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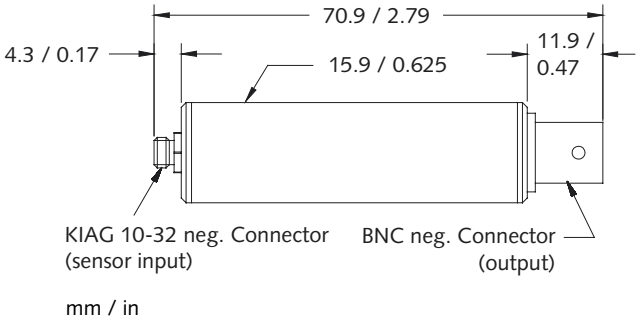
Charge Amplifier

Type 5050B...

In-line Charge Amplifier Module

A signal processing device that converts the charge signal from a high impedance piezoelectric sensor into a voltage signal at a low impedance level.
Used with high impedance acceleration sensors for performing dynamic measurements in a wide variety of applications.

- Two-wire, single-ended device
- Rugged, stainless steel case
- Wide frequency response
- Five gain versions
- CE conforming
- IEPE compatibility



Description

The 5050B... in-line charge amplifier series contains miniature charge amplifiers that convert the charge signal from a stand-alone high impedance piezoelectric sensor into a high level voltage signal at a low impedance output.

This two-wire, single-ended device is in five fixed gain settings 0.1, 0.5, 1, 10, and 25 mV/pC with a frequency response of 0.5 Hz ... 50 kHz. The charge converters can be powered by several Kistler Piezotron power supply couplers or any industry standard IEPE (Integrated Electronic Piezo-Electric) compatible power source.

Application

The combination of Type 5050B... in-line charge amplifier and power supply/coupler is a less expensive alternative to laboratory style charge amplifiers. The charge amplifier is inserted in the signal line between a high impedance sensor and follow-on signal conditioning. They are ideal for applications involving high temperature measurements where a low impedance device cannot withstand the environment due to the temperature limitation of its internal electronics.

Installation

Typically, the sensor is placed in a high temperature environment and the charge converter is located some distance away at a location within its operating temperature range.

High temperature cable such as the Type 1635Csp is used to connect the sensor to the input of the Type 5050B... in-line charge amplifier. The output of the charge amplifier is connected to a power supply/coupler using a Type 1511sp cable.

CE Compliant Information

Since high impedance, charge mode accelerometers contain no electronics, CE certification to the EMC Directive is not appropriate. When a high impedance accelerometer is used with a CE certified signal conditioner (i.e., charge amplifier....), it is said that this system is CE compliant.

5050B_003-073e-12.22

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Technical data

Type		Unit	5050B0.1	5050B0.5	5050B1	5050B10	5050B25
Gain		mV/pC	0.1	0.5	1	10	25
Gain accuracy, 1 nf, 100 Hz		%	±2.5				
Gain stability over temperature (ref. to 25 °C @ 100 Hz)		%	±1	±1	±1	±1	±2
Noise, broad band 1 ... 10 kHz (typ.)		μV_{rms}	5	5	5	15	35
Input	Source resistance, min.	kΩ	100				
	Source capacitance, max.	nF	30				
Frequency response ±5 %		Hz	0.5 … 50,000	0.5 … 50,000	0.5 … 50,000	2 … 50,000	5 … 50,000
Warm up time, max.		s	20	20	20	240	240
Environmental	Operating temperature range	°C / °F	–54…100 / –65 ... 212				
	Vibration, 50 … 2,000 Hz	g_{rms}	20				
	Shock, 3.5 ms half sine	g_{pk}	1,000				
	Humidity	%	95				
Output	DC Bias nom. , –54 … 100 °C / –65 ... 212 °F	VDC	11 ±2				
	Impedance, max.	Ω	100				
	Voltage F.S. nom.	V_{pk-pk}	10				
	Signal polarity	–	inverting				
Power	Constant current	mA	2 … 18				
	Compliance voltage	V	20 … 30				
Construction	Case	material	stainless steel				
	Sealing housing/connector	Type	welded/epoxy				
	Input connector	Type	KIAG 10-32 neg.				
	Output connector	Type	BNC neg.				
Weight		grams	28				
CE certification			EMC Emissions per EN 61000-6-3:2007 / IEC61000-6-3:2005, Part 6-3 Light Industrial, Commercial, Residential EMC EMC Immunity per EN 61000-6-1:2007 / IEC61000-6-1:2005, Part 6-1 Light Industrial, Commercial, Residential EMC				

Ordering key

Type 5050B□

Gain	
0.1	**0.1**
0.5	**0.5**
1	**1**
10	**10**
25	**25**

5050B_003-073e-12.22