RS-232C Serial I/O Board for PCI 2ch
# COM-2(PCI)H

RS-232C Serial I/O Board for PCI 4ch
# COM-4(PCI)H

RS-232C Serial I/O Board for PCI 8ch
# COM-8(PCI)H

This board is a PCI bus interface board for performing RS-232C serial communications with external devices.
The <COM-2(PCI)H> has two serial ports per board.
The <COM-4(PCI)H> has four serial ports per board.
The <COM-8(PCI)H> has eight serial ports per board.
You can use the standard COM driver software (COM Setup Disk) supplied with the board to access the serial ports as standard Windows or Linux COM ports.
The COM-2/4/8(PCI)H boards are backward compatible with the CONTEC COM-2/4/8(PCI) boards. The COM-x(PCI)H can therefore replace the COM-x(PCI) in an existing system.

The specification, color, and design of a product may be changed without a preliminary announcement.

## Features

- Maximum communication speed = 921,600bps.
- The baud rate can be set independently for each channel, by software.
- Each channel is equipped with separate 128-byte FIFO buffers for transmit and receive.
- A maximum of 16 boards can be installed as configured in the range COM1 - COM256.
- Driver software is supplied to allow the serial ports to be used as standard Windows or Linux COM ports.
- The boards use the same easy-to-use 9-pin D-SUB connectors as are used on a PC.

## Product Configuration List

- Board
  [COM-2(PCI)H, COM-4(PCI)H or COM-8(PCI)H]
- First step guide …1
- COM Setup Disk(CD-ROM *1 ) …1

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

## Accessories (Option)

Connection Conversion Unit for RS-232C(78P 25P x 8)
: CCU-78F/25M *1

*1 The option cable RSS-78M or RSS-78M/37M is needed.

## Cable & Connector (Option)

RS-232C Straight Cable with D-SUB9P (1.8m) : RSS-9M/F
RS-232C Cross Cable with D-SUB9P (1.8m) : RSC-9F
RS-232C Straight Cable with D-SUB25P (1.8m) : RSS-25M/F
RS-232C Cross Cable with D-SUB25P (1.8m) : RSC-25F
RS-232C Connection Conversion Straight Cable (25M 9F, 1.8m)
: RSS-25M/9F
RS-232C Connection Conversion Straight Cable (25F 9M, 1.8m)
: RSS-25F/9M
RS-232C Connection Conversion Cross Cable (25F 9F, 1.8m)
: RSC-25F/9F
Connection Conversion Cable (37M 9M x 4, 250mm)
: PCE37/9PS
Connection Conversion Cable (37M 25M x 4, 250mm)
: PCE37/25PS
Connection Conversion Cable for RS-232C (37M 25M x 4, 450mm)
: COM-4MCABLE(PC)1
Connection Conversion Cable (78M 9M x 8, 1m)
: PCE78/9PS
Connection Conversion Cable (78M 25M x 8, 1m)
: PCE78/25PS
COM-8ch Board Optional Cable for CCU-78F/25M (2m)
: RSS-78M
COM-4ch Board Optional Cable for CCU-78F/25M (2m)
: RSS-78M/37M
Set of five 9-pin D-SUB (male) connectors : CN5-D9M
Set of five 9-pin D-SUB (female) connectors : CN5-D9F
Set of five 25-pin D-SUB (male) connectors : CN5-D25M
Set of five 25-pin D-SUB (female) connectors : CN5-D25F
Set of five 37-pin D-SUB (male) connectors : CN5-D37M
Set of five 78-pin D-SUB (male) connectors : CN5-D78M

# Specification

## COM-2(PCI)H

| Item | Specification |
|---|---|
| Number of channels | 2 channels |
| Interface type | RS-232C |
| 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 | 3.3VDC 100mA (Max.) (JP1 pins 1 and 2 connected) *4<br>5VDC 100mA (Max.) (JP1 pins 2 and 3 connected) *4 |
| Operating temperature | 0 - 50°C, 10 - 90%RH (No condensation) |
| PCI bus specification | 32-bit, 33MHz, Universal key shapes supported *4 |
| Dimension (mm) | 121.69(L) x 105.68(H) *4 |
| Weight | 100g |

*1 These items can be set by software.
For the "API Function 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 interrupt signals from individual channels are arranged into a single interrupt signal and connected to the PCI bus.

*4 Boards with different board numbers are different in these specifications. See Table 6.4 "Different in the specification" at the end of this document.

