

DNx-AO-318-020

8-Chan Isolated 0-20 mA D/A Board with BIT

- DNA- / DNR- / DNF-AO-318-020 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 - 20 mA output range
- Simultaneous update across all channels

10-Year
Availability
Guarantee



DNR-AO-318-020,
RACKtangle version shown

General Description:

The DNA-AO-318-020, DNR-AO-318-020 and DNF-AO-318-020 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-318-020 channel provides an output range of 0-20 mA (sourcing) and is capable of up to 400 Ohms. For applications requiring voltage outputs please refer to the DNx-AO-308 or DNx-AO-318 series boards.

The DNx-AO-318-020 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.

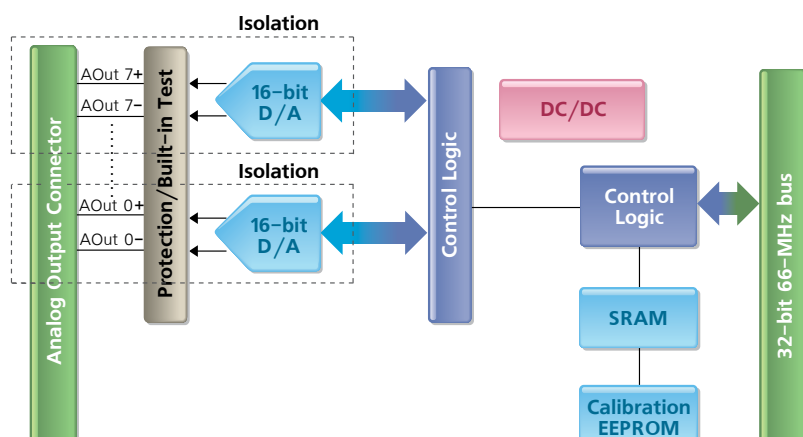
All 8 channels may be configured to update simultaneously, or they may be updated one at a time as data is written. A 1024 sample FIFO allows each D/A to be updated at 10 kHz without data loss. Double buffering the outputs combined with the use of low glitch D/A's make the DNx-AO-318-020 an ideal solution for generating low frequency waveforms or providing highly accurate switched stimulus.

Software included with the DNx-AO-318-020 provides a comprehensive yet easy to use API that supports all popular Windows programming languages as well as supporting programmers using Linux and most real-time operating systems including QNX, RTX, VXworks and more. Finally, the UEIDAQ Framework supplies complete support for those creating applications in Windows data acquisition software packages such as LabVIEW, MATLAB/Simulink, DASyLab or any application which supports ActiveX or OPC servers.

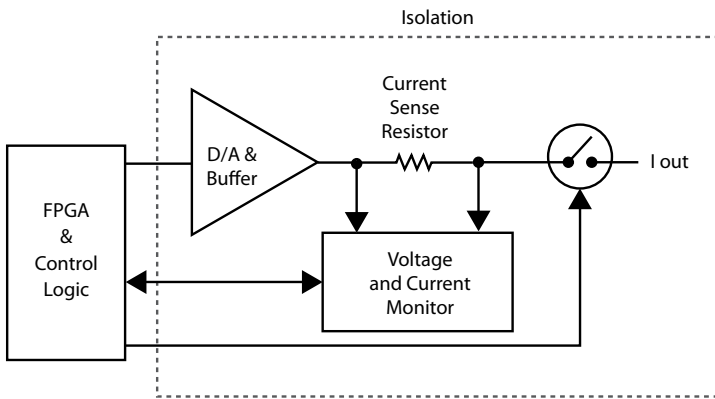
Technical Specifications:

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	±2.5 µA typical,
Offset Calibration Error	±2.5 µA typical,
Offset Drift	10 ppm/°C, typical
Gain Drift	10 ppm/°C, typical
Output Range	0-20mA
Settling Time	500 µs to 16 bits
Load range	0 to 470 Ohms for full 0-20 mA swing
Isolation	350Vrms
Built-in Test	
Voltage accuracy	+/- 25 mV
Current accuracy	25 µA
Sample rate	Up to 20 Hz per channel total
Power Consumption	4.5 Watt not including output load
Operating Temp. (tested)	-40°C to +85°C
Operating Humidity	0 - 95%, non-condensing
Vibration IEC 60068-2-6	5 g, 10-500 Hz, sinusoidal
IEC 60068-2-64	5 g (rms), 10-500Hz, broadband random
Shock IEC 60068-2-27	50 g, 3 ms half sine, 18 shocks @ 6 orientations 30 g, 11 ms half sine, 18 shocks @ 6 orientations
MTBF	250,000 hours

Block Diagram:



Simplified output schematic:



Pinout Diagram:

rsvd	1	rsvd
rsvd	2	20 rsvd
rsvd	3	21 rsvd
rsvd	4	22 rsvd
rsvd	5	23 rsvd
rsvd	6	24 rsvd
rsvd	7	25 rsvd
rsvd	8	26 Aout 7
Aout 7 Gnd	9	27 rsvd
Aout 6	10	28 Aout 6 Gnd
rsvd	11	29 Aout 5
Aout 5 Gnd	12	30 rsvd
Aout 4	13	31 Aout 4 Gnd
rsvd	14	32 Aout 3
Aout 3 Gnd	15	33 rsvd
Aout 2	16	34 Aout 2 Gnd
rsvd	17	35 Aout 1
Aout 1 Gnd	18	36 rsvd
Aout 0	19	37 Aout 0 Gnd
Rsvd		

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.