

## Low Noise Signal Conditioner

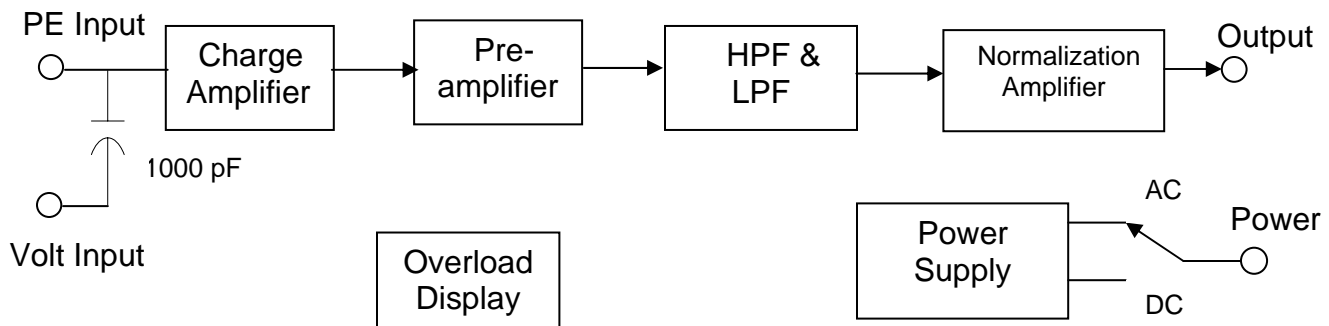
# MODEL 5002

- Wide Dynamic Range
- High Precision, Low Noise
- PE , Voltage Transducer Inputs
- High Output Current
- Selectable HPF and LPF Corner Frequencies
- Selectable Gain
- Overload Indicator



### Description

VIP Model 5002 Low Noise Signal Conditioner is a low-noise, wide-band charge amplifier. It processes signals from Piezoelectric or Voltage types of transducers. It allows selecting the transducer sensitivity from 1 to 109.9 pC/Unit and its output voltage sensitivity from 0.1 to 1000 mV/Unit. It provides an output voltage directly proportional to the units under measurement. Low pass and high pass filters with six selectable frequencies each eliminates the unwanted spurious signals.



VIP Sensors Model 5002 Functional Diagram

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## SPECIFICATIONS

The following performance specifications are at +75°F (+24°C), unless otherwise noted.

	UNITS	
<b>INPUT</b>		
Input Type		Single-ended
Charge Input	pC	$\pm 10^6$ maximum
Voltage Input	Vp	$\pm 10$ maximum, input capacitance 1000 pF $\pm 0.5\%$
<b>OUTPUT</b>		
Output Type		Single-ended
Output Voltage	Vp	$\pm 10$ maximum
Output Current	mA	100 maximum
Load Impedance	$\Omega$	$\geq 100$
<b>TRANSFER CHARACTERISTICS</b>		
Transducer Sensitivity (switch selectable)	pC/Unit	1 to 10.99 (front panel switch position "1-11 pC/Unit") 11 to 109.9 (front panel switch position "11-110 pC/Unit")
Gain (switch selectable)	mV/Unit	0.1, 1, 10, 100 or 1000 (front panel switch position "1-11 pC/Unit") 1, 10, 100, 1000 or 10000 (front panel switch position "11-110 pC/Unit")
Accuracy	%	$\pm 1$ maximum Inherent Error, 0.3Hz to 100kHz $\pm 2$ maximum Operation Error, 0.3Hz to 100kHz
<b>FREQUENCY RESPONSE</b>		
Low Pass Filter	kHz	0.3, 1, 3, 10, 30 or 100 Switch Selectable Upper Cutoff Frequency (F-3dB $\pm 1$ dB): Attenuation Rate: -12dB/Oct
High Pass Filter	Hz	0.3, 1, 3, 10, 30 or 100 Switch Selectable Lower Cutoff Frequency (F-3dB $\pm 1$ dB): Attenuation Rate: -6dB/Oct
Noise	$\mu$ V	$\leq 5$ rti (switch position at 1000 mV/unit)
Harmonic Distortion	%	$< 1$ at 10kHz with 10nF capacitive load and full-amplitude output
Overload Display		LED on when output exceeds $ \pm 10 $ V
<b>ENVIRONMENTAL</b>		
Temperature	$^{\circ}$ F ( $^{\circ}$ C)	Operating: +32 to +104 (0 to +40), Storage: -67 to +185 (-55 to 85)
Humidity	%	95 maximum relative humidity
<b>POWER SUPPLY</b>		
Power Source	V	DC: $\pm 18$ to $\pm 27$ , 0.2A AC: 110 ( $\pm 10\%$ ), 60Hz, 0.4A or 220V, 50 Hz, 0.2A (switch selectable)
<b>PHYSICAL CHARACTERISTICS</b>		
Dimensions	in (mm)	5.21H $\times$ 2.75W $\times$ 7.87D (132 $\times$ 70 $\times$ 200)
Weight	lb (kg)	3.3 (1.5) typical
Connectors		Input: 10-32 Output: BNC Power source: 3-pin plug (AC); CZY-4(DC)
<b>ACCESSORIES</b>		
Output Cable		BNC/BNC cable
Power Source Cables		3-conductor power cable (AC); CTY-4(DC)