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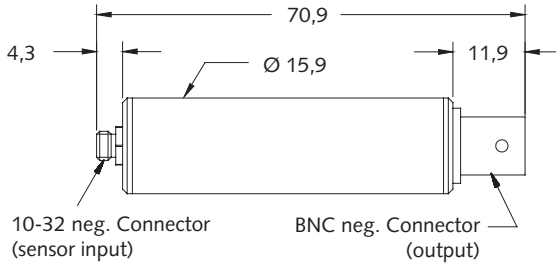
Charge Amplifier

Type 5050A...

In-line Charge Converter Module

A signal processing device that coverts 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
- Three gain versions
- CE conforming

Description
The 5050A... In-Line Charge Converter Series contain 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. Designed specifically for high impedance, ceramic, charge output accelerometers.

Available in three fixed gain settings 0.1, 1, and 10mV/pC, and with a frequency response of 1 Hz to 20k Hz, 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.

Installation
Typically the sensor is placed in the 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 5050A... In-Line Charge Converter. The output of the charge converter is connected to a power supply/coupler using a Type 1511sp cable.

Application
The combination of 5050A... In-Line Charge Converter and power supply/coupler is a less expensive alternative to laboratory style charge amplifiers. The charge converter 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.

CE Compliant Information
Because 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.

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Technical Data

Type	Units	5050A0.1	5050A1	5050A10
Gain	mV/pC	0,1	1	10
Gain Accuracy, 1nf, 100Hz	%	±2,5	±2,5	±2,5
Gain Stability w/ Temperature (referred to 25°C at 100 Hz)	%	±1	±1	±1
Noise, Broad Band 1 ... 10kHz (typ.)	μV_{rms}	5	10	70
Input:				
Source Resistance, min.	kΩ	100	100	100
Source Capacitance, max	nF	30	30	30
Frequency Response ±5%	Hz	1 … 20000	1 … 20000	1 … 20000
Polarity	–	inverting	inverting	inverting
Warm up time, max	s	120	240	240
Time Constant	s	1	10	100
Environmental:				
Operating Temperature	°C	-40 … 80	-40 … 80	-40 … 80
Vibration, 50 … 2000Hz	g_{rms}	20	20	20
Shock, 3.5ms half sine	g_{pk}	300	300	300
Humidity	%	95	95	95
Output:				
Bias nom.	VDC	11	11	11
Impedance, max	Ω	100	100	100
Voltage F.S. nom.	V_{pk-pk}	10	10	10
Signal Polarity	–	inverting	inverting	inverting
Power:				
Constant Current	mA	2 … 18	2 … 18	2 … 18
Compliance Voltage	V	20 … 30	20 … 30	20 … 30
Construction:				
Case	material	St. Stl.	St. Stl.	St. Stl.
Sealing Housing/Connector	type	welded/epoxy	welded/epoxy	welded/epoxy
Input Connector	type	10-32 neg.	10-32 neg.	10-32 neg.
Output Connector	type	BNC neg.	BNC neg.	BNC neg.
Weight	grams	28	28	28

1 g = 9,80665 m/s², 1 Inch = 25,4 mm, 1 Gram = 0,03527 oz, 1 lbf-in = 0,1129 Nm

Ordering Key

5050A ☐

0.1 Gain	0.1
1 Gain	1
10 Gain	10

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