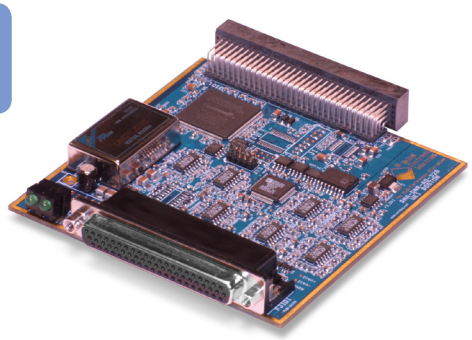
DNA/DNR-AO-332

32-Channel, 16-bit Analog Output Boards

- DNA-AO-332 for use in "Cube" chassis
- DNR-AO-332 for use in RACKtangle™ chassis
- 32 independent 16-bit DACs
- 10 kHz per channel max update rate
- ±10 V output range, ±10 mA per channel
- Low glitch output
- Per-channel offset and gain calibration
- Simultaneous update across all channels (if desired)

10-Year Availability Guarantee



DNR Configuration Shown Here.

General Description:

The DNA-AO-332 and DNR-AO-332 are high density, high-precision, 32-channel analog voltage output board compatible with UEI's popular "Cube" and RACKtangle I/O chassis . The boards offer full 16-bit resolution and guarantee monotonicity over the entire operating temperature range. Utilizing an innovative per-channel digital offset and gain calibration, initial gain and offset errors are limited to ±450 µV and ±305 µV respectively. Each DNA/DNR-AO-332 channel provides an output range of ±10 V and is capable of driving ±10 mA. For applications requiring higher output current, please refer to the DNA/DNR-AO-308-350 layer.

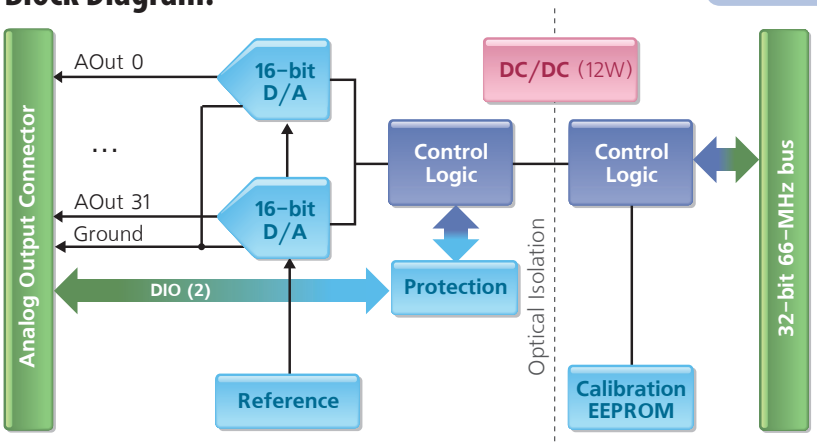
All 32 channels may be configured to update simultaneously, or they may be updated one at a time as data is written. A 1024 sample FIFO on each channel allows each D/A to be updated at 10 kHz without data loss. Double buffering the outputs combined with the use of low glitch D/As make the DNA-AO-332 an ideal solution for generating low frequency wave forms or providing highly accurate switched stimulus. The board also offers a digital input bit which may be used as a trigger or as a general purpose input. A digital output bit is also provided.

Software for the DNA-AO-332 is provided as part of the UEIDAQ Framework. The framework 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, RT Linux and more. Finally, the framework supplies complete support for those creating applications in data acquisition software packages such as LabVIEW, MATLAB/Simulink, DASYLab or any application which supports ActiveX or OPC servers.

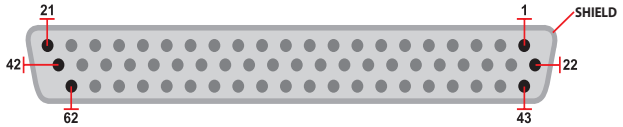
Technical Specifications:

Number of Channels	32
Resolution	16-bits
Max Update Rate:	10 kHz/channel (320 kHz max aggregate)
FIFO Buffer Size	1024 samples
Type of D/A	double-buffered
INL (no load)	±4 LSB (0.012%)
DNL (no load)	±1 LSB (0.003%)
Monotonicity	16 bits guaranteed over temperature
Gain Calibration Error	±450 µV, typ.
Offset Calibration Error	±305 µV, typ.
Offset Drift	5ppm/°C
Gain Drift	5ppm/°C
Output Range	±10 V
Output Coupling	DC
Output Impedance	0.1 Ω (typ)
Current Drive	±10 mA/channel
Capacitive Loads	500 pF
Settling Time	50 µs to 16 bits
Slew Rate	1 V/µs
Power up state	0 V ±10 mV
Digital I/O	1 digital input, 1 digital output (logic level)
Isolation	350Vrms
Power Consumption	2.0W - 3W (not including output loads)
Operating Temp. (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*	50 g, 3 ms half sine, 18 shocks @ 6 orientations 30 g, 11 ms half sine, 18 shocks @ 6 orientations
MTBF	400,000 hours

Block Diagram:



Pinout Diagram:



Pin	*Signal*	*Pin*	*Signal*	*Pin*	*Signal*
1	Gnd	22	AOut 0	43	Gnd
2	AOut 1	23	Gnd	44	AOut 2
3	Gnd	24	AOut 3	45	Gnd
4	AOut 4	25	Gnd	46	AOut 5
5	Gnd	26	AOut 6	47	Gnd
6	AOut 7	27	Gnd	48	AOut 8
7	Gnd	28	AOut 9	49	Gnd
8	AOut 10	29	Gnd	50	AOut 11
9	Gnd	30	AOut 12	51	Gnd
10	AOut 13	31	Gnd	52	AOut 14
11	Gnd	32	AOut 15	53	Gnd
12	AOut 16	33	Gnd	54	AOut 17
13	Gnd	34	AOut 18	55	Gnd
14	AOut 19	35	Gnd	56	AOut 20
15	Gnd	36	AOut 21	57	Gnd
16	AOut 22	37	Gnd	58	AOut 23
17	Gnd	38	AOut 24	59	Gnd
18	AOut 25	39	Gnd	60	AOut 26
19	AOut 28	40	AOut 27	61	AOut 29
20	DIn 0	41	Gnd	62	AOut 30
21	DOut 0	42	AOut 31		

Connection options:

Cable	Screw Terminal Panel	Description
DNA-CBL-62	DNA-STP-62	62 conductor screw terminal panel connects to board via DNA-CBL-62 round, shielded cable.