## COM-4(PCI)H

| Item | Specification |
|---|---|
| Number of channels | 4 channels |
| Interface type | RS-232C |
| 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 | 3.3VDC 150mA (Max.) (JP1 pins 1 and 2 connected) *4<br>5VDC 150mA (Max.) (JP1 pins 2 and 3 connected) *4 |
| Operating temperature | 0 - 50°C, 10 - 90%RH (No condensation) |
| PCI bus specification | 32-bit, 33MHz, Universal key shapes supported *4 |
| Dimension (mm) | 121.69(L) x 105.68(H) *4 |
| Weight | 130g |

*1 These items can be set by software.
For the "API Function 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 interrupt signals from individual channels are arranged into a single interrupt signal and connected to the PCI bus.

*4 Boards with different board numbers are different in these specifications. See Table 6.4 "Different in the specification" at the end of this document.

## COM-8(PCI)H

| Item | Specification |
|---|---|
| Number of channels | 8 channels |
| Interface type | RS-232C |
| 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 | 8 bits x 64 ports boundary |
| Power consumption | 3.3VDC 250mA (Max.) (JP1 pins 1 and 2 connected) *4<br>5VDC 250mA (Max.) (JP1 pins 2 and 3 connected) *4 |
| Operating temperature | 0 - 50°C, 10 - 90%RH (No condensation) |
| PCI bus specification | 32-bit, 33MHz, Universal key shapes supported *4 |
| Dimension (mm) | 121.69(L) x 105.68(H) *4 |
| Weight | 140g |

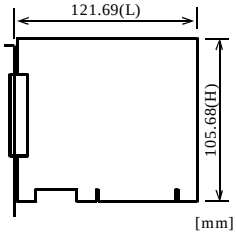
*1 These items can be set by software.
For the "API Function Library API-PAC(W32)" and the "Standard COM Driver Software COM Setup Disk" on the supplied CD-ROM, the range is 15 - 921,600 bps.

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

*4 Boards with different board numbers are different in these specifications. See Table 6.4 "Different in the specification" at the end of this document.

## Board Dimensions
## [COM-2(PCI)H, COM-4(PCI)H, COM-8(PCI)H]




The standard outside dimension (L) is the distance from the end of the board to the outer surface of the slot cover.
The Board No. is described above the board.

## Support Software

You should use CONTEC support software according to your purpose and development environment.
Standard COM Driver Software COM Setup Disk 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 XP, 2000, NT, Me, 98, etc.. |

**▼CAUTION**

The maximum number of COM ports able to be used depends on the configuration of your OS.

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 to supply the updated drivers and differential files.
For details, visit the CONTEC's Web site.
< Operating environment >

| | |
|---|---|
| OS | Windows XP, 2000, NT, Me, 98, etc.. |
| Adaptation language | Visual C/C++, Visual Basic, Delphi, Builder, etc.. |
| Others | Each piece of library software requires 50 megabytes of free hard disk space. |

**▼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.).

## External Connection

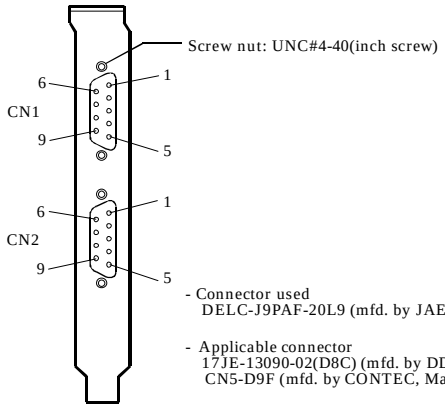
This chapter describes the interface connectors on the board.
Check the information available here when connecting an external device.
In addition to connecting directly to the connector on the board, you can also connect external devices via a connection conversion cable or connection conversion unit.
- Connecting directly to the port connector.
- Using a connection conversion cable
  (COM-4(PCI)H, COM-8(PCI)H)
- Using a connection conversion unit
  (COM-4(PCI)H, COM-8(PCI)H)

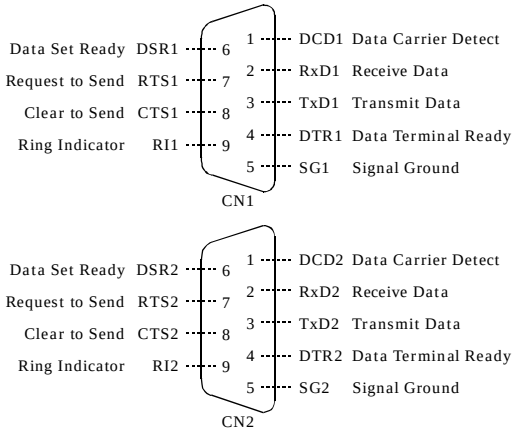
### In the case of COM-2(PCI)H

#### ◆Connecting directly to the port connector

If connecting an external device directly from the connector on the board, use a cable purchased separately. If making your own cable, use a CN5-D9F or equivalent connector.

