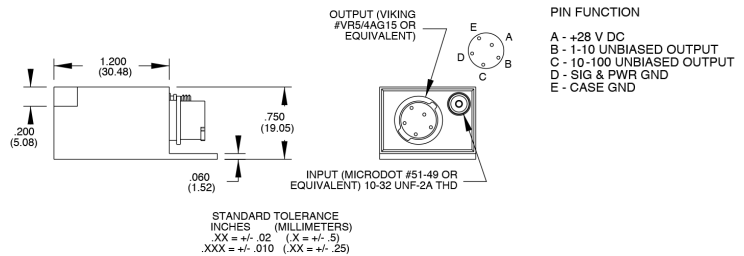
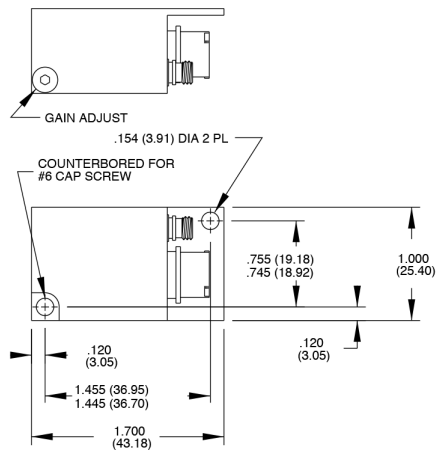


Airborne charge amplifier

Model 2680M14



Key features

- For use with piezoelectric transducers
- Small, rugged, light weight
- Dual unbiased outputs
- Adjustable gain
- Optional low-pass filter

Description

The Endevco® model 2680M14-XXX series charge amplifier is designed for use with piezoelectric transducers and is suitable for airborne applications. Hybrid micro-circuits construction results in small size, ruggedness and low power consumption. The unit is a charge amplifier; that is, it has an output voltage proportional to the charge at the input.

This unit has two outputs, an unbiased, low gain output with a gain range of 1-10 mV/pC, and an unbiased high gain output with a gain range of 10-100 mV/pC. Both outputs are adjustable with a common gain control.

The -XXX describes the upper cutoff frequency (-5% point) per Table 1. For example, a -101 has a low pass filter which is flat up to 100 Hz, a -502 has a low pass filter which is flat up to 5000 Hz.

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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.

