RS-232C 4ch Serial I/O Board with Isolation
# COM-4P(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-232C compatible serial communication functionality on your PC.

COM-4P(PCI)H has four RS-232C communication ports.

Higher noise-resistant models with isolation between a 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.

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-232C Serial Communication**
The COM ports of this product support up to 921,600 bps.
COM-4P(PCI)H has four RS-232C-standard serial ports.

**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.

**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.

**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-232C can be controlled and monitored by software**
The control lines for RTS, CTS, DTR and DSR can be controlled and monitored using software.

## Specifications

### Function specification

| Item | Specifications |
|---|---|
| Number of channels | 4 channels |
| Interface type | RS-232C |
| Isolation | Channel Isolation/Bus Isolation |
| Isolation voltage | Channel Isolation: 500VDC, Bus Isolation: 1000VDC |
| Transfer method | Asynchronous serial transfer |
| Baud rate | 2 - 921,600bps *1 *2 |
| Data length | 5, 6, 7, 8 bits<br>1, 1.5, 2 stop bits *1 |
| Parity check | Even, Odd, Non-parity *1 |
| Controller chip | 162850 or equivalent<br>(Each channel has 128-byte receive and 128-byte transmit FIFO buffers.) |
| Connecting distance | 15m(Typ.) |
| Interrupt requests | 1 level use *3 |
| I/O address | Any 32-byte boundary |
| Power consumption | 5VDC 1000mA (Max.) |
| PCI Bus specification | 32-bit, 33MHz, Universal key shapes supported *4 |
| Dimension (mm) | 121.69(L) x 105.68(H) *4 |
| Weight | 90g |

*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 interrupt signals from individual channels are arranged into a single interrupt signal and connected to the PCI bus.

*4   This board requires power supply at +5 V from an expansion slot (it does not work on a machine with a +3.3V power supply alone).

### 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 |

## 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 |

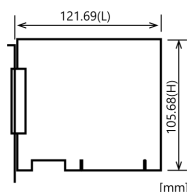\* Visit the CONTEC website for the latest optional products.

https://www.contec.com/download/

## Included Items

Product [COM-4P(PCI)H] ...1
Please read the following ... 1

## Optional Products

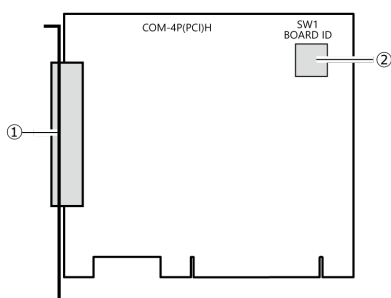| Product Name | Model type | Description |
|--------------|-----------|-------------|
| Connection Conversion Cable for Serial I/O (37P→9P×4) | PCE37/9PS | |
| Connection Conversion Cable for RS-232C (37P→25P×4) | PCE37/25PS | |

\* Visit the CONTEC website for the latest optional products.

## External Dimensions

121.69(L)

105.68(H)

[mm]

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

## Component Name

COM-4P(PCI)H
SW1 BOARD ID
②
①

| No. | Name |
|-----|------|
| 1 | Interface Connector (CN1) |
| 2 | Board ID Setting Switch (SW1) |

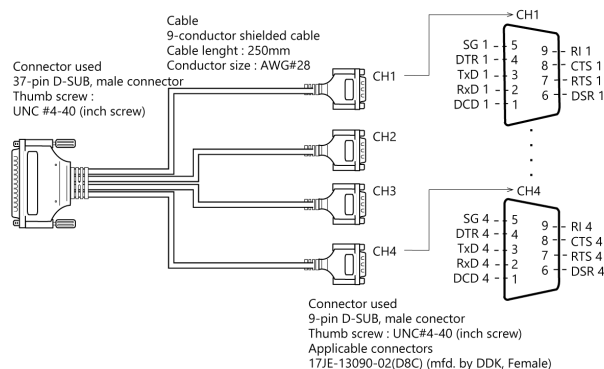## Connecting to an External Device

When using a COM-4P(PCI)H, an alternative to connecting an external device directly to the connector
on the board is to use a connection conversion cable or connection conversion unit.

### 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.

Use separately purchased 9-pin D-SUB or equivalent cables to connect from the four individual connectors.