**■ Pin Assignment**




Cable (Option)

| | |
|---|---|
| RS-232C Straight Cable with D-SUB9P (1.8m) | RSS-9M/F |
| RS-232C Cross Cable with D-SUB9P (1.8m) | RSC-9F |

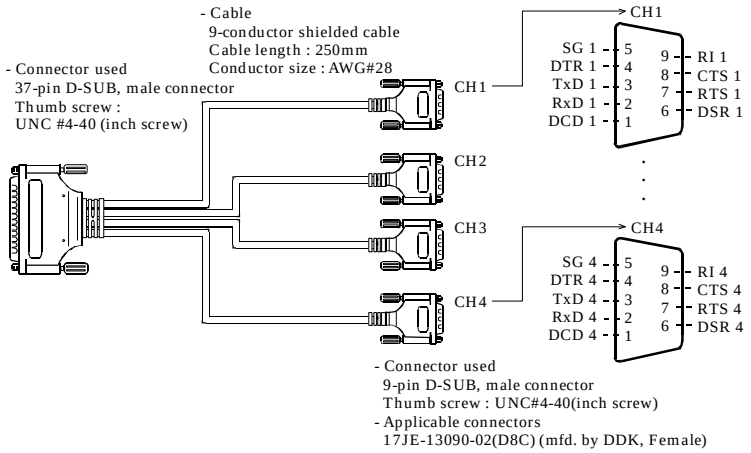
### In the case of COM-4(PCI)H

When using a COM-4(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.

### ◆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.

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




### ■Connection conversion cable (Option)

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

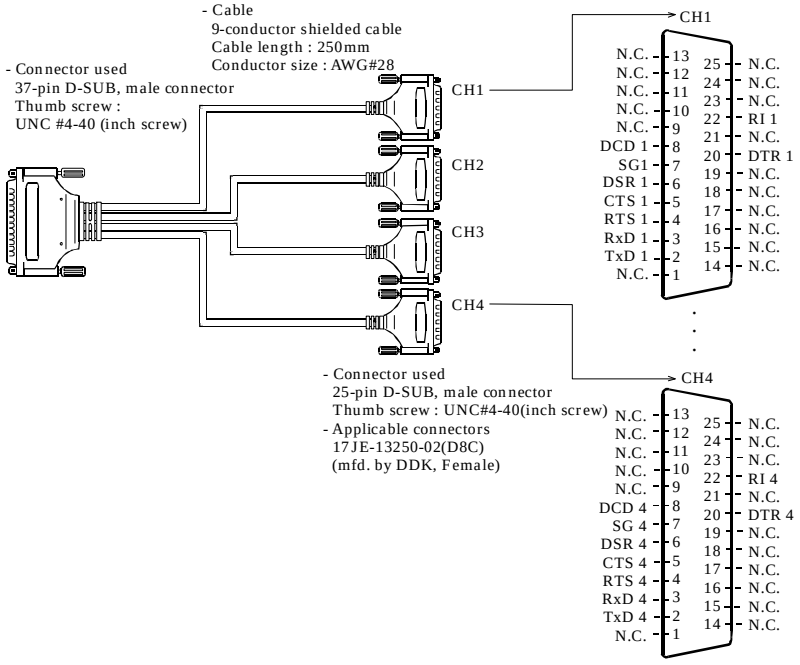
### ■Cable (Option)

| | |
|---|---|
| RS-232C Straight Cable with D-SUB9P (1.8m) | RSS-9M/F |
| RS-232C Cross Cable with D-SUB9P (1.8m) | RSC-9F |

### ◆Converting the Interface Connector to 25-pin D-SUB, Male Connectors

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.




### ■Connection conversion cable (Option)

| | |
|---|---|
| Connection Conversion Cable (37M 25M x 4, 250mm) | PCE37/25PS |
| Connection Conversion Cable for RS-232C (37M 25M x 4, 450mm) | COM-4M CABLE(PC)1 |

