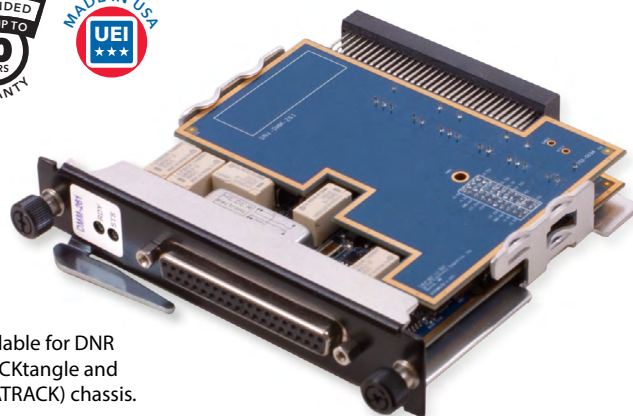


DNx-DMM-261

6.5 digit DMM board

- DNA-/DNR-/DMM-261 for use with Cube/RACKtangle™/FLATRACK™ I/O chassis
- VDC, VAC, IDC, IAC and resistance measurements
- 40 °C to + 85 °C operating range
- 350 Vrms Isolation
- True RMS AC measurements
- AC measurements on “top” of a DC voltage
- Add channels with DNx-MUX-461 multiplexer



Also available for DNR series RACKtangle and DNF (FLATRACK) chassis.

General Description:

The DNA/DNR/DNF-DMM-261 are 6.5 digit DMM (Digital MultiMeter) boards for use in UEI's Cube/RACKtangle/FLATRACK I/O chassis respectively. Offering features and accuracy similar to standard “box” DMMs, the DNx-DMM-261 brings DMM functionality to UEI's popular rugged, easily distributed chassis series. A unique capability of the board is its -40 °C to +85 °C operating range. For multi-channel applications, the DNx-DMM-261 is fully compatible with the DNx-MUX-461 multiplexer, which provides either 26 two-wire inputs or 13 four-wire inputs. Up to 5 multiplexers may be daisy chained internally for up to 130 2-wire or 65 4-wire measurements.

The board provides DC voltage input ranges from 300 VDC to 30 mVDC, AC voltage from 300 VAC to 500 mVAC, DC current ranges from 2 A to 1.5 mA, AC current ranges from 2 A to 1.5 mA, plus two and four wire resistance measurement ranges from 10 Ω to 100 MΩ. AC measurements are true RMS.

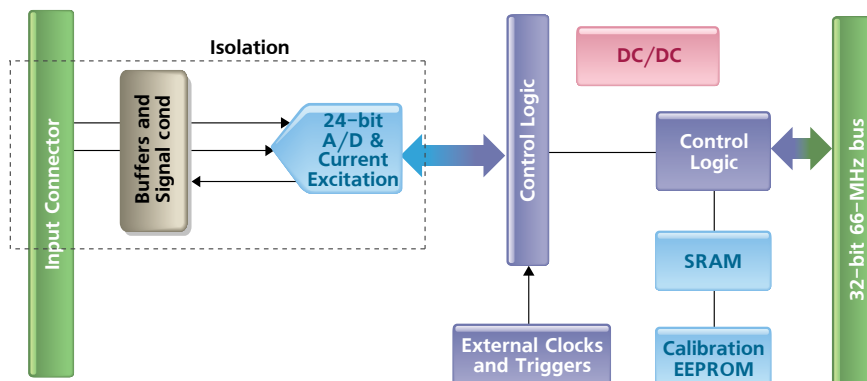
The board is supported by a variety of cable and screw terminal options certain to meet the needs of almost all users. For those wishing to create their own cables, all connections are through a standard 37-pin “D” connector, allowing OEM users to build custom cabling systems with standard, readily available components. The DNx-DMM-261 is also supported by a variety of switch boards that allow the DMM to easily interface to large, multichannel systems.

The DNx-DMM-261 is supported by a complete software suite, including support for Windows, Linux and all popular RTOS. Windows support is provided by the UEIDAQ Framework, which includes a simple, yet complete software interface to all popular Windows programming languages and DAQ applications, including LabVIEW and MATLAB. An extensive factory written software suite is also provided for all popular “non-Windows” operating systems, including Linux, VXworks, QNX, RTX, INtime and more. All software support includes extensive example programs that make it easy to cut and paste the I/O software into your applications.

