

# Low Noise, High Gain PE/IEPE Signal Conditioner

## Model 2775C



### Key features

- AC, DC and servo outputs
- PE, IEPE and RCC inputs
- Switchable isolation
- Gain up to 10,000
- Wide frequency response, 120 kHz bandwidth, (-3dB corner)
- Accepts external calibration signal
- Programmable integration
- Drop in replacement for the Endevco Model 2775C

### Description

The Endevco model 2775C is a single channel, low noise, high gain signal conditioner, designed for use with Piezoelectric (PE) and Integrated Electronics Piezo-Electric (IEPE) sensors. It is highly configurable, giving it the flexibility to be used with a wide variety of sensors. It is ideal for use within environmental test laboratories, aerospace test cells, calibration systems, and other general vibration laboratory testing applications.

The unit provides three standard outputs: an AC output voltage proportional to Charge input, with max.  $\pm 40$  mA current output to drive large capacitive loads; a DC output voltage of 10 Vdc Full-Scale for driving X-Y plotters or recorders, and a SERVO output. The AC and DC outputs have a maximum gain of 10,000, the SERVO output has a fixed mV/pC output with a maximum gain of 1,000.

The ENDEVCO Model 2775C Signal Conditioner accepts either Piezo-electric or IEPE type transducers. The PE/IEPE input has a wide full scale range, from 0.01 to 100k EU. A selectable 4.3mA or 9.2mA constant current is provided at the IEPE input for IEPE type transducers or Remote Charge Converter preamplifiers.

The Model 2775C includes a 2-pole, programmable filter that can be configured as either a low-pass, high-pass or band pass type. Corner frequencies are selected via internal DIP switches and filter type is selected from the front panel. Also included is a programmable integrator that provides velocity and displacement outputs. Integrator frequencies are selected via internal DIP switches and velocity or displacement output is selected from the front panel.

The ENDEVCO Model 2775C can be manually programmed from the front panel, remotely controlled through a standard RS-232 serial interface, or controlled through a 10/100 Ethernet interface. This unit is powered by an external 12 VDC, 1.0 Amp power adapter. Up to six units can be installed in a 19" rack using ENDEVCO Model 4948A.

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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. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

Specifications		
Input characteristics	Units	2775C
<b>Piezo-Electric (PE)</b>		
Maximum charge input	pC	< 100,000
Source resistance	MΩ	> 10
Source capacitance	pF	< 30,000
<b>IEPE/RCC</b>		
Constant excitation current	mA	4.3 or 9.2
Current accuracy	mA	± 0.5
Compliance voltage	Vdc	< 22
Maximum input voltage	V	< 22 (AC + DC components)
Input impedance	MΩ/pF	100/33,000
<b>Calibration</b>		
Input impedance	KΩ	100
Frequency response (±5%)	Hz	2 to 50,000 (referenced to 1 kHz)
Common mode rejection	dB	-60, min (10Hz to 1000Hz)
Output characteristics		
<b>AC voltage output</b>		
Minimum linear output	Vpk	10
Maximum current output	mA	40
DC offset	mV	20 maximum
Protection		Short circuit protected
<b>DC voltage output</b>		
Maximum linear output	Vdc	10
Maximum current output	mA	20
DC offset	mV	30 maximum with gain ≤ 1000
Protection		Short circuit protected
<b>Servo voltage output</b>		
Output sensitivity	mV/EU	0.1, 1.0, 10, or, 100
Minimum linear output	Vpk	10
Maximum current output	mA	30
DC offset	mV	20 maximum
Protection		Short circuit protected
Transfer characteristics		
<b>AC &amp; DC outputs</b>		
Gain range		Programmable from 0 to 10,000
Resolution		0.0025, 0 ≤ gain < 10 0.025, 10 ≤ gain < 100 0.25, 100 ≤ gain ≤ 1000 2.5, 1000 < gain < 10,000
Gain accuracy	%	± 0.5 for AC output and ± 1.0 for DC output (1 kHz, filters disabled)
Linearity	%	± 0.1 of full scale, best fit straight line at 1 kHz

