CONTEC

PC-HELPER Series

Reference Manual

RS-232C 1ch Serial I/O Board for Low Profile PCI

COM-1(LPCI)H

RS-232C 2ch Serial I/O Board for Low Profile PCI

COM-2(LPCI)H

RS-232C 4ch Serial I/O Board for Low Profile PCI

COM-4(LPCI)H

RS-232C 8ch Serial I/O Board for Low Profile PCI

COM-8C-LPE

CONTENTS

CONTEC CO., LTD.

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Table of Contents

Introduction

This section provides necessary information of the product such as the outline, bundled items and manuals before actual use.

1.Related Manuals

The manuals related to the product are listed below.

Read them as necessary along with this document.

◆ Must Read the Followings.

Name	Purpose	Contents	How to get
Please read the following	Must read this after opening the package.	This introduces related materials that are made available on the CONTEC website, such as those for the included items, manuals, and software.	Included in the package (Printed matter)
Reference Manual (This Document)	Read this when operating the product.	This describes the hardware aspects such as functions and settings.	Download from the Contec website (PDF)

◆ Download Manuals

Download the manuals accordingly from the following URL.

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

2.About the Product

This product is a PCI bus-supported board of Low Profile size designed for extending RS-232C compatible serial communication functionality on your PC.

COM-1(LPCI)H has one RS-232C communication port.

COM-2(LPCI)H has two RS-232C communication ports.

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

COM-8C-LPCI has eight RS-232C 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.

3.Features

■ Max. 921,600bps RS-232C Serial Communication

The COM ports of this product support up to 921,600 bps.
COM-1(LPCI)H has one RS-232C-standard serial port.
COM-2(LPCI)H has two RS-232C-standard serial ports.
COM-4(LPCI)H has four RS-232C-standard serial ports.
COM-8C-LPCI has eight RS-232C-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.
In addition, supplies a diagnostic program to confirm hardware operation and to perform a communication test with equipment.

■ 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 product use the same easy-to-use 9-pin D-SUB connectors as are used on a PC (For COM-1(LPCI)H only)

Using the most versatile general-purpose 9-pin D-SUB connector for RS-232C, the product allows you to use commercial cables which support the RS-232C standard.

■ Support for Low Profile size slot / standard size slot (bundled with bracket)

Bundled with each bracket for Low Profile size slot / standard size slot. Exchanges it for the standard size bracket when mounting on the standard size slot.

■ Conversion cable is available as optional

COM-2(LPCI)H : Distribution cable for 2channels is available as optional.
COM-4(LPCI)H : Distribution cable for 4channels is available as optional.
COM-8C-LPCI : Distribution cable for 8channels is available as optional.

■ 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.

4.Product Configuration List

The product consists of the items listed below.

Check, with the following list, that your package is complete.

If you discover damaged or missing items, contact your retailer.
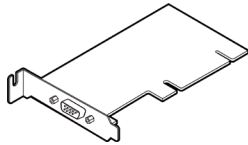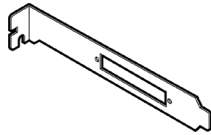
Product...1   Standard Size   Please read the
                           Bracket...1   following...1
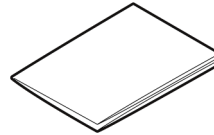
5.Support Software

You can use CONTEC support software according to your purpose and development environment.

For more details on the supported OS, applicable languages, or to download the latest version of software, visit the CONTEC Web site.

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.

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

6.Optional Products

Optional product items are as follows:

Use these items with the main product as necessary.

COM-2(LPCI)H

Product Name	Model type	Description
Connection Conversion Cable for Serial I/O (44P→9Px2)	PCE44/9P2S	

COM-4(LPCI)H

Product Name	Model type	Description
Connection Conversion Cable for Serial I/O (44P→9Px4)	PCE44/9P4S	

COM-8C-LPCI

Product Name	Model type	Description
Connection Conversion Cable for RS-232C (68Pin→9Pin×8)	PCE68-9PS	

Visit the CONTEC website for the latest optional products.

Website　https://www.contec.com/

Safety Precautions

Understand the following definitions and precautions to use the product safely.
Never fail to read them before using the product.

1.Safety Information

This document provides safety information using the following symbols to prevent accidents resulting in injury or death and the destruction of equipment and resources.

Understand the meanings of these labels to operate the equipment safely.

⚠DANGER	Signal word used to indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠WARNING	Signal word used to indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	Signal word used to indicate a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

2.Handling Precautions

⚠ DANGER

Do not use the product in locations exposed to a flammable or corrosive gas.
It may cause explosion, fire, electrical shock, or malfunction.

