

# Piezotron<sup>®</sup> Coupler

Type 5134B...

## 4-Channel PiezoSmart<sup>®</sup> (TEDS) Power Supply/Signal Conditioner

A flexible, easy-to-use signal conditioner that provides excitation power, signal processing and acts as an interface between voltage mode piezoelectric and measuring instrument.

- USB 2.0 ("Plug & Play") interface for remote control and monitoring
- Fault detection and multi-colored LEDs
- Non volatile memory to store paramters
- Adjustable gain 0.5 ... 150
- Four selectable 4-pole low-pass filters and bypass settings
- Adjustable time constants and excitation current
- IEEE 1451.4 (TEDS compatible)
- -90 dB channel crosstalk
- Conforming to CE

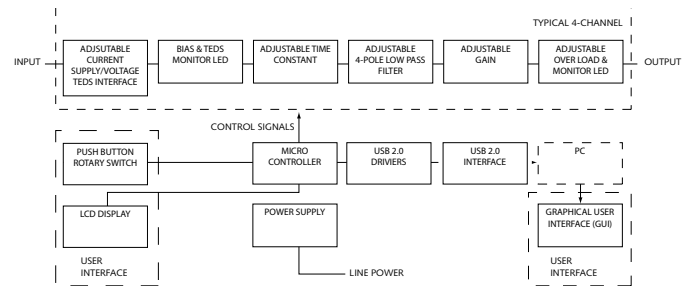


### Description

Type 5134B... is a microprocessor controlled, IEEE 1451.4 compliant (TEDS), coupler which provides DC power and signal processing for 4 channels of Integrated Electronics Piezoelectric (IE-PE) sensors. A special feature of the Type 5134B... is that with a 0 mA constant current excitation channel setting, Type 5134B... channel acts as an AC coupled voltage amplifier.

Type 5134B... has adjustable channel settings for constant current level, time constant, low pass filter cutoff, gain and overload levels. Type 5134B... can be configured to read the TEDS sensitivity or accept a user specified sensitivity and automatically scale the channel range and gain to utilize the Full Scale Output (FSO). Alternately, Type 5134B... can be configured for similar operation as the predecessor Type 5134A, as a basic amplifier without automatic scaling based on channel sensitivity. Type 5134B... permits system level selection for FSO ( $\pm 5$  V or  $\pm 10$  V), sensitivity (TEDS or User) and scaling (Automatic or Basic Amplifier).

Type 5134B1 is housed in a standard 14E (2.25 in) wide, 3U (5.25 in) high Euro-cassette. Type 5134B0 is supplied without the Euro-Cassette and is suitable for rack mounting using the rack adapter Type 5730. On the rear panel are 4 channels of isolated BNC inputs and outputs, as well as the USB mini-B connector and AC power plug receptacle. The E suffix, following the Type number, designates 230 VAC operation.



The user interface includes a LCD display and push button rotary switch for "front panel" instrument configuration. Alternately, a PC with "Plug & Play" USB interface and instrument drivers provides a graphical user interface to configure Type 5134B remotely. Also on the front panel, is a multi-color LED for each channel that indicates both status and fault condition. Type 5134B... has very low noise floor, making it particularly useful for shock and vibration laboratory applications. It is compatible with piezoelectric (PE) accelerometers used with in-line charge converters that require a constant current excitation.

### Application

The primary use for the power supply/coupler Type 5134B... 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 in (48.2 cm) rack.

5134B\_000-605a-10.14

## Technical Data

Type Number	Unit	5134B...
<b>Excitation</b>		
Voltage compliance, min.	V	24
Current, programmable, 16 levels	mA	0 ... 15
ESD protection	kV	15
<b>Electrical/Signal Processing</b>		
Channels		4
Gain, programmable		0.5 ... 150
Gain step resolution (G)		
0.5 ... 99.9		0.01
100 ... 150		0.1
Gain Accuracy		
0.5 ... 150	%	±0.5
Total wideband noise, 1 ... 10 kHz (Gain = 1, 0 Ω shunt on input), typ.	μV <sub>rms</sub>	≤35
Avg. noise density (Gain = 1, R <sub>in</sub> = 0 Ω)	μV <sub>rms</sub> /√Hz	0.35
Channel crosstalk (Signal to 10 V <sub>pp</sub> at 1.2 kHz in any 1 channel, G = 1)	dB	-90
Frequency response, ±5 % Filter = bypassed		
2 V <sub>pp</sub> input	Hz	0.1 ... 68 k
20 V <sub>pp</sub> input	Hz	0.1 ... 12 k
Fault detect		open, short
Overload detect, programmable	V	1 ... 10 (±5 % of FS)
Programmable LP filter frequencies (-3 dB), ±10 %	Hz	100, 1 k, 10 k, 30 k
Filter type		Butterworth
Poles		4
Filter bypass		programmable
<b>Smart Sensor (PiezoSmart®)</b>		
Interface		IEEE 1451.1 with TEDS
<b>Input</b>		
Impedance	MΩ	2 at 1 nF
Time constant programmable, nom.	s	10/1/0.1 (Rapid Zero)
<b>Output</b>		
Impedance	Ω	<100
RLoad, min.	Ω	300
Voltage	V	±5 or ±10

Type Number	Unit	5134B...
<b>Indicators</b>		
Status LED		1-Channel, 3-Color (red, green, blue)
Status	yellow yellow flash green red blue	fault, open fault, short normal IEPE overload TEDS/normal

<b>Connectors</b>		
Input/output	Type	BNC, neg.
USB	Type	mini-B

<b>Environmental</b>		
Operating temperature range	°F	32 ... 122
Storage temperature range	°F	-13 ... 185
Humidity, non-condensing	%	0 ... 95

<b>Power</b>		
Line voltage, -23 %, +18 % (115)	VAC	89 ... 135
(230)	VAC	178 ... 270
Line frequency	Hz	48 ... 62
Power consumption, max.	VA	14

<b>Physical</b>		
Dimensions, case (WxHxD)	in	7.68x5.55x3.68
Weight (with case)	kg	1.75

1 g = 9.80665 m/s<sup>2</sup>, 1 in = 25.4 mm, 1 Gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

### Accessing TEDS Data

Type 5134B... is used to view the TEDS. The interface provides negative current excitation (reverse polarity) altering the operating mode of the PiezoSmart® sensor allowing the program editor software to read or add information contained in the memory chip.

**Accessories Included**

- AC power cord
- USB-A to USB mini-B cable

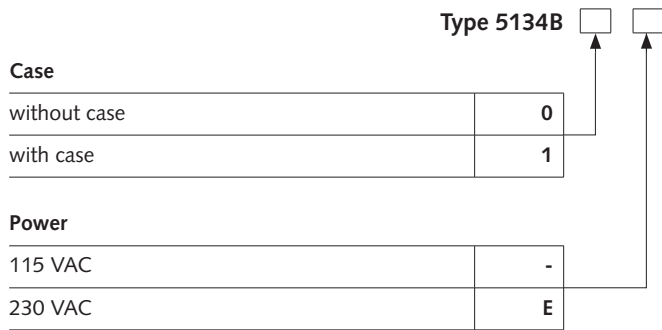
**Type**  
1508  
520-1263-001

**Optional Accessories**

- Rack adaptor

**Type**  
5730

**Ordering Key**



5134B\_000-605a-10.14