Specification Overview (detailed specifications on page two):

Input measurement ranges	
DC Voltage	
Max input range	±300 V DC
Min input range	±0.1 V DC
AC Voltage (20 Hz - 3 kHz)	
Max input range	±300 Vrms (true RMS)
Min input range	±0.50 Vrms (true RMS)
DC Current	
Max input range	±2.0 A DC
Min input range	±1.5 mA DC
AC Current (20Hz - 3 kHz)	
Max input range	±2.0 Arms (true RMS)
Min input range	±1.5 mArms (true RMS)
Resistance Measurement	
Configuration	2-wire or 4-wire
Max input range	100 MΩ (2-wire mode only)
Min input range	10 Ω
General Specifications	
Isolation	350 Vrms
Operating temperature	Tested -40 °C to +85 °C
Storage temperature	-55 °C to +100 °C
Vibration IEC 60068-2-6	5 g, 10-500 Hz, sinusoidal
IEC 60068-2-64	5 g (rms), 10-500 Hz, broad-band 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
Humidity	0 to 95%, non-condensing
Power consumption	3.5 W max
MTBF	TBD hours

Block Diagram:



Detailed Specifications:

(All specs at 23 °C ±5 °C unless otherwise noted)

DC Volt ranges

+/- Volts	Rin, MΩ	Calibration Accuracy ppm	Calibration Accuracy mV	Gain drift ppm/°C	Offset drift ppm/°C	Linearity ppm
300	10	20	6.0	8	5	6
100	10	30	3.0	8	5	6
10	1000+	15	0.15	4	2	4
1	1000+	15	0.015	4	2	4
0.1	1000+	15	0.015			

AC Volt ranges (20Hz - 3 kHz)

Vrms	Rin, MΩ	Calibration Accuracy ppm@60Hz	Calibration Accuracy mVrms
300		1250	375
100		2500	250
10		7500	75
1.5		25,000	38
0.5		20,000	10

Note: Vrms calculated based on the data acquired at 1.6MS/sec averaged over TBD periods

DC Current ranges (+ at least 20% overrange)

+/-I, A	Shunt, Ω	Vshunt	Calibration Accuracy %	Calibration Accuracy, mA	Gain drift ppm/°C	Offset drift ppm/°C	Linearity ppm
2	0.1	0.3	0.17	5.0	50	2	4
1.5	0.1	0.15	0.33	5.0	50	2	4
0.15	0.1	0.015	0.30	0.45	20	2	4
0.015	10	0.15	0.30	0.05	20	2	4
0.0015	10	0.015	0.20	0.02	10	2	4

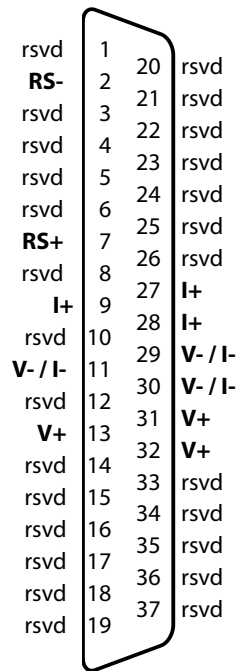
AC Current ranges (20Hz - 3 kHz) + at least 20% overrange for all but 2A

Arms	Shunt, Ω	Vshunt	Calibration Accuracy %	Calibration Accuracy, mArms	Gain drift ppm/°C	Offset drift ppm/°C	Linearity ppm
2	0.1	0.2	0.075	5.0	50	2	4
1.5	0.1	0.15	0.15	5.0	50	2	4
0.15	0.1	0.015	0.33	1.0	20	2	4
0.015	10	0.15	3.3	0.5	20	2	4
0.0015	10	0.015	0.067	0.1	10	2	4

Resistance 2- and 4- wire (19.7Hz with 50/60Hz rejection)

Range, Ω	2-Wire Accuracy Ω	4-Wire Accuracy Ω	Gain drift ppm/°C	Offset drift ppm/°C	Linearity ppm
10	1	0.012	100	5	10
100	1	0.015	25	5	10
1k	1	0.05	15	2	10
10k	1.5	0.50	15	2	10
100k	6	6.0	15	2	10
1M	101	101	15	2	10
10M	25k	25k	15	2	10
100M	1 Meg	n/a	15	2	10

Pinout Diagram:



rsvd: Please do not connect signals to pins labeled rsvd.