⚠ CAUTION

- There are switches and jumpers on this product that need to be set in advance. Be sure to check these before installing this product.
- Only set the switches and jumpers on this product to the specified settings. Otherwise, this product may malfunction, overheat, or cause a failure.
- Do not strike or bend this product. Otherwise, this product may malfunction, overheat, cause a failure or breakage.
- This product contains precision electronic elements and must not be used or store in locations subject to physical shock or strong vibration. Otherwise, this product may malfunction, overheat, cause a failure or breakage.
- Do not use or store this product in high temperature or low temperature surroundings, or do not expose it to extreme temperature changes. Otherwise, this product may malfunction, overheat, cause a failure or breakage.
- Do not use or store this device where it is exposed to direct sunlight or near stoves or other sources of heat. Otherwise, this product may malfunction, overheat, cause a failure or breakage.
- Do not use or store the product in the vicinity of devices that generate strong magnetic force or noise. Otherwise, this product may malfunction, overheat, cause a failure or breakage.
- Do not touch this product's metal plated terminals (edge connector) with your hands. Otherwise, this product may malfunction, overheat, or cause a failure. If the terminals are touched by someone's hands, clean the terminals with industrial alcohol.
- As this product contains components that are designed to operate at high temperature, please do not touch this product when it is in use.
- Do not install this product to the expansion slot and do not plug or unplug the cables which are connected to this product while the PC or expansion unit is still turned on. Otherwise, this product may malfunction, overheat, or cause a failure. Be sure that the personal computer power is turned off.
- Do not touch the external connector when the power is on. Otherwise, this may malfunction, cause a failure due to static electricity.
- Make sure that your PC or expansion unit can supply ample power to all the products installed. Insufficiently energized products could malfunction, overheat, or cause a failure.

- The specifications of this product are subject to change without notice for enhancement and quality improvement. Even when using the product continuously, be sure to read the manual on the website and understand the contents.
- Do not modify the product. CONTEC will bear no responsibility for any problems, etc., resulting from modifying the product.
- Regardless of the foregoing statements, CONTEC is not liable for any damages whatsoever (Including damages for loss of business profits) arising out of the use or inability to use this CONTEC product or the information contained herein.

3.Environment

Use this product in the following environment. If used in an unauthorized environment, this product may overheat, malfunction, or cause a failure.

Operating temperature

0 - 50°C

Humidity

10 - 90%RH (No condensation)

Corrosive gases

None

Floating dust particles

Not to be excessive

4.Inspection

Inspect the product periodically as follows to use it safely.

Check that the connector of the board and its cable have been plugged correctly.

Check that the board has no dust or foreign matter adhering.

The gold-plated leads of the bus connector have no stain or corrosion.
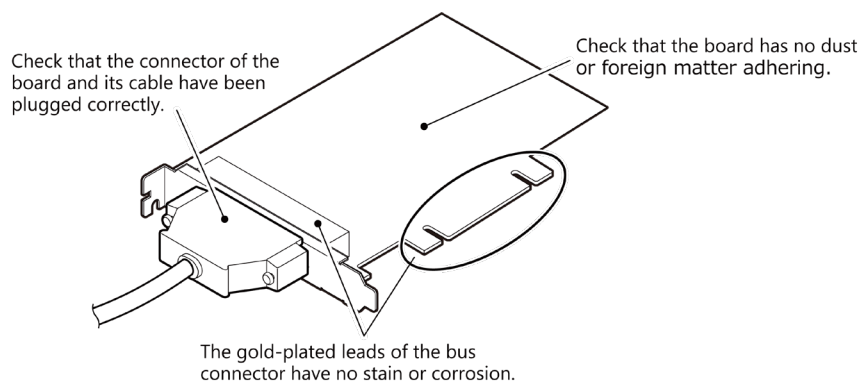
5.Storage

When storing this product, keep it in its original packing form.

- Put this product in the storage bag.
- Wrap it in the packing material, and then put it in the box.
- Store the package at room temperature at a place free from direct sunlight, moisture, shock, vibration, magnetism, and static electricity.

6.Disposal

When disposing of the product, follow the disposal procedures stipulated under the relevant laws and municipal ordinances.

Setup

This section explains how to set up this product.

1.What is Setup?

Setup means a series of steps to take before the product can be used.
Different steps are required for device driver and hardware.

The setup procedure will depend on your combination of OS and device driver. For details, refer to the help for the device driver you will use. This section describes the procedure to start the application program development using the Windows version of the device driver COM-DRV(WDM).

The basic procedure is also the same when using the Linux Driver for Serial Communication Board. However, the installation procedure for the device driver and some other steps are different. For details, refer to Linux driver help for serial communication boards.

Online Help [COM-DRV(LNX)]
https://help.contec.com/link/drv/lnx/com/en/

1. Setup Instructions

Taking the following steps sets up the device driver. You can use the diagnosis program later to check whether the setup function normally.

> **Step 1　Device driver Installation (page20)**
> **Step 2　Hardware Setting (page21)**
> **Step 3　Hardware Installation (page23)**
> **Step 4　Device driver Initialization (page25)**
> **Step 5　Operation Check (page26)**

If Setup fails to be performed properly, see the "**Setup Troubleshooting (page27)**" section at the end of this chapter.

2.Device driver Installation

This manual describes how to install the Windows device driver.
Before connecting this product to a PC, install the device driver.

Download the "Device driver COM-DRV(WDM)" from the CONTEC website.

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

For the device driver installation procedure, refer to the help included in the development environment package you downloaded from the CONTEC website or "Installing Device Driver" in the online help made available on the CONTEC website.

Online Help [Installing Device Driver]
https://help.contec.com/link/drv/wdm/com/install/en/

3.Hardware Setting

This section describes how to set up the product and how to connect it to a PC.

1. Nomenclature of Product Components

Component names of the product are shown in the figure below.

