

# Model 161 Signal Conditioner



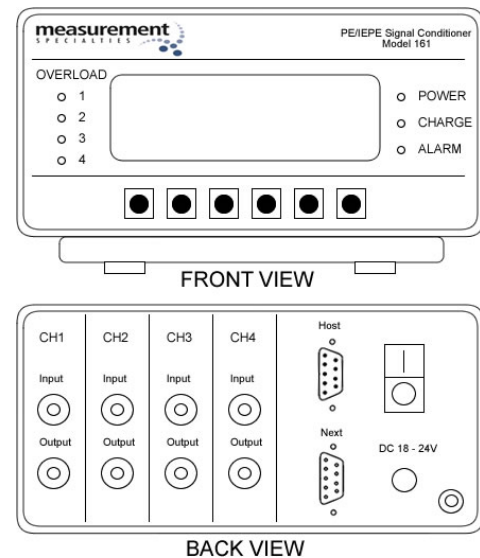
4-Ch IEPE & Charge Amplifier/Conditioner  
Acceleration, Velocity, Displacement Output  
Built-in Low-Pass & High-Pass Filters  
100kHz Bandwidth  
AC or Battery Power Operation



The **Model 161 series** is a 4-channel signal conditioning amplifier designed to be used with piezoelectric accelerometers (IEPE or Charge) and most other piezoelectric based transducers. The Model 161 series incorporates front-panel controlled gain adjustments, multiple high-pass and low-pass filter settings, and it is capable of displaying IEEE 1451.4 TEDS information. The signal conditioner features broad bandwidth to 100kHz and 10V<sub>peak</sub> linear output. For various vibration applications where velocity and displacement information are desired, analog integration functions are included as output options with a push of a button.

The Model 161A is 110/220VAC powered, and it can be ordered with a built-in rechargeable battery option (Model 161B), perfect for field test applications.

## Layout

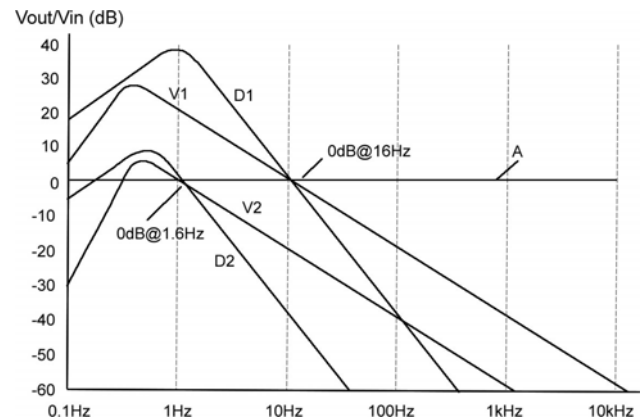


## FEATURES

- Interface with Charge and IEPE Transducers
- 4 channels, Accel, Vel, and Disp Output
- Battery Power Option
- Wide Bandwidth, Low Noise
- Low and High Pass Filter Settings
- Support IEEE 1451.4 TEDS

## APPLICATIONS

- Instrumentation Labs
- Field Testing
- Process Monitoring
- Vibration & Shock Testing



The velocity and displacement signals are obtained from single and double integrations of the acceleration signal. Piecewise integral method is used to calculate velocity and displacement output.

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## performance specifications

### Parameters

#### INPUT SPECIFICATIONS

Charge Input	<100,000pC, Single ended, BNC input connector
Charge Input Sensitivity Range	0.001pC/unit to 999.0pC/unit (unit may be g, m/s <sup>2</sup> , etc.)
Charge, Source Capacitance	<30,000pF
Charge, Source Resistance	>10 MΩ

IEPE Input	<22 Volts (AC+DC components), Single ended, BNC input connector
IEPE Input Sensitivity Range	0.01mV/unit to 999.0mV/unit (unit may be g, m/s <sup>2</sup> , etc.)
IEPE Current Excitation	4mA
IEPE Compliance Voltage	24 Volts
IEPE Input Impedance	>100 MΩ, 30,000pF

#### OUTPUT SPECIFICATIONS

AC Voltage	Single ended (referenced to signal ground), short circuit protected, BNC output connector
Output Impedance	<100 Ohms
Output Current	35mA max
Linear Output	±10Vpeak
DC Offset	20mV max (10Hz – 100KHz, 10V/unit)

#### TRANSFER CHARACTERISTICS

Output Sensitivity Range Settings	Charge: 100μ, 316μ, 1m, 3.16m, 10m, 31.6m, 100m, 316m, 1, 3.16, 10 (V/unit) IEPE: 100μ, 316μ, 1m, 3.16m, 10m, 31.6m, 100m, 316m, 1 (V/unit)
Accuracy	±0.5% of full scale (max), at 1kHz, filters disabled, gain >1
Linearity	±0.1% of full scale, best fit straight line at 1kHz reference Measurement Condition: Internal 10KHz lowpass filter is enabled.
Noise	Charge: 0.062 pC rms (RTI) plus 0.004 pC rms per 1000pF of source capacitance referred to input. IEPE: 110uV rms referred to input. Input shunted with a 249Ω resistor.
Frequency Response	0.1 Hz to 100 kHz (full power bandwidth), -3db referenced to 1kHz
Low-pass Filter (-3dB corner)	100Hz, 1kHz, 3kHz, 10kHz, 30kHz, 100kHz
High-pass Filter (-1dB corner)	0.1Hz, 1Hz, 3Hz, 10Hz
Crosstalk Between Channels	100 db RTI

#### POWER REQUIREMENTS

Voltage	18-24VDC from supplied 110/220VAC power adaptor
Power dissipation	12W typical

#### PHYSICAL CHARACTERISTICS

Weight & Size	2.85kg (6.28lbs); H x W x D: 115 (4.5) x 180 (7.1) x 310 (12.2) mm (inches)
Case Material	Anodized aluminum
Operating Environment	0°C to +75°C, <90% Relative Humidity

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## ordering info

#### PART NUMBER

161A  
161B

#### DESCRIPTION

IEPE & PE Signal Conditioner, 110/220VAC  
IEPE & PE Signal Conditioner, 110/220VAC and Rechargeable Battery Option

#### OPTIONAL ACCESSORIES

AC-G03294

#### DESCRIPTION

10-32 Microdot to BNC input adaptor for charge type transducer