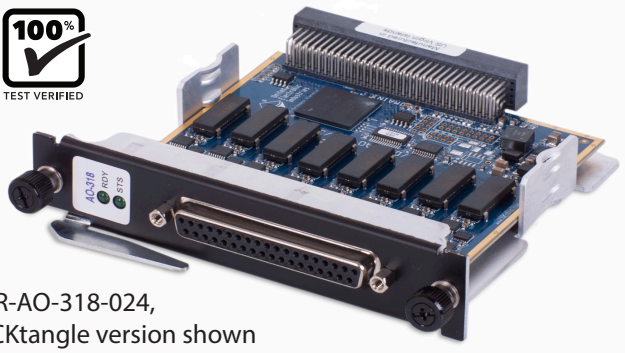
DNx-AO-318-024

8-Channel Isolated 0-24 mA D/A Board with BIT

- DNA- / DNR- / DNF-AO-318-024 for use in "Cube" / RACKtangle / FLATRACK I/O chassis
- 8 independent fully isolated 16-bit DACs
- Built-in-test functionality monitors output voltage and current
- 10 kHz per channel max update rate
- 0 - 24 mA output range
- Simultaneous update across all channels



DNR-AO-318-024,
RACKtangle version shown

General Description:

The DNA-AO-318-024, DNR-AO-318-024 and DNF-AO-318-024 are fully isolated, high-precision, 8-channel analog current 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 DNx-AO-318-024 channel provides an output range of 0-24 mA (sourcing) and is capable of up to 400 Ohms. For applications requiring a sinking output please refer to the DNx-AO-319-420. For applications requiring voltage outputs please refer to the DNx-AO-308 or DNx-AO-318 series boards.

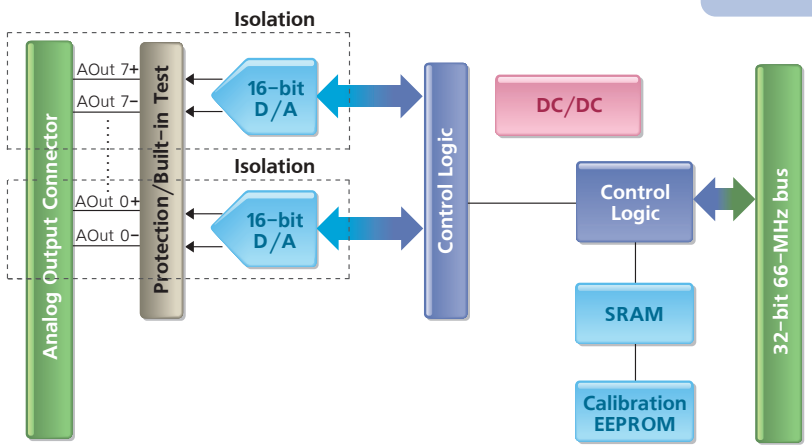
The DNx-AO-318-024 provides extensive built-in-test diagnostics. An on-board A/D converter on each channel allows the user to monitor both output voltage and current. A solid state relay on each output allows the D/A channel to be disconnected from the field I/O so that a complete board self-test can 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.

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-318-024 an ideal solution for generating low frequency waveforms or providing highly accurate switched stimulus.

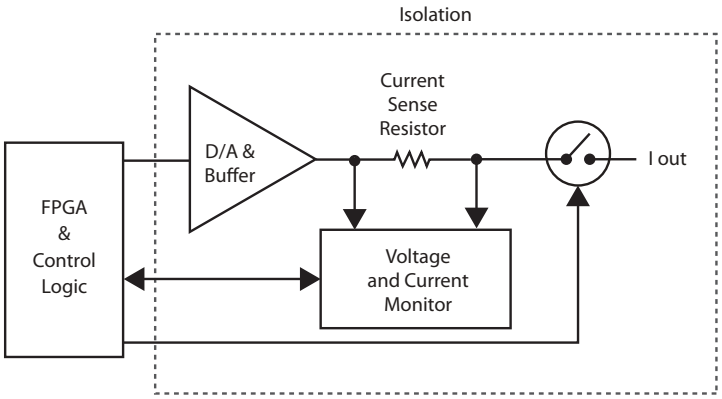
Software is included, providing a comprehensive, yet easy-to-use API that supports all popular operating systems, including Windows, Linux, and most real-time operating systems—such as QNX, Intime, VXworks, and more. Additionally, the UEIDAQ Framework—an even higher level Windows driver—supplies complete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

Technical Specifications:

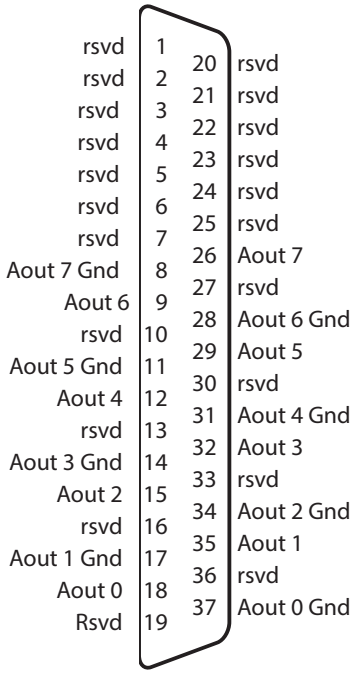
Number of Channels	8
Resolution	16 bits
Max Update Rate:	10 kHz/channel (80 kHz max aggregate)
Buffer Size	1K samples (each channel)
INL (no load)	±6 LSB (0.018%), typical
DNL (no load)	±2 LSB (0.006%), typical
Monotonicity Over Temp	16 bits guaranteed
Gain Linearity Error	0.002%
Gain Calibration Error	±5 µA typical,
Offset Calibration Error	±5 µA typical,
Offset Drift	15 ppm/°C, typical
Gain Drift	15 ppm/°C, typical
Output Range	0-24 mA
Settling Time	500 µs to 16 bits
Load range	0 to 400 Ohms for full 0-24 mA swing
Isolation	350 Vrms
Built-in Test	
Voltage accuracy	+/- 25 mV
Current accuracy	25 µA
Sample rate	Up to 6 Hz per channel total (3 Hz if both current and voltage are monitored)
Power Consumption	4.5 Watt not including output load
Operating Temp. (tested)	-40°C to +70°C for full output to 24 mA -40°C to +85°C for 0 - 20 mA range
Operating Humidity	0 - 95%, non-condensing
Vibration *IEC 60068-2-6* *IEC 60068-2-64*	5 g, 10-500 Hz, sinusoidal 5 g (rms), 10-500Hz, broadband 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



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.