◆ COM-1(LPCI)H
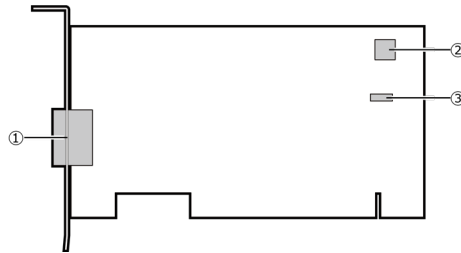
No.	Name
1	Interface Connector (CN1)
2	Board ID Setting Switch (SW1)
3	PCI bus slot power voltage setting jumper (JP1)

◆ COM-2(LPCI)H
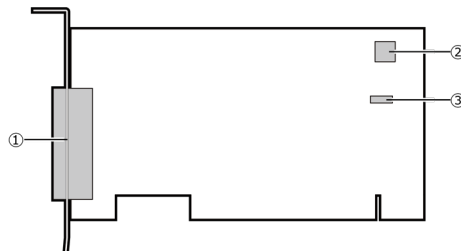
No.	Name
1	Interface Connector (CN1)
2	Board ID Setting Switch (SW1)
3	PCI bus slot power voltage setting jumper (JP1)

◆ COM-4(LPCI)H
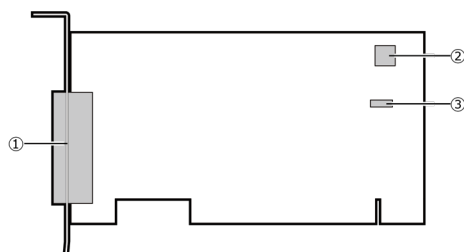
No.	Name
1	Interface Connector (CN1)
2	Board ID Setting Switch (SW1)
3	PCI bus slot power voltage setting jumper (JP1)

◆ COM-8C-LPCI
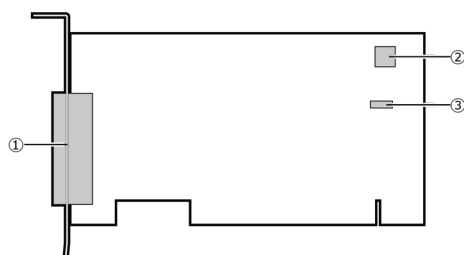
No.	Name
1	Interface Connector (CN1)
2	Board ID Setting Switch (SW1)
3	PCI bus slot power voltage setting jumper (JP1)

2. Board ID Setting Switch

If two or more products of the same model are installed in one PC, set each product to a unique value. The board IDs can be set from 0 - Fh to identify up to sixteen products.

If only one product is used, the original factory setting (Board ID = 0) should be used.
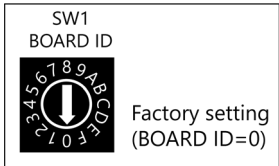
3. Setting the Supply Voltage

Some PCI bus slots on the PC may supply power only at 3.3 V, where 5 V power is not available.   In that case, change the supply voltage of the board before use.

When 5 V power is supplied, set the JP1 to the 2-3 connected state (factory default).   If 5 V power is not supplied, set the JP1 to the 1-2 connected state.

If outputting 5V power supply	If not outputting 5V power supply

4. Replacing the Bracket

This board is shipped with a Low Profile size bracket mounted. To plug the board into a standard size slot, replace the bracket with the bundled standard size bracket. The replacing method is as follows :
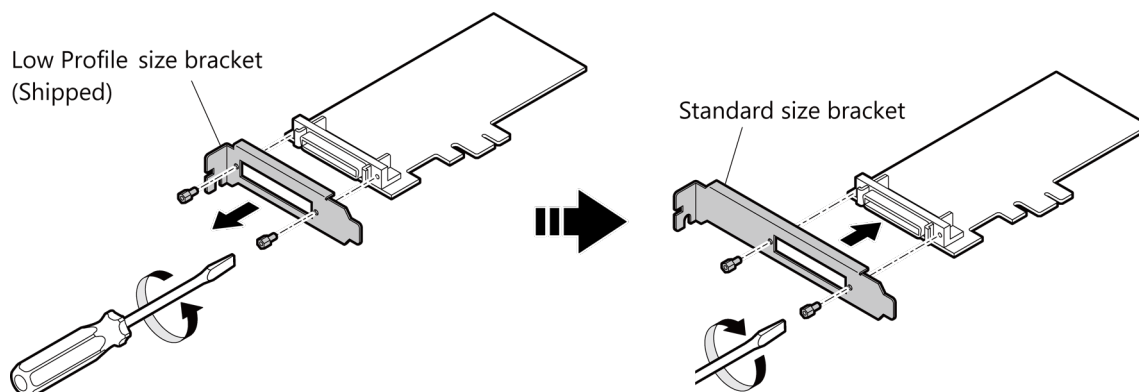
4.Hardware Installation

On a PC in a Windows environment, the peripherals need to be recognized by the OS. This is called hardware installation. **When using multiple products, install one product at a time. Complete the setup of the product before starting to install the next one.**

1 Before plugging the product, shut down the system, unplug the power code of your PC.

2 Remove the cover from the PC so that the product can be mounted.
Plug the product into an expansion slot.

3 Put the cover back into place.

4 Turn on the power to your PC.

5 **After the OS finishes booting, the hardware will be automatically identified and the hardware installation will be complete.**

⚠ CAUTION

- Do not touch the product's metal plated terminals (edge connector) with your hands.
  Otherwise, the product may malfunction, overheat, or cause a failure.
  If the terminals are touched by someone's hands, clean the terminals with industrial alcohol.
- Do not install or remove the product to or from the slot while the computer's power is turned on. Otherwise, the product may malfunction, overheat, or cause a failure.
  Doing so could cause trouble. Be sure that the personal computer or the I/O expansion unit power is turned off.
- Make sure that your PC or expansion unit can supply ample power to all the products installed. Insufficiently energized boards could malfunction, overheat, or cause a failure.
- The product cannot be properly installed unless the resources (I/O addresses and interrupt level) for the product can be allocated. Before attempting to install the product, first determine what PC resources are free to use.

