RS-422A/485 Isolated Serial I/O Board
for PCI Express 4ch

COM-4PD-PE



This product is a PCI bus-supported board designed for extending RS-422A/485 compatible serial communication functionality on your PC.
The < COM-4PD-PE > has four RS-422A/485-standard serial ports.
Higher noise-resistant models with isolation between channels and between PC and bus line as well as a surge protection circuit for 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. It also comes with a Windows/Linux driver, which allows boards to be used as OS-standard COM ports.
This product supports CONTEC-defined driver library "API-PAC(W32)" that provide local routines.

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

Features

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

The < COM-4PD-PE > has four RS-422A/485-standard serial ports.
Baud rates from 2 to 921,600bps can be set. When using the bundled "Standard COM Driver Software" and "Driver library API-PAC(W32)", baud rates from 15 to 921,600bps can be set.

Possibly used as Windows, Linux-standard COM ports, using the bundled driver library

Comes with a driver software that allows the boards to be used under Windows / Linux in the same way as COM ports on the PC. Under Windows, the product supports the OS-standard Win32 API communication function as well as Visual Basic MSComm. Under Linux, OS-standard tty driver's standard-function can be used. In addition, supplies a diagnostic program to confirm hardware operation and to perform a communication test with equipment.

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.

Max. 16 boards can be installed as configured in the range COM1 - COM256.

Up to 16 boards can be mounted on a single PC.
COM1 - COM256 can be set using the device manager.

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

Employed a buffer memory 128-byte dedicated to transmission and 128-byte for each channel.
These are FIFO format, useful for high speed communications and to reduce the load to the CPU when transmitting/receiving.
As the device manager can be used to enable/disable the use of FIFO and set the FIFO trigger size, this permits operation to be adjusted to achieve optimal performance for your system.

To suit your application, cables and connectors are available as optional.

COM-4PD-PE : Distribution cable for 4channels (PCE37/9PS) is available as optional.

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

The control lines for RTS, CTS, DTR and DSR can be controlled and monitored using an application.
The lines can be controlled or monitored by software from the application.

Driver library API-PAC(W32) is supported.

API-PAC(W32) is library software based on Win32 API routines (DLL), which provides local routines specific to CONTEC. You can create high-speed application software taking advantage of the CONTEC hardware using various programming languages that support Win32 API functions, such as Visual Basic and Visual C++.

Specification

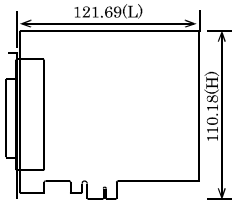
Item	Specification
Number of channels	4ch
Interface type	RS-422A/RS-485
Isolation specification	Isolation between channel, Bus isolation
Isolation pressure proof	Between channel : 500VDC, Between bus : 1000VDC
Transfer method	Asynchronous serial transfer (Full-duplex / half-duplex)
Baud rate	2 - 921,600bps *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	Within 1200m *3
Interrupt requests	1 level use *4
I/O address	Any 32-byte boundary
Power consumption	3.3VDC 1600mA (Max.)
Operating temperature	0 - 50°C, 10 - 90%RH(No condensation)
Bus specification	PCI Express Base Specification Rev. 1.0a x1
Dimension (mm)	121.69(L) x 110.18 (H) *5
Interface connector	37-pin D-SUB connector, DCLC-J37SAF-20L9E (mfd. by JAE, female) equivalent
Weight	120g
Certification	RoHS,VCCI

*1 These items can be set by software. For the "Driver Library API-PAC(W32)" and the "Standard COM Driver Software COM Setup Disk" on the supplied CD-ROM, 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 A single interrupt signal "INTA" is output as a collection of interrupt input signals from two channels.
*5 Boards with different board numbers are different in these specifications. See Table 6.3 "Different in the specification" at the end of this document.

Board Dimensions



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

Support Software

Standard COM Driver Software COM Setup Disk (Bundled)

The purpose of this software is to allow the CONTEC serial communication boards to be used under Windows or Linux in the same way as the standard COM ports on the PC. By installing additional boards, you can use COM ports in the range COM1 - COM256.
The boards can be used for all types of serial communications such as for remote access service (RAS) and uninterruptible power supply (UPS) applications.
Under Windows, the serial ports can be accessed using the standard Win32 API communication routines (CreateFile( ), WriteFile( ), ReadFile( ), and SetCommState( ), etc.) The serial ports are also
compatible with the Visual Basic communication control (MSComm).
Under Linux, the serial ports are compatible with the operating system's standard tty driver. The standard routines including open( ), close( ), read( ), write( ) are supported.

< Operating environment >
OS Windows 8.1,8,7,Vista etc..

⚠ CAUTION
The maximum number of COM ports able to be used depends on the configuration of your OS.
This product is not supported Windows Me, 98, 95, NT.

Driver library API-PAC(W32) (Available for downloading (free of charge) from the CONTEC web site.)

API-PAC(W32) is the library software that provides the commands for CONTEC hardware products in the form of Windows standard Win32 API functions (DLL). It makes it easy to create high-speed application software taking advantage of the CONTEC hardware using various programming languages that support Win32 API functions, such as Visual Basic and Visual C/C++.

It can also be used by the installed diagnosis program to check hardware operations.

CONTEC provides download services (at http://www.contec.com/apipac/) to supply the updated drivers and differential files.

For details, visit the CONTEC's Web site.

< Operating environment >

OS	Windows Vista, XP, Server 2003etc..
Adaptation language	Visual C++ .NET, Visual C# .NET, Visual Basic .NET, Visual C++, Visual Basic, Delphi, C++Builder, etc.

