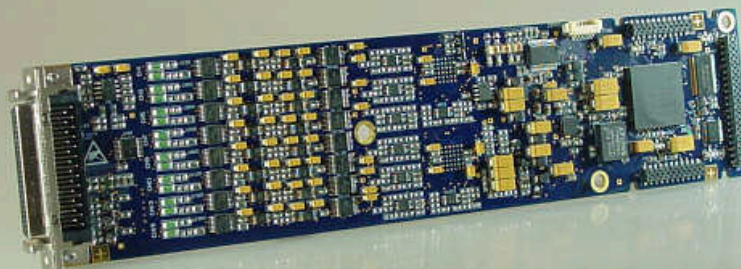


3416

**16 CHANNEL
SIGMA DELTA
ADC
FUNCTION
CARD**



- 16 Channel, 24-bit Differential Input Sigma-Delta ADC's
- Simultaneous Sampling
- 1 Sample/s to 10 kSamples/s Sample Rate
- Programmable Gain 1 to 2000 per Channel
- Accuracy of up to 0.0012% FSR
- Synchronization in large distributed Systems

POWER

The ProDAQ 3416 16-Channel Sigma-Delta Analog-to-Digital Converter Function Card is one of the ProDAQ high density cards, which can be fitted into the ProDAQ Motherboards and Function Card Carriers. It contains sixteen Sigma-Delta Analog-to-Digital Converters, each equipped with its own filter and independently programmable gain stage with differential inputs. The gain is programmable from 1 to 2000, providing the user with voltage ranges from ± 10 V down to ± 5 mV.

All channels are sampled simultaneously. The effective sampling rate can be set between 1 Sample/s and 10 kSamples/s (-BA version) resp. 1 Sample/sec to 1 kSample/sec (-AA version) with a resolution of 0.01 Samples/sec. In addition the ProDAQ 3416 can be synchronized with other ProDAQ function cards like for example the ProDAQ 3424 ADC function card or the ProDAQ 3808 Counter/Timer function card via the VXIbus trigger lines or the trigger lines on the front panel connector or over the Ethernet cable via IEEE1588 for LXI.

The voltage from the ProDAQ 3202 Programmable Voltage Reference Card can be switched directly to the input of the gain stage for calibration "on-the-fly" or self test purposes. The achievable absolute accuracy is better than $\pm(20 + 600/\text{gain}) \mu\text{V}$, or typical 0.0012 % FSR for a gain of 1.

The range of ProDAQ Function cards can be used in ProDAQ VXIbus Motherboards and LXI Carriers. They provide the user with the highest channel density and functionality available today.



LXI (LAN EXTensions for Instrumentation) combines the advantages of Ethernet with the simplicity of GPIB. LXI combines the best features of GPIB instruments with modular instrumentation by providing high performance test and measurement solutions based on a LAN interface.

The VXIbus (VME EXTensions for Instrumentation) provides a time-tested bus you can trust to support your automated test and measurement needs. Established in 1987, it is a well conceived, established and proven platform for data acquisition and test based on the industry standard VMEbus.





Ordering Information

- 3416-AA 16 Ch. Sigma-Delta ADC 1 kSample max. Data Rate
- 3416-BA 16 Ch. Sigma-Delta ADC 10 kSample max. Data Rate

Related Products

- 3180-AA ProDAQ VXIbus Motherboard
- 3202-AA Voltage Reference
- 5716-AA Bridge Signal Conditioning Unit
- 6100-xx LXI Function Card Carrier
- 8010-Ax SCSI Cables

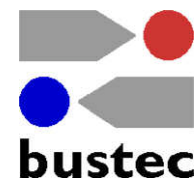
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Sampling	
Resolution	24 bit
ADC Type	Sigma-Delta (individual ADC per channel)
Sample Rates	1 Hz to 1 kHz (-Ax versions) 1 Hz to 10 kHz (-Bx versions)
Rate Selection Resolution	0.01 Hz
Oversampling	128 x
FIFO	10 kSamples
Input Characteristics	
Number of Channels	16
Input Type	Differential
Coupling	DC
Full Scale Signal Ranges	±5 mV, ±10 mV, ±20 mV, ±50 mV, ±100 mV, ±200 mV, ±500 mV, ±1 V, ±2 V, ±5 V and ±10 V (add 5% for hardware calibration and over-range capability)
Gain Settings	1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000
Analog Input Filter Type	2-pole Butterworth
Input Impedance	> 10 MΩ, 25 pF
Input Protection	±25 V
Input Offset Voltage	±30 μV typ. (gain 1) ±6 μV typ. (gain 2000)
Gain Error	0.002% typ. (gain 1) 0.05% typ. (gain 2000)
INL (Best Fit Method)	±0.0003% FSR typ. ±0.0012% FSR max.
DC Accuracy	±(8 + 225/gain) μV typ., ±(20 + 600/gain) μV max. in % FSR (typ.): ±0.0012 % (gain 1) ±0.0015 % (gain 10) ±0.005 % (gain 100) ±0.04 % (gain 1000)
Common-mode Rejection Ratio	87 dB typ. (gain 1) 106 dB typ. (gain 2000)
0.1dB Analog Passband	DC to 450 Hz (-Ax versions) DC to 4.5 kHz (-Bx versions)
3dB Analog Bandwidth (f _c)	DC to 490 Hz (-Ax versions) DC to 4.9 kHz (-Bx versions)
Pass Band Ripple	±0.005 dB
Stop Band Attenuation	95 dB min.
Signal-to-Noise Ratio	105 dB typ. (97.7 Hz, -1 dB _{FS})
Signal, Noise And Distortion (SINAD)	100 dB typ.
Total Harmonic Distortion (THD)	-102 dB typ. (1 kHz, -1 dB _{FS})
Spurious-free Dynamic Range	>103 dB
Noise	35 μV RMS typ. (1 kHz bandwidth, gain 1) 0.3 μV RMS typ. (1 kHz bandwidth, gain 2000)
Crosstalk	116 dB typ.
Environmental	
Power Consumption	9.7 W max.
Dimensions	230 x 52.6mm
Weight	approx. 110 gr.
Temperature	0 °C to +50 °C (operational) -40 °C to +70 °C (storage only)
Humidity	10% - 90% (non-condensing)