5.Device driver Initialization

The COM port has already been assigned when installing the device driver.

How to check or change the COM port, or to configure the communication settings for the COM port, refer to the help included in the development environment package you downloaded from the CONTEC website or "**Checking and Changing COM Port**" in the online help made available on the CONTEC website.

Online Help [Checking and Changing COM Port]
  https://help.contec.com/link/drv/wdm/com/devicename/en/

⚠ CAUTION

The COM ports of this product are assigned to COM ports not in use as determined by the operating system, not the Contec device driver.

Therefore, depending on your operating environment, COM ports may not be assigned in order starting from CH1 on this product.

For details on how to confirm the CH number and change the COM port number, refer to the help for the device driver.

6.Operation Check

You must make sure that this product and device driver operate properly. By taking this step, you can be certain that this product has been set up appropriately. Check operation by using the Our utility software when the confirmation device is connected.

When connecting the product to the actual device to be used, use caution so that malfunctions do not occur during the communication test.

1. Connection Method

Prepare an RS-232C cross cable, or a connector that returns communications.

When using a connector that returns communication, you can test communications on a COM port.

Refer to the following figure when connecting the connector.

For details on connection, refer to the **"Connection(Page28)"**.

Connection diagram for connector returning communications
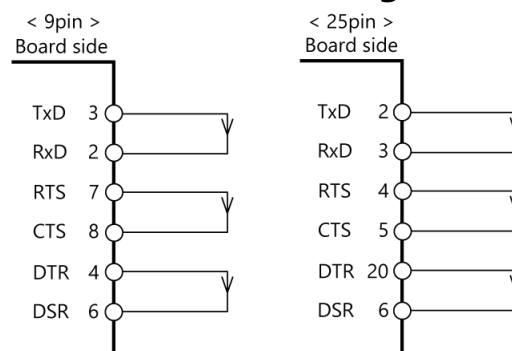
2. Details of Utility Software

COM-DRV(WDM) comes with utility software for confirming product operation and communications.

For more information on each software application and their use, refer to the help included in the development environment package, or the online help made available on the Contec website.

Online Help [List of CONTEC Diagnostic Programs]
https://help.contec.com/link/drv/wdm/com/diagnostic/en/

7.Setup Troubleshooting

1. Examples and Solution

◆ The diagnostic program works properly but the application program does not.

The diagnostic program working properly indicates that there is no problem with the device or any cables. If you have a problem, recheck your program taking note of the following points.

- Check the return values of the API functions.
- Refer to the source code for the sample programs.

◆ The OS won't normally get started or detect the device.

Refer to the device driver HELP.

◆ If your problem cannot be resolved

Contact your retailer with diagnostic report that outputted by diagnostic programs.

Connection

This section describes how to connect to an external device with a cable.

1.Connecting to an External Device

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-2(LPCI)H, COM-4(LPCI)H, COM-8C-LPCI)

1. In the case of COM-1(LPCI)H

◆ Connecting directly to the port connector

If connecting an external device directly from the connector on the board, use a cable purchased separately.

Pin Assignment

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

CN1

- Connector used
  DELC-J9PAF-20L9 (mfd. by JAE, Male) or equivalent

- Applicable connector
  17JE-13090-02(D8C) (mfd. by DDK, Female)

Data Set Ready	DSR1	6	1	DCD1	Data Carrier Detect
Request to Send	RTS1	7	2	RxD1	Receive Data
Clear to Send	CTS1	8	3	TxD1	Transmit Data
Ring Indicator	RI1	9	4	DTR1	Data Terminal Ready
			5	SG1	Signal Ground

CN1
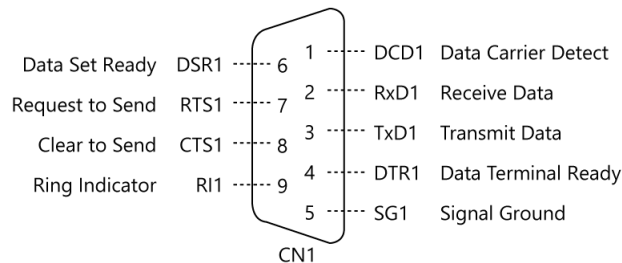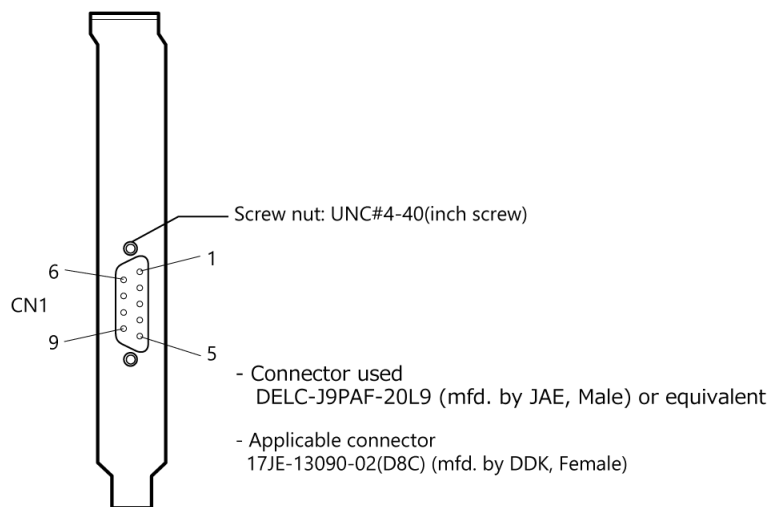
2. In the case of COM-2(LPCI)H

When using a COM-2(LPCI)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 PCE44/9P2S connection conversion cable (purchased separately) to connect to external devices after dividing into two 9-pin D-SUB male connector channels.

