

DNA/DNR/DNF-AI-222

12-Channel, fully isolated RTD/resistance input board

- DNA-AI-222 for use in "CUBEs", DNR-AI-222 for RACKtangle™ chassis and DNF-AI-222 for FLATRACK chassis.
- 12 fully differential analog input channels
- 2, 3 and 4 wire connections
- 100 Ohm DIN and US measurements
- Channel-to-channel and channel-to-chassis isolation
- 0.005 °C resolution, 0.2 °C accuracy
- 0 to 40,000 Ω resistance measurement range
- Built-in 50, 60 and 400 Hz rejection (at select sample rates)
- 150 Hz, per channel sample rates

10-Year
Availability
Guarantee



[DNR-AI-222 Shown]

General Description:

The DNA/DNR-AI-222 are 12-channel fully isolated, simultaneously sampling RTD input boards compatible with UEI's popular Cube and RACKtangle chassis respectively. The DNA/DNR versions are electronically identical. The DNx-AI-222 features 24-bit A/D converters with 50 μA excitation current for resistances up to 40 kΩ. The AI-222 provides an input resolution of better than 0.005°C (100Ω PT RTDs) or 0.002 Ohm when measuring with the 0-312Ω range.

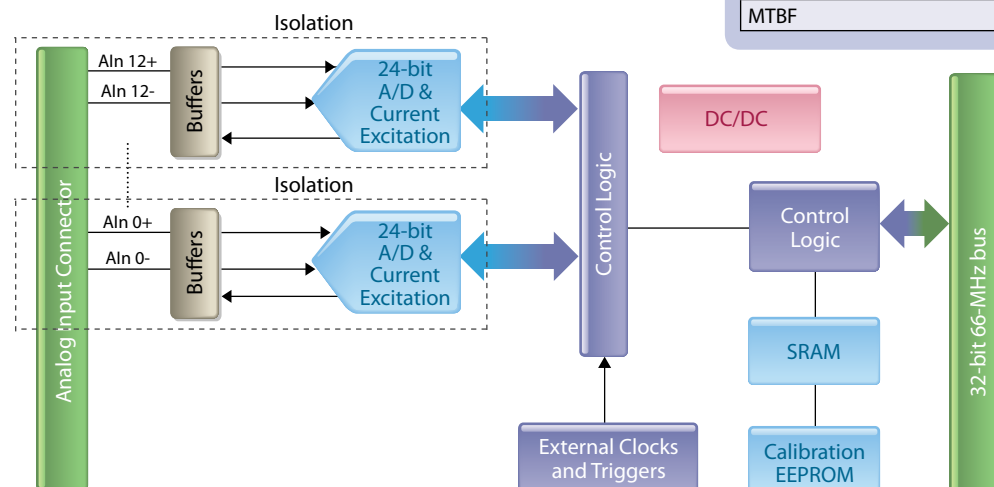
An A/D per channel configuration allows simultaneous sampling at rates up to 150 S/s each (1800 S/s aggregate). The A/D per channel configuration virtually eliminates input cross talk and channel settling time issues.

The DNx-AI-222 is an ideal, high accuracy RTD measurement device, offering total errors of less than 0.2 °C on all standard 100 Ohm RTDs. This accuracy combined with the 350 VDC/Vrms channel-to-channel and channel-to-chassis isolation makes the board a perfect solution for industrial temperature measurement, even when using non-isolated RTDs in high voltage environments.

The software included will perform all required RTD linearization and compensation and returns data in °C, °K, °F or °R when desired. The software also allows the temperature conversion to be disabled and the inputs can measure resistance in Ohms up to 40 kOhms.

Software included with the DNx-AI-222 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, InTime, VXworks and more. The UEIDAQ Framework supplies complete support for those creating Windows applications in data acquisition software packages such as LabVIEW, MATLAB/Simulink, or any application which supports ActiveX or OPC servers.

