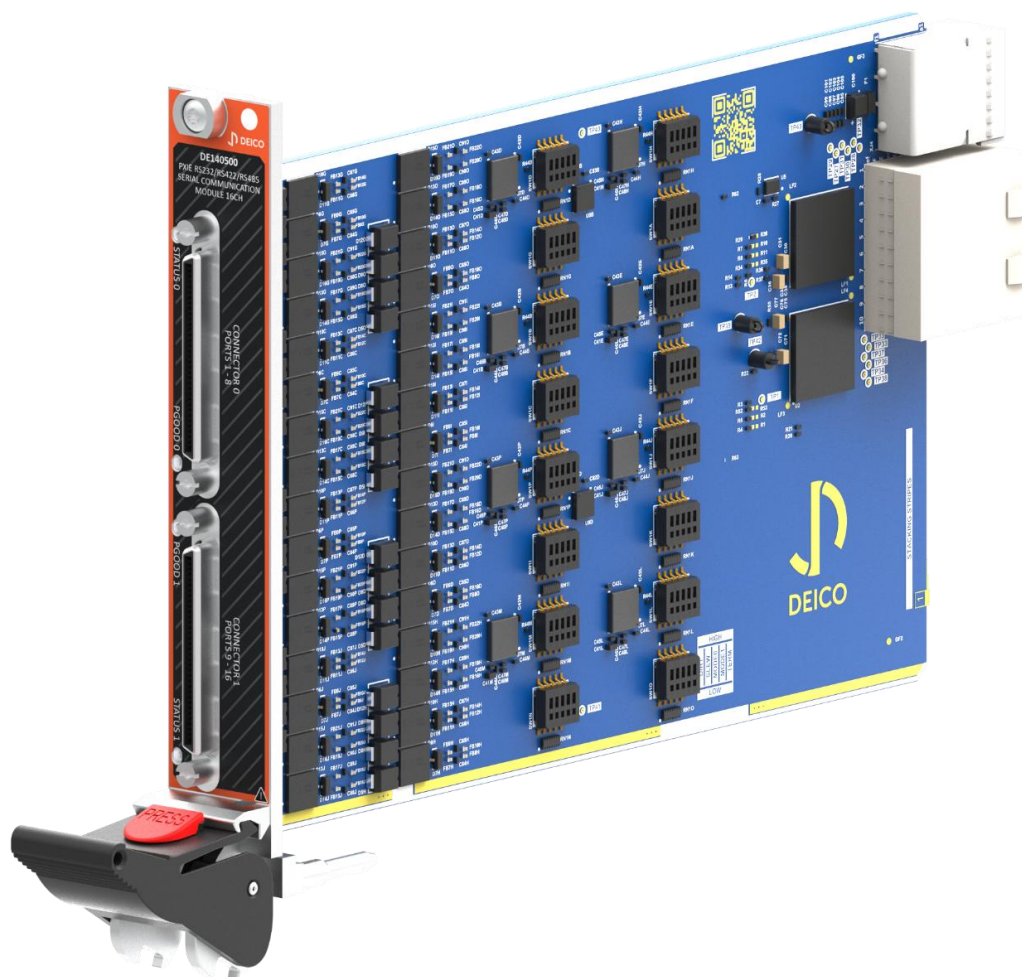


DE140500 DATASHEET

PXIe RS232/RS422/RS485
SERIAL COMMUNICATION MODULE 16CH



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DESCRIPTION

DE140500 – PXIe RS232/RS422/RS485 Serial Communication Module 16Ch is a PCI eXtension for Instrumentation (PXIe) compatible module offering 16 channels of high-performance RS232/RS422/RS485 programmable asynchronous serial interface.

The serial channels can be individually programmed to operate as RS232, RS422 or RS485 full duplex/half duplex interface. In addition, programmable termination is provided for the RS422/RS485 interfaces. After power-up all serial I/O lines are in a high impedance state.

- ⇒ Each RS232 channel supports RxD, TxD, RTS, CTS, and GND.
- ⇒ RS422 and RS485 full duplex supports a four-wire interface (RX+, RX-, TX+, TX-) plus ground (GND).
- ⇒ RS485 half-duplex supports a two-wire interface (DX+, DX-) plus ground (GND).

Each channel has 256-byte transmit and receive FIFOs to significantly reduce the overhead required to provide data to and get data from the transmitters and receivers. The FIFO trigger levels are programmable and the baud rate is individually programmable up to 1Mbps for RS232 channels and 20Mbps for RS422/RS485 channels with selectable 250kbps slew limiting. The UART offers readable FIFO levels.

All serial channels use ESD and Surge protected transceivers. ESD protection is up to $\pm 30\text{kV}$.

Key Features

- ⇒ New high performance serial communication
 - RS-232 mode up to 1Mbps
 - RS-422/485 modes up to 20Mbps
 - PCIe interface UART with 256-byte FIFOs
 - Independent serial 16 ports
 - RS-422/485 termination programmable
- ⇒ RS-232/422/485 serial ports with programmable protocol
- ⇒ $\pm 30\text{kV}$ ESD and Level 4 Surge protection on all serial ports

DE140500 is compatible with *IEC 60068-2-1 / IEC 60068-2-2 / IEC 60068-2-78 / IEC 60068-2-27 / IEC 60068-2-64 / EN 61326 (IEC 61326) / EN 55011 (CISPR 11) / AS/NZS CISPR 11 / FCC 47 CFR Part 15B / ICES-001* standards.