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

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

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

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
```

CH1

CH2

CH2
```
SG 2 – 5        9 – RI 2
DTR 2 – 4      8 – CTS 2
TxD 2 – 3      7 – RTS 2
RxD 2 – 2      6 – DSR 2
DCD 2 – 1
```

- Connector used
  9-pin D-SUB, male connector
  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 44p→9p x 2   PCE44/9P2S

◆ 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 nut: UNC#4-40(inch screw)

- Connector used
  44-pin D-SUB, female connector
  103A-44FGTBBB3 (mfd. by COXOC) or equivalent

- Applicable connector
  101A-44MGTAAA3 (mfd. by COXOC, Male)

Pin No.	Signal name	Pin No.	Signal name	Pin No.	Signal name
44	DCD1	30	DSR1	15	CTS1
43	TxD1	29	RxD1	14	RI1
42	SG	28	RTS1	13	DTR1
41	N.C.	27	N.C.	12	N.C.
40	DCD2	26	DSR2	11	CTS2
39	TxD2	25	RxD2	10	RI2
38	SG	24	RTS2	9	DTR2
37	N.C.	23	N.C.	8	N.C.
36	N.C.	22	N.C.	7	N.C.
35	N.C.	21	N.C.	6	N.C.
34	N.C.	20	N.C.	5	N.C.
33	N.C.	19	N.C.	4	N.C.
32	N.C.	18	N.C.	3	N.C.
31	N.C.	17	N.C.	2	N.C.
-----		16	N.C.	1	N.C.

CN1

3. In the case of COM-4(LPCI)H

When using a COM-4(LPCI)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.
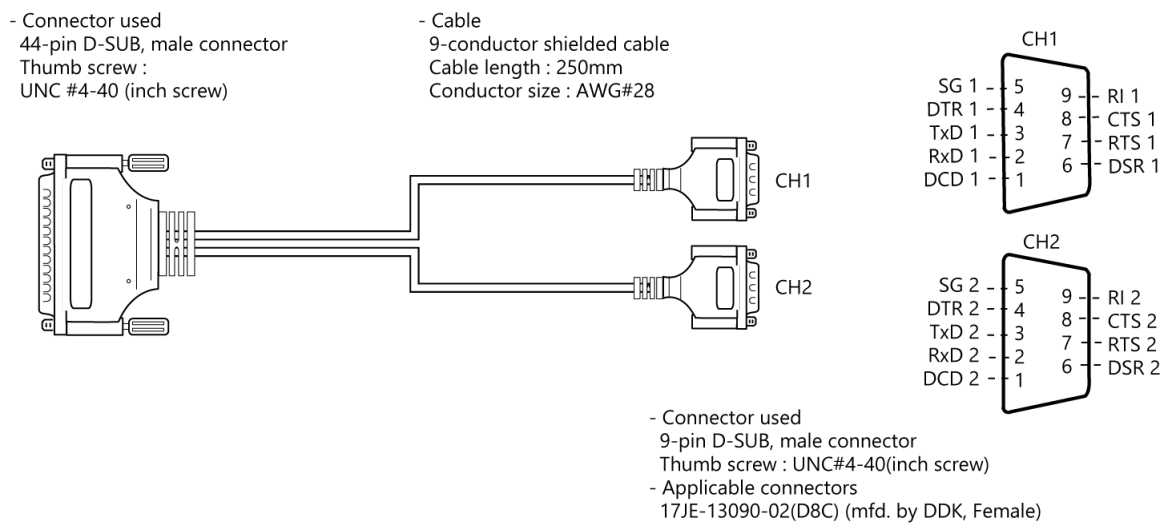
◆ Using the 9-pin D-SUB Connector Conversion Cables

Use a PCE44/9P4S 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)
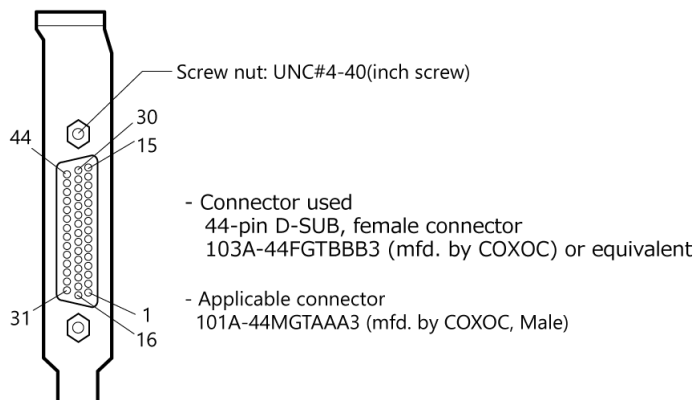
Connection Conversion Cable for Serial I/O 44p→9p x 4   PCE44/9P4S

◆ 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 nut: UNC#4-40(inch screw)

- Connector used
  44-pin D-SUB, female connector
  103A-44FGTBBB3 (mfd. by COXOC) or equivalent

- Applicable connector
  101A-44MGTAAA3 (mfd. by COXOC, Male)

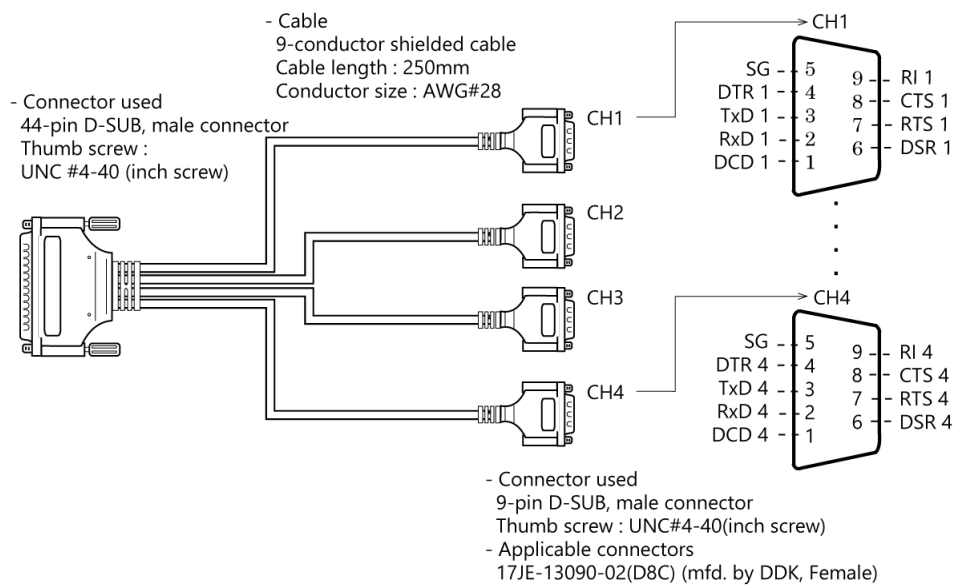| Pin No.	Signal name	Pin No.	Signal name	Pin No.	Signal name
44	DCD1	30	DSR1	15	CTS1
43	TxD1	29	RxD1	14	RI1
42	SG	28	RTS1	13	DTR1
41	N.C.	27	N.C.	12	N.C.
40	DCD2	26	DSR2	11	CTS2
39	TxD2	25	RxD2	10	RI2
38	SG	24	RTS2	9	DTR2
37	N.C.	23	N.C.	8	N.C.
36	DCD3	22	DSR3	7	CTS3
35	TxD3	21	RxD3	6	RI3
34	SG	20	RTS3	5	DTR3
33	DCD4	19	N.C.	4	N.C.
32	TxD4	18	DSR4	3	CTS4
31	SG	17	RxD4	2	RI4
