

Piezotron™ Coupler

Type 5134A...

4 Channel Piezoelectric Sensor Power Supply & Signal Conditioner

A flexible, simple to use signal conditioner that provides excitation power, signal tailoring and acts as an interface between voltage mode piezoelectric and measuring instruments.

- RS-232C interface for remote control and monitoring
- Sensors circuit open/short alarm
- Non volatile memory for set parameters
- Seven selectable gains
- Four selectable low-pass filters
- Bias voltage monitors ON/OFF
- Conforming to CE

Description

The 5134A microprocessor controlled coupler provides power and signal processing to four channels of Piezotron, PiezoBeam™, K-Shear™ and Ceramic Shear Accelerometers or any voltage mode piezoelectric sensor operating with constant current excitation (2-wire system). An LCD display and keyboard allows easy selection of gain and filters for each channel individually. LED's show the unit's status and signal error in the case of a detected problem with bias voltage or the cable integrity. Additionally, the RS-232C interface allows remote control all functions of the unit. The unit's very low noise floor makes it particularly useful for general vibration lab use with single axis or triaxial accelerometers. The coupler is available for line power or 9 to 18 VDC operation. The four channel coupler can also be used in combination with an external impedance converter and a high impedance sensor.

The unit is housed in a DIN case or it can be conveniently rack mounted. The rear panel of the unit contains 4 BNC neg. input and output sensor signal connectors, a line power plug, power switch and an isolated 9-pin-D-sub RS-232C interface connector. The RS-232C feature of the 5134A addresses the system's micro-controller allowing for remote control of all coupler parameters including self test at power up. The command language follows easy-to-use SCPI format. Coupler status is readily available at any time through the serial interface. The interface is particularly useful for automatic measurements with a personal computer and a common data acquisition package.

Application

The primary use for the 5134A Power Supply/Coupler is to provide excitation power and signal conditioning for low impedance, voltage mode piezoelectric pressure, force or acceleration type sensors. The coupler is used in laboratory and field type measurement applications as either a single stand alone unit or with others mounted in a standard 19" rack.



Technical Data

Type	Units	5134
Sensor Supply Factory Set	mA	4
Optional	mA	2 ... 18
Gain Setpoints (±0.5 %)		1, 2, 5, 10, 20, 50
(±1 %)		100
Frequency Range (bandwidth -3 dB)		
Gain = 1 (30 kHz filter)	Hz	0.036 ... 30k
Gain = 100 (10 kHz filter)	Hz	0.036 ... 8k
Lowpass Filters		
2-pole Butterworth 2nd order	dB/octave	-12
Cut-off frequencies (-3 dB)	Hz	100, 1k, 10k, 30k
Frequency accuracy	%	±7
Highpass Filters (2 pole passive)	dB/octave	-12
Cut off frequency (-3 dB)	Hz	0.036
Time constant	s	3.5
Frequency accuracy	%	±10
System Test Signal:	type	white noise
Amplitude	mV _{rms}	10
Bandwidth	Hz	1 ... 30k
Flatness	dB	±10
Output:		
Voltage	V	±10
Current	mA	± 5
Impedance	Ω	100
Zero offset ⁽¹⁾	mV	<25

¹ 1 g = 9.80665 m/s², 1 inch = 25.4 mm, 1 gram = 0.03527 oz, 1 lbf-in = 0.1129 Nm

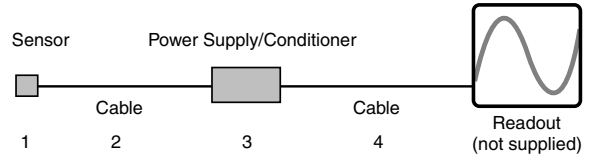
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Technical Data

Type	Units	5134
Output Noise:		
Gain = 1 L.P filter @ 30 kHz	μV_{rms}	70
Gain = 100 L.P filter @ 10 kHz	μV_{rms}	<1500
Gain = 100 L.P filter @ 1 kHz	μV_{rms}	30
Display		LCD 16 char.
Interface	type	RS-232C
Baud Rates		150 ... 9600
# of Data/Stop Bit		8/1
Parity		none
Temperature Range Operating	$^{\circ}\text{F}$	32 ... 120
Temperature Range Storage	$^{\circ}\text{F}$	-5 ... 185
Humidity	%	10 ... 90
Voltage between power & ground	Vrms	<50
Dimensions:		
with case	in	3.7 x 5.6 x 7.7
without case	in	2.8 x 5 x 7.2
Power 5134...		
Line voltage	VAC	115 [A0 & A1] 230 [A0(E) & A1 (E)]
Line Frequency	Hz	48 ... 62
Consumption	VA	14
Power 5134M2		
Voltage	VDC	9 ... 18
Consumption (14 max.) typ.	VA	3.6
Weight (with housing)	kilograms	1.75

1 g = 9.80665 m/s², 1 inch = 25.4 mm, 1 gram = 0.03527 oz, 1 lbf-in = 0.1129 Nm

Ordering Information



sp = specify cable length in meters

- 1 - sensor low impedance voltage mode sensor
- 2 - 1761Bsp sensor cable
- 3 - 5134A0 power supply/coupler; 110 VAC power without case
- 5134A0(E) power supply/coupler; 220VAC powered without case
- 5134A1 power supply/coupler; 110VAC powered with case
- 5134A1(E) power supply/coupler; 220VAC powered with case
- 4 - 1511sp output cable

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