Areas of application include:

- ⇒ Next generation point-of-sale systems
- ⇒ Factory automation and process control
- ⇒ Multi-port RS-232/RS-422/RS-485 cards
- ⇒ High performance serial communication

HARDWARE OVERVIEW

Circuitry

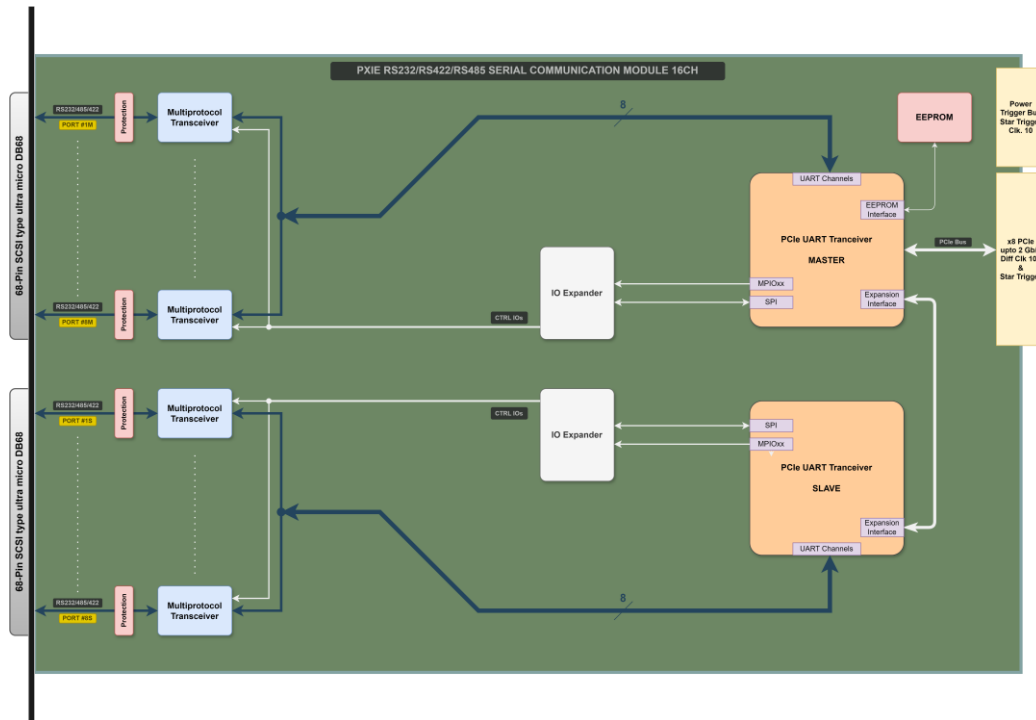


Figure 1: Block Diagram of DE140500

Hardware Specifications

Electrical

Specification	Description
Number of ports	16
Serial interface	RS-232/422/485 serial ports with programmable protocol
Data rate	RS-232 mode up to 1Mbps RS-422/485 modes up to 20Mbps
Baud rate	Software programmable
RS232 output	±10.0V no load
RS485/422 enhanced failsafe	Yes
Tx/Rx FIFO (bytes)	256/256
Data bus interface	PCIe 2.0 (2.5Gbps)
Power down mode	Yes
Power consumption	0.6amps @3.3V or 2W
Status indication	Status LEDs for system development/debugging
Protection	±30kV ESD, IEC61000-4-5, Level 4, 4kV 1.2/50µs Surge protection

Physical

Specification	Description
Dimensions (L/W)	200mm x 130.5mm (3U rack height)
Height (H)	4HP (20.32mm)
Front panel connectors (x2)	68-pin SCSI ultra micro DB68