-----		16	RTS4	1	DTR4

CN1

4. In the case of COM-8C-LPCI

When using a COM-8C-LPCI, 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 PCE68-9PS 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.
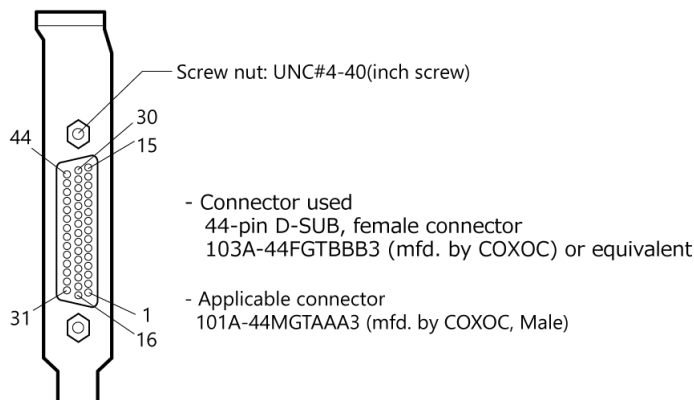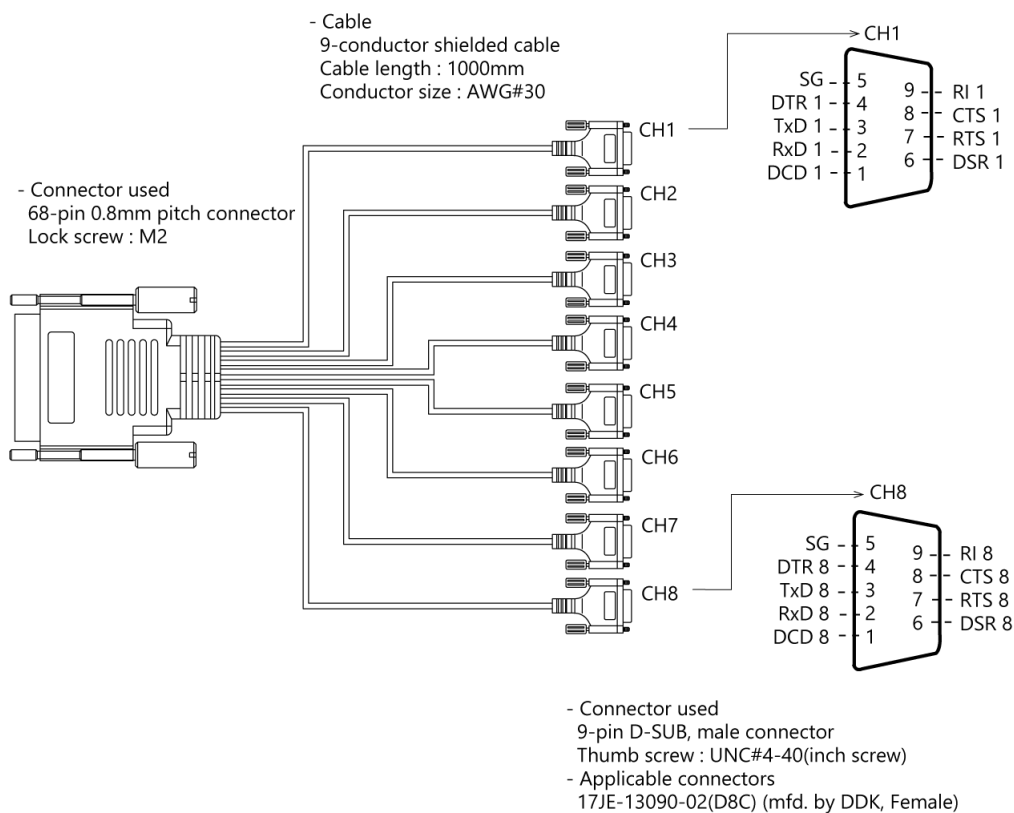

Connection conversion cable (Option)

Connection Conversion Cable for RS-232C (68Pin→9Pin x 8)   PCE68-9PS

◆ 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

Lock Screw : M2

- Connector used
  68-pin 0.8mm pitch connector
  HDRA-E68LFDT+[HONDA TSUSHIN
  KOGYO CO., LTD.] or equivalent

- Compatible connector
  HDRA-E68MA1 [HONDA TSUSHIN
  KOGYO CO., LTD.] or equivalent

CN1
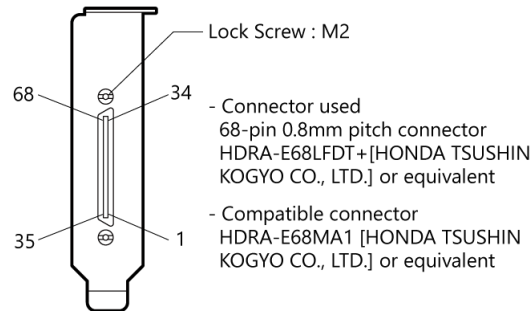
Pin No.	Signal name	Pin No.	Signal name	Pin No.	Signal name
68	RxD2	46	DTR6	23	DTR3
67	CTS2	45	DSR6	22	DCD3
66	RI2	44	TxD6	21	RTS3
65	RTS2	43	GND	20	RI3
64	DCD2	42	TxD8	19	CTS3
63	DTR2	41	DSR8	18	RxD3
62	DSR2	40	DTR8	17	RxD5
61	TxD2	39	DCD8	16	CTS5
60	GND	38	RTS8	15	RI5
59	TxD4	37	RI8	14	RTS5
58	DSR4	36	CTS8	13	DCD5
57	DTR4	35	RxD8	12	DTR5
56	DCD4	34	RxD1	11	DSR5
55	RTS4	33	CTS1	10	TxD5
54	RI4	32	RI1	9	GND
53	CTS4	31	RTS1	8	TxD7
52	RxD4	30	DCD1	7	DSR7
51	RxD6	29	DTR1	6	DTR7
50	CTS6	28	DSR1	5	DCD7
49	RI6	27	TxD1	4	RTS7
48	RTS6	26	GND	3	RI7
47	DCD6	25	TxD3	2	CTS7
-----		24	DSR3	1	RxD7

2. 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
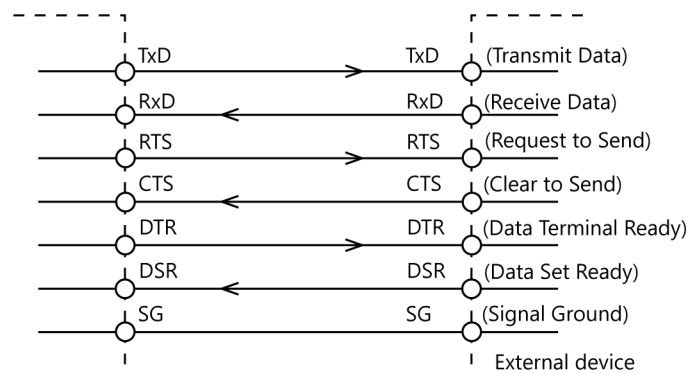
Example Connection to a PC (Cross cable)

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

External device
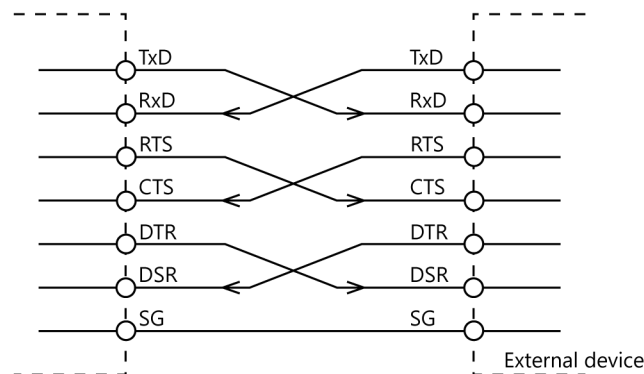
Example Connection to a Device

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

External device
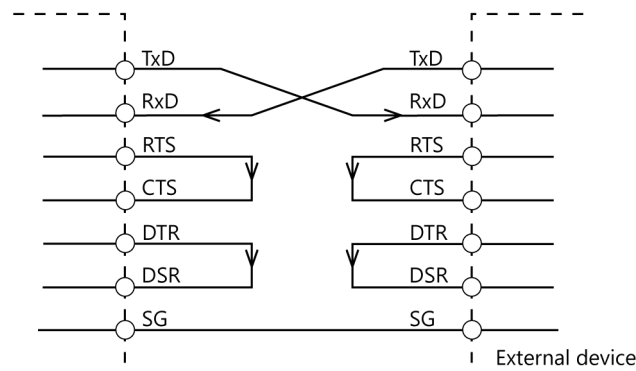
Function

This section describes the features achieved by combining hardware and device driver functions.

1.Communication Function

◆ Serial Data Transmission

Sends and receives data in accordance with the RS-232C standard.

◆ RS-232C Control Lines

All ports include the RTS, CTS, DTR, and DSR control lines.

The lines can be controlled or monitored by device driver from the application.

◆ Send and Receive Data Buffers

Each channel has a separate 128-byte send and 128-byte receive buffer.

