

Piezotron® Coupler

Type 5134B...

4-Channel PiezoSmart® (TEDS) Power Supply/Signal Conditioner

A flexible, simple to use signal conditioner that provides excitation power, signal processing and acts as an interface between voltage mode piezoelectric and measuring instruments

- USB 2.0 ("Plug & Play") interface for remote control and monitoring
- Fault detection and multicolored LEDs
- Non volatile memory to store parameters
- Adjustable gain 0,5 ... 150
- Four selectable 4 pin low-pass filters and bypass settings
- Adjustable time constants and excitation current
- IEEE 1451.4 (TEDS compatible)
- -90 dB channel crosstalk
- Conforming to CE

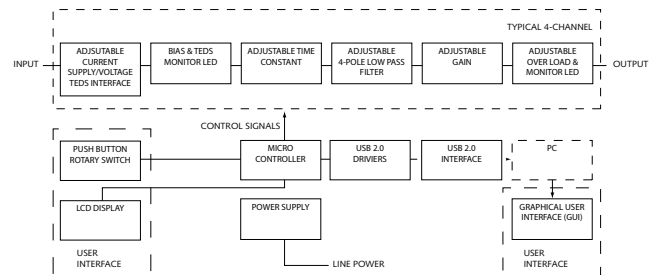


Description

The 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 (IEPE) sensors. A special feature of the Type 5134B... is that with a 0 mA constant current excitation channel setting, the Type 5134B... channel acts as an AC coupled voltage amplifier.

The Type 5134B... has adjustable channel settings for constant current level, time constant, low pass filter cutoff, gain and overload levels. The 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, the Type 5134B... can be configured for similar operation as the predecessor Type 5134A, as a basic amplifier without automatic scaling based on channel sensitivity. The Type 5134B... permits system level selection for FSO (± 5 V or ± 10 V), sensitivity (TEDS or User) and scaling (Automatic or Basic Amplifier).

The Type 5134B1 is housed in a standard 14E (2,25 inch) wide, 3U (5,25 inch) high Euro-cassette. The 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 the Type 5134B remotely. Also on the front panel, is a multi-color LED for each channel that indicates both status and fault condition. The Type 5134B... has very low noise floor making it particularly useful for shock and vibration laboratory applications. The Type 5134B... is also compatible with piezoelectric (PE) accelerometers used with in-line charge converters requires 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" (48,2 cm) rack.

5134B-000-605e-10.14

Technical Data

Excitation

Voltage compliance, min.	V	24
Current, programmable, 16 levels	mA	0 ... 15
ESD Protection	kV	15

Electrical/Signal Processing

Channels		4
Gain, programmable		0,5 ... 150
Gain step resolution (G)		
0,5 ... 99,99		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.	μVrms	≤35
Avg. noise density (Gain = 1, Rin = 0 Ω)	μVrms/√Hz	0,35
Channel crosstalk (Signal 10 Vpp at 1,2 kHz in any 1 channel, G = 1)	dB	-90
Frequency response, ±5 %, Filter = bypassed		
2 Vpp Input	Hz	0,1 ... 68 k
20 Vpp 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

Smart Sensor (PiezoSmart®)

Interface		IEEE 1451.4 with TEDS
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Input

Impedance	MΩ	2 at 1 nF
Time constant programmable, nom.	s	10/1/0,1 (Rapid Zero)
ESD Protection	kV	15

Output

Impedance	Ω	<100
RLoad, min.	Ω	300
Voltage range	V	±5 or ±10 selectable

Indicators

Status LED (Fault/Overload)		1/channel, 3-color (red, green, blue)
Status	yellow yellow flash green red blue	fault, open fault, short normal IEPE overload TEDS/normal

Connectors

Input/output	Type	BNC, neg.
USB	Type	mini-B

Environmental

Operating temperature range	°C	0 ... 60
Storage temperature range	°C	-25 ... 85
Humidity, non-condensing	%	0 ... 95

Power

Line Voltage, -23 %, +18 % (115)	VAC	89 ... 135
(230)	VAC	178 ... 270
Line Frequency	Hz	48 ... 62
Power consumption, max.	VA	14

Physical

Dimensions, case WxHxD	mm	195,1x141x93,5
Weight (with housing)	kg	1,75

1 g = 9,80665 m/s², 1 Inch = 25,4 mm, 1 gram = 0,03527 oz, 1 lbf-in = 0,113 N·m

Accessing TEDS Data

The 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 me-mory chip.

Included Accessories

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

Type/Art. No.

1508
520-1263-001

Optional Accessories

- Rack adaptor

Type

5730

Ordering Key

		Typ 5134B	
Case			
without case	0	↑	↑
with case	1		
Power			
115 VAC	-	↑	↑
230 VAC	E		