ENDEVCO
AN AMPHENOL COMPANY

Remote charge converter

Model 2771C

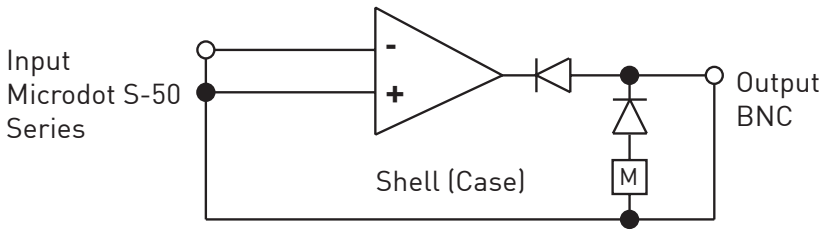
Key features

- Supports IEEE P1451.4 for smart sensors (TEDS)
- Wide frequency response
- Broadband noise down to 5 µVrms
- M1 Version with male BNC for panel mounting
- Rugged small package
- Low noise
- Four different fixed gains available
- Radiation tested to 1.0 meg rads

Model 2771C-XX remote charge converter (RRC) is an ultra 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. 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. 2771C has fixed gains of 0.1 mV/pC, 1.0 mV/pC, 5.0 mV/pC, 10 mV/pC. This is a low noise device. 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 memory chip that allows storage and recall of the following sensor data: sensitivity, model number, serial number, manufacturer, date of last calibration and sensor location.



2771C Block Diagram

ENDEVCO
AN AMPHENOL COMPANY

Remote charge converter

Model 2771C

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

Type	Piezoelectric single-ended with one side connected to signal ground
Source resistance	100 kΩ minimum to meet all specifications
Source capacitance, Cs	20 nF maximum to meet all specifications
Maximum charge input	
-01	50,000 pCpk
-1	5000 pCpk
-5	1000 pCpk
-10	500 pCpk

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	11.5 to 15 V over the temperature range -40°C to 100°C
Linear output voltage	10 V pk-pk maximum
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%
-01	0.4 Hz	1.5 Hz	8 kHz
-1	0.4 Hz	1.5 Hz	30 kHz
-5	2 Hz	6.5 Hz	50 kHz
-10	2 Hz	6.5 Hz	50 kHz

Electrical noise

for -01, -1 with Cs = 20 nF,
for -10 with Cs = 2.8 nF
(Cs of model 7704A-50)

	Broadband noise (1 Hz-20 kHz) µvrms	Spectral noise, µV/√Hz, 1Hz	10 Hz	100 Hz	1 kHz	10 kHz
-01	5	0.7	0.15	0.06	0.03	0.03
-1	30	3.2	0.8	0.3	0.15	0.12
-5	50	9	2	0.5	0.25	0.2
-10	50	9	2	0.5	0.25	0.2

Gain stability with temperature	±1% referred to 25°C at 100 Hz from -40°C to 100°C
Gain stability with power	±0.01% per mA over bias current of 4 mA to 20 mA
Total harmonic distortion	Less than 1% for output signals
Warm Up Time	30 seconds maximum

Environmental

Temperature	Operating -40°F to +257°F (-40°C to +125°C)
Humidity	95% R.H.
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
Voltage supply	24 to 30 V.

Physical

Dimensions	3.2" length x 0.5 diameter (8.13 cm x 1.27 cm).
Weight	2.0 oz (56.7 gm) maximum
Case material	Stainless steel tube
Connector	
Output	BNC coaxial connector (2771C-XX female, 2771CM1-XX male)
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 Teflon® sleeve
Compliance	Industrial CE standard class A

Remote charge converter

Model 2771C

Options

2771C-XX	Gain
-01	0.1
-1	1.0
-5	5.0
-10	10

Notes

1. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco'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.

Contact

ENDEVCO

www.endevco.com

Tel: +1 (866) ENDEVCO

[+1 (866) 363-3826]

APPLIES TO CALIFORNIA FACILITY