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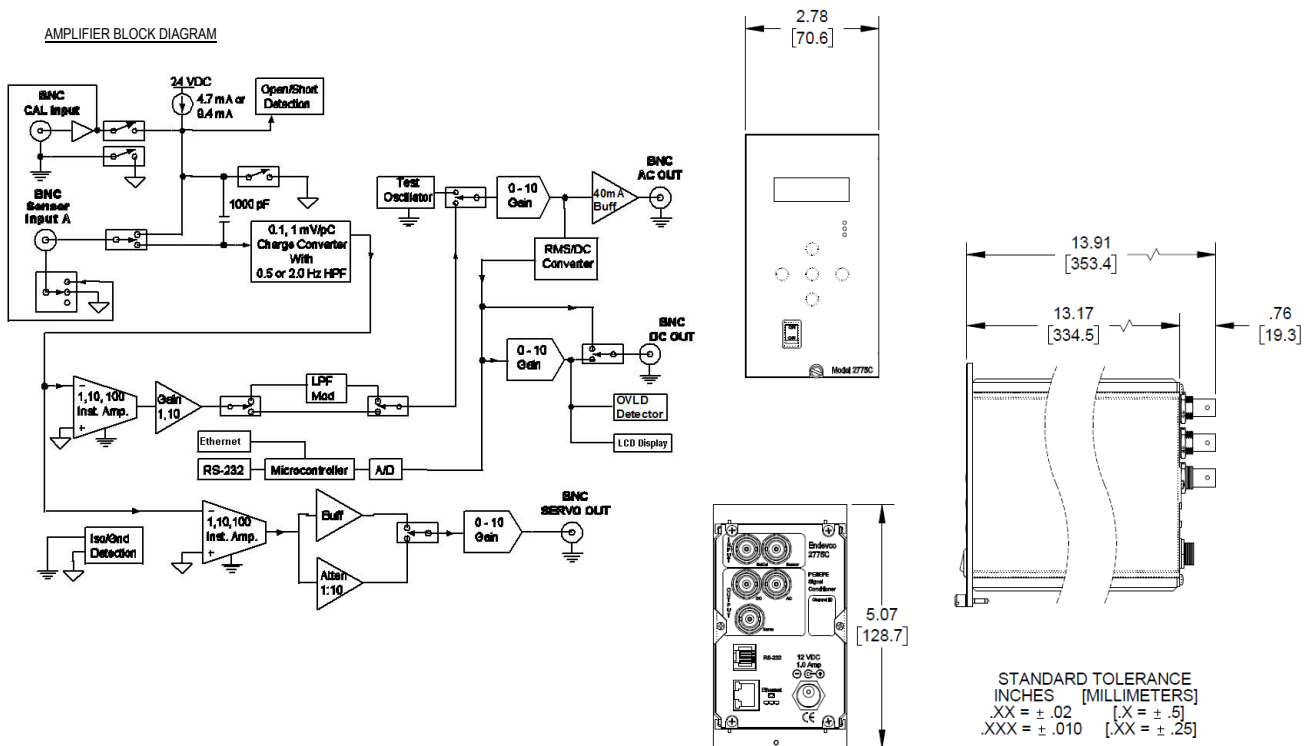
Specifications		
Transfer characteristics	Units	2775C
Broadband frequency response (±5%)	Hz	0.5 to 50,000, referenced to 1 kHz
Piezoelectric noise		0.01pC-RMS plus 0.0015 pC-RMS per 1000 pF of source capacitance RTI, or 1 mV RMS RTO, whichever is greater
IEPE noise		10 µV-rms RTI or 1 mV-rms RTO, whichever is greater.
Servo output		
Gain range		Programmable from 0 to 10 000
Resolution		0.0025, 0 < gain < 10 0.025, 10 < gain < 100 0.25, 100 < gain < 1000
Gain Accuracy	%	±0.5 (1 kHz, filters disabled)
Linearity	%	±0.1 of full scale, best fit straight line at 1 kHz
Broadband frequency response (±5%)	Hz	0.5 to 50,000, referenced to 1 kHz
Piezoelectric noise		0.01pC-RMS plus 0.0015 pC-RMS per 1000 pF of source capacitance RTI, or 1 mV RMS RTO, whichever is greater.
IEPE noise		10 µV-rms RTI, or 1 mV-rms RTO, whichever is greater.
Programmable filter		2-pole HP Butterworth filter stage, followed by a 2-pole LP Butterworth filter stage Corner frequencies for both filters are selected via internal DIP switches
HP Frequency (-5% Corner, +12 dB per octave)	Hz	2.0, 10
LP Frequency (-5% Corner, -12 dB per octave)	Hz	100, 200, 500, 1K, 2K, 5K, 10K
Programmable integrator		Modes of operation: 1) Acceleration to Velocity, or 2) Acceleration to Displacement.
OutCal		2% accuracy at 1 kHz +/-100Hz Hz full scale output
ExtCal		2% accuracy at 1 kHz full scale output
Environmental characteristics		
Temperature		
Operating	F° (C°)	+32 to +122 (0 to +50)
Storage	F° (C°)	-40 to + 185 (-40 to + 85)
Humidity		0 to 90% non-condensing
Power characteristics		
Voltage requirements		12 VDC, 500mA min
Power dissipation	Watts	1.2 (100mA @ 12 VDC)
Isolation		
Input to output signal grounds		Isolated
Input to output case ground		Isolated
Output signal ground to case ground		No isolation as default
Physical characteristics		
Dimensions	in (cm)	5.0 x 2.78 x 13 (12.7 x 7.1 x 33)
Weight (typical)	lbs (kg)	1.9 (0.9)
Case material		Aluminum
Rear connectors		
Sensor input		BNC
ExtCal		BNC
AC output		BNC
DC output		BNC
Servo output		BNC
Power input		DC: Circular EIAJ-1 Jack (center positive)
RS-232		RJ-11 jack
10/100 Ethernet		RJ45 jack

# PE/IEPE Signal Conditioner | Model 2775C

Accessories		
Product	Description	2775C
EDVIM2775C	Instruction manual	Download from website
100-17355-60	AC-DC Power Supply, Universal	Included
EDVEW1368	6 ft. CAT5 Ethernet cable	Included
017AXX	Power Cord	Included
4948A	19" rack chassis	Optional

## Notes

Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 866-363-3826 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.



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