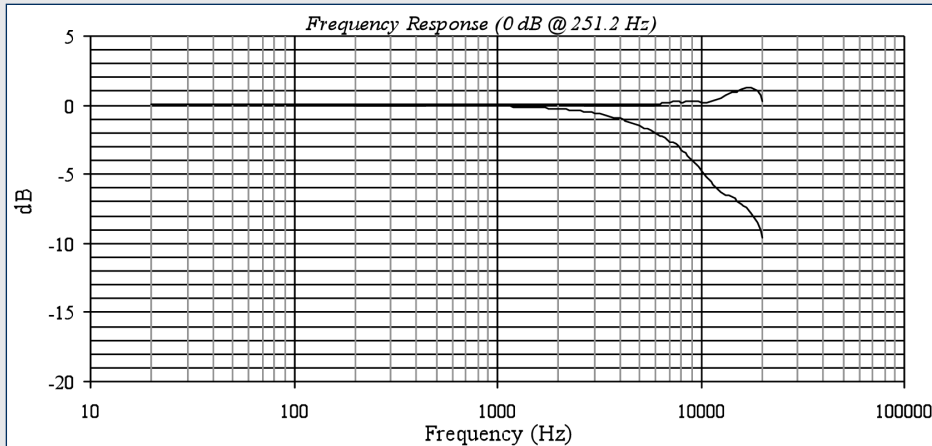
When a freely propagating sound wave encounters an object in its path, the wave will either, be reflected, absorbed or transmitted depending on the material properties and size of the object as well as the actual wavelength of the sound. In practice, the very microphones used to quantify the sound field introduce disturbances to the field which must be compensated for if an accurate measurement is desired. The impact seen, if not corrected, is an increase of pressure in front of the diaphragm, which will lead to an increase in output voltage. In order to compensate for this undesirable output, the microphone is designed with correction factors to compensate for its own presence in the sound field, at 0 degrees incidence.

Polarization Voltage

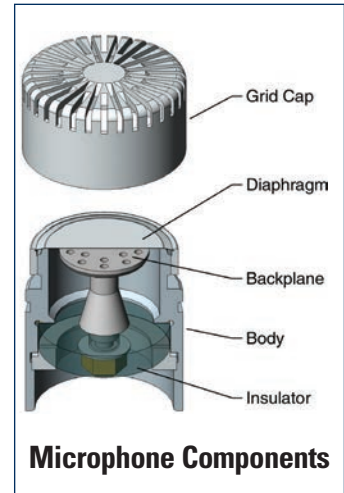
Model 377B02 is a prepolarized model that when combined with a preamplifier is designed to operate on ICP® sensor power, or any 2-20 mA constant current supply. This modern design is preferred for portable measurements or operation in high humidity applications. Design advantages are coaxial cables usage and interchangeability with other ICP® sensors (accelerometers, pressure sensors, strain gages, etc.) resulting in set-up time savings and low channel cost.

Calibration & Warranty

PCB® has a systematic quality control procedure in place utilizing the finest materials, assembled in a clean environment. These products are exposed to an extensive aging program in climate controlled test chambers to ensure the most stable product even in tough applications where high humidity or temperatures exist. Each unit is qualified and comes with a traceable calibration certification and is backed by our **Best in class 5 year warranty** and a Total Customer Satisfaction no risk policy.



Typical free-field response of the microphone with the grid cap at 0 degree incidence. The top curve is the corrected free-field curve and the bottom curve is the pressure response generated by the electronic actuator.



Microphone Components

Specifications - 1/2" Free-Field Microphone Model 377B02

Acoustic	
Nominal Microphone Diameter	1/2" (12mm)
Polarization Voltage	0V (prepolarized)
Open Circuit Sensitivity (at 250 Hz)	50 mV/Pa
Open Circuit Sensitivity (re 1 V/Pa)	-26 dB (+/- 1.5 dB)
Frequency range (+/- 2 dB)	3.15 to 20,000 Hz
Frequency range (+/- 1 dB)	5 to 10,000 Hz
Distortion Limit (3% distortion)	146 dB
Cartridge Thermal Noise	15 dB(A)
Cartridge Capacitance	12 pF
Pressure Equalization Vent	Rear Vented
Environmental	
Operating Temperature Range	-40 to 248 °F (-40 to 120 °C)
Temperature Coefficient (14 to 122 °F)	-0.005 dB/ °F
Temperature Coefficient (-10 to +50 °C)	-0.009 dB/ °C
Static Pressure Coefficient (at 250 Hz)	-0.013 dB/kPa
Influence of Humidity (non condensing)	<0.1 dB
Influence of Axial Vibration (0.1g (1 m/s ²))	63 dB re 20µPa
Physical	
Size (Diameter x Height (without grid))	0.52" x 0.64"
Size (Diameter x Height (with grid))	0.5" x 0.6"
Mounting Thread (to preamplifier)	0.4606" (11.7mm) - 60 UNS

TEDS Microphone & Preamplifier Combinations:

- **378B02** and **HT378B02** – TEDS programmed to the IEEE 1451.4 standard for SMART transducers, V 1.0 format



Optional Accessories:

- **426E01** – 1/2" preamplifier, low noise
- **426A10** – 1/2" preamplifier with 20 Hz high pass filter
- **426A11** – 1/2" preamplifier with gain and filter switches
- **HT426E01** – 1/2" preamplifier, high temperature (120° C)
- **079A06** – windscreen for 1/2" microphones
- **079A11** – microphone holder
- **079A15** – tripod microphone stand with boom arm
- **079A16** – miniature microphone stand
- **079A18** – clamp on flexible extension arm
- **079B21** – 1/2" Nose Cone
- **079B23** – microphone holder with swivel mount
- **CAL200** – handheld calibrator
- **CAL250** – handheld calibrator
- **ACS-20** – microphone calibration
- **ACS-42** – microphone and preamplifier system calibration



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AS9100 CERTIFIED ■ ISO 9001 CERTIFIED ■ A2LA ACCREDITED to ISO 17025

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