

## RS-422A/485 Serial I/O Card with Isolation for PCI 2ch COM-2PD(PCI)H



\* Specifications, color and design of the products are subject to change without notice.

### Features

#### Max. 921,600bps RS-422A/485 Serial Communication

The COM ports of this product support up to 921,600 bps. COM-2PD(PCI)H has two RS-422A/485-standard serial ports.

#### Possibly used as Windows, Linux-standard COM ports

Combining the product with our device driver COM-DRV makes it possible to use the product in the same manner as the COM ports of a PC.

This product supports communication using DCB structures in the Win32 API and Linux-standard system calls.

#### Isolation between channels and between PCs, surge protection for all signal lines

The channels are electrically isolated from each other and from the PC.

As isolation is provided between channels as well as isolation of the bus, this prevents electrical noise between channels as well as between the PC and external circuits. As surge protection is provided on all signal lines, you can safely use the boards in environments where you are concerned about surges causing incorrect operation or damage to the PC.

#### Up to 16 boards can be installed

Up to 16 boards of the same model can be mounted on a single PC.

#### Each channel is equipped with separate 128-byte FIFO buffers for transmit and receive.

Equipped with a buffer memory for transmitting 128 bytes and receiving 128 bytes for each channel. These are FIFO format, useful for high speed communications and to reduce the load to the CPU when transmitting/receiving.

#### The control line for RS-422A/485 can be controlled and monitored by software.

The control lines for RTS+, RTS-, CTS+ and CTS- can be controlled and monitored using software.

This product is an isolated PCI bus-supported board designed for extending RS-422A/485 compatible serial communication functionality on your PC.

COM-2PD(PCI)H has two RS-422A/485 communication ports.

With a 128byte built-in FIFO buffer for transmission and reception of each channel, the product supports a baud rate of up to 921,600bps.

Windows/Linux device driver is supported with this product.

The COM-2PD/4PD(PCI)H boards are backward compatible with the CONTEC COM-2PD/4PD(PCI) boards. The COM-xPD(PCI)H can therefore replace the COM-xPD(PCI) in an existing system.

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\*Visit the CONTEC website to check the latest details in the document.

\*The information in the data sheets is as of April, 2024.

### Specifications

#### Function Specifications

Item	Specifications
Number of channels	2 channels
Interface type	RS-422A/RS-485
Isolation	Channel Isolation/Bus Isolation
Isolation voltage	Channel Isolation: 1000VDC, Bus Isolation: 1000VDC
Transfer method	Asynchronous serial transfer (Full/Half duplex)
Baud rate	2 - 921,600bps *1 *2
Data length	5, 6, 7, 8 bits 1, 1.5, 2 stop bits *1
Parity check	Even, Odd, Non-parity *1
Controller chip	162850 or equivalent (Each channel has 128-byte receive and 128-byte transmit FIFO buffers.)
Connecting distance	1200m (Typ.) *3*4
Interrupt requests	1 level use *5
I/O address	Any 32-byte boundary
Power consumption	5VDC 550mA (Max.)
PCI Bus specification	32-bit, 33MHz, Universal key shapes supported *6*7
Dimension (mm)	121.69(L) x 105.68(H) *8
Weight	95g

\*1 These items can be set by software.

In our device driver COM-DRV(WDM) the range is 15 - 921,600 bps.

\*2 Data transmission at high speed may not be performed normally depending on the environment including the type of status of connected material of cable and environment.

\*3 The table below lists an example of the relationship between baud rate and communication distance.

Communication distance	Baud rate
300m	115,200bps
600m	57,600bps
900m	19,200bps
1200m	9,600bps

Communication cable: 28AWG, double shielded cable, twisted pairs used for each +/- signal line.

\*4 The table below lists the maximum communication distances of the terminator resistor value and individual cable diameters.

The terminators on the product (100Ω) and the terminators generally used with RS-422A/485(120Ω) are listed.

Maximum communication distances of the terminator resistor value (100Ω) and cable diameter

Terminator Resistor(Ω)	Cable Diameter	Maximum Communication Distance(m)
100	AWG28	400
	AWG26	700
	AWG24	1100
	AWG22	1200

Maximum communication distances of the terminator resistor value (120Ω) and cable diameter

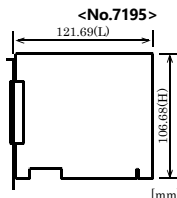
Terminator Resistor(Ω)	Cable Diameter	Maximum Communication Distance(m)
120	AWG28	500
	AWG26	800
	AWG24	1200
	AWG22	1200

- \*5 A single interrupt signal "INTA" is output as a collection of interrupt input signals from two channels.  
 \*6 This card requires power supply at +5 V from an expansion slot (it does not work on a machine with a +3.3V power supply alone).  
 \*7 If the card No. is 7195, PCI bus specification is 32bit, 33MHz, 5V.  
 \*8 If the card No. is 7195, Dimension is 121.69(L) x 106.68(H).

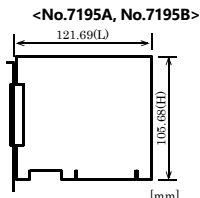
## Installation Environment Requirements

Item	Specifications
Operating ambient temperature	0 - 50°C
Operating ambient humidity	10 - 90%RH (No condensation)
Floating dust particles	Not to be excessive
Corrosive gases	None
Standard	VCCI Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA

## Card Dimensions



The standard outside dimension (L) is the distance from the end of the board to the outer surface of the slot cover.



