



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

Monitoring Systems

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: See table 1 for high-pass filter options



1-328 Differential Charge Amplifier

Performance Specifications

Inputs

Type:	Differential piezoelectric transducer with shield connected to case
Input Source Resistance:	50 kΩ minimum
Input Source Capacitance:	30,000 pF maximum
Maximum Input Charge	3,750 pC, Peak (X 2 Gain) 750 pC, Peak (X10 Gain)

Outputs

Type:	Acceleration or Velocity Single-Ended with one side connected to signal ground
Output Impedance:	50 Ω maximum
Capacitance Load:	30,000 pF maximum
DC Output Bias:	Decoupled thru 1uf capacitor
Signal Output:	20 V pk-pk maximum @ 24 Vdc Limited Output 18 V pk-pk with 22 Vdc minimum compliance voltage
Output Current:	20 mA maximum
Linearity:	±1% of reading from the best straight line
Residual Noise:	x2 Gain = 1.0 mV RMS maximum X10Gain = 5 mV RMS maximum

Transfer Characteristics

Gain Accuracy:	±2.5% at 1000 pF and 100 Hz reference frequency throughout ±1% operating range
Gain Stability:	<1%
Frequency Response	Flat within the pass band frequencies Roll-off -40 dB/octave (reference 100Hz)
High Pass:	±5% corner frequency (see table1)
Low Pass:	±5% corner frequency of 10 kHz

Power

DC Voltage:	22 Vdc to 31 Vdc
DC Current:	20 mA
Warm Up Time:	10 Seconds

Enclosure

Dimensions (overall):	Length: 5.50" (139.7mm) Width: 1.66" (42.16mm) Height: 1.805" (45.85mm)
Case:	Aluminum
Transducer Input:	PC06A-8-2P (2 Pin)
Power/Signal Output:	PT06A-10-6S (6 Pin)
Weight:	12 oz

Environmental

Temperature:	Operating: -15° to +85° C Storage: -65° to +125° C
Reliability:	MTBF = 30,000 hours or greater
Approvals:	CE Industrial Class A
Humidity:	0 - 95 % RH non-condensing
Vibration:	8 g pk from 50 – 2000 Hz
Shock:	100g peak with 3.6msec Haversine Pulse
Radiation:	10 ⁵ Rads

Ordering Information

In keeping with CEC's policy of continuing product improvement, specifications may be changed without notice.

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