

# Charge Amplifier

Type 5050B...

## In-line TEDS 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
- TEDS option available

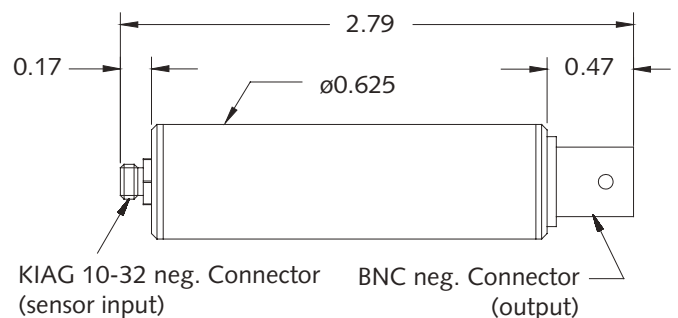
### Description

The 5050B... in-line TEDS 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. Type 5050B... T-version includes a TEDS (Transducer Electronic Data Sheet) chip for storage and retrieval of information. 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 TEDS 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 TEDS 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.

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**Technical Data**

Type	Unit	5050B0,1/ 5050B0,1T	5050B0,5/ 5050B0,5T	5050B1/ 5050B1T	5050B10/ 5050B10T	5050B25/ 5050B25T
Gain	mV/pC	0.1	0.5	1	10	25
Gain accuracy, 1 nf, 100 Hz	%	±2.5				
Gain stability over temperature (ref. to 77 °F @ 100 Hz)	%	±1	±1	±1	±1	±2
Noise, broad band 1 ... 10 kHz (typ.)	µV <sub>rms</sub>	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	°F -65...150				
	Vibration, 50 ... 2,000 Hz	g <sub>rms</sub> 20				
	Shock, 3.5 ms half sine	g <sub>pk</sub> 1,000				
	Humidity	% 95				
Output	DC Bias nom., -65 ... 215 °F	VDC 11 ±2 (11.5 ±2 with TEDS)				
	Impedance, max.	Ω 100				
	Voltage F.S. nom.	V <sub>pk-pk</sub> 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				
TEDS version (Type 5050B_T)		Internal Transducer Electronic Data Sheet (TEDS), IEEE std. 1451.4 compatibility, Smart Transducer Interface, Mixed Mode Communication Protocol and Transducer Electronic Data Sheet Format, for Sensors and Actuators				

**Ordering Key**

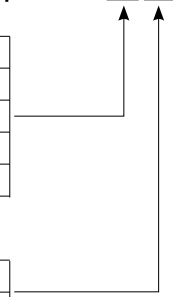
**Gain**

0.1 Gain	<b>0.1</b>
0.5 Gain	<b>0.5</b>
1 Gain	<b>1</b>
10 Gain	<b>10</b>
25 Gain	<b>25</b>

**TEDS**

Default IEEE std. 1451.4	<b>T</b>
Standard	<b>-</b>

Type 5050B



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