



Charge Signal Conditioner

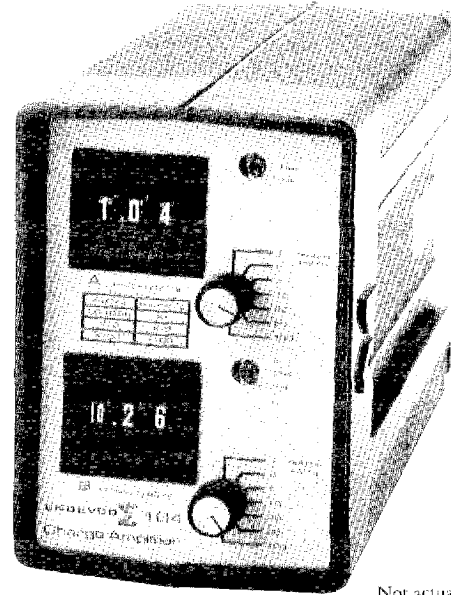
**ENDEVCO
 MODEL
 104**

Model 104

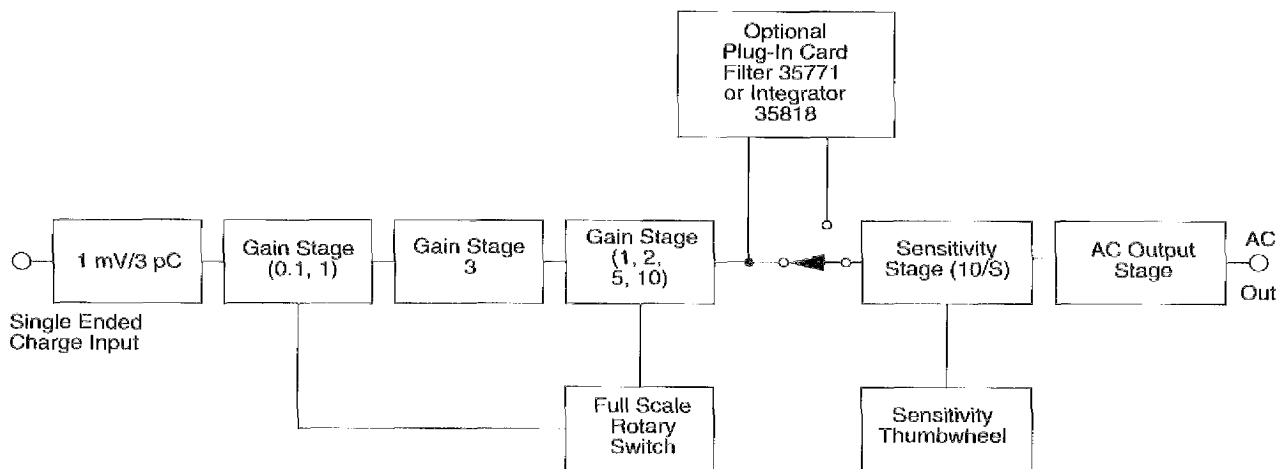
- Two-Channel Charge Signal Conditioner
- Light Weight and Rugged
- Optional Filter or Integrator
- Optional 19" Rack Mount Adapter
- Simple Operation

DESCRIPTION

The ENDEVCO® Model 104 is a two-channel charge signal conditioner designed for use with piezoelectric transducers. The output voltage of each amplifier is proportional to the charge at the input of each channel. The front panel controls provide adjustments for input sensitivity, gain and filter enable/disable. The optional, internally mounted, Model 35771 filter module allows for high pass, low pass or band pass filter operation. Alternatively, the optional internally mounted Model 35818 filter/integrator module allows jumper selectable integration or double integration. The Model 104 is designed to be used with the Model 109 Power Supply.



