

DNA/DNR-AI-217

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 (+ one CJC channel)
- Simultaneous sampling (one A/D converter per channel)
- 120 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
- Pin compatible with DNx-AI-207

10-Year
Availability
Guarantee



[DNR-AI-217 Shown]

General Description:

The DNA-AI-217 and DNR-AI-217 are 16-channel simultaneously sampling A/D boards compatible with UEI's popular Cube and RACKtangle chassis respectively. The DNA/DNR versions are electronically identical and feature 24-bit resolution with 7 software selectable input ranges. The DNx-AI-217 is pin compatible with the popular DNx-AI-207 board and offers an easy upgrade path for those looking for more resolution, higher sample rates or simultaneously sampling inputs.

An A/D per channel configuration allows channels to be sampled simultaneously at rates up to 120 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.

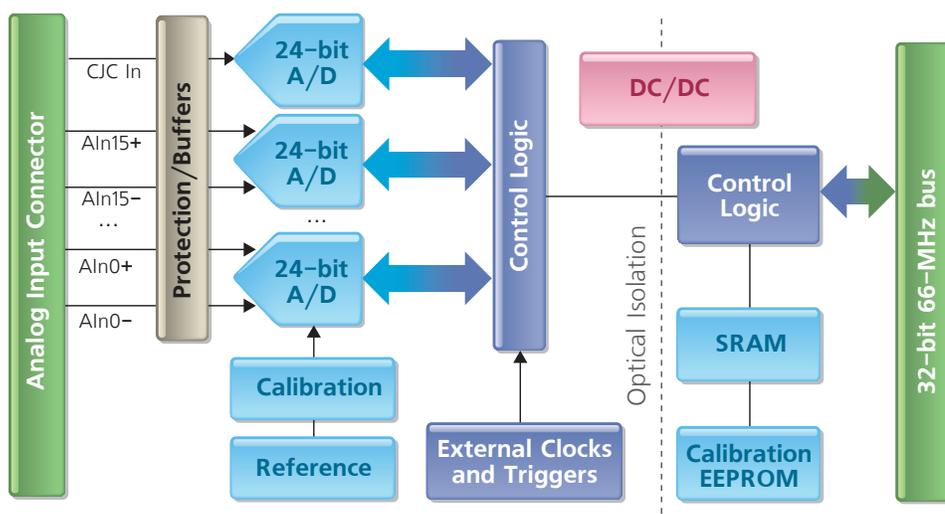
Additionally, the DNx-AI-217 provides a dedicated CJC channel that can be used for reading from the built-in CJC sensor on the DNA-STP-AI-U or AI-207TC terminal panels.

The DNx-AI-217 is fully isolated from the Cube/RACKtangle and is overvoltage protected up to ± 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 is a member of UEI's popular Guardian series, which provide high levels of user diagnostics. The AI-217 board provides both open input detection functionality as well as the ability to detect input overvoltage conditions.

Software included with the DNx-AI-217 provides a comprehensive yet easy to use API that supports all popular operating systems including Windows, Linux, real-time operating systems such as QNX, RTX, VXworks and more. Finally, the UEIDAQ Framework supplies complete support for those creating applications in Windows based data acquisition software packages such as LabVIEW, MATLAB/Simulink, DASyLab or any application which supports ActiveX or OPC servers.

Block Diagram:



Technical Specifications:

Number of channels:	16 fully differential plus 1 single-ended dedicated CJC channel
ADC resolution / type	24 bits / SAR. (AD7766)
Sampling rate	120 kS/s per channel (max); 480 kS/s max aggregate for entire board
Input bias current	< 2 nA typical
Input offset	<4 μ V; G=1, <2 μ V; G=2, <1 μ V; G>2 (@ 25°C) (-40°C to +85°C spec is 2.5 times 25°C offset)
Input INL error	< 0.00004 % (40 ppm) max
Input impedance	100 M Ω (min)
Input range	± 10 Volt (gain = 1)
Input resolution	1.19 μ 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 μ Vrms
Open input detection current	100 μ A
Isolation	350 Vrms
Overvoltage protection	-40V to +40V (power on or off)
Power off leakage current	< 10 μ 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	50 g, 3 ms half sine, 18 shocks @ 6 orientations 30 g, 11 ms half sine, 18 shocks @ 6 orientations
MTBF	500,000 hours

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	CJC+
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-AI-U	Universal screw terminal panel supports Thermocouple CJC measurement and RTD excitation
DNA-STP-AI-207TC	Dedicated thermocouple screw terminal panel