Signal connections:

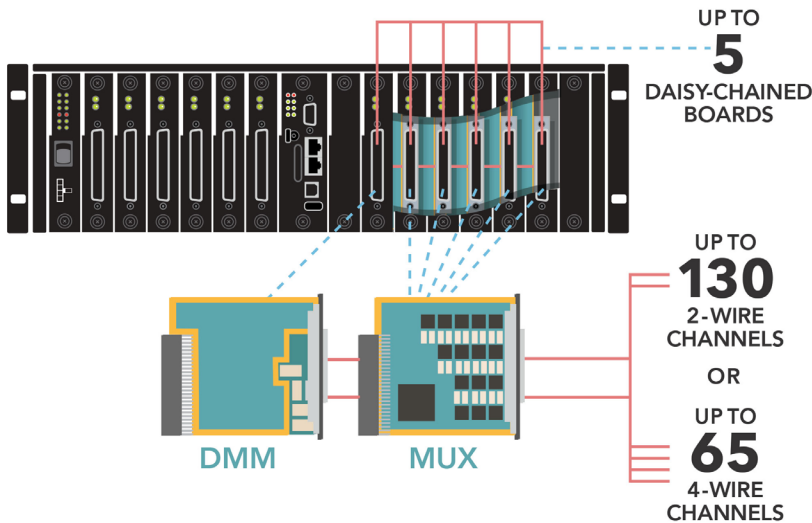
<u>Measurement</u>	<u>Connection</u>
AC/DC Voltage	V+ positive terminal V- negative terminal
AC/DC Current	I+ positive terminal I- negative input terminal
2-Wire Resistance	V+ positive* V- negative*
4-Wire Resistance	V+ positive* excitation current V- negative* excitation current
	RS+ Resistance sense RS- Resistance sense return

*Polarity shown to indicate current flow direction. This may be ignored for pure resistance measurements, but if semiconductors are in circuit, current direction often matters (e.g. if there's a series diode).

Note 1: Multiple connections are shown for V and I pins. For standard measurements only one pin typically needs connection, though on two wire resistance measurements better accuracy will be achieved by using all three pins.

Note 2: Pins on the connector are only rated to 2 amps. If you are using current inputs that exceed 1 amp, it is recommended you use all three I+ and I- current input pins.

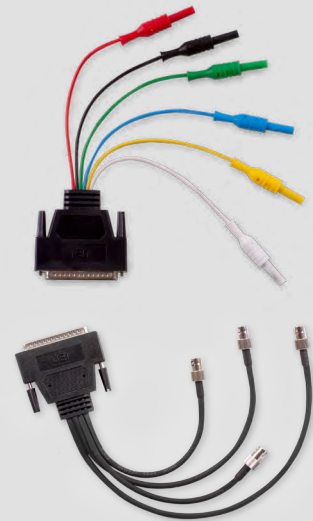
DMM / MUX Integration:



Cables:

DNA-CBL-261
brings DMM-261 connections out to DMM standard banana style connectors.

DNA-CBL-261-BNC
brings DMM-261 connections out to standard BNC connectors.



Products/Accessories:

Part Number	Description
DNx-DMM-261	6.5 digit DMM board
DNA-STP-62	62-channel screw terminal panel
DNA-CBL-261	10" long cable that brings DMM-261 signals out to banana jacks
DNA-CBL-261-BNC	12" long cable that brings DMM-261 signals out to BNC connectors
DNA-STP-62-DR	62-pos terminal panel for PowerDNA Layers
DNA-CBL-62	2.5ft, 62-way, male to male, round shielded cable
DNA-MUX-461	26-channel multiplexer for the DMM-261
DNA-MUX-461-350	24-channel high voltage (350V) multiplexer for the DMM-261
DNR-CBL-461	DMM and MUX Cable Accessory
Extended Warranty	Option to purchase UEI's extended warranty (up to 10 years) is available