Cable
9-conductor shielded cable
Cable lenght : 250mm
Conductor size : AWG#28

Connector used
37-pin D-SUB, male connector
Thumb screw :
UNC #4-40 (inch screw)

CH1
CH2
CH3
CH4

CH1
SG 1 — 5   9 — RI 1
DTR 1 — 4   8 — CTS 1
TxD 1 — 3   7 — RTS 1
RxD 1 — 2   6 — DSR 1
DCD 1 — 1

CH4
SG 4 — 5   9 — RI 4
DTR 4 — 4   8 — CTS 4
TxD 4 — 3   7 — RTS 4
RxD 4 — 2   6 — DSR 4
DCD 4 — 1

Connector used
9-pin D-SUB, male conector
Thumb screw : UNC#4-40 (inch screw)
Applicable connectors
17JE-13090-02(D8C) (mfd. by DDK, Female)

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

### Using the 25-pin D-SUB Connector Conversion Cables
Use a PCE37/25PS connection conversion cable (purchased separately) to connect to external devices after dividing into four 25-pin D-SUB male connector channels.

Use separately purchased 25-pin D-SUB or equivalent cables to connect from the four individual connectors.

Cable
9-conductor shielded cable
Cable length : 250mm
Conductor size : AWG#28

Connector used
37-pin D-SUB, male connector
Thumb screw :
UNC#4-40 (inch screw)

CH1
CH2
CH3
CH4

CH1
N.C. — 13   25 — N.C.
N.C. — 12   24 — N.C.
N.C. — 11   23 — N.C.
N.C. — 10   22 — RI 1
N.C. — 9   21 — N.C.
DCD 1 — 8   20 — DTR 1
SG1 — 7   19 — N.C.
DSR 1 — 6   18 — N.C.
CTS 1 — 5   17 — N.C.
RTS 1 — 4   16 — N.C.
RxD 1 — 3   15 — N.C.
TxD 1 — 2   14 — N.C.
FG — 1

CH4
N.C. — 13   25 — N.C.
N.C. — 12   24 — N.C.
N.C. — 11   23 — N.C.
N.C. — 10   22 — RI 4
N.C. — 9   21 — N.C.
DCD 4 — 8   20 — DTR 4
SG 4 — 7   19 — N.C.
DSR 4 — 6   18 — N.C.
CTS 4 — 5   17 — N.C.
RTS 4 — 4   16 — N.C.
RxD 4 — 3   15 — N.C.
TxD 4 — 2   14 — N.C.
FG — 1

Connector used
25-pin D-SUB, male connector
Thumb screw :
UNC#4-40 (inch screw)
Applicable connectors
17JE-13250-02 (D8C)
mfd. by DDK, Female)
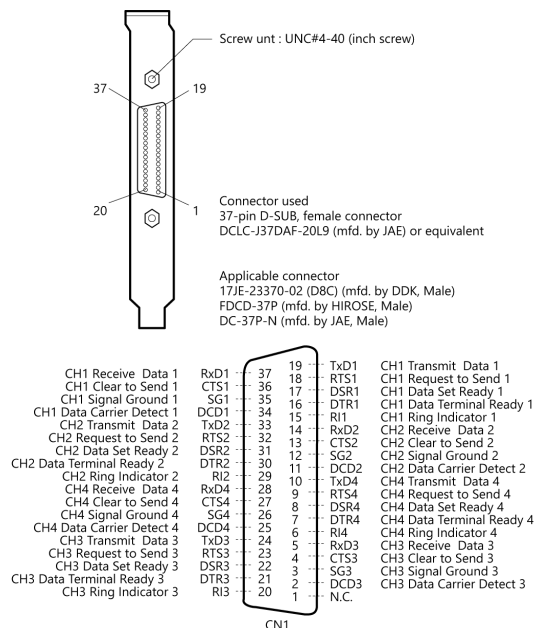
Connection conversion cable (Option)
Connection Conversion Cable for Serial I/O (37P→9P×4, 250mm)          PCE37/9PS
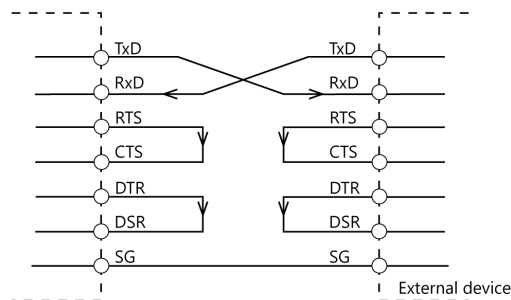
## Connecting it directly from the on-board connector

