

### Model 133 PE and Isotron® signal conditioner

#### Features

- Three-channel PE/Isotron® signal conditioner
- 100 kHz bandwidth (-3dB Corner)
- Built-in 4-pole Butterworth high-pass filter with optional corner frequencies
- Gain range 0 to 1000
- RS-232 serial interface
- 12 VDC power option
- Meets filter requirements of J211 and ISO 6487\*

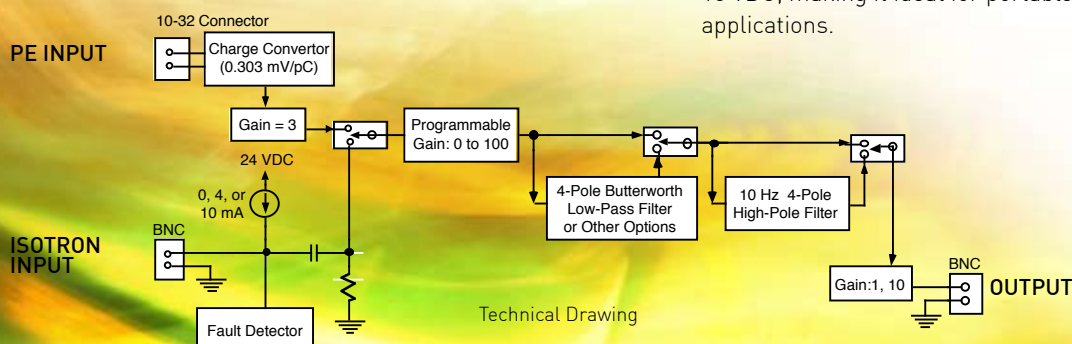
#### Description

The Endevco® model 133 is a three-channel, Piezoelectric and Isotron signal conditioner that is manually or computer programmable. Manual control is accomplished at the front panel by means of a "Select Channel" push-button, three (3) "Channel LEDs", one "Select Function" push-button, seven "Function LEDs", a four character LED display, showing the state of each function/channel, and four "Edit" push-buttons to change the entries in the LED display. There are three LEDs used as fault status indicators for open/short at the Isotron inputs. Computer control is accomplished using the standard RS-232 port and optional application software.



There are two modes of operation, Normal and Programming/Setup. Both modes of operation utilize the front panel LED display. In the Normal Mode, there are two states, Monitoring and Non-Monitoring. In the Monitoring state the LED display indicates the RMS value ( $\pm 10\%$ ) of the signal present at the output of the selected channel. The Non-Monitoring state turns off the LED display for lower noise applications and to minimize power consumption. In the Programming Mode, the unit is ready for manual programming of existing channel setups. The unit will automatically return to the Normal Mode of operation after 20 seconds of inactivity of the front panel or after pressing the "Select Function" pushbutton while the "Monitoring State" function LED is flashing.

The rear panel contains an RJ-11 connector for the RS-232 serial communications port, an input power connector, and on a per-channel basis, a BNC output connector, a 10-32 input connector for the PE input, and a BNC connector for the Isotron input. Three model 133 units may be installed in a 19-inch rack mount adapter. The standard unit is powered by 90-264 VAC, 50/60 Hz. The -1 option is powered by 9 to 18 VDC, making it ideal for portable use in automobile test applications.



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Endevco

## Specifications

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C) and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

### Inputs

<b>Piezoelectric</b>	Single-ended with one side connected to signal ground
<b>Maximum charge input</b>	≤ 10 000 pC
<b>Source resistance</b>	> 10 Meg Ohms
<b>Source capacitance</b>	< 30 000 pF
<b>Isotron</b>	Single-ended with low side connected to signal ground
<b>Constant excitation current</b>	Off, 4 mA or 10 mA, one range is valid for all 3 channels selectable through front panel or RS-232
<b>Accuracy</b>	± 15%
<b>Compliance voltage</b>	< 22 VDC
<b>Maximum input voltage</b>	< 22 Volts [AC + DC components]
<b>Input impedance</b>	100 MOhms and 33 000 pF

### Outputs

<b>AC voltage</b>	Single ended with one side connected to output signal ground. Signal proportional to input.
<b>Maximum linear output</b>	10 Vpk minimum
<b>Display non-linearity</b>	Inherent error 1% of full scale reading
	10 V = 1%; 1 V = 10%; 100 mV = 100%
<b>Maximum current output</b>	10 mA (10 V into a 1 kOhm load)
<b>DC offset</b>	15 mV maximum
<b>Protection</b>	Short circuit protected

### Transfer characteristics

<b>Gain</b>	Programmable from 0 to 1000
<b>Range</b>	0.0025, Eu 0 ≤ gain ≤ 10
<b>Resolution</b>	0.025, Eu 10 ≤ gain ≤ 100
	0.25, Eu 100 ≤ gain ≤ 1000
<b>Accuracy</b>	± 0.5% at 1 kHz after calibration, filters disabled, gain > 1
<b>Linearity</b>	0.1% of full scale, best fit straight line at 1 kHz reference
<b>Noise</b>	Noise specification valid for the following conditions: (a) unit in non-monitoring state (b) internal standard 10 kHz 4-pole butterworth lowpass filter enabled
<b>Piezoelectric</b>	0.02 pC-RMS plus 0.006 pc-RMS per 1000 pF of source capacitance referred to input (RTI), plus 1 mVRMS referred to output (RTO).
<b>Isotron</b>	20 μVRMS referred to input (RTI), plus 400 μVRMS referred to output (RTO). Input shunted with a 249 Ohm (4 mA excitation) or 100 Ohms load (10 mA excitation).
<b>Broadband frequency response</b>	±5%, 0.1 Hz to 50 kHz, referenced to 1 kHz; -3dB at 100 kHz typical
<b>Filter characteristics</b>	
<b>High pass filter type</b>	4-pole butterworth
<b>Corner frequency (-3 dB)</b>	10 hz ± 5 %
<b>Corner frequency (-3 dB)</b>	10 khz ± 12 % (other corners available by changing internal module 31875: 10 Hz to 80 kHz in 1, 2, 4, 6, 8 steps)
<b>Crosstalk between channels</b>	80 dB RTI minimum

### Power requirements

<b>Voltage</b>	Standard unit: 90-264 VAC 50 to 60 Hz; -1 option: 9-18 VDC
<b>Power dissipation</b>	9 Watts typical
<b>Isolation</b>	No isolation channel to channel or signal ground to case ground

### Physical characteristics

<b>Dimensions</b>	5.57" x 2.52" x 12"
<b>Weight</b>	4 lbs typical
<b>Case material</b>	Black aluminum cover, medium grey plastic bezel

### Included accessories

IM133	Instruction manual	EJ807	Serial DB9F/RJ-11 adaptor
EW599	Power cord	EJ822	modular splitter adapter, 1 (6x4) male to 3 (6x4) female
31875-1000	10 kHz 4-pole Butterworth lowpass filter module	133-1	9-18 VDC input power option
EP400	DC power plug (133-1 model only)	31875-xxxx	Low pass filter modules (see 31875 data sheet)
		31979	Rack mounting kit
		EJ21	10-32 microdot to bnc adapter

### Optional accessories

35933	Application software	EHM1413	Desktop DC power supply
EJ847	RJ11 (6x4) straight wired inline coupler	EHM1409	Automotive power plug
EW1077	RJ114 conductor modular flat cable, straight wired, 2 feet long	EHM1471	Blank panel
EW1027	RJ114 conductor modular flat cable, straight wired, 7 feet long		

\* Contact factory for J211 and ISO 6487 filter options.

Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.

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