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Model 2771B
Remote charge convertor

Features

- Supports IEEE P1451.4 for smart sensors
- Wide frequency response
- M1 version with male BNC for panel mounting
- Rugged small package
- Low noise
- Three different gains
- Radiation tested to 1.0 Meg Rads



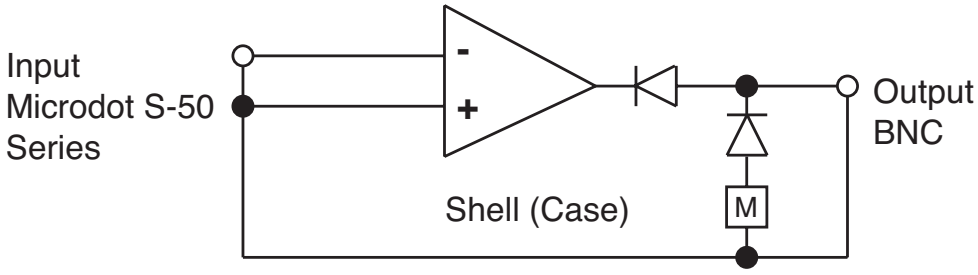
Description

The Endevco® model 2771B-XX remote charge convertor (RCC) is a low noise, two-wire, single-ended device designed for use with piezoelectric transducers. This device transforms the transducer's high impedance charge output to a low impedance voltage proportional to the transducer's charge. The signal output from the RCC is less susceptible to noise pick-up because of its low impedance voltage. Also, the shunt capacitance of the cable connecting the RCC to the main conditioner does not significantly affect the noise and sensitivity of the system.

The signal output from the RCC and the current to the RCC are carried with the same wire. The 2771B has fixed gains of 0.1 mV/pC, 1.0 mV/pC, 10 mV/pC or 20 mV/pC. This is a low noise device, with a frequency response of 1 to 40 kHz. It operates within a constant current range of 4 to 20 mA.

This unit supports the proposed IEEE P1451.4 TEDS (Transducer Electronic Data Sheet); a memor chip that allows storage and recall of the following sensor data: sensitivity, model number, serial number, manufacturer, date of last calibration and sensor location.

Legacy product not for sale



2771B Block Diagram

Model 2771B
Remote charge convertor

Specifications

Inputs

Type	Piezoelectric single-ended with one side connected to signal ground
Source resistance	100 kΩ minimum to meet all specifications
Source capacitance	30 nF maximum to meet all specifications

Outputs

Type	Single ended with one side connected to signal ground. The output signal is inverted.
Output impedance	50 Ω maximum.
Capacitance load	Operation up to 100 nF maximum
DC output bias	12.5 to 15 V over the temperature range -40°C to 100°C
Linear output voltage	8 V pk-pk minimum for the -10 unit. The -01 and -1 units are 10 vPk - Pk and dependent upon the input signal frequency
Limited output voltage	20 V pk-pk with 22 Vdc minimum compliance voltage
TEDS data	Programmable data includes: sensitivity, model number, serial number, manufacturer, date of last calibration and sensor location.

Transfer characteristics

Gain accuracy ±2.5% at 1 nF source capacitance and 100 Hz reference frequency.

Frequency response

Lower cutoff frequency -3dB	Lower cutoff frequency ±5%	Upper cutoff frequency ±5%	Source capacitance	Gain
0.4 Hz	1.2 Hz	40 kHz	20 nF	0.1
0.4 Hz	1.2 Hz	40 kHz	20 nF	1.0
2 Hz	6 Hz	14 kHz	5 nF	10

Residual noise The maximum residual noise RTI is expressed in the following formula at ambient temperature with BW of 1 Hz to 50 kHz.

Qnoise (pC rms) $\sqrt{(Qa^2 + Qb^2)}$
Qa (pC rms) = 0.005 + 0.002 Cs
Qb (pC rms) = 50 $\sqrt{(Rs)}$
Cs = Source capacitance in nF
OR_s = Source resistance in Ω

Gain stability with temperature	±1% referred to 25°C at 100 Hz from -40°C to 100°C
Gain stability with power	±0.01 mA over bias current of 4 mA to 20 mA
Total harmonic distortion	Less than 0.5% for output signals
Warm up time	120 sec. maximum for the 01 and 1 units. 240 sec. maximum for the -10 unit

Environmental

Temperature	Operating: 32°F to 158°F (0°C to 70°C) Storage: -85°F to 302°F (-65°C to 150°C)
Humidity	95% R.H. maximum
Vibration	20 g pk from 55 Hz to 2000 Hz
Shock	100 g pk with 3.6 ms Haversine pulse
Radiation	1.0 MEG Rads (integrated Gamma)

Power

Current requirement	4 mA to 20 mA
Compliance voltage	18 to 36 V. This voltage represents the maximum of AC plus DC components

Physical characteristics

Dimensions	3.2" length x 0.5 diameter (8.1 cm x 1.27 cm).
Weight	2.0 oz (56 gm) maximum
Case material	Stainless steel tube
Connector	Output—BNC coaxial connector / Input—10-32 microdot coaxial connector
M1 option	Output—male BNC connector for panel mount / Input—10-32 microdot coaxial connector
Mounting	Unit can be mounted with a cable harness clamp
Case isolation	Unit case is completely isolated with a clear ETFE sleeve
Compliance	Industrial CE standard class A

Optionals

2771BM1-XX	Male BNC connector
2771B-XX	Gain
-01	0.1
-1	1.0
-10	10
-20	20

Notes:

1. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 800-982-6732 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

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