

ICP[®] Microphone Preamplifier

Model PRM422

Larson
Davis



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*



The Model PRM422 ICP[®] Microphone Preamplifier serves to condition the output signal of 1/4 inch, precision, prepolarized, condenser microphones. This approach significantly reduces the costs associated with precision sound measurements by eliminating the classical, laboratory-style preamplifier and permitting signal transmission over ordinary coaxial cables. The unit is powered by constant current excitation, which is commonly used for ICP[®] accelerometers and integrated into many frequency analyzers. The robust, stainless-steel housing is designed to withstand the rigors of field testing.

Measurement performance is uncompromised since the PRM422 has a wide frequency range, very low electronic noise floor, and large dynamic range. Additionally, the low output impedance permits signals to be transmitted over very long, inexpensive cables without degradation of signal quality. Being TEDS capable to IEEE P1451.4, the PRM422 supports digital interrogation of on-board stored parameters such as location and calibration details for either the preamplifier alone or microphone/preamplifier combination.

A variety of compatible, 1/4 inch, precision, prepolarized microphones are available from both Larson Davis and PCB Piezotronics.

Features

- Compatible with precision, prepolarized, condenser microphones
- Operates with economical, ICP[®] sensor power, thereby reducing signal conditioning costs
- Coaxial, 10-32 jack output and low output impedance reduce cabling costs
- Connects directly to measurement instruments and frequency analyzers equipped with ICP[®] sensor power
- Compatible with TEDS standard IEEE P1451.4 as a microphone preamplifier or as an integrated microphone/preamplifier when paired with a precision microphone

Model PRM422 ICP® Microphone Preamplifier

Technical Specifications

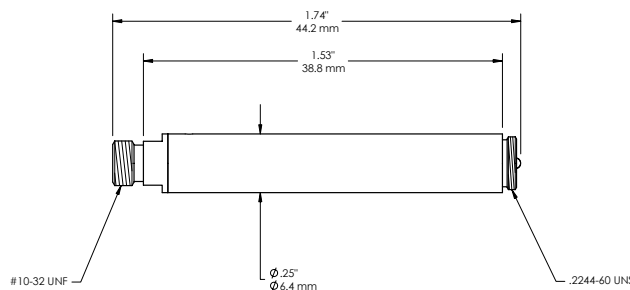
Frequency Response	(re: 1 kHz, ± 0.1 dB) -3 dB lower limiting frequency	5 Hz to 100 kHz <1 Hz
Phase Linearity	<1° >(-1°), <10°	63 Hz to 20 kHz 6.3 Hz to 63 Hz
Attenuation (typical)		0.15 dB
Electronic Noise	A-weight Flat, 20 Hz to 20 kHz	<3.2 µV (1.9 µV typical) <5.6 µV (3.4 µV typical)
Maximum Output Voltage	Maximum dB with 4.0 mV/Pa microphone Maximum dB with 1.6 mV/Pa microphone	8 V peak (< -50 dB THD, 1 kHz) 160 dB 168 dB
Temperature Sensitivity [- 40 °C to + 65 °C (-40 °F to +149 °F)]		± 0.03 dB
Humidity Sensitivity [0 to 95% RH, non-condensing, at 40 °C (104 °F)]		± 0.03 dB
Input Impedance		20 GΩ/0.15 pF
Output Impedance		<50 Ω
Dimensions	Diameter Length	6.4 mm (0.25 in) 44.2 mm (1.74 in)
Connections	Input Output	5.7 mm – 60 UNS (0.2244 – 60 UNS) microphone thread 10-32 coaxial female
Power	Excitation Voltage Constant Current Excitation	20 to 32 VDC 2 to 20 mA
Cable Driving Capability	4 mA current source 2 mA current source	100 ft of cable (30 pF/ft) to 21.5 kHz with 8 V peak signals 100 ft of cable (30 pF/ft) to 8.3 kHz with 8 V peak signals

Note: Unless otherwise stated, all values are at 20° C, 50% RH, 4 mA constant current excitation, <40 m (131 ft) cable, and equivalent microphone of 18 pF.

Accessories and Related Products

PCB 480E09	Single-channel, battery-powered ICP® sensor power supply (2.5 mA)
PCB 480M122	Single-channel, battery-powered ICP® sensor power supply (4 mA)
PCB 440 Series	Modular, multi-channel sensor signal conditioning system
PRA951	ICP® current source for use with microphone inputs
CAL200	Class 1 acoustic calibrator (94 or 114 dB @ 1 kHz)
CAL250	Class 1 acoustic calibrator (114 dB @ 250 Hz)
ADP009	1/2 inch to 1/4 inch thread adaptor
ADP066	1/4 inch preamp holder for microphone stand
ADP069	1/4 inch preamp holder for camera tripod
TRP018	Microphone stand

Dimensions



Suggested 1/4 Inch, Precision, Prepolarized, Condenser Microphones

Model	PCB 377A01	PCB 377A10
Diameter	1/4 inch	1/4 inch
Type	Free-Field	Pressure
Type Designation	Type 1	Type 1
Sensitivity (@250 Hz)	4 mV/Pa	1.6 mV/Pa
Frequency Range (± 2 dB)	10 Hz to 100 kHz	10 Hz to 70 kHz



Larson Davis

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Printed in U.S.A.

ATP-PRM422-0403/D0501.0002 REV A

Larson Davis provides a complete line of acoustic measurement tools including dosimeters, sound level meters, real time analyzers, preamps, calibrators, and microphones.