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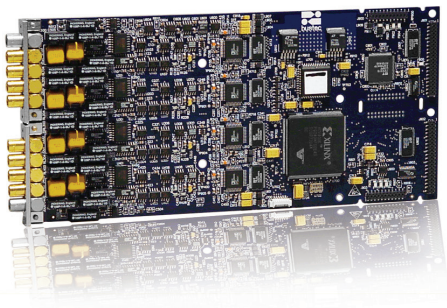
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bustec
WHEN ACCURACY MATTERS

ProDAQ Data Acquisition Function Cards

ProDAQ 3430 4-Channel, Sigma-Delta ADC Function Card



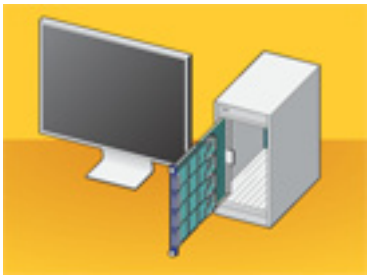
OVERVIEW

The ProDAQ 3430 is a 4-channel, sigma-delta ADC function card. Every channel contains front-end conditioning circuitry followed by a sigma-delta ADC. The bit stream from every ADC is then directed to finite impulse response (FIR) decimation filters. Users can activate up to 10 stages of the FIR filters. The filtered data from the selected stages is then stored in the FIFO. The data from the FIFO easily can be moved on-the-fly to the motherboard or to the host.

Users can configure the ProDAQ 3430 to work independently or synchronize with other ProDAQ 3430 function cards. The multi-board synchronization requires that the same sampling clock and sync signals are distributed to all ProDAQ 3430 function cards.

The ProDAQ 3430 function card consumes two adjacent function card slots within a motherboard. Up to four ProDAQ 3430s can be fitted onto a motherboard offering up to 16 channels per VXI slot. The vacant slots on a motherboard can be populated with other function cards from the ProDAQ range.

All **ProDAQ function cards** can be used in both ProDAQ VXIbus motherboards and LXI function card carriers, providing users with the highest channel density and functionality available today.



VXI carrier fits up to 4 **ProDAQ 3430** function cards. The function cards are fitted to the motherboard module (ProDAQ 3180) which is plugged into the appropriate slot of the VXI carrier.



LXI carrier fits up to 4 **ProDAQ 3430** function cards. The function cards are plugged directly into the LXI carrier. A connection is made with the host PC or network by gigabit Ethernet using standard network cables.

Features & Benefits

- **4 simultaneous** analog inputs
- **16-bit resolution**
- Up to **1 MS/s/ch**
- **Differential or single-ended** input
- 8-times **oversampling**
- **FIR** decimation
- **16 kS or 32 kS FIFO**
- **Synchronization** of multiple ProDAQ 3430 function cards
- **Programmable gain**
- **Offset correction**

For more information, visit **www.bustec.com**.

Learn more about the **ProDAQ 3430** on our website by scanning the code below.

SPECIFICATIONS

SAMPLING

Resolution	16-bit
ADC Type	Sigma-delta (individual ADC per channel)
Effective Sample Rates (with internal generator)	625 kHz (model number 3430-Ax) 1 MHz (model number 3430-Bx)
Oversampling	8-times
Sampling Clock	Internal (onboard generator) or external through front-panel connector or VXI backplane
FIR stages	10
Output Rates	Model number 3430-Ax: 625.00, 312.50, 156.25, 78.13, 39.06, 19.53, 9.77, 4.88, 2.44, 1.22 and 0.61 kHz Model number 3430-Bx: 1000.00, 500.00, 250.00, 125.00, 62.50, 31.25, 15.63, 7.81, 3.91, 1.95 and 0.98 kHz
FIFO	16 or 32 kSample

