

## DAC Data Brick UDB-2x1

### Features

- Up to 16 Analog Output Channels
- Optional 32-Bit Digital Output
- 50K Samples/Second, Maximum Channel Update Rate
- Programmable Analog Output Ranges
- 12-Bit DAC Resolution
- Windows 2000, XP, & 2003 Operating Systems



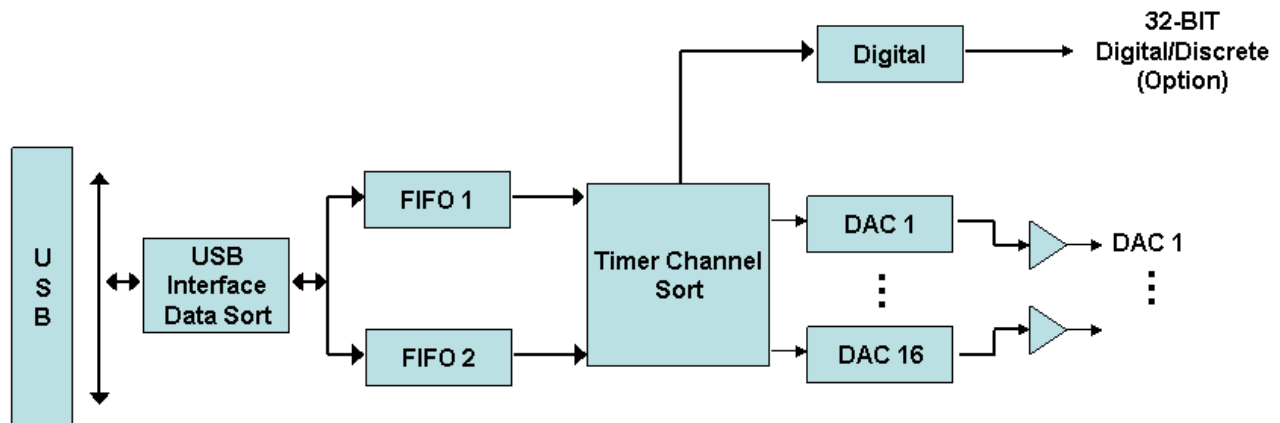
### Introduction

The USB Digital-to-Analog Converter (DAC) Data Brick (UDB) is a breakthrough in programmable analog output devices used with commercial bus architectures. The UDB solves the critical data through-put problem of real-time processing systems in which PCI-based analog output modules are rate-constrained by operating system software such as Windows.

Most PCI modules that need to maintain accurate data-driven, real-time coherency for derived, EU, and raw parameters are limited in two ways: 1) they must use single transfers over the PCI bus, and 2) they are limited to the maximum rate handled by operating system timers (approximately 1 kHz for Windows).

Receiving both data and time tags over the USB bus from OMEGA for Windows software, the UDB features independent, on-board timers to accurately correlate analog and discrete outputs at their correct real-time rate. The UDB supports raw, EU, derived, and user-defined parameters in a data-driven manner.

As with all of our boards, the USB devices in our Series-3000 systems use plug-n-play technology. Occupying only a small 3.5-inch by 9-inch footprint, the DAC Data Brick can be coupled with any of our flight-line, quick-look processing, instrumentation set-up, and ground station processing software products to provide a best-value solution for system engineers and integrators



<b>Input Signals</b>	
Input Data	USB data, 16-bit words
DAC Input Data Word Format	12 bits data + 4 bits channel address Bipolar: 4095 = full scale +, 2048 = 0V, 0 = full scale -
DAC Input Data Rate	1K – 25K samples/second/channel; data driven tracking
Number of DAC Channels	16 channels standard
Discrete Data	16-bit register
Discrete Output Data Format	16 bits TTL
Discrete Data Rate	25K samples/second/channel maximum
<b>Sinewave Reference Clock Input</b>	
Frequency	1 kHz, 10 kHz, 100 kHz, 1 MHz – 50 MHz
Signal Type	Single-ended sine wave
Levels	1V – 8V peak-to-peak
DC Offset	DC Offset < 10 percent of volts peak-to-peak level centered around ground
Input Impedance	50 ohms, 75 ohms, 10K ohms (programmable)
SNR	≥ 50 dB
<b>RS-422/TTL Reference Clock Input</b>	
Frequency	1 kHz, 10 kHz, 100 kHz, 1 MHz – 50 MHz
Signal Type	RS-422, TTL, LVTTTL (3.3V)
<b>Performance</b>	
Number of DAC Channels	16
DAC Resolution	12 bits
DAC Rate	25,000 samples/second(maximum)/channel
DAC Output Voltage Range	+5V to - 5V
DAC Relative Accuracy	± 2 LSB – (typical) + gain error + bipolar output accuracy
DAC Linearity	± 0.005 percent of FSR (maximum)
DAC Gain Error	+/- 0.3 percent (typical)
DAC Bipolar Output Accuracy	± .8 percent of FSR
DAC Bipolar Offset Error	± .2 percent of FSR

Output		
DAC Output Current		Maximum 0.5 mA/channel – 10 Kohm load
Discrete Output Current		Synchronous buffer 1 mA/channel
Data Latency		50 ms < BOARD_LATENCY < 200 ms (with software suport) +/-15 percent of BOARD_LATENCY data rate tracking
Electrical and Environmental		
Power	Battery	Rechargeable COTS battery, external charger provided with battery-powered configuration 2-hour operating life typical
	DC	Accepts 10 VDC to 35 VDC input
	AC	Accepts 110 VAC, supported with external AC/DC unit
	Consumption	5W typical
Status	LED	Before Operation – Flashes to indicate Board ID# During Operation – Red LED indicates no data or underflow Yellow LED indicates data flowing, but frame sync not found Green indicates properly formatted data is flowing
Physical	Connectors	Dual 26-pin high density D-type connector on card edge for analog and discrete output
	Power Switch	Remote on/off or auto-on with USB connector
	Housing	 <p>Aluminum, black; conductive cooling; mounting holes 3.5" (W) by 9" (L) by 2.9" (H) (maximum height with battery and feet) 3.5" (W) by 9" (L) by 1.5" (H) (no battery or feet)</p>
Environment	Operating Temperature	Operation from 0 °C to 50 °C
	Operating Humidity	20 to 95 percent noncondensing
	Storage Temperature	-40° to 80 °C (storage)
	Storage Humidity	20 to 95 percent noncondensing
Accessories	Documentation	User manual, installation and program information
Ordering Codes	UDB-2X1-X1	DAC Data Brick, 16 Channels
	UDB-X2X-XX	D-Type Connector, Standard Density
	UDB-CAS-C01	Case w/Strap & Handle (holds Brick, Laptop & Accessories)
	UDB-CAS-C02	Case w/Handle (holds Brick & Accessories)
	UDB-CAS-T01	Case w/Handle & Wheels (holds 3 Bricks, Laptop & Accessories)

Note: All performance specifications are configuration dependent.

