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DNA/DNR/DNF-SL-508

8-Port RS-232/485 Serial Communications Interface

- DNA-/DNR-/DNF-AI-256 for use with Cube / RACKtangle™ / FLATRACK™ I/O chassis
- 8 independent ports
- J1587/J1708 support included
- Each port is software-configurable as RS-232 or RS-422/485
- Max speed of 256Kbit/s for RS-232 and 1Mbit/s for RS-422/485
- Completely independent bit rate settings for every port
- 350V isolation between ports, ports and circuitry; 15kV ESD



General Description

The DNx-SL-508 are 8-port serial communications interfaces compatible with UEI's powerful Cube, RACKtangle and FLATRACK I/O chassis. The boards offer fully isolated software-configurable RS-232 or RS-485 interfaces. The board is an ideal interface to serial based data acquisition and control interfaces as well as general purpose serial I/O.

The DNx-SL-508 support standard serial transfer rates up to ~4 MBaud in RS-485 mode or up to 256 kbaud in RS-232 mode. It also supports communications at 12, 12.5 and 50 kbaud with better than 0.1% data rate accuracy. Baud rates based on integer divisors of 4.125 MHz or 1.8415 MHz are also supported. Based upon an industry standard UART on each port, the board supports both half- and full-duplex modes for RS-422/485 operation.

The DNx-SL-508 are compatible with RS-422 point to point or network applications when used in RS-485 mode and provide 200Ω software-selectable TX and/or RX termination for RS-485 communications.

In RS-232 mode, the layer provides TX/RX as well as the standard RTS and CTS hardware hand shaking required by many external serial devices.

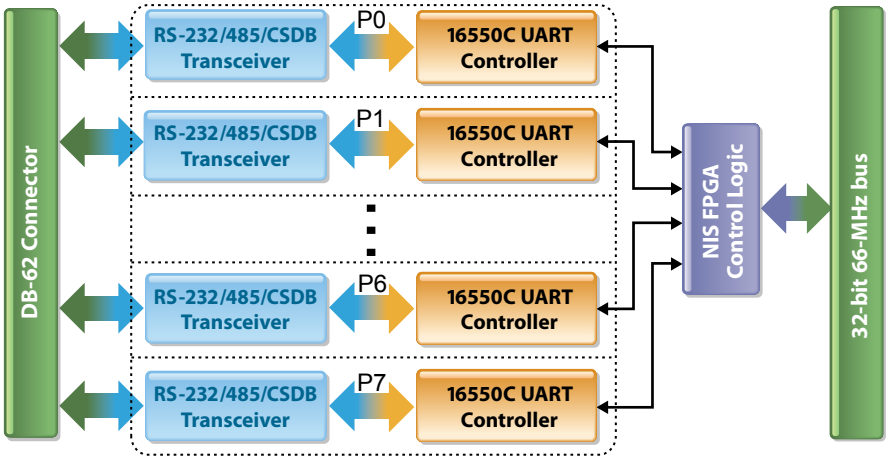
Software is included, providing a comprehensive, yet easy-to-use API that supports all popular operating systems, including Windows, Linux, and most real-time operating systems—such as QNX, Intime, VXworks, and more. Additionally, the UEIDAQ Framework—an even higher level Windows driver—supplies complete support for those creating applications in many popular Windows programming languages, as well as data acquisition software packages such as LabVIEW and MATLAB/Simulink.

The DNx-SL-508 includes the UEI-RSS serial server. This server allows a Windows or Linux host PC to configure the DNx-SL-508 ports as standard serial ports within the host OS (e.g. as COM1: to COM255: ports in Window or standard POSIX functions in Linux). The UEI-RSS supports up to 255 unique serial ports per Ethernet port on the host.