The buffers operate as FIFO buffers and help reduce the load on the CPU for high-speed communications or system operation.

You can change data buffer settings (enabling or disabling FIFO, setting the FIFO trigger size) in Windows in the Device Manager.

The FIFO trigger size specifies the data buffer size and determines the timing for generating hardware interrupts.

Setting a large FIFO trigger size lightens the load on the CPU by reducing the number of hardware interrupts generated by sending or receiving data.

However, as data is not actually sent or received until a certain amount of data has accumulated, the timing at which the data reaches the opposing device is slightly delayed. Similarly, there is also a delay in the timing between data being received and the data being passed the application.

Alternatively, setting a small FIFO trigger size or disabling FIFO operation increases the speed of data sending and receiving but increases the load on the CPU and risks received data being missed.

As the FIFO buffer size is variable, you can adjust this setting to achieve optimum performance for your system.

◆ Setting the Baud Rate

You can set the baud rate of this product using the device driver.

Baud rate : 30 - 921,600 bps

* Specifications vary by board number. Refer to **"Differences by Board Number (page 47)"** at the end of this manual.

Baud rate settings for this product internally set an integer called the division register value.*

The relational expression between the baud rate set and the division register value is as follows.

921,600 ÷ Desired baud rate = Division register value

* The set baud rate is achieved by specifying the integer value to divide the internal reference clock. The integer used for this division equation is expressed as the division register value.

Depending on the baud rate set, the division register value may have a decimal.

If this happens, numbers below the decimal point are rounded off to set a whole number as the division register value, causing a baud rate settings error to occur.

For details on configurable baud rates, refer to the online help.

Ex.) 921,600 ÷ 9,600bps = 96