### ■Cable (Option)

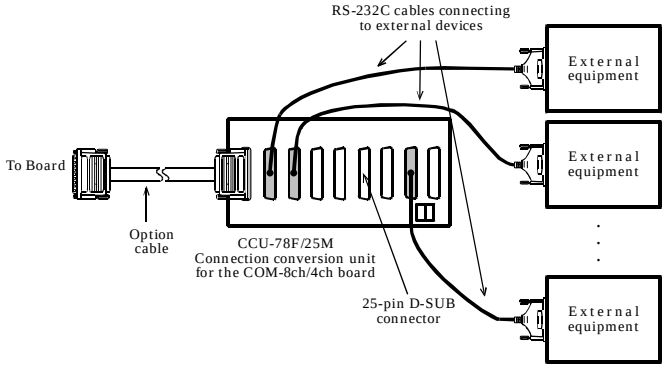
| | |
|---|---|
| RS-232C Straight Cable with D-SUB25P (1.8m) | RSS-25M/F |
| RS-232C Cross Cable with D-SUB25P (1.8m) | RSC-25F |
| RS-232C Connection Conversion Straight Cable (25M 9F, 1.8m) | RSS-25M/9F |
| RS-232C Connection Conversion Straight Cable (25F 9M, 1.8m) | RSS-25F/9M |
| RS-232C Connection Conversion Cross Cable (25F 9F, 1.8m) | RSC-25F/9F |

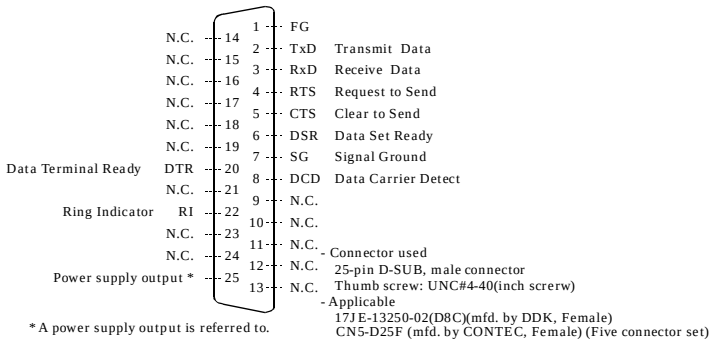
### ◆When using the CCU-78F/25M connection conversion unit

Use a CCU-78F/25M connection conversion unit (purchased separately) to connect to external devices after dividing into four 25-pin D-SUB male connector channels.

This method has the following features.

- The unit can be fitted to a DIN rail using a separately purchased ADP-1 DIN rail adapter.
- The unit can be fitted to a wall or similar using screws.
- By connecting an external power supply, the unit can output a power supply from the 25-pin D-SUB connector. Use a separately purchased 25-pin D-SUB connector cable to connect from the four individual connectors.




### ■Connection conversion cable & connection conversion unit (Option)

| | |
|---|---|
| Connection Conversion Unit for RS-232C(78P 25P x 8) | CCU-78F/25M |
| COM-4ch Board Optional Cable for CCU-78F/25M (2m) | RSS-78M/37M |

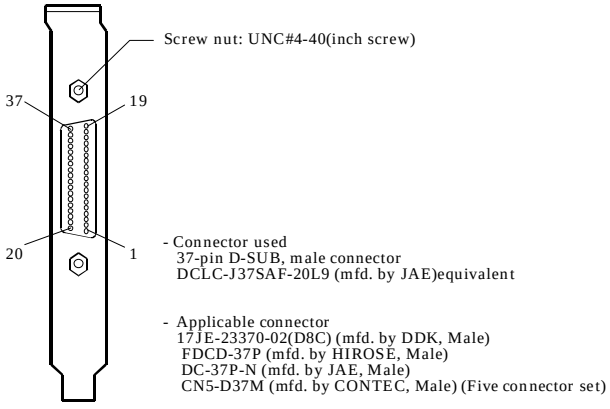
### ■Connection cable (Option)

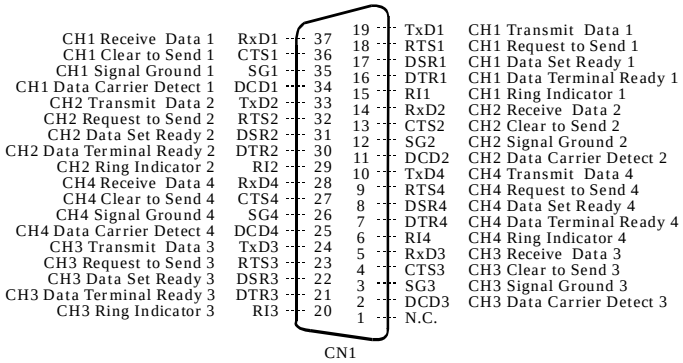
| | |
|---|---|
| RS-232C Straight Cable with D-SUB25P (1.8m) | RSS-25M/F |
| RS-232C Cross Cable with D-SUB25P (1.8m) | RSC-25F |
| RS-232C Connection Conversion Straight Cable (25M 9F, 1.8m) | RSS-25M/9F |
| RS-232C Connection Conversion Straight Cable (25F 9M, 1.8m) | RSS-25F/9M |
| RS-232C Connection Conversion Cross Cable (25F 9F, 1.8m) | RSC-25F/9F |

### ◆Connecting directly to the port connector

If connecting an external device directly from the connector on the board, use a CN5-D9F or equivalent connector.

