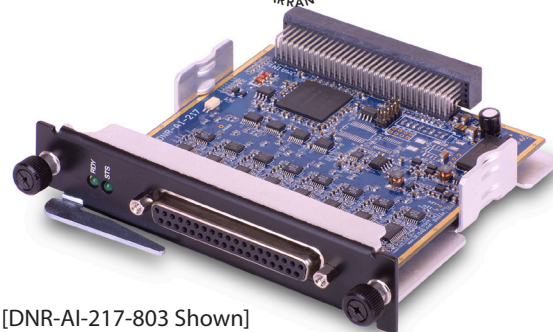


# DNA/DNR-AI-217-803

## Guardian™ 16-Chan, 24-bit simultaneously sampling A/D board

- DNA-AI-217 for use in “CUBE” chassis
- DNR-AI-217 for RACKtangle™ I/O chassis
- 16 differential analog input channels
- Simultaneous sampling (one A/D converter per channel)
- 30 kHz per channel sample rate (480 kHz board max)
- 24-bit resolution
- “Open” input wiring detection
- Input over-range detection
- Gains - 1, 2, 4, 8, 16, 32 and 64
- Allows low-pass FIR filter cut-off as low as 1 Hz



[DNR-AI-217-803 Shown]

## General Description:

The DNA-AI-217-803 and DNR-AI-217-803 are 16-channel simultaneously sampling A/D boards compatible with UEI's popular Cube and RACKtangle chassis respectively. The DNx-AI-217-803 is a special version of the DNx-AI-217 that expands the built in FIR filter to 512 TAPs and lowers the minimum A/D sample rate such that the FIR filter can be set as low as 1 Hz.

An A/D per channel configuration allows channels to be sampled simultaneously at rates up to 30 kS/s each (480 kS/s max aggregate entire board). The A/D per channel configuration virtually eliminates input cross talk and channel settling time issues even when connected to high impedance signal sources.

The DNx-AI-217-803 is fully isolated from the Cube/RACKtangle and is overvoltage protected up to  $\pm 40$  V (power on or off). The inputs go into a high impedance mode when power is removed making the AI-217 ideal for use in redundant measurement/control applications.

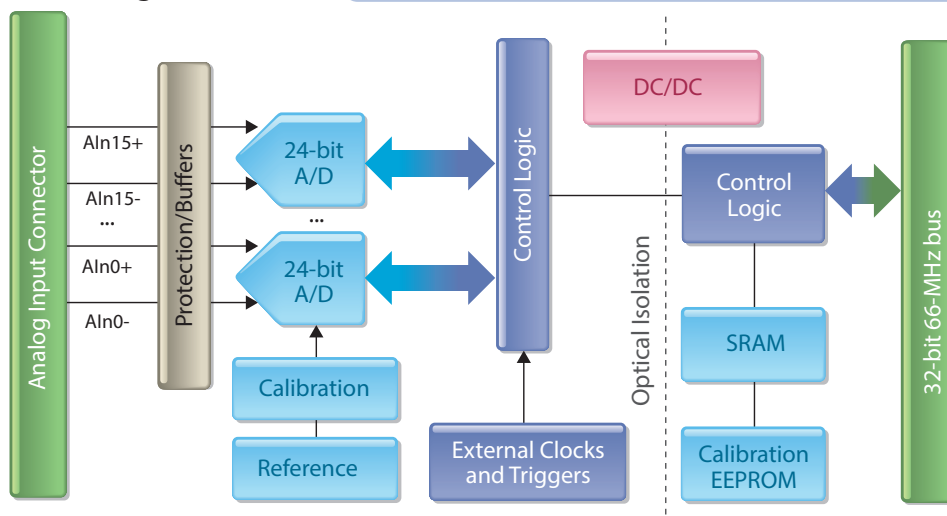
The DNx-AI-217-803 is part of UEI's Guardian series, which provide high levels of user diagnostics. The board provides both open input detection functionality as well as the ability to detect input over-voltage conditions.

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.

## Technical Specifications:

Number of channels:	16 fully differential
ADC resolution / type	24 bits / SAR. (AD7766)
Sampling rate	30 kS/s per channel (max); 480 kS/s max aggregate for entire board
Input bias current	< 2 nA typical
Input offset	<4 $\mu$ V; G=1, <2 $\mu$ V; G=2, <1 $\mu$ V; G>2 (@ 25°C) (-40°C to +85°C spec is 2.5 times 25°C offset)
Gain and INL error	< 0.004 % (40 ppm) max
Input impedance	100 M $\Omega$ (min)
Input range	$\pm 10$ Volt (gain = 1)
Input resolution	1.19 $\mu$ V (gain = 1), 18.6 nV (gain = 64)
Gains	1, 2, 4, 8, 16, 32, 64
Common mode rejection	110 dB typical
Chan to Chan crosstalk	< 1 $\mu$ Vrms
Open input detection current	100 $\mu$ A
Isolation	350 Vrms
Overvoltage protection	-40V to +40V (power on or off)
Power off leakage current	< 10 $\mu$ A (-40V to +40V)
Power consumption	2.2W max
Operating temp. (tested)	-40°C to +85°C
Operating humidity	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	100 g, 3 ms half sine, 18 shocks @ 6 orientations
IEC 60068-2-64	30 g, 11 ms half sine, 18 shocks @ 6 orientations
Altitude	120,000 ft
MTBF	275,000 hours

## Block Diagram:



## Pinout Diagram:

DB-37 (female)  
37-pin connector:

Ext_Trig	1		
Aln 15+	2	20	Aln 15-
Aln 14+	3	21	Aln 14-
Aln 13-	4	22	+13V, 50 mA
Aln 12-	5	23	Aln 13+
Aln 11-	6	24	Aln 12+
Aln 10-	7	25	Aln 11+
Gnd	8	26	Aln 10+
Aln 9+	9	27	Aln 9-
Aln 8+	10	28	Aln 8-
Aln 7+	11	29	Aln 7-
Aln 6+	12	30	Aln 6-
Aln 5-	13	31	rsvd
Aln 4-	14	32	Aln 5+
Aln 3-	15	33	Aln 4+
Aln 2-	16	34	Aln 3+
Gnd	17	35	Aln 2+
Aln 1+	18	36	Aln 1-
Aln 0+	19	37	Aln 0-

## Connection Options:

Part #	Description
DNA-CBL-37S	Shielded 37 conductor cable
DNA-CBL-37	Unshielded ribbon 37 conductor cable
DNA-STP-37	Standard 37 terminal screw terminal panel provides connections to all pins on the DNx-AI-217 connector.