INPUT CHARACTERISTICS

Number of Channels	4, Simultaneous Sampling
Input Type	Differential or Single-ended
Coupling	DC or AC
Input Signal Ranges	3430-xA: ±10.00V, ±5.00V, ±2.00V, ±1.00V, ±0.50V, ±0.20V, ±0.10V 3430-xB: ±10.00V, ±5.00V, ±2.00V, ±1.00V, ±0.10V, ±0.05V, ±0.02V, ±0.01V
Offset Range	±5 V, 10-bit resolution (single-ended input only)
Analog Bandwidth	280 kHz (model number 3430-Ax) 450 kHz (model number 3430-Bx)
Analog Input Filter	Type 6-pole Bessel -3 dB @ 312.5 kHz (model number 3430-Ax) -3 dB @ 500.0 kHz (model number 3430-Bx)
Input Impedance	50Ω or 1 MΩ for both DC and AC coupling
AC Coupling	4.7 µF/ 50 V in series with input signal
Max. Input Voltage	±10 V DC @ 50 Ω termination ±35 V DC @ 1 MΩ termination
DC Accuracy	< 3% FSR @ gain = 1..10 (uncalibrated) typical 3% FSR @ gain = 1000 < 0.01% FSR (calibrated)
Amplitude Accuracy	±0.35% of reading (at 1kHz)
Flatness (rel. to 1kHz at half scale)	50 Hz...10 kHz: <0.05% 10 kHz...50 kHz: < 1%
Cross Channel	50 Hz...1kHz: <0.05°
Phase Match	1kHz...20 kHz: <0.5° 20 kHz...100 kHz: <1°
Frequency Accuracy	better than $1x10^{-6}$
Total Harmonic Distortion (THD)	-90 dBc typical, < -78 dBc
Spurious-free Dynamic Range (SFDR)	<-84 dBc
Noise Floor	<2 LSB
Crosstalk	<-84 dBc @ 10 kHz

FRONT PANEL I/O

External Clock	frequency range: max. 5 MHz (model number 3430-Ax) frequency range: max. 8 MHz (model number 3430-Bx) duty cycle: 45% to 55% threshold: -2 V to +3.5 V
Sync Input/ Trigger Input	threshold: -2 V to +3.5 V, programmable termination: 50Ω to GND, none (external clock) min. pulse: 400 ns (sync) 100 ns (trigger) active level: high (sync) programmable (trigger)
Connectors (LEMO type)	Analog Inputs: ELP.00.250.DTN (gold plated) Digital I/Os: ELP.00.250.NTN (nickel plated)

Ordering Information

- **3430-AA** 4 ch. sigma-delta ADC 625 kS, gain 1-100
- **3430-AB** 4 ch. sigma-delta ADC 625 kS, gain 1-1000
- **3430-BA** 4 ch. sigma-delta ADC 1 MS, gain 1-100
- **3430-BB** 4 ch. sigma-delta ADC 1 MS, gain 1-1000

Accessories

- **8020-CA** Cable, Lemo-Lemo, 2M, Booted
- **8020-BS** Lemo socket to 50 Ohm BNC (8020-CA to BNC lead)
- **8020-BP** Lemo plug to 50 Ohm BNC (8020-CA to scope input)

Related Products

- **6100-xx** LXI function card carrier
- **3180-AA** Ultra-performance motherboard module

Contact Bustec

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SPECIFICATIONS (CONT.)

PHYSICAL CHARACTERISTICS

Dimensions	235 x 106 mm
Weight	< 195 g

POWER REQUIREMENTS

Current Consumption

Voltage (V)	Current (mA)
+15	70
-15	60
+12	8
-12	1
+5	720
-5.2	35
-2	9

(note: ±15V are derived from ±24V by a regulator on the motherboard)

Power Consumption	< 6 W

ENVIRONMENTAL

Temperature	0°C to +50°C (operational) -40°C to +70°C (storage only)
Humidity	10% - 90% (non-condensing)

SOFTWARE SUPPORT

Driver support for Microsoft Windows, VxWorks, and Linux
(Contact Bustec Ltd. for more information)

WARRANTY PERIOD

12 months (extended periods available at additional cost)

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