# PRM426 ICP® Microphone Preamplifier

## Model PRM426

## Typical Applications

- Precision sound pressure measurements
- Acoustic array measurements
  - — *Sound Pressure Mapping*
  - — *Acoustic Model Analysis*
  - — *Nearfield Acoustic Holography*
- Vibro-Acoustic Testing with integrated accelerometer/ microphone measurement systems
  - — *P/F Measurements*
  - — *Noise Path Analysis*

## Features

- Uses economical sensor power, reducing signal conditioning costs
- Reduces microphone cabling costs with low impedance output
- Connects directly to measurement instruments and frequency analyzers having ICP sensor power.
- Used with precision prepolarized condenser microphones
- The unit is TEDS compatible with IEEE P1451.4 as a microphone preamplifier and, when combined with a precision microphone and programmed appropriately, as an integrated microphone/preamplifier


The PRM426 Microphone Preamplifier combines the performance required for precision sound measurements with a sturdy stainless steel construction suitable for the demands of field testing. Powered by standard sensor power (2 to 20 mA constant current), it can be directly connected to many frequency analyzers or used with inexpensive ICP sensor power supplies. The unit has extremely low output impedance that permits the use of very long inexpensive cables without degradation of signal quality.

The preamplifier is used with prepolarized microphones such as the Larson Davis Model 2551 and PCB Models 377A02, 377A11, and 377A20 ½ inch microphones. It can also be used with the PCB Models 377A01 and 377A10 ¼ inch microphones using a Larson Davis Model ADP043 ¼ inch microphone to ½ inch preamplifier adaptor.

The PRM426 is established as a price-to-performance leader for precision acoustic measurement having a wide frequency range (6 Hz to 126 kHz), a large dynamic range, and a low electronic noise level. The PRM426 provides TEDS capabilities as specified for a microphone preamplifier by IEEE P1451.4 and, when combined with a microphone and programmed accordingly, the microphone/preamplifier combination meets the TEDS specifications for an integrated microphone/preamplifier according to that same standard.

# Technical Specifications

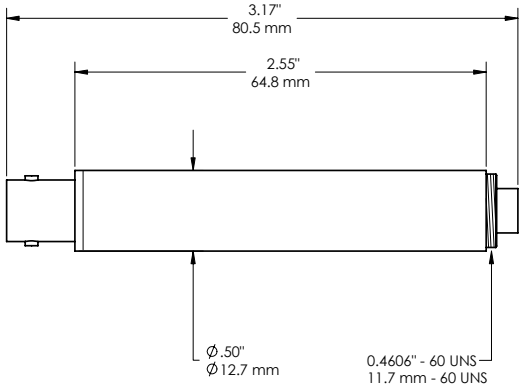
| Model PRM426 | | |
|---|---|---|
| **Frequency Response** | (re: 1 kHz, ± 0.2 dB)<br>-3 dB lower limiting frequency | 6 Hz to 126 kHz<br><2 Hz |
| **Phase Linearity** | <1°<br>>(-1°), <10° | 100 Hz to 20 kHz<br>10 Hz to 100 Hz |
| **Attenuation** (typical) | | 0.08 dB |
| **Electronic Noise** | A-weight | <5 µV |
| | Flat, 20 Hz to 20 kHz | <8 µV |
| **Maximum Output Voltage**<br>Maximum dB with 50 mV/Pa microphone<br>Maximum dB with 12.5 mV/Pa microphone | | 8 V peak (< -50 dB THD, 1 kHz)<br>139 dB<br>151 dB |
| **Temperature Sensitivity** (± 0.05 dB) | | - 40 °C to + 65 °C (-40 °F to +149 °F) |
| **Humidity Sensitivity** (± 0.05 dB) | | 0 to 95% RH, non-condensing |
| **Input Impedance** | | 10 GΩ//0.15 pF |
| **Output Impedance** | | <50 Ω |
| **Dimensions** | **Diameter**<br>**Length** | 12.7 mm (0.5 in)<br>80.7 mm (3.175 in) |
| **Connections** | **Input**<br>**Output** | 11.7 mm – 60 UNS (0.4606 – 60 UNS) microphone thread<br>BNC Female |
| **Power** | Excitation Voltage | 20 to 32 VDC |
| | Constant Current Exciatation | 2 to 20 mA |
| **Cable Driving Capability** | 4 mA current source | 100 ft of cable (30pF/ft) to 21.5 kHz with 8 V peak signals |
| | 2 mA current source | 100 ft of cable (30pF/ft) to 8.3 kHz with 8 V peak signals |

*Note: All values are at 20° C, 50% RH, 4 mA supply, < 40 m (131 ft) cable and equivalent microphone of 18 pF unless otherwise stated.*

# Accessories and Related Products

| | |
|---|---|
| **FIL001** | In-line A-weight analog filter; connects to BNC output of PRM426<br>*Note: requires minimum 4 mA current to use with PRM426* |
| **PCB 480E09** | Single Channel Battery Powered ICP® Sensor Power Supply |
| **PCB 480M122** | Single Channel Battery Powered Sensor Power Supply ( 4 mA) |
| **PCB 440 Series** | Modular Multichannel Sensor Signal Conditioning System |
| **CAL200** | Class 1 Acoustic Calibrator (94/114 dB @ 1 kHz) |
| **CAL250** | Class 1 Acoustic Calibrator (114 dB @ 250 Hz) |
| **ADP043** | ¼" microphone to ½" preamplifier adaptor |
| **TRP01** | Instrumentation Tripod w/ADP032 preamp to tripod interface |

Dimensions




## Suggested Precision Prepolarized Condenser Microphones

| Model | LD 2551 | PCB 377A02 | PCB 377A11 | PCB 377A20 | PCB 377A01 | PCB 377A10 |
|---|---|---|---|---|---|---|
| **Diameter** | 1/2 in | 1/2 in | 1/2 in | 1/2 in | 1/4 in | 1/4 in |
| **Type** | Free Field / Random [1] | Free-Field | Pressure | Random | Free-Field | Pressure |
| **Type Designation** | Type 1 | Type 1 | Type 1 | Type 1 | Type 1 | Type 1 |
| **Sensitivity (@250 Hz)** | 50 mV/Pa | 50 mV/Pa | 40 mV/Pa | 40 mV/Pa | 4 mV/Pa | 1.6 mV/Pa |
| **Frequency Range (±2 dB)** | 4 Hz to 16 kHz | 6.3 Hz to 20 kHz | 6.3 Hz to 10 kHz | 3.2 Hz to 10 kHz | 10 Hz to 100 kHz | 10 Hz to 70 kHz |

*[1] with ADP054 Random Incidence Corrector*

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