

### 8-Channel differential Input Charge Amplifier Card with Programmable Digital Filtering, Simultaneous Sampling and Acceleration, Velocity and Displacement Outputs



#### Applications

- Flight test instrumentation
- Factory automation and process control
- Piezo-electric accelerometers, transducers, microphones
- Research measurements and experiments

#### Features

- 8 channels per card
- Differential input charge amplifier front end, suitable for use with piezo-electric accelerometers
- Available output data signals per channel:
  - Acceleration
  - Velocity (digitally integrated acceleration data)
  - Displacement (digitally integrated velocity data)
- >1,000 M $\Omega$  input impedance (power on)
- Simultaneous sampling capability
- Programmable digital FIR or IIR presample filtering
  - Software selected FIR filters: 120, 90, 60 and 40 taps
  - 120 tap FIR filter provides comparable response to 12-pole Butterworth filter
  - Software selected IIR filters: 6-pole and 8-pole Butterworth, 6-pole Bessel and 6-pole Chebyshev
  - Automatic adaptive filter based on format sample rate or on software-selected -3dB frequency (6-pole Butterworth characteristic only)
  - Filter characteristic selectable on per channel basis
  - Analog anti-aliasing filter with 8.7 KHz frequency cutoff and 5-pole Butterworth response
- Programmable channel gains and offset:
  - >10,000 gain settings from  $\pm 5,500$  to  $\pm 69$  pC full scale
- $\pm 0.5\%$  system accuracy
- Compatible with WDAU-20xx operating to 20 Mbps
- Microsoft Windows application software included

#### Description

The CAD-108D-1 is an 8-channel differential Piezo-electric accelerometer signal conditioning card for use in TTC's EDAU-20xx, CDAU-20xx or WDAU-20xxX series products. Each input channel provides a differential charge amplifier for interfacing with a differential Piezo-electric accelerometer. The card then provides software programmable gain, programmable offset and programmable, DSP based, presample filtering per channel. The filter is set automatically based on the channel sample rate programmed through TTCWare. Alternatively, a filter with a user-specified -3dB frequency that falls within limits calculated by TTCware, may be selected. The conditioned analog signal is digitized at up to 16-bit resolution for transmission in the system PCM output format.

In addition to providing digitized accelerometer data to the system PCM output format, the CAD-108D-1 performs a digital integration on this data, which provides relative velocity data. The velocity data is itself integrated, providing displacement data. As with the acceleration data, velocity and displacement data are made available to the PCM output format at 16-bit resolution.

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#### CAD-108D Datasheet

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 Specifications subject to change without notice.

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CAIS  
Compatible



Management  
System  
AS9100C  
ISO 9001:2008

Teletronics - A Curtiss-Wright Company

15 Terry Drive, Newtown, PA 18940

phone: 267.352.2020 fax: 267.352.2021 Sales@ttcdas.com

[www.ttcdas.com](http://www.ttcdas.com)