Technical Specifications

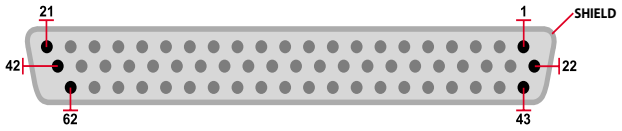
General Specifications	
Number ports	8
Serial Interfaces	RS-232, RS-422/485, per-port software-configurable
Supported baud rates: RS-232 RS-422/485	 Standard rates up to 256 kbaud Standard rates to ~4 MBaud
Supported Baud rates	Integer divisors of 4.125MHz or 1.5MHz
RS-422/485 Modes:	Half- and full- duplex
RS-232/485 Transceiver	MAX3160E (w/ fail-safe RX termination)
UART Controller	16550C
Protection	350 V channel-to-channel; 15 kV ESD protection
Power Consumption	2-5W (RS-485 mode with max current drive)
Operating Temperature	Tested -40 to +85 °C
Operating Humidity	95%, non-condensing
Vibration *IEC 60068-2-6* *IEC 60068-2-64*	5 g, 10-500 Hz, sinusoidal 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
MTBF	290,000 hours
Altitude	120,000 FT
UART Controller	
Base Clock	66 MHz or 24 MHz
FIFO Size	1024 (input and output)
Error Detection	Interrupt-based, 4 per port
Dedicated Port Interrupts	UART, Timeout and TX/TX FIFO interrupts

Block Diagram



High-Speed Optical Isolation

Connection Diagram:



Pin	232 signal	422 signal	Pin	232 signal	422 signal	Pin	232 signal	422 signal
1	-	-	22	Gnd1	Gnd1	43	CTS1	RX1-
2	RTS1	TX1+	23	TX1	TX1-	44	RX1	RX1+
3	-	-	24	-	-	45	Gnd2	Gnd2
4	RX2	RX2+	25	CTS2	RX2-	46	-	-
5	RTS2	TX2+	26	TX2	TX2-	47	-	-
6	Gnd3	Gnd3	27	-	-	48	-	-
7	RX3	RX3+	28	CTS3	RX3-	49	-	-
8	RTS3	TX3+	29	TX3	TX3-	50	-	-
9	RX4	RX4+	30	CTS4	RX4-	51	Gnd4	Gnd4
10	RTS4	TX4+	31	TX4	TX4-	52	-	-
11	-	-	32	-	-	53	CTS5	RX5-
12	RTS5	TX5+	33	TX5	TX5-	54	RX5	RX5+
13	-	-	34	Gnd5	Gnd5	55	Gnd6	Gnd6
14	RX6	RX6+	35	CTS6	RX6-	56	-	-
15	RTS6	TX6+	36	TX6	TX6-	57	-	-
16	Gnd7	Gnd7	37	-	-	58	-	-
17	RX7	RX7+	38	CTS7	RX7-	59	-	-
18	RTS7	TX7+	39	TX7	TX7-	60	-	-
19	-	-	40	Gnd8	Gnd8	61	CTS8	RX8-
20	RTS8	TX8+	41	TX8	TX8-	62	RX8	RX8+
21	-	-	42	-	-			

GNDn	Isolated ground for the corresponding serial port "n"
TXn/**RX**n	RS-232: Transmit/Receive, port n
RTSn/**CTS**n	RS-232: Request to Send/Clear to Send
TXn+/**TX**n-	RS-485: Transmit pair, port n
RXn+/**RX**n-	RS-485: Receive pair, port n
-	no internal connection

Ordering Guide

DNx-SL-508	8-Port RS-232/485 Serial Communications Interface
DNA-STP-508	Breakout and interconnection board for the DNx-SL-508
DNA-STP-62	62-channel screw terminal panel
DNA-CBL-62	62 conductor cable connects directly to OEM equipment or to the DNA-STP-508 interconnection panell
DNA-STP-3762	Universal Screw Terminal Panel for DNx-Series I/O
UEI-RSS	Standard Serial Server for DNx-SL-501 and DNx-SL-508; included with DNx-SL-501/508 purchase
DNA-STP-62-DR	62-pos Terminal Panel for PowerDNA Layers
Extended Warranty	Option to purchase UEI's extended warranty (up to 10 years) is available

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