Block Diagram:

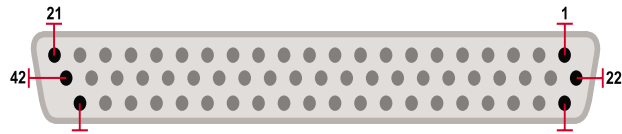


Technical Specifications: (Sample rate 19.7 SPS or less unless noted)

Number of channels:	12 fully differential	
ADC resolution	24 bits, < 0.005 °C with 100 Ω PT RTDs < 0.002 Ω in resistance measurement mode	
Sampling rate	up to 150 samples/sec per channel 1800 S/S board aggregate	
Measurement error	(@ 25 ±5°C / over -40°C to +85°C)	
	3/4-wire	2-wire
RTDs (100 Ω PT)	±0.2 °C / ±0.4 °C	±0.8 °C / ±1.6 °C
0 to 156 or 312 Ω range	±0.05 Ω / ±0.1 Ω	±0.2 Ω / ±0.4 Ω
0 to 1250 Ω range	±0.1 Ω / ±0.2 Ω	±0.4 Ω / ±0.8 Ω
0 to 5000 Ω range	±0.2 Ω / ±0.4 Ω	±0.8 Ω / ±1.6 Ω
0 to 40,000 Ω range	±0.2 Ω ±0.02% / ±1% of reading	±0.8 Ω ±0.08% / ±1% of reading
Excitation current	50 μA typical (all ranges)	
Resistance range	0 - 40,000 Ω	
General A/D specifications		
Gain error	±0.005 % (typical)	
Input INL error	6 ppm typical, 15 ppm max	
Input impedance	>5000 MΩ	
Anti-Aliasing filtering	@47.6% of sample rate, ~100 dB/decade	
50/60/400 Hz notch filtering	>70 dB at sample rate of 19.7 Hz or less	
Chan to Chan crosstalk	< 0.03 Ω or 0.08 °C with a 100Ω PT RTD.	
Isolation	350 Vrms, chan-to-chan & chan-to-chassis	
Overvoltage protection	-15 V to +15 V (power on or off, current must be limited to ±20 mA)	
Power consumption	4 W 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	230,000 hours	

Pinout Diagram:

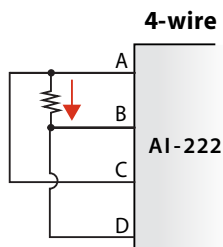
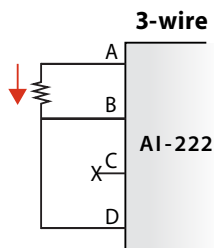
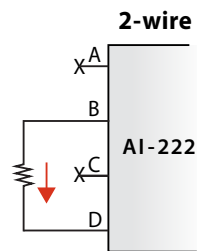
DB-62 (female)



Pin	Signal	Pin	Signal	Pin	Signal
1	Rsvd	22	Rsvd	43	Rsvd
2	Rsvd	23	Rsvd	44	Rsvd
3	5 VDC (100 mA Max)	24	Gnd for 5VDC	45	Gnd for 5VDC
4	Rsvd	25	Rsvd	46	CH 11.A
5	CH 11.C	26	CH 11.B	47	CH 11.D
6	CH 10.B	27	CH 10.A	48	CH 10.C
7	CH 9.A	28	CH 10.D	49	CH 9.B
8	CH 9.D	29	CH 9.C	50	CH 8.A
9	CH 8.C	30	CH 8.B	51	CH 8.D
10	CH 7.B	31	CH 7.A	52	CH 7.C
11	CH 6.A	32	CH 7.D	53	CH 6.B
12	CH 6.D	33	CH 6.C	54	CH 5.A
13	CH 5.C	34	CH 5.B	55	CH 5.D
14	CH 4.B	35	CH 4.A	56	CH 4.C
15	CH 3.A	36	CH 4.D	57	CH 3.B
16	CH 3.D	37	CH 3.C	58	CH 2.A
17	CH 2.C	38	CH 2.B	59	CH 2.D
18	CH 1.B	39	CH 1.A	60	CH 1.C
19	CH 0.A	40	CH 1.D	61	CH 0.B
20	CH 0.D	41	CH 0.C	62	D O 1
21	DI 0	42	DIO Gnd		

Wiring Diagram:

2, 3, 4-wire



Connection Options:

Part #	Description
DNA-CBL-62	Shielded 36 inch 62 conductor cable. (for 1, 10 and 20 foot lengths add a -X suffix where X is the length desired)
DNA-STP-62	Screw terminal panel