



1/4" Free-Field Prepolarized Microphone and Preamplifier

Model 378C01 is recommended for extreme accuracy applications where high frequencies or high acoustic amplitude measurements are required.

Applications

- Precision sound level measurements
- Research and development
- Hearing preservation and safety
- Leak detection
- Gunshot analysis
- Sound absorption

Highlights

- Sensitivity: 2 mV/Pa
- Frequency: 4 Hz – 80 kHz
- Cartridge Noise: 35 dB
- Max Amplitude: 170 dB
- Temperature: -40 to +120 °C
- Polarization: Prepolarized (0V)

Standards Compliance

- IEC 61094-4 WS3F
- IEC 61672 class one compliant for premium sound level meter use
- IEC 60651 type one compliant
- Calibration reference microphone traceable through PTB, compliant with ISO 9001 & 17025, A2LA, ILAC approved



Model 378C01



Gun Shot and Blast Testing to Prevent Hearing Damage

Use of model 378C01 Free-Field microphones

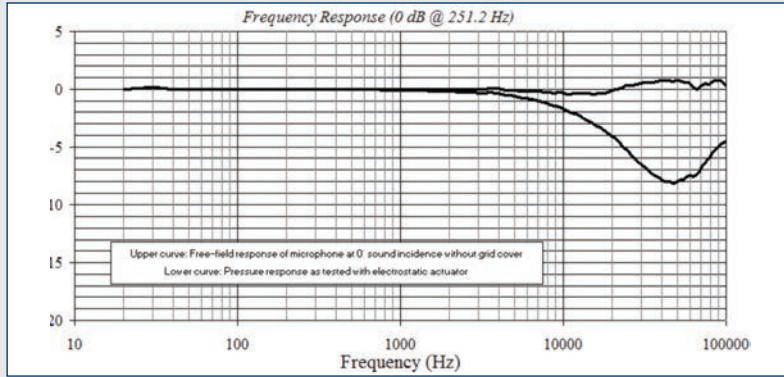
Model 378C01 is comprised of a 1/4" (6mm) 377C01 prepolarized microphone and a 426B03 preamplifier. When a freely propagating sound wave encounters an object in its path, the wave will either, be reflected, absorbed or transmitted depending on the material properties and size of the object as well as the actual wavelength of the sound. In practice, the same microphone used to quantify the sound field introduces disturbances to the field which must be compensated for. In order to compensate for this undesirable output, the microphone is designed to compensate for its own presence in the sound field, at 0 degrees incidence.

Polarization Voltage

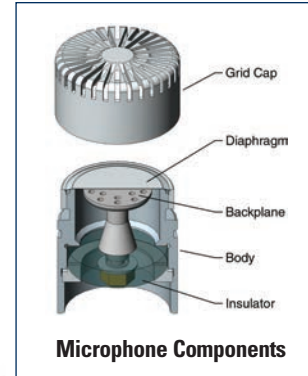
PCB® is the inventor of ICP® technology which is the very same technology on which all modern prepolarized microphones are based. Model 378C01 operates on ICP® sensor power, or any 2-20 mA constant current supply. This modern design is preferred for portable measurements or operation in high humidity applications. Design advantages include the ability to utilize coaxial cables, usage and interchangeability with other ICP® sensors (accelerometers, pressure sensors, strain gages, etc.) resulting in shorter set-up times and low channel costs.

Calibration & Warranty

All PCB® acoustic products are made from the highest quality materials and are used in a variety of industries including: automotive, aerospace & defense, OEM's, universities, consultants, white goods (appliances) manufacturers and more. PCB's in-house manufacturing capabilities allows us to control all the factors that affect quality and delivery. We know what it takes to manufacture the best products and do not out-source parts to machine shops that do not fully understand sensor manufacturing and the effects of contamination. This is why PCB® has invested in clean rooms and multiple machining facilities. We have full control over the quality of the components that are used in our acoustic products. The non-corrosive stainless alloy diaphragm and body are assembled in a clean room environment. All our 377 series microphones go through an extensive aging program to provide the best stability even in tough applications where high humidity or wide temperatures are required. All are backed by our "Total Customer Satisfaction" (TCS) 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.



Specifications - 1/4" Free-Field Microphone Model 377C01

Acoustic	
Nominal Microphone Diameter	1/4" (6mm)
Polarization Voltage	0V (prepolarized)
Open Circuit Sensitivity (at 250 Hz)	2 mV/Pa
Open Circuit Sensitivity (re 1 V/Pa)	-54 dB (+/- 3 dB)
Frequency Range (+/- 2 dB)	4 to 80,000 Hz
Frequency Range (+/- 3 dB)	3 to 100,000 Hz
Distortion Limit (3% distortion)	170 dB
Cartridge Thermal Noise	35 dB(A)
Pressure Equalization Vent	Rear Vented
Environmental	
Operating Temperature Range	-40 to 248 °F (-40 to 120 °C)
Physical	
Size (Diameter x Height (without grid))	0.25" x 0.36"
Size (Diameter x Height (with grid))	0.28" x 0.41"
Mounting Thread (to Preampifier)	0.2244" (6mm) - 60 UNS

Specifications - 426B03 Preampifier for 1/4" Prepolarized Microphones

Acoustic	
Nominal Preampifier Diameter	1/4" (6mm)
Gain	-0.08 dB
Frequency Response (+/- 0.2 dB) (re 1 kHz)	3 to 126,000 Hz
Electric Noise (A-weight)	3.2 dB (1.9 dB Typ)
Electric Noise (Flat 20 Hz - 20 kHz)	5.6 dB (3.4 dB Typ)
Temperature Range (Operating)	-40 to 158 °F (-40 to 70 °C)

Model 378C01 shown above is comprised of the 377C01 microphone and the 426B03, 1/4" preampifier



TEDS Microphone & Preampifier Combination:

- **378C01** – TEDS programmed to the IEEE 1451.4 standard for SMART transducers, V 1.0 format

Optional Accessories:

- **426B03** – 1/4" preampifier, low noise
- **079B03** – 1/4" microphone to 1/2" preampifier adapter
- **HT426E01** – 1/2" preampifier, high temperature (120°C)
- **079A07** – windscreen for 1/4" microphones
- **079A10** – microphone holder
- **079A15** – tripod microphone stand with boom arm
- **079A16** – miniature microphone stand
- **079A18** – clamp on flexible extension arm
- **079B20** – 1/4" Nose Cone for wind tunnel testing
- **079B23** – microphone holder with swivel mount
- **CAL200** – handheld calibrator
- **ADP024** – 1/4" adaptor for CAL200
- **CAL250** – handheld calibrator
- **ADP021** – 1/4" adaptor for CAL250
- **ACS-20** – microphone calibration
- **ACS-42** – microphone and preampifier system calibration

A2LA, ILAC Accredited initial calibration chart included.



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

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