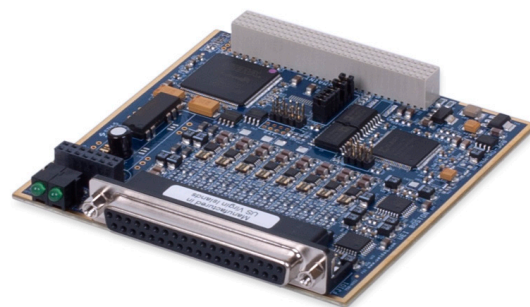


DNA/DNR-AO-308-352

16-bit, 8-Channel, ±13.5 V, Medium-Voltage Analog Output Board

- DNA-AO-308-352 for use in “Cube” I/O chassis
- DNR-AO-308-352 for use in RACKtangle® I/O chassis
- 8 independent DACs, 16-bit resolution
- 100kHz per channel max update rate
- ±13.5 V output range, ±13.5 mA per channel
- Per-channel offset and gain calibration
- Simultaneous update across all channels

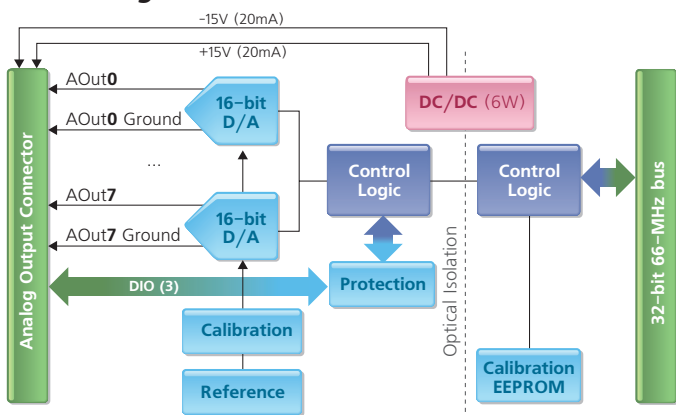


General Description:

The DNA-AO-308-352 and DNR-AO-308-352 are high-precision, medium-voltage analog output boards compatible with UEI’s “Cube” and RACKtangle I/O chassis respectively. The boards offer 16-bit, 8-channel high-voltage analog outputs with per-channel digital offset and gain calibration, buffered output, excellent linearity, and low output noise. The DNA/DNR-AO-308-352 is designed for the demanding high-voltage applications with ±13.5 V analog output span and up to ±13.5 mA of current per channel. This board is ideal for data acquisition and control applications requiring an output span up to 13.5 V. Since the maximum power consumption may exceed 4.5W, this DNA-AO-308-352 may require the rear-mount fan (DNA-FANx) option in “Cube” applications.

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.

Block Diagram:

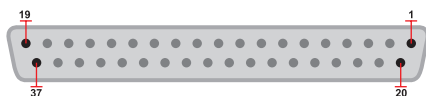


Pinout Diagram:

DB-37 (female)

37-pin connector:

AOUT0 GND	37	19	AGND
AGND	36	18	AOUT0
AOUT1	35	17	AOUT1 GND
AOUT2 GND	34	16	AGND
AGND	33	15	AOUT2
AOUT3	32	14	AOUT3 GND
AOUT4 GND	31	13	AGND
AGND	30	12	AOUT4
AOUT5	29	11	AOUT5 GND
AOUT6 GND	28	10	AGND
AGND	27	9	AOUT6
AOUT7	26	8	AOUT7 GND
+VEXT (140mA fused)	25	7	AGND
AGND	24	6	-VEXT (140mA fused)
AGND	23	5	AGND
DIO2	22	4	DIO1
AGND	21	3	DIO0
-15V (20mA) OUT	20	2	+15V (20mA) OUT
	1	1	AGND



Technical Specifications:

Number of Channels	8
Resolution	16 bits
Max Update Rate: @ 16-bit resolution	100 kHz/chan (500 kHz max aggregate)
Buffer Size	1 K samples
Type of D/A	double-buffered
INL (no load)	±1 LSB (0.003%)
DNL (no load)	±1 LSB (0.003%)
Monotonicity Over Temperature	16 bits
Gain Linearity Error	0.002%
Gain Calibration Error	±1 mV
Offset Calibration Error	±1 mV
Offset Drift	5 ppm/°C
Gain Drift	5 ppm/°C
Output Range	±13.5 V
Output Coupling	DC
Output Impedance	0.1Ω max
Current Drive	±13.5 mA/channel
Capacitive Loads	500 pF
Settling Time	10 μs to 16 bits
Slew Rate	10 V/μs
Isolation	350 Vrms
Power Consumption ¹	2.2 W - 5 W
Physical Dimensions	3.875" x 3.875" (98 x 98 mm)
Operating Temp. (tested)	-40 °C to +85 °C
Operating Humidity	0 to 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

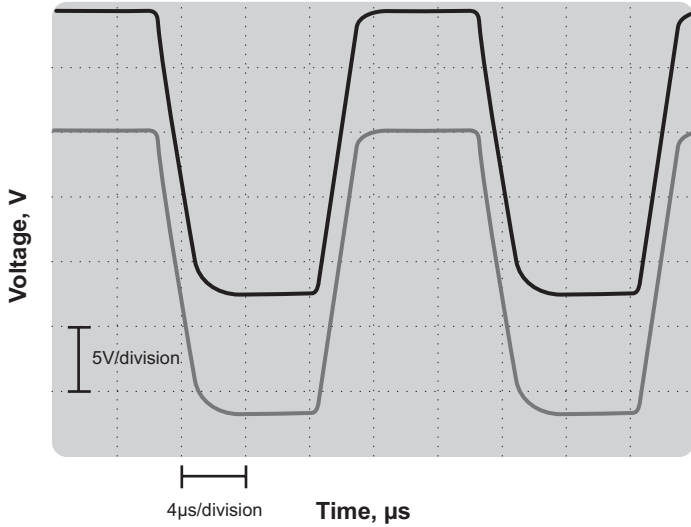
¹ If the total power consumption of the layer is over the 4.5W, the DNA-FANx rear-mount cooling fan is required. Refer to the Typical Performance Characteristics for more details.