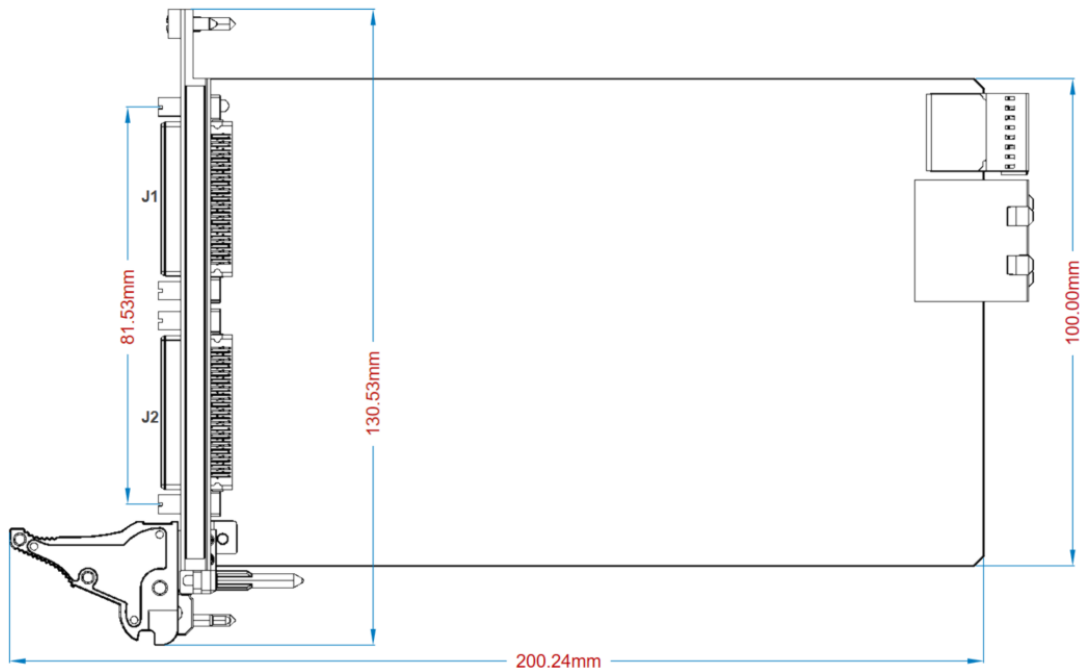


Figure 2: Module PCB Dimensions

Environmental

Specification	Condition	Value
Operating humidity	Relative, non-condensing	10% - 90%
Storage humidity	Relative, non-condensing	5% - 95%
Operating temperature	Forced-air cooling from chassis	0°C - 40°C
Storage temperature	-	-40°C - 85°C

SOFTWARE OVERVIEW

This module is compatible with IVISwTch class.

SIGNAL CONNECTIONS

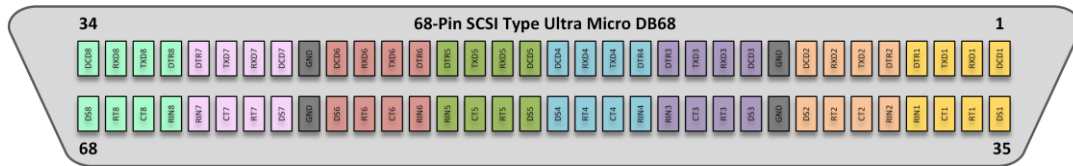


Figure 3: DB68 Pinout Diagram

Table 1: DB68 J1 Connectour Pin-out

68-Pin Connector Port								RS485	RS232
Port1	Port2	Port3	Port4	Port5	Port6	Port7	Port8		
1	8	10	17	18	25	27	34	TX-	DCD
2	7	11	16	19	24	28	33	TX+	RXD
3	6	12	15	20	23	29	32	RX+	TXD
4	5	13	14	21	22	30	31	RX-	DTR
9, 26, 43, 60								GND	GND
35	42	44	51	52	59	61	68	NC	DSR
36	41	45	50	53	58	62	67	NC	RTS
37	40	46	49	54	57	63	66	NC	CTS
38	39	47	48	55	56	64	65	NC	RI

Table 2: DB68 J2 Connector Pin-out

68-Pin Connector Port								RS485	RS232
Port9	Port10	Port11	Port12	Port13	Port14	Port15	Port16		
1	8	10	17	18	25	27	34	TX-	DCD
2	7	11	16	19	24	28	33	TX+	RXD
3	6	12	15	20	23	29	32	RX+	TXD
4	5	13	14	21	22	30	31	RX-	DTR
9, 26, 43, 60								GND	GND
35	42	44	51	52	59	61	68	NC	DSR
36	41	45	50	53	58	62	67	NC	RTS
37	40	46	49	54	57	63	66	NC	CTS
38	39	47	48	55	56	64	65	NC	RI

Table 3: DB9 Connector Pin-out

Pin Number	RS-485 Half Duplex	RS-485 / RS-422 Full Duplex	RS-232
1	Data- (TX- / RX-)	TX-	DCD
2	Data+ (TX+ / RX+)	TX+	RXD
3	NC	RX+	TXD
4	NC	RX-	DTR
5	GND	GND	GND
6	NC	NC	DSR
7	NC	NC	RTS
8	NC	NC	CTS
9	NC	NC	RI

SAFETY GUIDELINES



Caution Do not operate the DE140500 in a manner not specified in this document. Product misuse can result in a hazard. You can compromise the safety protection built into the product if the product is damaged in any way. If the product is damaged, return it for repair.

COMPATIBILITY GUIDELINES

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC). These requirements and limits provide reasonable protection against harmful interference when the product is operated in the intended operational electromagnetic environment.

This product is intended for use in industrial locations. However, harmful interference may occur in some installations, if the product is connected to a peripheral device or test object, or if the product is used in residential or commercial areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions specified in the product documentation.

Furthermore, any changes or modifications to the product not expressly approved by DEICO could void your authority to operate it under your local regulatory rules.



Caution To ensure the specified EMC performance, operate this product only with shielded cables and accessories.

Caution To ensure the specified EMC performance, the length of any cable attached to front connectors must not be longer than 3 m (10 ft.).



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