### ■Pin Assignment



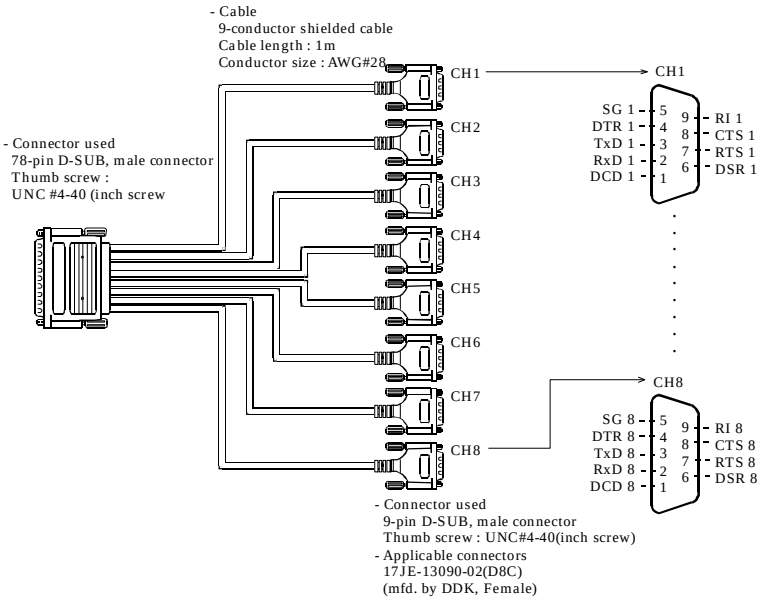
### In the case of COM-8(PCI)H

When using a COM-8(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.

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

Use a PCE78/9PS connection conversion cable (purchased separately) to connect to external devices after dividing into eight 9-pin D-SUB male connector channels.

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




### ■Connection conversion cable (Option)

Connection Conversion Cable (78P 25P x 8) PCE78/9PS

### ■Connection cable (Option)

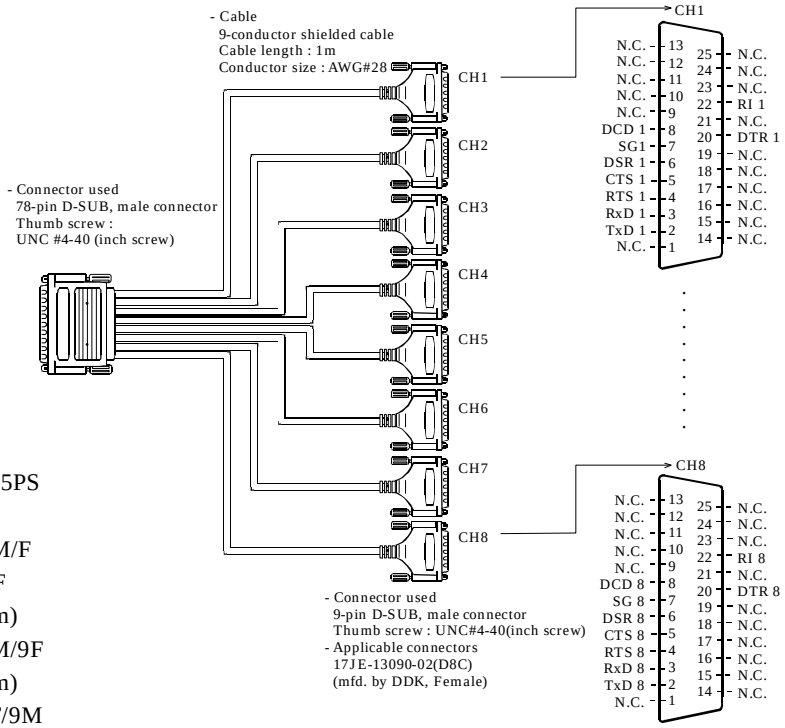
RS-232C Straight Cable with D-SUB9P (1.8m) RSS-9M/F

RS-232C Cross Cable with D-SUB9P (1.8m) RSC-9F

### ◆Converting the Interface Connector to 25-pin D-SUB, Male Connectors

Use a PCE78/25PS connection conversion cable (purchased separately) to connect to external devices after dividing into eight 25-pin D-SUB male connector channels.