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## Support Software

Name	Contents	How to get
Windows Version Serial communication driver COM-DRV(WDM)	Software that makes it possible to use the product in the same manner as the COM ports of a PC running Windows. This software supports communication using DCB structures in the standard OS Win32 API, and the SerialPort class in the .NET Framework and the pySerial module in Python. Various sample programs such as C# and Visual Basic .NET, Visual C++, Python etc. and diagnostic program useful for checking operation is provided.	Download from the CONTEC website *1
Linux Version Serial communication driver COM-DRV(LNX)	Software that makes it possible to use the product in the same manner as the COM ports of a PC running Linux. This software conforms to Linux-standard tty drivers, and the pySerial module in Python. The software includes various sample programs such as gcc (C, C++) and Python programs.	Download from the CONTEC website *1

\*1 Download the files from the following URL.  
<https://www.contec.com/download/>

## Included Items

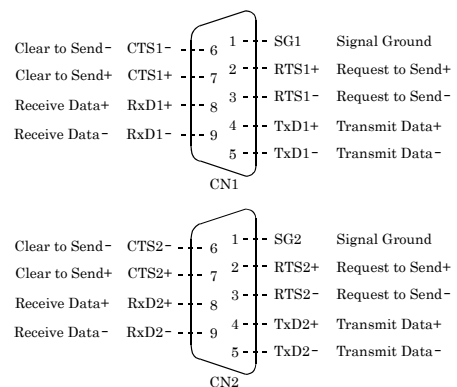
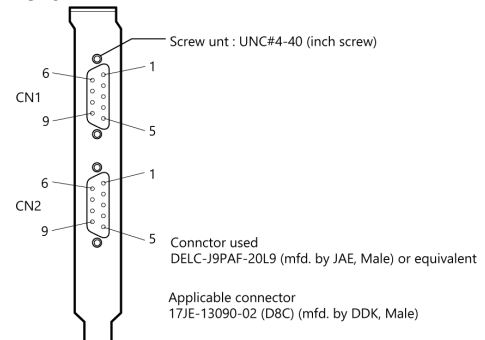
- Card [COM-2PD(PCI)H] ... 1
- Please read the following ... 1

## External Connection

### Connecting directly to the port connector

If connecting an external device directly from the connector on the board, make your own cable and connect it.

### Pin Assignment



### CAUTION

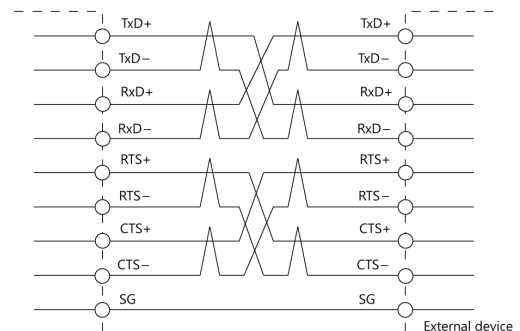
For TxD, RxD, and RTS, even numbered pins are + and odd numbered pins are -.  
 For CTS, even numbered pins are - and odd numbered pins are +. This is the opposite of the other signals, but is not a misprint.

## Types of Cable and Example Connections

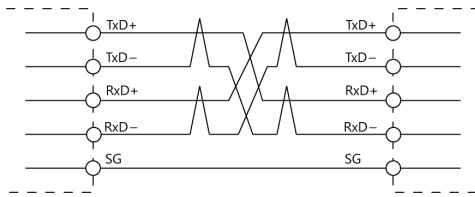
The figures below show examples of how to connect the cable for the board.

The RS-422A/485 interface works based on a differential signal whereby the signal is carried by the potential difference between two lines (+ and -). Using twisted pair cable is recommended to improve resistance to noise.

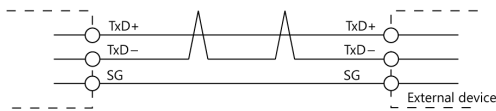
### Example Connection RTS and CTS to a External Device in Full Duplex



### Example Connection Oneself loop to RTS and CTS in Full Duplex



### Example Connection in Half Duplex



#### CAUTION

If connecting between external devices and this board with faulty wiring, it will become the cause of failure.

## Differences from COM-2PD(PCI)

The COM-2PD(PCI)H is the upgraded versions of the conventional COM-2PD(PCI) card, respectively. The COM-2PD(PCI)H is backward compatible with the COM-2PD(PCI) and can be used in the same way in principle.

In specifications, the COM-2PD(PCI)H card is different from the COM-2PD(PCI) card as listed below.

For details on the on-card controller chip, refer to the data sheet from EXAR Corporation.

### Differences in Specifications

	COM-2PD(PCI)	COM-2PD(PCI)H
FIFO buffer for transmission and reception	16byte	128byte
Controller chip	16552 or equivalent	162850 or equivalent
Power consumption	670mA	550mA
Weight	110g	95g

### Differences in Hardware

	COM-2PD(PCI)	COM-2PD(PCI)H
Data transmission mode setting switch	 SW2 (Data transfer mode settings for CH1)   SW3 (Data transfer mode settings for CH2)	 SW3 (Data transfer mode settings for CH1)   SW5 (Data transfer mode settings for CH2)
The meaning of each switch bit is the same for each model. See the data transfer mode settings for details.		
Terminator setting switch	 SW2 (Terminator settings for CH1)   SW3 (Terminator settings for CH2)	 SW2 (Terminator settings for CH1)   SW4 (Terminator settings for CH2)
The meaning of each of the above switch bits is the same. On the COM-2PD(PCI)H, the terminators for transmission (TxD and RTS) are set by bits 3 and 4. See the terminator settings for details.		
	6, 7 bit	1, 2 bit