

Signal conditioner

Model 2775B



Key features

- AC, DC and servo outputs
- PE, Isotron and RCC inputs
- Switchable isolation
- Gain range 0 to 10 000
- Wide frequency response
120 kHz bandwidth
(-3dB corner)
- Optional: filter or filter with
single/double integration
- Wide full scale input range
0.01 to 100 000 EU
- Wide sensor sensitivity input
range from 0.01 to 10 000
mV/EU, RC/EU

The 2775B accepts two optional input filter modules, models 42344 and 35818. Filter module 42344 is a plug-in 2-pole, butterworth filter that is jumper-configurable for high pass, low pass or band pass filtering – See data sheet 42344 for additional details. Filter integrator module 35818 provides capability for single or double integration of the input vibration signal – See data sheet 35818 for additional details.

Up to 6 model 2775B units can be installed in a 19" rack, model 4948A.*

The unit is designed to operated from input power sources of 90-240 VAC/50 Hz to 400 Hz.

Included benchtop controller software, model 35933A, provides RS-232 interface for the Windows® based controlling software to configure up to 20 model 2775B units.

[An RCC is a low noise, two-wire, single-ended device designed for use with piezoelectric accelerometers. This device transforms a transducer's high impedance charge output to a low impedance voltage proportional to the transducer's output charge signal. The output of the RCC connects to the Isotron® input of a signal conditioner. See Model 2771B data sheet.]

*Model 2775B is not compatible with the 4948 rack.

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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.

Dynamic characteristics	Units	2775B
Inputs		
Piezo-Electric (PE)		
Maximum charge input	pC	High impedance, single-ended piezoelectric charge mode sensors with one side connected to signal ground. < 100 000
Source resistance	Meg ohms	> 10
Source capacitance	pF	< 30 000
Isotron/RCC type		Piezoelectric with internal electronics, single-ended with one side connected to signal ground, supplying constant current in a two-wire system.
Constant excitation current	mA	4.3 default (or 8.5), selected via internal switch (S2) at B position.
Current accuracy	mA	± 0.5
Compliance voltage	Vdc	< 22
Maximum input voltage	Vdc	< 22 (AC + DC components)
Input impedance	Meg ohms / pF	100 and 33 000
Calibration		High impedance, single-ended, AC coupled with one side connected to signal ground. This mode is front panel selected.
Input impedance	Meg ohms (μF)	1 (10)
Frequency response	Hz / kHz (db)	0.5 to 120 [-3]
Common mode rejection	dB / Hz / kHz	Minimum -60 from 10 to 1
Outputs		
Type		
AC voltage output		
		Single-ended, one side connected to circuit ground. Signal proportional to input.
Minimum linear output	Vpk	10
Maximum current output	mA	40
DC offset	mV	20 maximum
Protection		Short circuit protected
DC voltage output		
		Single ended with one side connected to ground. DC output selected via internal switch (S1) at A position which sets percent DC FS output).
Maximum linear output	Vdc	10
Maximum current output	mA	20
DC offset	mV	30 maximum with gain ≤ 1000
Protection		Short circuit protected
Servo voltage output		Single ended with one side connected to ground.
Output sensitivity	mV/EU	Front panel selectable 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		
AC & DC outputs		
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 gain ≤ 10 000
Gain accuracy		± 0.5% for AC output and ± 1.0% for DC output at 1 kHz, filters disabled
Linearity		±0.1% of full scale, best fit straight line at 1 kHz
Broadband frequency response AC & DC		±5% at 0.5 Hz ±25% (HPF sets 0.5 Hz, -3dB @ 0.16 Hz) or ±5% at 2.0 Hz ±25% (for HPF set at 2 Hz, -3 dB @ 0.66 Hz) to ±5% at 50 kHz, referenced to 1 kHz
Piezoelectric noise		0.01 pC-rms plus 0.0015 pC-rms per 1000 pF of source capacitance referred to input (RTI), or 1 mV rms referred to output (RTO), whichever is greater.

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Transfer characteristics	Units	2775B
Isotron noise		10 μ V-rms referred to input (RTI) or 1 mV-rms referred to output RTO, whichever is greater. (Input is shunted with 249 Ohms 4.7 mA excitation)
Servo output scaling		.1, 1, 10, 100, 1000 (front panel selected)
Plug-in filter characteristics		Filter model 42344 or model 35818 can be enabled or disabled from the front panel
LP, HP or Band pass card		Model 42344,
Integrator card		Model 35818, See PS 35818 for specifics
OutCal		2% accuracy at 170 Hz full scale output
ExtCal		2% accuracy at 1 kHz full scale output
Analog meter		2.5 inch analog meter displays the measured percent of full scale DC output.

Environmental		
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		
Voltage requirements	VAC / Hz	100 – 240, 50 to 400 (universal input)
Power dissipation	mA / VAC	0.135 @ 120, typical
Isolation		
Input to output signal grounds		Isolated - front panel selectable
Input to output case ground		Isolated
Output signal ground to case ground		No isolation as default (internal switch selectable S3)

Physical		
Dimensions	in (cm)	5.0 x 2.78 x 13 (12.7 x 7.1 x 33)
Weight	lbs (kg)	4 typical (1.8)
Case material		Aluminum
Rear connectors		
Sensor input		BNC
ExtCal		BNC
AC output		BNC
DC output		BNC
Servo output		BNC
Power input		AC: IEC 320 Inlet (male)
RS-232		RJ-11 jack
		Pin 1: Analog ground
		Pin 2: TX (connects to RX in computer)
		Pin 3: Not used
		Pin 4: RX (connects to TX in computer)
		Pin 5: Digital ground
		Pin 6: Digital ground

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Accessories

Product	Description	2775B
EJ21	Microdot to BNC adapter	Included
EW599	IEC 320 AC power cord	Included
IM2775B	Instruction manual	Included
35933A	Application software	Included
4948A	19" rack chassis	Optional
42344	Filter card and cable	Optional
35818	Filter integrator card	Optional
EJ807	Serial DB9F to RJ-11 adapter	Optional
EW1027	7 ft. 6P4C cable with RJ-11 modular plugs straight pinning	Optional
EW1077	2 ft. 6P4C cable with RJ-11 modular plugs straight pinning	Optional
EJ822	RJ-11 splitter	Optional

Notes

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

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