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




### ■Connection conversion cable (Option)

Connection Conversion Cable (78P 25P x 8) PCE78/25PS

### ■Connection cable (Option)

RS-232C Straight Cable with D-SUB25P (1.8m) RSS-25M/F

RS-232C Cross Cable with D-SUB25P (1.8m) RSC-25F

RS-232C Connection Conversion Straight Cable (25M 9F, 1.8m) RSS-25M/9F

RS-232C Connection Conversion Straight Cable (25F 9M, 1.8m) RSS-25F/9M

RS-232C Connection Conversion Cross Cable (25F 9F, 1.8m) RSC-25F/9F

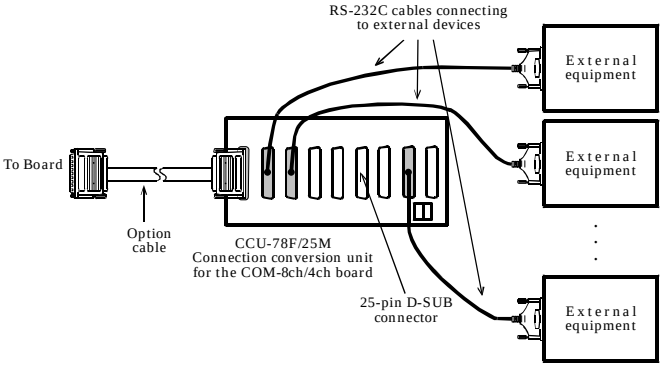
**When using the CCU-78F/25M connection conversion unit**

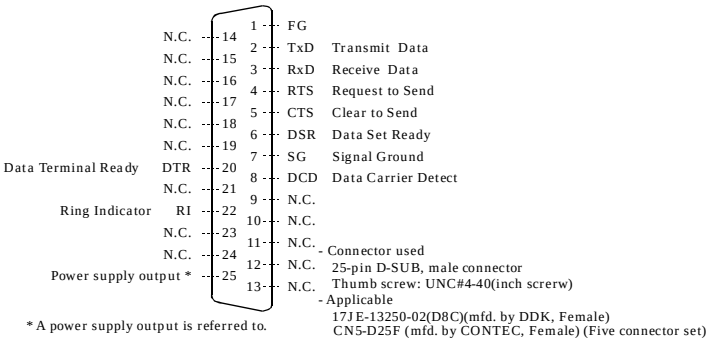
Use a CCU-78F/25M connection conversion unit (purchased separately) to connect to external devices after dividing into eight 25-pin D-SUB male connector channels.

This method has the following features.

- The unit can be fitted to a DIN rail using a separately purchased ADP-1 DIN rail adapter.
- The unit can be fitted to a wall or similar using screws.
- By connecting an external power supply, the unit can output a power supply from the 25-pin D-SUB connector.

Use a separately purchased 25-pin D-SUB connector cable to connect from the eight individual connectors.




## ■Connection conversion cable & connection conversion unit (Option)

| | |
|---|---|
| Connection Conversion Unit for RS-232C(78P 25P x 8) | CCU-78F/25M |
| COM-8ch Board Optional Cable for CCU-78F/25M (2m) | RSS-78M |

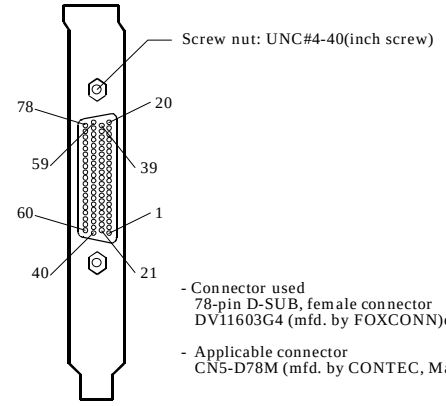
## ■Connection cable (Option)

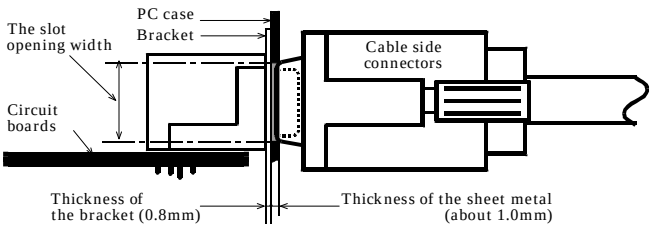
| | |
|---|---|
| RS-232C Straight Cable with D-SUB25P (1.8m) | RSS-25M/F |
| RS-232C Cross Cable with D-SUB25P (1.8m) | RSC-25F |
| RS-232C Connection Conversion Straight Cable (25M 9F, 1.8m) | RSS-25M/9F |
| RS-232C Connection Conversion Straight Cable (25F 9M, 1.8m) | RSS-25F/9M |
| RS-232C Connection Conversion Cross Cable (25F 9F, 1.8m) | RSC-25F/9F |

## ◆Connecting directly to the port connector

If connecting an external device directly from the connector on the board, use a CN5-D78M or equivalent connector.