⚠ CAUTION
This library provides local routines that are specific to CONTEC (SioOpen( ), SioWrite( ), SioRead( ), SioStatus( ), etc.). These are not compatible with the standard Win32 API communication routines (CreateFile( ) and WriteFile( ), etc.).

This library does not correspond to 64bit OS.

Cable

Cable (Option)

Connection Conversion Cable (37M→9M x 4, 250mm)
: PCE37/9PS

* Check the CONTEC's Web site for more information on these options.

Packing List

- Board(One of the following) …1
  [COM-2PD-PE, COM-4PD-PE]
- First step guide … 1
- COM Setup Disk *1 (CD-ROM) …1
- Warranty Certificate …1
- Serial No. Label…1

*1 The CD-ROM contains the driver software and User's Guide.

External Connection

In addition to connecting directly to the connector on the board, you can also connect external devices via a distribution cable or distribution unit.

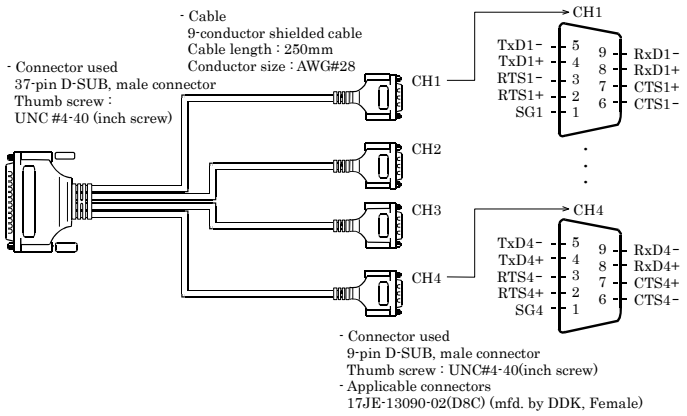
- Connecting directly to the port connector.
- Using a distribution cable.

When using a COM-4PD-PE, an alternative to connecting an external device directly to the connector on the board is to use a connection conversion cable.

- Converting the Interface Connector to 9-pin D-SUB, Male Connectors

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.

< Specification of “PCE37/9PS” >



< Connection conversion (Option) >

Connection Conversion Cable (37M→9M x 4, 250mm)
: PCE37/9PS

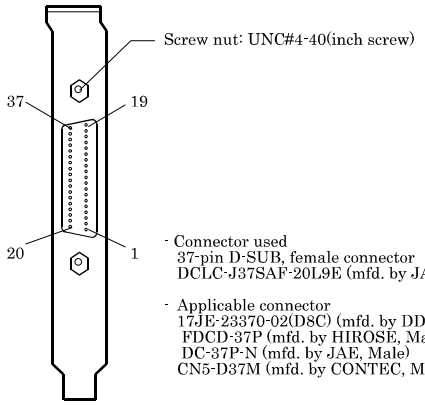
⚠ CAUTION

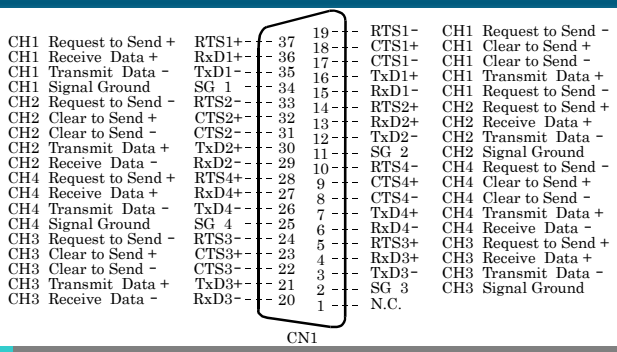
The SG lines for CH1 to CH4 of the option cable are not connected to the cable shielding. However, the frame of each connector is connected to the shielding. This means that the cable shielding is connected to the body of the PC via the frame of the interface connector.
Note that the option cable is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

Connecting directly to the port connector

If connecting an external device directly from the connector on the board, use a CN5-D37M or equivalent connector.

< Pin Assignment >

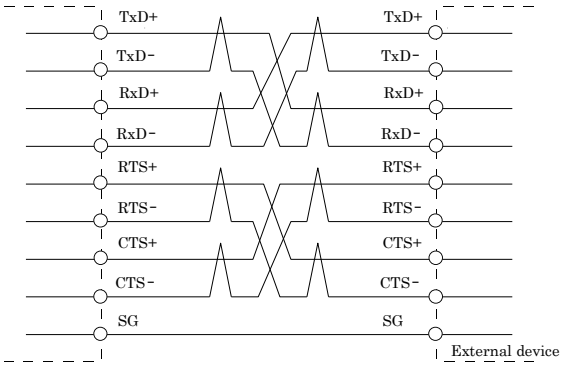




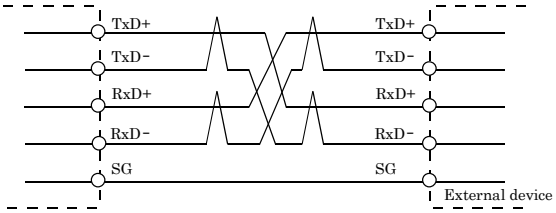
Types of Cable and Example Connections

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.

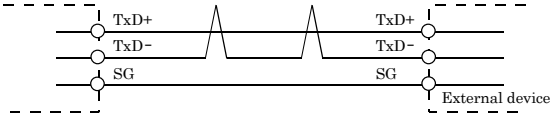
Example Connection RTS and CTS to a External Device in Full Duplex



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.

Different in the specification

The COM-4PD-PE is different in specifications, depending on the board number as listed below.

■COM-4PD-PE

Board No.	No.7412	No.7412A, No.7412B etc. And all except the left of the board number.
Dimension (mm)	169.33(L) x 110.18 (H)	121.69(L) x 110.18(H)