DNx-AO-318

8-Channel isolated D/A Board with Built-in-test

- DNA- /DNR- /DNF-AO-318 for use in Cube /RACKtangle / FLATRACK I/O chassis
- 8 independent fully isolated 16-bit DACs
- Built-in-test functionality monitors both output voltage and current
- 10 kHz per channel max update rate
- ±10 V output range, ±10 mA per channel
- Simultaneous update across all channels

DNR-AO-318 shown

General Description:

The DNA-AO-318, DNR-AO-318 and DNF-AO-318 are fully isolated, high-precision, 8-channel analog voltage output board compatible with UEI's popular "Cube", RACKtangle and FLATRACK I/O chassis respectively. The boards offer full 16-bit resolution and guarantee monotonicity over the entire operating temperature range. Each DNA/DNR-AO-318 channel provides an output range of ±10 V and is capable of driving ±10 mA. For applications requiring higher output current or voltage, please refer to the DNx-AO-308-35x series boards.

The DNx-AO-318 provides extensive built-in-test diagnostics. An on-board A/D converter on each channel allows the user to monitor both output voltage and current. A solid state relay on each output allows the D/A channel to be disconnected from the field I/O so that a complete board self-test can be completed without driving the circuitry connected to the outputs. This relay in combination with the output current and voltage sensing can also be set to disconnect the D/A output in the event of an external fault condition such as a short to ground or a DC power supply.

BENEFITS OF UEI'S GUARDIAN SERIES

✓	CIRCUIT BREAKER
✓	VOLTAGE MONITORING
✓	CURRENT MONITORING
✓	FIELD DISCONNECT
✓	TEMPERATURE

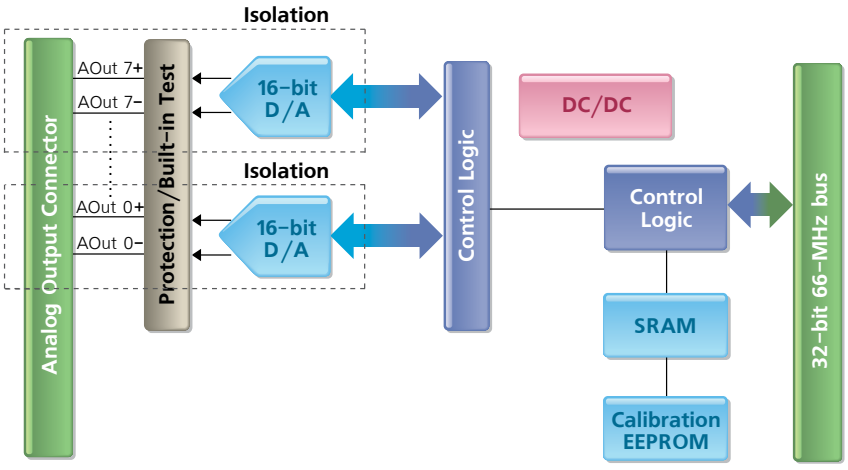
UEI's Guardian series boards include a sophisticated, reliable on-board monitoring system, allowing quick and easy system testing, sensor diagnostics monitoring and fault detection for rapid resolution in field or lab.

Learn more about UEI's Guardian series

Technical Specifications: (at 25°C unless otherwise noted)

Analog Outputs	8 channels
Resolution	16-bits
Max update rate:	10 kHz/channel (80 kHz max aggregate)
FIFO buffer size	1024 samples
INL (no load)	±6 LSB (0.018%)
DNL (no load)	±2 LSB (0.006%)
Monotonicity	16 bits guaranteed over temperature
Gain calibration error	±610 µV, typical
Offset calibration error	±305 µV, typical
Output range	±10 V
Output impedance	0.5 Ω (typical)
Current drive	±10 mA/channel
Settling time	50 µs to 16 bits
Slew rate	1 V/µs
Power up state	0 V ±10 mV
Output Monitoring	
Accuracy (V/I)	±5 mV/100 µA (±50 mV/1 mA over FS temperature)
Sample/Update rate	~1 sample/sec on each channel (default)
Isolation	350 Vrms channel-to-channel and field wiring to chassis
Power Consumption	4.0 W (not including output loads)
Operating Temperature (tested)	-40 °C to +85 °C
Operating Humidity	95%, non-condensing
Vibration *IEC 60068-2-6* *IEC 60068-2-64*	5 g, 10-500 Hz, sinusoidal 5 g (rms), 10-500 Hz, broad-band random
Shock *IEC 60068-2-27*	100 g, 3 ms half sine, 18 shocks @ 6 orientations 30 g, 11 ms half sine, 18 shocks @ 6 orientations
Altitude	120.000 ft
MTBF	480,000 hours

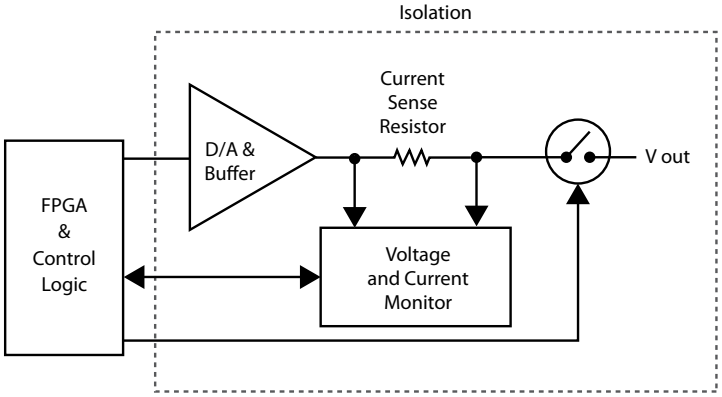
Block Diagram:



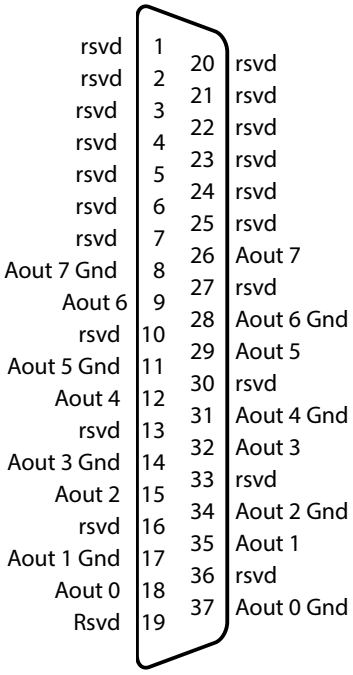
All 8 channels may be configured to update simultaneously, or they may be updated one at a time as data is written. A 1024 sample FIFO allows each D/A to be updated at 10 kHz without data loss. Double buffering the outputs combined with the use of low glitch D/As make the DNx-AO-318 an ideal solution for generating low frequency waveforms or providing highly accurate switched stimulus.

Software is included, providing a comprehensive, yet easy-to-use API that supports all popular operating systems, including Windows, Linux, and most real-time operating systems—such as QNX, Intime, VXworks, and more. Additionally, the UEIDAQ Framework—an even higher level Windows driver—supplies complete support for those creating applications in many popular Windows programming languages, as well as data acquisition software packages such as LabVIEW and MATLAB/Simulink.

Simplified output schematic:



Pinout Diagram:



Connection options:

Cable	Screw Terminal Panel	Description
DNA-CBL-37 series	DNA-STP-37	37 conductor screw terminal panel connects to board via DNA-CBL-37 or 37S series cables.

Extended Warranty	Option to purchase UEI's extended 5 year warranty is available