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Piezotron coupler

Type 5118B2

Piezoelectric sensor power supply/coupler

A flexible, easy-to-use signal conditioner that provides excitation power, signal tailoring, and acts as an interface between voltage mode piezoelectric sensors and measuring instruments. Single channel unit powered by internal AA batteries or an AC/DC adaptor.

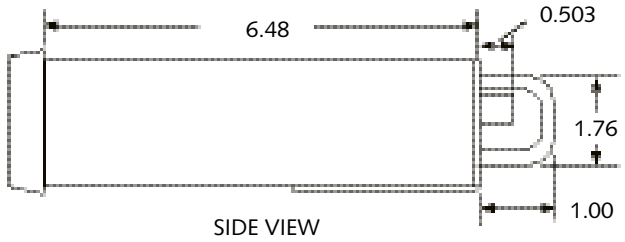
- Selectable gain and low-pass, plug-in filters
- High-pass filtering, panel selectable
- Monitor the condition of the sensors and cables
- Exclusive "Rapid Zero" feature
- AC, DC or battery powered
- Conforming to CE

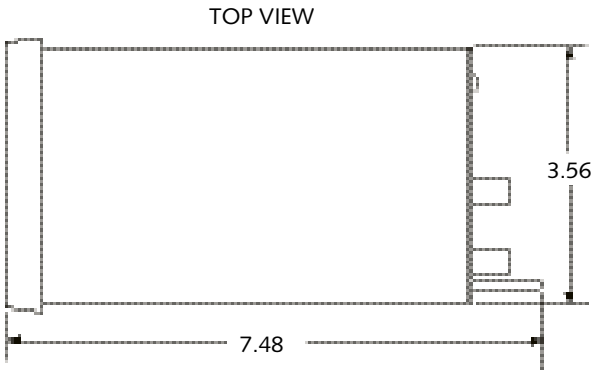
Description

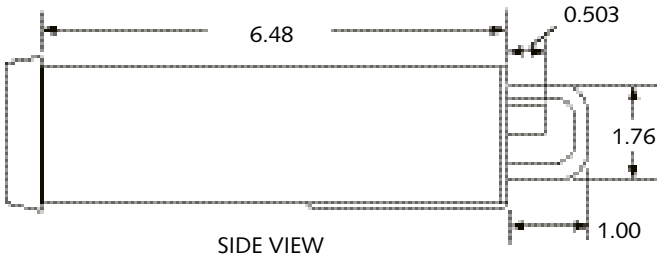
The signal conditioner provides the constant current excitation required by low impedance, voltage mode sensors with built-in electronics (i.e. Piezotron, PiezoBeam, K-Shear, and Ceramic Shear) or for high impedance sensors with an external impedance converter. Sensor power is supplied by the same 2-wire cable that provides the low impedance output signal. Type 5118B2 decouples the DC bias voltage from the output signal and provides a 2 mA constant current source, which can also be factory adjusted from 2 ... 18 mA. Bias indicators display the condition of the sensor and cable. Amplifier gains of 1x, 10x and 100x are selectable from a front panel switch. High-pass filter cutoff frequencies (–3 dB) 0.006 and 0.03 Hz are also selectable by a switch on the front panel. Plug-in, low-pass filters are available to limit the frequency response of the amplifier. These low-pass filters can be used to attenuate unwanted frequency and/or to improve signal-to-noise ratio. Bias voltage is monitored and displayed with three front panel-mounted LEDs. Bias voltage ranging from 2 ... 21 V is normal and results in a green "OK" LED indication. Bias voltage below 2 V or above 21 V results in a red "LOW" or "HIGH" indicator. A "LOW" voltage signal generally indicates a short circuit in the cable or sensor, while a "HIGH" voltage signal indicates the presence of an open circuit.

The Type 5118B2 Piezotron coupler transmits an audible low battery warning with an intermittent chirping sound. Battery life lasts approximately 12 hours at a sensor current of 2 mA. Coupler power can be provided from three sources: four AA 1.5 V batteries, AC-operated from a power line adaptor, or a regulated DC source from 6 ... 28 VDC. A unique "Rapid Zero" feature allows the coupler to be ready for taking measurements 2 seconds after powering. When changing gain or filter settings, Type 5118B2 is also ready to use in 2 seconds.

Dimensions







Dimensions are shown in [in], unless otherwise noted.

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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Application

Type 5118B2 is designed to provide excitation power and signal tailoring for low impedance, voltage mode piezoelectric pressure, force and acceleration sensors. Its small, portable size and rugged construction provides an excellent measurement tool for the laboratory or in the field.

Technical Data

Type Number		Unit	5118B2
Sensor supply current		mA	2 (1)
Signal voltage		V	±5
Gain			1x, 10x, 100x
Bandwidth:			
High-pass (switch selectable)			
Frequency	–3 db	Hz	0.03, 0.006
	–5%	Hz	0.10, 0.02
Time constant		s	5, 25
Low-pass (no filter; @ +5 Vout):			
Gain 1x	–3 db	kHz	>100
	–5%	kHz	>40
Gain 10x	–3 db	kHz	>100
	–5%	kHz	>20
Gain 100x	–3 db	kHz	>30
	–5%	kHz	>12
Noise (without low-pass filter):			
Gain	1x, 10x	mV_{rms}	>2
	100x	mV_{rms}	>5
Output impedance max.		Ω	100
Voltage swing max.		V	±10
Connectors input/output		type	BNC neg.
Connector power		type	2.1 x 5.5 mm, concentric
Internal battery (4 each)		type	1.5 V, AA, alkaline
Operating temperature range (with alkaline batteries)		°F	–5 ... 125
Storage (without batteries)		°F	–20 ... 140
External voltage source (2)		VDC	6 ... 28
Weight		lb	1.1

(1) Sensor current can be set at factory for any value within 2 ... 18 mA

(2) Optional AC adaptor available upon request

1 g = 9.80665 m/s², 1 in = 25.4 mm, 1 Gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

Mounting

Type 5118B2 is a single-unit piezoelectric sensor power supply and signal conditioner housed in a extruded aluminum case. It is primarily intended for laboratory bench top use. For permanent installations, the unit can be panel mounted using optional adaptors.

Measuring chain

Measure	Connect	Amplify	Output	Analyze
				
Type 8XXX… Low impedance	Type 1761B… 10-32 pos. BNC pos.	Type 5118B2 Power supply/signal conditioner	Type 1511 BNC pos. BNC pos.	not supplied

Optional accessories

	Type
• Power adaptor, 230/120 VAC — 12 VDC	5752
• Low-pass filter, cut-off frequency in Hz: 10 / 20 / 30 / 50 / 100 / 200 / 300 / 500	5326A...
• Low-pass filter, cut-off frequency in kHz: 1 / 2 / 3 / 5 / 10 / 20 / 30	5327A...
• High-pass filter, cut-off frequency in Hz: 1 / 10 / 100	5324A...
• Power cable (6 ft) with mating plug to pigtails	55131496

Ordering key

Type 5118B ☐

Measuring Range

Power supply coupler	2

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