Connection Options:

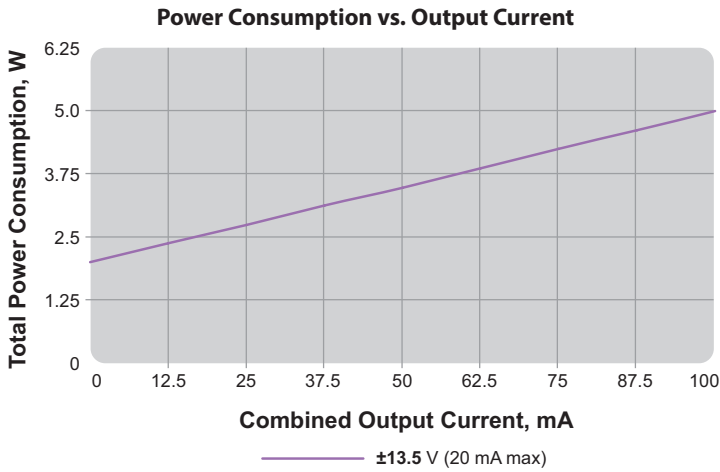
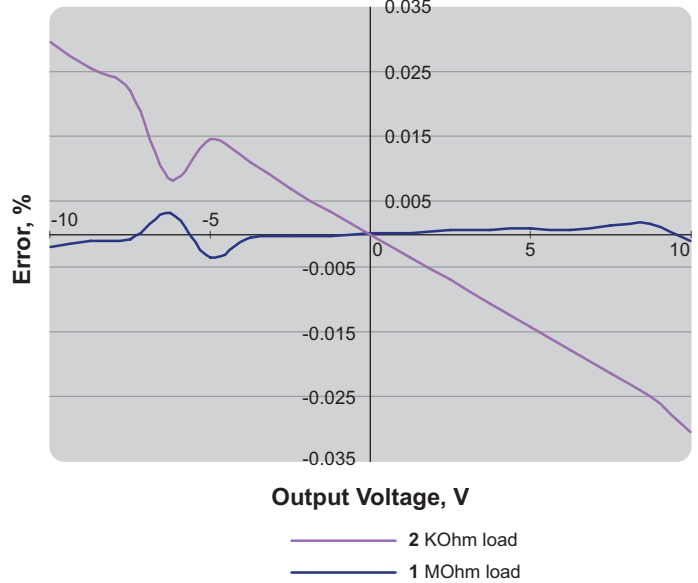
Terminal Panel	Cable	Description
DNA-STP-37	DNA-CBL-37S	DNA-CBL-37S shielded cable connects the DNA/DNR-AO-308 to the 37-way DNA-STP-37 screw terminal panel
DNA-STP-37	DNA-CBL-37	DNA-CBL-37 ribbon cable connects the DNA/DNR-AO-308 to the 37-way DNA-STP-37 screw terminal panel

Typical Performance Characteristics

Full Scale (±13.5V) Output at 100kHz Per Channel
(800kHz aggregate rate)

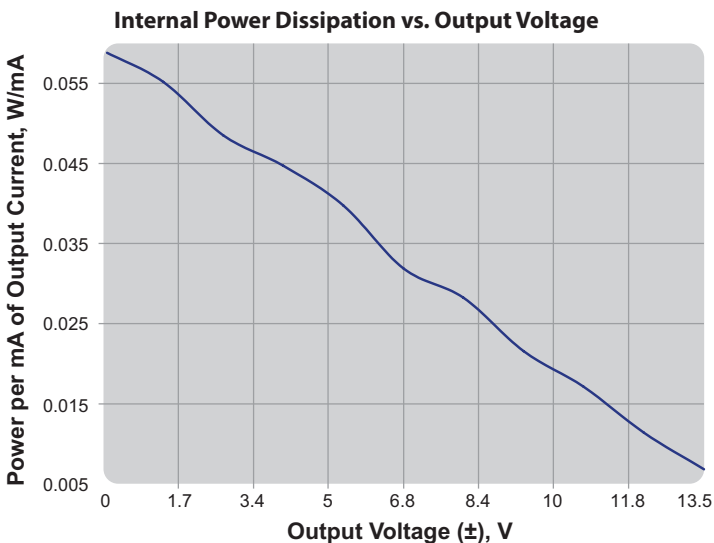


Output Voltage Error vs. Voltage vs. Load
(±13.5V output range)



Conversion Factors

bits	Resolution	
	%	mV
14	0.006104	4.883
15	0.003052	2.441
16	0.001526	1.221



Note: Total internal power consumption = 1.5W + (Total output current x Power/mA at given voltage)