

## 1-328 Differential Charge Amplifier

### Applications

- Test Cell Instrumentation
- Automotive R&D
- Aerospace Flight Testing
- Modal Analysis

### Features

- Low Impedance Output
- Extremely Low Noise
- User Selectable Gain
- Wide Frequency Response
- Acceleration and Velocity
- Outputs



### Description

The CEC model 1-328-0XXX is a remote charge converter designed for use with differential piezoelectric transducers. This robust device converts a high impedance charge input to a low impedance AC mV output. Both an acceleration output and a proportional velocity signal are provided.

The 1-328 output is proportional to the pC charge input at a constant gain throughout the specified operating range. The 1-328 features a field selectable output gain of x2 or x10 and a frequency response of 5Hz1 to 10 kHz. The 1-328 is powered by a 24 VDC compliance voltage.

## 1-328 Specifications

<p><b>Inputs</b>  <b>Type:</b>  Differential piezoelectric transducer with shield connected to case</p> <p><b>Input Source Resistance:</b> 50 kΩ minimum  <b>Input Source Capacitance:</b> 30,000 pF maximum</p> <p><b>Maximum Input Charge:</b> 3,750 pC, Peak (X 2 Gain)  750 pC, Peak (X10 Gain)</p> <p><b>Outputs</b>  <b>Type:</b>  Acceleration or Velocity. Single-Ended with one side connected to signal ground</p> <p><b>Output Impedance:</b> 50 Ω maximum  <b>Capacitance Load:</b> 30,000 pF maximum  <b>DC Output Bias:</b> Decoupled thru 1uf capacitor  <b>Signal Output:</b> 20 V pk-pk maximum @ 24 Vdc  Limited Output 18 V pk-pk with 22 Vdc minimum compliance voltage</p> <p><b>Output Current:</b> 20 mA maximum</p> <p><b>Linearity:</b> ±1% of reading from the best straight Line</p> <p><b>Residual Noise:</b> x2 Gain = 1.0 mV RMS maximum  X10Gain = 5 mV RMS maximum</p> <p><b>Transfer Characteristics</b>  <b>Gain Accuracy:</b> ±2.5% at 1000 pF and 100 Hz reference frequency throughout  ±1% operating range</p> <p><b>Gain Stability:</b> &lt;1%</p> <p><b>Frequency Response</b>  Flat within the pass band frequencies  Roll-off -40 dB/octave  (reference 100Hz)</p> <p><b>High Pass:</b> ±5% corner frequency (see table1)  <b>Low Pass:</b> ±5% corner frequency of 10 kHz</p>	<p><b>Power</b>  <b>DC Voltage:</b> 22 Vdc to 31 Vdc  <b>DC Current:</b> 20 mA  <b>Warm Up Time:</b> 10 Seconds</p> <p><b>Enclosure Dimensions (overall):</b>  Length: 5.50" (139.7mm)  Width: 1.66" (42.16mm)  Height: 1.805" (45.85mm)</p> <p><b>Case:</b> Aluminum</p> <p><b>Transducer Input:</b>  Mating Connector  PC06A-8-2P (2 Pin)</p> <p><b>Power/Signal Output:</b>  Mating Connector  PT06A-10-6S (6 Pin)</p> <p><b>Weight:</b> 12 Oz</p> <p><b>Environmental Temperature:</b>  Operating: -15° to +85° C  Storage: -65° to +125° C</p> <p><b>Reliability:</b> MTBF = 30,000 hours or greater</p> <p><b>Approvals:</b> CE Industrial Class A</p> <p><b>Humidity:</b> 0 - 95 % RH non-condensing</p> <p><b>Vibration:</b> 8 g pk from 50 – 2000 Hz</p> <p><b>Shock:</b> 100g peak with 3.6msec Haversine Pulse</p> <p><b>Radiation:</b> 10<sup>5</sup> Rads</p>
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Table 1

Variation	High Pass Filter
1-328-0005	5 Hz
1-328-0010	10 Hz
1-328-0015	15 Hz
1-328-0020	20 Hz
1-328-0025	25 Hz
1-328-0050	50 Hz
1-328-0070	70 Hz
1-328-0150	150 Hz