Endevco
AN MTS COMPANY

PE/IEPE Signal Conditioner

Model 133

Key features

- Three-channel PE/IEPE signal conditioner
- 200 kHz bandwidth (-3dB Corner)
- Built-in 4-pole Butterworth high-pass filter with optional corner frequencies
- Gain range 0 to 1,000
- 12 VDC power option

Description

Model 133 is a three-channel, Piezoelectric and IEPE 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 IEPE inputs.

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 valve (±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 (RS-232 serial communication is no longer supported), 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 IEPE 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 12 to 18 VDC, making it ideal for portable use in automobile test applications.

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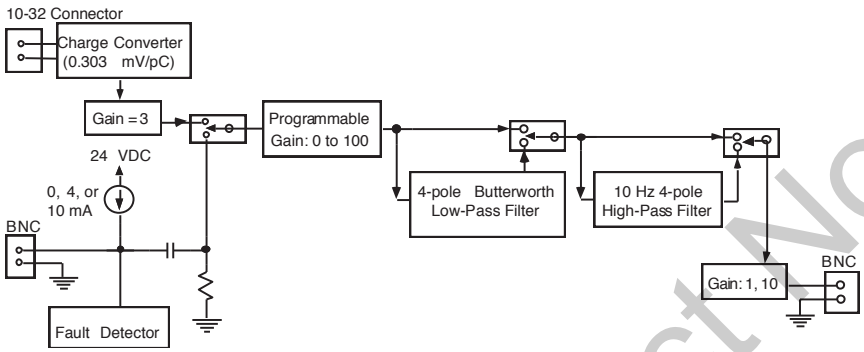
The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75˚F (+24˚C) and 100 Hz, unless otherwise noted.

Specifications

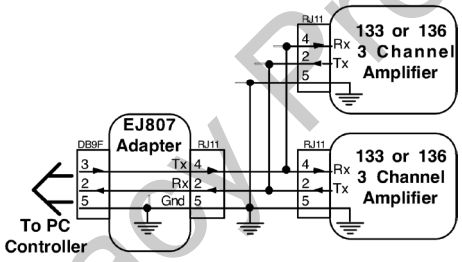
Input specifications (per channel)	
Piezoelectric	Single-ended with one side connected to signal ground
Maximum charge input	10,000 pC
Minimum source resistance	10 MΩ
Source capacitance	< 30,000 pF
IEPE	Single-ended with low side connected to signal ground
Excitation current accuracy	Off, 4 mA or 10 mA ± 15%
Compliance voltage	< 22 VDC
Maximum input voltage	< 22 Volts (AC + DC components)
Input impedance	100 MOhms and 33 000 pF
Output characteristics	
AC voltage	Single ended with one side connected to output signal ground. Signal proportional to input.
Minimum linear output	10 Vpk minimum
Display non-linearity	Inherent error 1% of full scale reading 10 V = 1%; 1 V = 10%; 100 mV = 100%
Maximum current output	10 mA (10 V into a 1 kOhm load)
DC offset	15 mV maximum
Protection	Short circuit protected
Transfer characteristics	
Gain	
Range	Programmable from 0 to 1,000
Resolution	0.0025, Eu 0 ≤ gain ≤ 10 0.025, Eu 10 ≤ gain ≤ 100 0.25, Eu 100 ≤ gain ≤ 1000
Accuracy	± 0.5% at 1 kHz after calibration, filters disabled, gain > 1
Linearity	0.1% of full scale, best fit straight line at 1 kHz reference
Noise	Noise specification valid for the following conditions: (a) unit in non-monitoring state (b) internal standard 10 kHz 4-pole butterworth lowpass filter enabled
Piezoelectric	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).
IEPE	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).
Broadband frequency response	±5%, 0.1 Hz to 50 kHz, referenced to 1 kHz; -3dB at 200 kHz typical
Filter characteristics	
High pass filter type	4-pole butterworth
Corner frequency (-3 dB)	10 hz ± 5 %
Roll-off	24 dB/octave
Low pass filter type	4-pole Butterworth
Corner frequency (-3 dB)	10kHz ± 12%, default. Corner frequency can by changed by internal module 31875
Roll-off	-24 dB/octave
Power requirements	
Voltage	Standard unit: 90-264 VAC 50 to 60 Hz; -1 option: 12-18VDC @3.0A
Power dissipation	9 Watts typical
Isolation	No isolation channel to channel or signal ground to case ground
Physical characteristics	
Dimensions	5.57" x 2.52" x 12"
Weight	4 lbs typical
Case material	Black aluminum cover, medium grey plastic bezel

Accessories

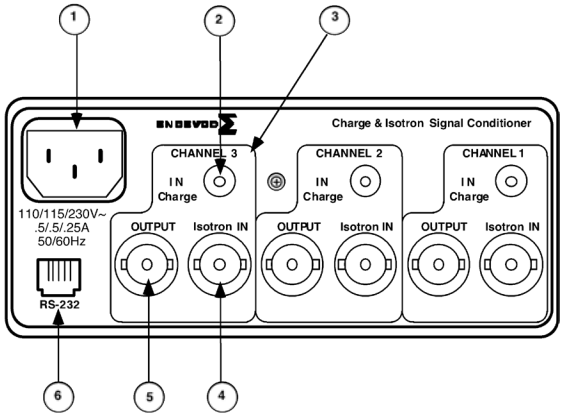
Product	Description	133
IM133	Instruction manual	Download from website
EW599	Powercord (Model 133)	Included
31875-1000	10kHz 4-pole Butterworth low-pass filter module	Included
EHM1409	Automotive power plug (Model 133-1)	Included
EJ1183	10-32 microdot to BNC adapter (qty 3)	Included
31875-xxxx	Low-pass filter modules (see 31875 data sheet)	Included
31979	Rack mounting kit	Included
EHM1413	Desktop DC power supply (Model 133-1)	Included
EHM1471	Blank panel	Included



Amplifier block diagram



Serial Communication block diagram



Back Panel

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