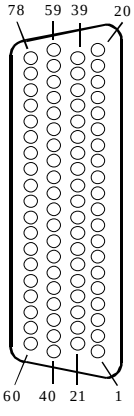
## ■Pin Assignment




The connector used for COM8-(PCI)H has a wide interpin space and is highly reliable. In the case of a PC with a narrow slot opening, a gap might be created as wide as the thickness of the sheet metal of the PC when an external cable is connected, preventing the connector from being fitted properly. If the thickness of the sheet metal is less than 1.5mm (typically about 1.0mm), simply tighten the adjusting screw located on the side of the connector to install it properly. The connector should function without a problem.

| Pin No. | Signal name | Pin No. | Signal name |
|---|---|---|---|
| 78 | N.C. | 59 | DSR 1 |
| 77 | SG 1 | 58 | DCD 1 |
| 76 | N.C. | 57 | RI 1 |
| 75 | SG 2 | 56 | DCD 2 |
| 74 | RI 2 | 55 | DTR 2 |
| 73 | N.C. | 54 | DSR 3 |
| 72 | SG 3 | 53 | DCD 3 |
| 71 | DSR 4 | 52 | RI 3 |
| 70 | SG 4 | 51 | DCD 4 |
| 69 | RI 4 | 50 | DTR 4 |
| 68 | SG 5 | 49 | DCD 5 |
| 67 | RI 5 | 48 | DTR 5 |
| 66 | N.C. | 47 | DSR 6 |
| 65 | SG 6 | 46 | DCD 6 |
| 64 | N.C. | 45 | RI 6 |
| 63 | SG 7 | 44 | DCD7 |
| 62 | RI 7 | 43 | DTR 7 |
| 61 | N.C. | 42 | DSR 8 |
| 60 | SG 8 | 41 | DCD 8 |
| | | 40 | RI 8 |

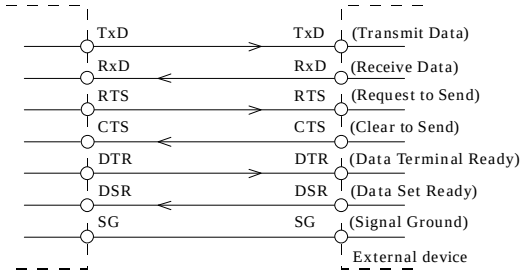



| Pin No. | Signal name | Pin No. | Signal name |
|---|---|---|---|
| 39 | RTS 1 | 20 | TxD 1 |
| 38 | CTS 1 | 19 | RxD 1 |
| 37 | DSR 2 | 18 | DTR 1 |
| 36 | RTS 2 | 17 | TxD 2 |
| 35 | CTS 2 | 16 | RxD 2 |
| 34 | RTS 3 | 15 | TxD 3 |
| 33 | CTS 3 | 14 | RxD 3 |
| 32 | RTS 4 | 13 | DTR 3 |
| 31 | CTS 4 | 12 | TxD 4 |
| 30 | DSR 5 | 11 | RxD 4 |
| 29 | RTS 5 | 10 | TxD 5 |
| 28 | CTS 5 | 9 | RxD 5 |
| 27 | RTS 6 | 8 | TxD 6 |
| 26 | CTS 6 | 7 | RxD 6 |
| 25 | DSR 7 | 6 | DTR 6 |
| 24 | RTS 7 | 5 | TxD 7 |
| 23 | CTS 7 | 4 | RxD 7 |
| 22 | RTS 8 | 3 | TxD 8 |
| 21 | CTS 8 | 2 | RxD 8 |
| | | 1 | DTR 8 |

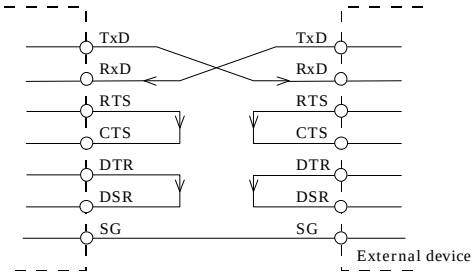
## Types of Cable and Example Connections

The connector used for COM8-(PCI)H has a wide interpin space and is highly reliable. In the case of a PC with a narrow slot opening, a gap might be created as wide as the thickness of the sheet metal of the PC when an external cable is connected, preventing the connector from being fitted properly. If the thickness of the sheet metal is less than 1.5mm (typically about 1.0mm), simply tighten the adjusting screw located on the side of the connector to install it properly. The connector should function without a problem.