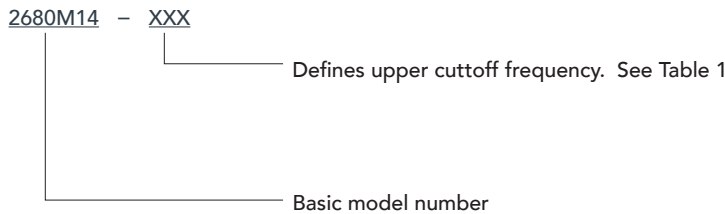
Specifications	
Inputs	
Type	Piezoelectric single-ended with one side connected to signal ground
Source resistance	3 MΩ minimum
Source capacitance	10 000 pF maximum
Overload recovery	A half sine pulse of 1 ms duration with an amplitude of 5000 pC or less will cause no spurious effects at the amplifier output other than clipping.
Outputs (the following characteristics apply to both outputs)	
Type	Single-ended with one side connected to circuit ground
Output impedance	50Ω maximum, in series with at least 16 μF
DC output bias voltage	0.00 V +.050 V/-0.00 V
Linear output voltage	5.00 V pk-pk minimum with 10 kΩ load resistance
Limited output voltage	15.6 V max
Linear output current	0.500 mA pk-pk minimum with 10 kΩ load
Transfer characteristics	
Gain range	Low gain output 1 to 10 mV/pC, adjustable High gain output 10 to 100 mV/pC, adjustable
Gain ratio	10:1, ±3% between high and low gain outputs
Gain stability	0.05% maximum change per 1000 pF change in source capacitance at the input
Gain stability with source capacity	0.25% maximum with changes in supply voltage over the specified limits
Frequency response	The gain at the lower and upper cutoff frequency is 5% lower than the gain at 20 Hz. See Table 1.
Amplitude linearity	±0.5% of reading from best fit straight line approximation
Residual noise	0.01 pC rms +0.01 pC rms per 1000 pF RTI or 1.5 mV rms RTO low gain and 15 mV rms RTO high gain, whichever is greater, when measured over a bandwidth of 3 Hz to 20 kHz
Shock and vibration sensitivity	0.01 pC/g.maximum RTI
Environmental characteristics	
Temperature	Operating -67°F to 212°F (-55°C to 100°C) Storage -99°F to 257°F (-73°C to 125°C)
Humidity	100% R.H. when sealing screw is soldered. Meets MIL-STD-810D, Method 507.2, Procedure III.
Altitude	No effect when sealing screw is soldered.
Vibration	120 mils D.A. 5 Hz to 55 Hz 20 g 55 Hz to 2000 Hz 100 g 6.5 millisecond sawtooth
Power	
Voltage	20 to 32 VDC (28 VDC nominal)
Current	15 mA maximum for unfiltered units, 17 mA maximum for filtered units
Polarity protection	Not damaged by a polarity reversal of the 28 V supply
Case isolation	Case and signal grounds isolated from each other by 50 MΩ or greater at 50 VDC
Physical characteristics	
Dimensions	1.20" l x 1.00" w x 0.75" h (30.5 mm x 25.4 mm x 19.1 mm) exclusive of mounting flange and connectors
Mounting	Unit mounts with two 6-32 screws
Case material	Aluminum with electroless nickel plate finish
Weight	1.5 oz (42.5 gm) maximum
Connectors	Input 10-32 coaxial Output Viking VR5/4AG15. Pin A is the 28 VDC, Pin B unbiased low gain output, pin C unbiased high gain output, pin D power and signal ground, pin E case ground
Gain control	12 turn trim pot. Varies gain as specified in Table 1.

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Accessories		
Product	Description	2680M14
21997	Accessory Kit:	
	EP38 - Mating plug (Viking #VP5/4CE6), QTY 1	Included
	EP35 - Hood (Viking #VS4/16C5), QTY 1	Included
	EP31- Potting sleeve (Viking #VS4/16C9), QTY 1	Included
	EHW172 - Lockwasher, #6, QTY 2	Included
	EH293 - Screw, CAP 6-32 X 3/4, QTY 1	Included
	EH535 - Screw, CAP 6-32 X 1/4, QTY 1	Included

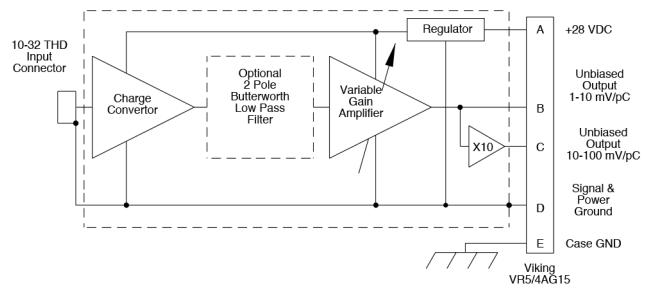
Notes

- 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.
- Model number definition:



Dash No.	Gain range [mV/pC]	Lower cutoff freq. [+5%]	Upper cutoff freq. [+5%]
None	1-10	5 Hz	20 kHz
None	10-100	5 Hz	10 kHz
101	Both outputs	5 Hz	100 Hz
201	Both outputs	5 Hz	200 Hz
501	Both outputs	5 Hz	500 kHz
102	Both outputs	5 Hz	1 kHz
202	Both outputs	5 Hz	2 kHz
502	Both outputs	5 Hz	5 kHz
103	Both outputs	5 Hz	10 kHz
203	1-10	5 Hz	20 kHz
203	10-100	5 Hz	10 kHz

Table 1: Frequency response



10869 NC Highway 903, Halifax, NC 27839 USA

endevco.com | sales@endevco.com | 866 363 3826

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