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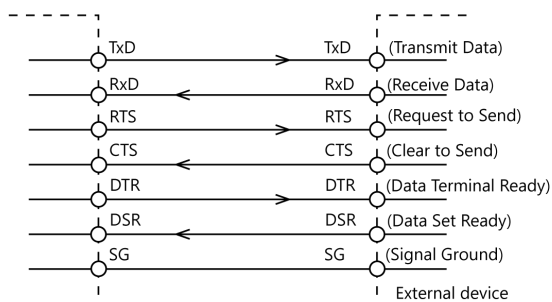
### Pin Assignment



Screw unt : UNC#4-40 (inch screw)

37    19

20    1

Connector used
37-pin D-SUB, female connector
DCLC-J37DAF-20L9 (mfd. by JAE) or equivalent

Applicable connector
17JE-23370-02 (D8C) (mfd. by DDK, Male)
FDCD-37P (mfd. by HIROSE, Male)
DC-37P-N (mfd. by JAE, Male)

| | | Pin | | |
|---|---|---|---|---|
| CH1 Receive  Data 1 | RxD1 | 37 | | |
| CH1 Clear to Send 1 | CTS1 | 36 | | |
| CH1 Signal Ground 1 | SG1 | 35 | | |
| CH1 Data Carrier Detect 1 | DCD1 | 34 | | |
| CH2 Transmit  Data 2 | TxD2 | 33 | | |
| CH2 Request to Send 2 | RTS2 | 32 | | |
| CH2 Data Set Ready 2 | DSR2 | 31 | | |
| CH2 Data Terminal Ready 2 | DTR2 | 30 | | |
| CH2 Ring Indicator 2 | RI2 | 29 | | |
| CH4 Receive  Data 4 | RxD4 | 28 | | |
| CH4 Clear to Send 4 | CTS4 | 27 | | |
| CH4 Signal Ground 4 | SG4 | 26 | | |
| CH4 Data Carrier Detect 4 | DCD4 | 25 | | |
| CH3 Transmit  Data 3 | TxD3 | 24 | | |
| CH3 Request to Send 3 | RTS3 | 23 | | |
| CH3 Data Set Ready 3 | DSR3 | 22 | | |
| CH3 Data Terminal Ready 3 | DTR3 | 21 | | |
| CH3 Ring Indicator 3 | RI3 | 20 | | |

| 19 | TxD1 | CH1 Transmit  Data 1 |
|---|---|---|
| 18 | RTS1 | CH1 Request to Send 1 |
| 17 | DSR1 | CH1 Data Set Ready 1 |
| 16 | DTR1 | CH1 Data Terminal Ready 1 |
| 15 | RI1 | CH1 Ring Indicator 1 |
| 14 | RxD2 | CH2 Receive  Data 2 |
| 13 | CTS2 | CH2 Clear to Send 2 |
| 12 | SG2 | CH2 Signal Ground 2 |
| 11 | DCD2 | CH2 Data Carrier Detect 2 |
| 10 | TxD4 | CH4 Transmit  Data 4 |
| 9 | RTS4 | CH4 Request to Send 4 |
| 8 | DSR4 | CH4 Data Set Ready 4 |
| 7 | DTR4 | CH4 Data Terminal Ready 4 |
| 6 | RI4 | CH4 Ring Indicator 4 |
| 5 | RxD3 | CH3 Receive  Data 3 |
| 4 | CTS3 | CH3 Clear to Send 3 |
| 3 | SG3 | CH3 Signal Ground 3 |
| 2 | DCD3 | CH3 Data Carrier Detect 3 |
| 1 | N.C. | |

CN1

## Types of Cable and Example Connections

When using an RS-232C interface, different cables are required depending on the type of device to which you are connecting (computer or modem, etc.). Check the requirements of the external device and select either a straight-through or crossed (null modem) cable as appropriate. If special treatment

of the signal lines in the connector is required, ensure that this is done in accordance with the specifications.

### Example Connection to a Modem (Straight cable)



| TxD | TxD | (Transmit Data) |
| RxD | RxD | (Receive Data) |
| RTS | RTS | (Request to Send) |
| CTS | CTS | (Clear to Send) |
| DTR | DTR | (Data Terminal Ready) |
| DSR | DSR | (Data Set Ready) |
| SG | SG | (Signal Ground) |

External device

### Example Connection to a PC (Cross cable)



TxD — TxD
RxD — RxD
RTS — RTS
CTS — CTS
DTR — DTR
DSR — DSR
SG — SG

External device

## Example Connection to a Device



TxD — TxD
RxD — RxD
RTS — RTS
CTS — CTS
DTR — DTR
DSR — DSR
SG — SG

External device