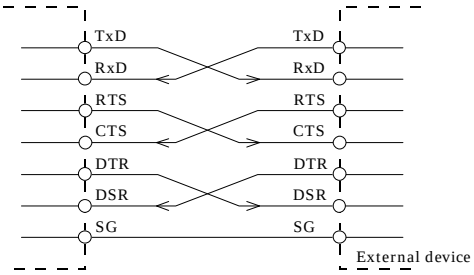
### Example Connection to a Modem (Straight cable)




### Example Connection to a Device




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




## Differences to the COM-2(PCI), COM-4(PCI), and COM-8(PC)

The COM-2(PCI)H, COM-4(PCI)H, and COM-8(PCI)H boards are an enhancement of the previous COM-2(PCI), COM-4(PCI), and COM-8(PCI) board models and are upwardly compatible with the COM-xx(PCI) boards. Accordingly, the boards can generally be used in the same way as the COM-xx(PCI) boards.
There are some differences in the specifications.
Please refer to the EXAR Corporation data sheet for details about the LSI used on the boards.

COM-2(PCI)H

| | COM-2(PCI) | COM-2(PCI)H |
|---|---|---|
| Baud rate | 230.4kbps | 921.6kbps |
| FIFO buffer for transmission and reception | 16-byte | 128-byte |
| Controller chip | 16552 or equivalent | 162850 or equivalent |

COM-4(PCI)H

| | COM-4(PCI) | COM-4(PCI)H |
|---|---|---|
| Baud rate | 230.4kbps | 921.6kbps |
| FIFO buffer for transmission and reception | 16-byte | 128-byte |
| Boards in one system | Maximum of 8 boards can be install in a same system. | Maximum of 16 boards can be install in a same system. |
| Controller chip | 16552 or equivalent | 162850 or equivalent |

COM-8(PCI)H

| | COM-8(PCI) | COM-8(PCI)H |
|---|---|---|
| Baud rate | 230.4kbps | 921.6kbps |
| FIFO buffer for transmission and reception | 64-byte | 128-byte |
| Controller chip | 16554 or equivalent | 162850 or equivalent |

## Differences between the COM-2(PCI)H, COM-4(PCI)H and COM-8(PCI)H

The COM-2(PCI)H, COM-4(PCI)H, and COM-8(PCI)H are different in specifications, depending on the board number as listed below.

COM-2(PCI)H

| Board No. | No.7189 | No.7189A | No.7189B |
|---|---|---|---|
| PCI bus specification | 32bit, 33MHz, 5V | 32bit, 33MHz,<br>Universal key shapes supported<br>(5 V is supplied to the 5V pin.) | 32bit, 33MHz,<br>Universal key shapes supported<br>(Power voltage is set by jumper.) |
| Power voltage setting jumper (JP1) | Absent | Absent | Present |
| Power consumption | 5VDC 250mA(Max.) | 5VDC 250mA(Max.) | 3.3VDC 100mA (Max.)<br>5VDC 100mA (Max.) |
| External dimension | 121.69(L) x 106.68(H) | 121.69(L) x 105.68(H) | 121.69(L) x 105.68(H) |

COM-4(PCI)H

| Board No. | No.7190 | No.7190A | No.7190B |
|---|---|---|---|
| PCI bus specification | 32bit, 33MHz, 5V | 32bit, 33MHz,<br>Universal key shapes supported<br>(5 V is supplied to the 5V pin.) | 32bit, 33MHz,<br>Universal key shapes supported<br>(Power voltage is set by jumper.) |
| Power voltage setting jumper (JP1) | Absent | Absent | Present |
| Power consumption | 5VDC 500mA(Max.) | 5VDC 500mA(Max.) | 3.3VDC 150mA (Max.)<br>5VDC 150mA (Max.) |
| External dimension | 121.69(L) x 106.68(H) | 121.69(L) x 105.68(H) | 121.69(L) x 105.68(H) |

COM-8(PCI)H

| Board No. | No.7191A | No.7191B | No.7191C |
|---|---|---|---|
| PCI bus specification | 32bit, 33MHz, 5V | 32bit, 33MHz,<br>Universal key shapes supported<br>(5 V is supplied to the 5V pin.) | 32bit, 33MHz,<br>Universal key shapes supported<br>(Power voltage is set by jumper.) |
| Power voltage setting jumper (JP1) | Absent | Absent | Present |
| Power consumption | 5VDC 600mA(Max.) | 5VDC 600mA(Max.) | 3.3VDC 250mA (Max.)<br>5VDC 250mA (Max.) |
| External dimension | 121.69(L) x 106.68(H) | 121.69(L) x 105.68(H) | 121.69(L) x 105.68(H) |