RS-422A/485 Serial I/O Card
with Isolation for PCI 4ch

COM-4PD(PCI)H

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

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

COM-4PD(PCI)H has four 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 contents in this document are subject to change without notice.
*Visit the CONTEC website to check the latest details in the document.
*The information in the data sheets is as of April, 2024.

Features

Max. 921,600bps RS-422A/485 Serial Communication
The COM ports of this product support up to 921,600 bps.
COM-4PD(PCI)H has four 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.

Specifications

Function Specifications

Item	Specifications
Number of channels	4 channels
Interface type	RS-422A/RS-485
Isolation	Channel Isolation/Bus Isolation
Isolation voltage	Channel Isolation: 500VDC, 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 950mA (Max.)
PCI Bus specification	32-bit, 33MHz, Universal key shapes supported *6*7
Dimension (mm)	121.69(L) x 106.68(H)
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

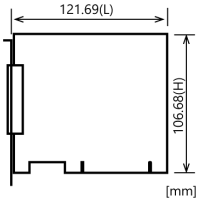
*5 A single interrupt signal "INTA" is output as a collection of interrupt input signals from two channels.
*6 This card requires power supply at +5 V from an expansion slot (it does not work on a machine with a +3.3V power supply alone).
*7 If the card No. is 7195, PCI bus specification is 32bit, 33MHz,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

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

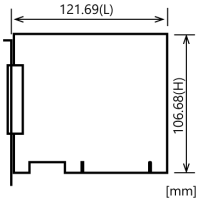
Card Dimensions

<No.7194>



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

<No.7194A, No.7194B>



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

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-4PD(PCI)H] ... 1
- Please read the following ... 1

Included Items

Product Name	Model type	Description
Connection Conversion Cable for Serial I/O (37P→9P×4)	PCE37/9PS	

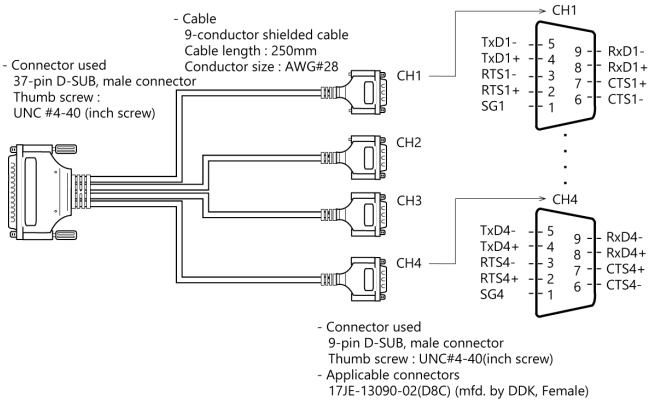
* Visit the CONTEC website for the latest optional products.

External Connection

When connecting the COM-4PD(PCI)H to an external device, in addition to connecting directly to the connector on the board, you can also use a connection conversion cable.

Using the 9-pin D-SUB Connector Conversion Cables

Use a PCE37/9PS connection conversion cable (purchased separately) to connect to external devices after dividing into four 9-pin D-SUB male connector channels.



Connection conversion cable (Option)

Connection Conversion Cable for Serial I/O (37P→9P×4, 250mm) PCE37/9PS

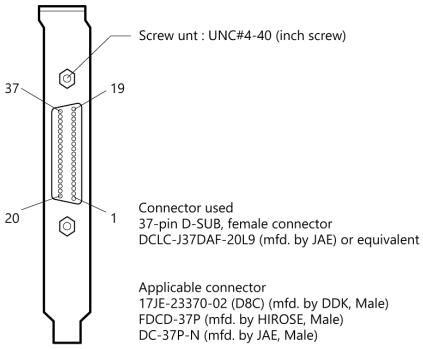
⚠CAUTION

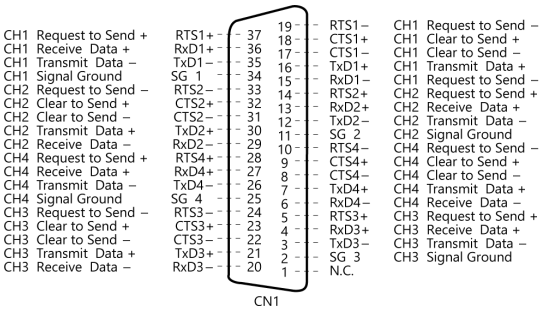
The SG lines for CH1 to CH4 of the option cable are not connected to the cable shielding. However, the frame of each connector is connected to the shielding. This means that the cable shielding is connected to the body of the PC via the frame of the interface connector.
Note that the option cable is not a twisted-pair cable.

Connecting it directly from the on-board connector

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

Pin Assignment



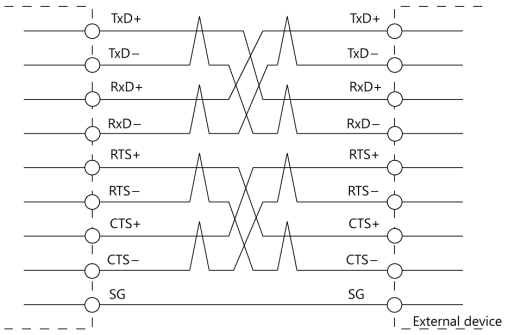


Types of Cable and Example Connections

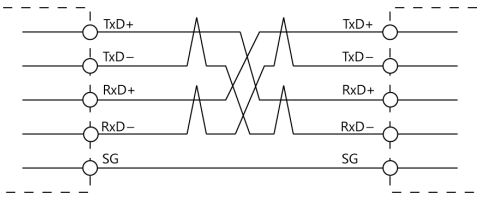
The figures below show examples of how to connect the cable for the board.

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.

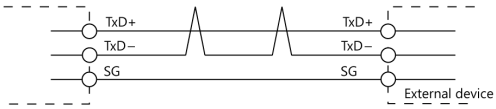
Example Connection RTS and CTS to a External Device in Full Duplex



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.