

# Remote Charge Convertor

**ENDEVCO  
MODEL  
2771A**

## Model 2771A

- Rugged Small Package
- Two-Wire System
- Low Noise
- Wide Frequency Response
- Four Different Gains

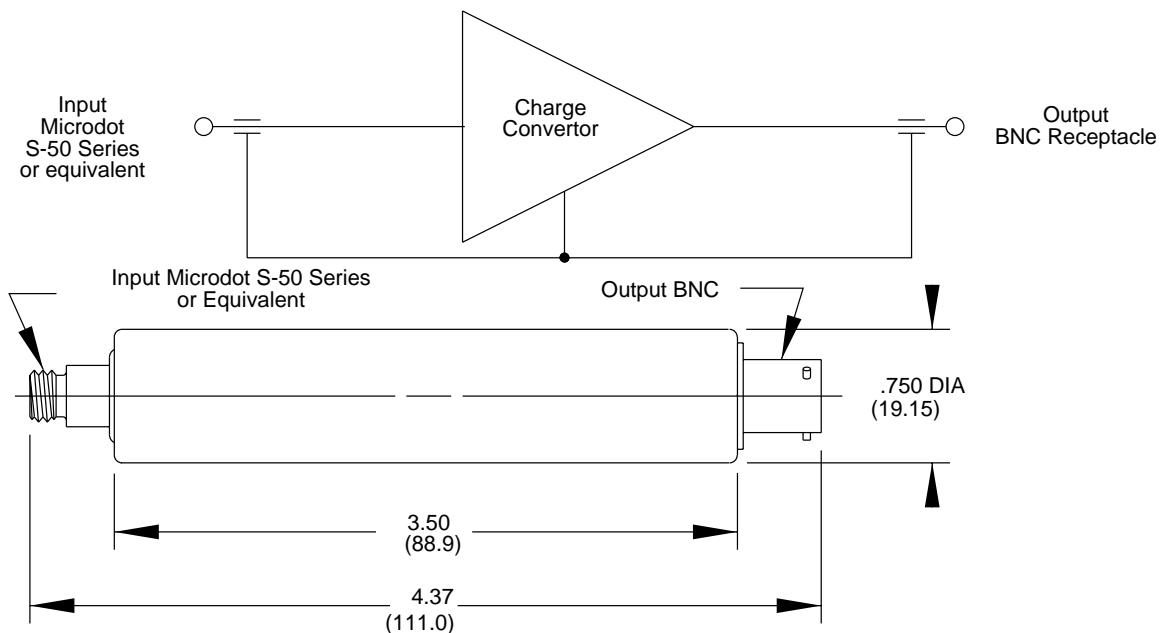


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## DESCRIPTION

The ENDEVCO® Model 2771A-XX Remote Charge Converter (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 2771A 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.



STANDARD TOLERANCE  
INCHES (MILLIMETERS)  
.XX = +/- .02 (.X = +/- .5)  
.XXX = +/- .010 (.XX = +/- .25)

# Remote Charge Convertor

## SPECIFICATIONS

### INPUTS

TYPE	Piezoelectric single-ended with one side connected to signal ground
SOURCE RESISTANCE	100 k $\Omega$ 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
OUTPUT IMPEDANCE	50 $\Omega$ maximum.
CAPACITANCE LOAD	Operation up to 100 nF maximum
DC OUTPUT BIAS	9 to 11 V over the temperature range -40°C to 100°C
LINEAR OUTPUT VOLTAGE	12 V pk-pk minimum for the -10 unit. The -01 and -1 units are dependent upon the signal frequency
LIMITED OUTPUT VOLTAGE	20 V pk-pk with 22 Vdc minimum compliance voltage

### TRANSFER CHARACTERISTICS

GAIN ACCURACY	+1/-2% at 1 nF Source Capacitance and 100 Hz reference frequency.				
FREQUENCY RESPONSE	-3dB Lower Cutoff Frequency	Upper Cutoff Frequency	Source Frequency	Capacitance	Gain
	0.2 Hz	1 Hz	40 kHz	20 nF	0.1
	0.2 Hz	1 Hz	40 kHz	20 nF	1.0
	2 Hz	6 Hz	40 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. $Q_{noise} \text{ (pC rms)} = \sqrt{Q_a^2 + Q_b^2}$ $Q_a \text{ (pC rms)} = 0.005 + 0.002 C_s$ $Q_b \text{ (pC rms)} = 50 \sqrt{R_s}$ $C_s = \text{Source Capacitance in nF}$ $R_s = \text{Source Resistance in } \Omega$				
GAIN STABILITY WITH TEMPERATURE	$\pm 1\%$ referred to 25°C at 100 Hz from -40°C to 100°C				
GAIN STABILITY WITH POWER	$\pm 0.01\%$ 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 -40°F to 212°F (-40°C to 100°C) Storage -76°F to 257°F (-65°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	10 <sup>5</sup> 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

DIMENSIONS	3.5" length x 0.75 diameter (88.9 mm x 19.5 mm). Connector's length not included
WEIGHT	3.0 oz (85 gm) maximum
CASE MATERIAL	Cold rolled steel with tin dip
Finish	Low temperature solder (SN63) used to solder output connector to case
CONNECTOR	Output BNC Coaxial Connector 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

### ACCESSORIES

EHM486	Cap, Protective
EHM882	Cap, Protective
25503-4-6	Bag, Antistatic
25503-99	Closure Label
24728-1	Shipping Box System
21875	Label, Shipping

Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.