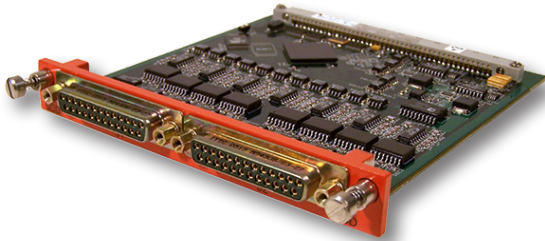


# SCD-112D

## 12-Channel Signal Conditioning Card

**CURTISS-  
WRIGHT**

CURTISSWRIGHTDS.COM



### Key Features

- 12 channels per card
- Simultaneous sampling or divided rate simultaneous sampling (thinning -10 omg) 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 a 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
  - + Analog anti-aliasing filter
- Programmable voltage excitation on a per-channel basis
- Programmable gain and offset
  - + > 10,000 settings from 1 to 1,000

### Applications

- Flight test instrumentation
- Factory automation and process control
- Strain gages, load cells, pressure transducers
- Research measurements and experiments

## Programmable Voltage Excitation Per Channel, Programmable Digital Filtering & Simultaneous Sampling

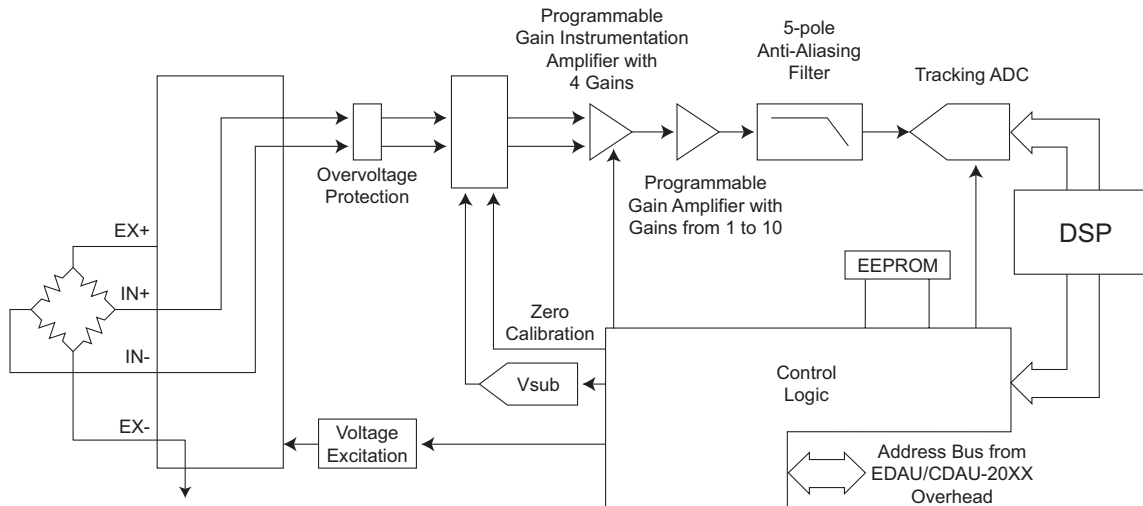
The SCD-112D-2 is a 12-channel plug-in signal conditioning card for use in Curtiss-Wright's EDAU-20XX, CDAU-20XX and WDAU-20XX products. The card is intended for applications that require significant signal conditioning flexibility and simultaneous sampling capability. The card provides constant voltage excitation on a per-channel basis, programmable presample filtering, calibration, and user-programmable gain. The user may select between digitally implemented FIR and IIR filters. All filters are phase-locked to the channel format sample rate to maintain time correlation between the input signal and the PCM output.

The filter can be set for 3, 4, 5, 6, 8 or 10 times oversampling (the filter -3dB point will be automatically set to the format sampling rate divided by the oversampling value). Alternatively, a 6th order Butterworth filter with a software-specified -3dB frequency falling within broad 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.

### Additional Features

- Zero and voltage substitution calibration
- > 1,000 M $\Omega$  input impedance (power on)
- $\pm 0.25\%$  system accuracy (auto cal enabled)
- $\pm 0.5\%$  system accuracy (auto cal disabled)
- > 1 M $\Omega$  input impedance (power off)
- Automatic parasitic offset correction on power-up and ZCAL. This feature can be disabled
- $\pm 35\text{VDC}$  overvoltage protection
- Compatible with WDAU-20XX operating to 20Mbps
- Microsoft® Windows® application software included





SCD-112D-2 block diagram (1 of 12 channels)

## Specifications

### General

- Supply current: +15V @ 120mA (110mA Dash 3); -15V @ 90mA; +5V @ 220mA (190mA Dash 3); +12V @ 70mA
- Power consumption: 4.94W<sub>a</sub> (4.79W Dash 3) max (exclusive of excitation)
- Operating temperature: -35 to 85°C (box ambient temp)
- Storage temperature: -55 to 100°C

### Dimensions and Mechanical

- Compatibility: Operates in any EDAU/CDAU/WDAU-2000 series equipment
- Weight: 5.6 oz (158 grams)
- Connectors (2): Cannon™ DBM25SD
- Mating connectors (2): Cannon™ DBMA25P
- Backshells (2 optional): Cannon™ DC24659 - Various other styles available

### Electrical

- Input impedance: 1 gigohm (power on); 1 megohm (power off)
- Channels per card: 12
- Channel gains: From 1 to 1,000. More than 10,000 unique gain settings are provided
- System gain accuracy:  $\pm 0.5\%$  max over the operating temp range
- Offset: Up to  $\pm 50\%$  RTO offset; programmable by the user in 4,096 steps

- CMRR: > 110dB from DC to 400 Hz with 100 ohm unbalance at max gain (DC coupled input). > 90dB from 60 to 400 Hz with 100 ohm unbalance at max gain (AC coupled input).
- Crosstalk: < -60dB from DC to 1 kHz
- Channel digitizing rate: 28KHz to 56KHz
- Digital filter cutoff: Software programmable from 1 Hz to 2800 Hz (-3dB)
- Filter characteristic: Software programmable 120, 90, 60 and 40 Tap symmetric FIR or 6 and 8-pole Butterworth, 6-pole Bessel and 6-pole Chebyshev IIR filters
- Anti aliasing filter: 5 pole Butterworth, -3dB @ 4.45KHz
- Voltage excitation: +10V or +5V, programmable on a per channel basis
- Excitation accuracy:  $\pm 0.3\%$  max
- Excitation current output: 40mA per channel (25mA per channel for -3)
- Sample restrictions: 14 KSPS per channel max
- Overvoltage protection:  $\pm 35V$  max (power on or off)
- Common mode voltage:  $\pm 5V$  max

## Ordering Information

- SCD-112D-2: 12-channel simultaneous sampling bridge conditioning card
- SCD-112D-3: 12-channel intrinsically safe simultaneous sampling bridge conditioning card
- SCD-112D-10: 12-channel simultaneous sampling bridge conditioning with thinning card