Not actual size



One of two identical channels

ENDEVCO
MODEL
104

Charge Signal Conditioner

SPECIFICATIONS

INPUTS

TYPE	Piezoelectric single-ended with one side connected to circuit common and case
MAXIMUM CHARGE	30 000 pC pk
OVERLOAD RECOVERY TIME	Negligible for 50 μ s, 30 000 pC square pulse
SOURCE RESISTANCE	10M Ω minimum
SOURCE CAPACITANCE	30 000 pF maximum

OUTPUTS

TYPE	AC Voltage, Single-ended with one side connected to circuit common and case
VOLTAGE SWING	10 V pk maximum to meet all specifications
OUTPUT CURRENT	3 mA maximum
DC OFFSET	15 mV DC maximum
PROTECTION	Output is protected against short circuit to ground

TRANSFER CHARACTERISTICS

GAIN RANGE	0.1 to 100																																				
Gain Accuracy	\pm 2.0% at 1 kHz with filter disable																																				
Output Voltage Ranges vs. Sensitivity	<table border="1"> <thead> <tr> <th>MULTIPLIER</th> <th>INPUT SENSITIVITY (pC/g)</th> <th colspan="7">OUTPUT SENSITIVITY (mV/g)</th> </tr> </thead> <tbody> <tr> <td>X1</td> <td>1.00 - 10.99</td> <td>1</td><td>2</td><td>5</td><td>10</td><td>20</td><td>50</td><td>100</td> </tr> <tr> <td>X10</td> <td>10.0 - 109.9</td> <td>10</td><td>20</td><td>50</td><td>100</td><td>200</td><td>500</td><td>1k</td> </tr> <tr> <td>X100</td> <td>100 - 1099</td> <td>100</td><td>200</td><td>500</td><td>1k</td><td>2k</td><td>5k</td><td>10k</td> </tr> </tbody> </table>	MULTIPLIER	INPUT SENSITIVITY (pC/g)	OUTPUT SENSITIVITY (mV/g)							X1	1.00 - 10.99	1	2	5	10	20	50	100	X10	10.0 - 109.9	10	20	50	100	200	500	1k	X100	100 - 1099	100	200	500	1k	2k	5k	10k
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RESIDUAL NOISE: Less than 0.02 pC rms plus 0.006 pC rms per 1000 pF of source capacitance RTI or 3 mV rms RTD, whichever is greater

FREQUENCY RESPONSE: The gain is flat within its bandwidth. At upper and lower cutoff frequency the gain is 5% lower than the gain at 1 kHz

Lower Cutoff Frequency: 1 Hz maximum

Upper Cutoff Frequency: 20 kHz minimum

f -3dB = 60 kHz

CROSSTALK: 300 μ V rms maximum referred to the broadband output (Between Channels)

WARM-UP TIME: 30 minutes maximum to meet all specifications

ENVIRONMENTAL

TEMPERATURE	Operating 32°F to 122°F (0°C to 50°C) Storage -67°F to 185°F (-55°C to 85°C)
HUMIDITY	95% R.H. maximum

POWER: This signal conditioner has been designed for use with the ENDEVCO Model 109 Power Supply

VOLTAGE/CURRENT: \pm 15 VDC \pm 5%, 60 mA maximum

PHYSICAL

DIMENSIONS	5.20"h x 3.40"w x 9.00"d (132 mm x 86 mm x 229 mm)
WEIGHT	2 lbs (0.9 kg)
CONNECTORS	Input 10 - 32 Microdot, One per channel Output BNC type coaxial receptacle, One per channel Power Four terminal strips

FRONT PANEL CONTROLS: Each channel has an independent set of the front panel controls listed below

Filter Enable/Disable Switch: Two position toggle switch enables (Filter "IN") or disables (Filter "OUT") the optional internal filter

Transducer Sensitivity: Three digit thumbwheel switch allows selection of transducer sensitivity from 1 pC/g to 1099 pC/g

Output Sensitivity: Seven position rotary switch allows selection of output sensitivity from 1 mV/g to 10 000 mV/g in multiples of 1, 2, 5, 10, 20, 50 and 100

ACCESSORIES

26669	Clamp Assembly
EHR77	Rubber Stand-off Feet (4 each)
27299	Power Distribution Cable

OPTIONAL ACCESSORIES

109	Power Supply for Model 100 Series (1 per 4 each Model 104)
27099	19" Rack Mounting Kit (1 per 5 each - Models 104/109)
27577	Blank Panel Case Assembly
35771	Filter Module for Low Pass, High Pass or Band Pass Two Pole Butterworth Filtering (2 per Model 104)
35818	Filter/Integrator Module (2 per Model 104)

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.