(As the calculation results in a whole number, a settings error will not occur.)

921,600 ÷ 128,000bps = 7.2 (As the calculation results in a decimal, a settings error will occur.)

In the above, because an integer that was rounded off is set in the division register, "7" is set. Actual operation occurs at "131657.142... bps."

Examples of baud rate settings are provided below.

When performing communications at a baud rate where a setup error occurs, closely monitor communications on the actual device.

Output baud rate	Baud Rate Generator register	Setup error (%)
30	30720	-
50	18432	-
75	12288	-
110	8378	0.0022
134.5	6852	0.0006
150	6144	-
300	3072	-
600	1536	-
1200	768	-
1800	512	-
2000	461	0.04
2400	384	-
3600	256	-
4800	192	-
7200	128	-
9600	96	-
14400	64	-
19200	48	-
28800	32	-
38400	24	-
57600	16	-
76800	12	-
115200	8	-
153600	6	-
230400	4	-
460800	2	-
921600	1	-

Appendix

This section lists the specifications and the physical dimensions of the product.

1.Hardware Specification

1. COM-1(LPCI)H

Function Specifications

Item	Specifications
Number of channels	1ch
Interface type	RS-232C
Transfer method	Asynchronous serial transfer
Baud rate	30 - 921,600bps *1*3
Data length	5, 6, 7, 8 bits 1, 1.5, 2 stop bits
Parity check	Even, Odd, Non-parity
Controller chip	162850 or equivalent (It has 128-byte receive and 128-byte transmit FIFO buffers.)
Connecting distance	15m(Typ.)
Interrupt requests	1 level use *2
I/O address	Any 32-byte boundary
Power consumption	3.3VDC　　160mA (Max.) (JP1 pins 1 and 2 connected) *3 5VDC　　　160mA (Max.) (JP1 pins 2 and 3 connected) *3
PCI Bus specification	32bit, 33MHz, Universal key shapes supported *3
Dimension (mm)	121.69(L) x 63.41(H) *3
Weight	60g

*1　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.

*2　The interrupt signals from all channels are connected as a single interrupt signal on the PCI bus.

*3　Product with different board numbers are different in these specifications. See "Differences by Board Number" at the end of this document.

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

2. COM-2(LPCI)H

Function Specifications

Item	Specifications
Number of channels	2ch
Interface type	RS-232C
Transfer method	Asynchronous serial transfer
Baud rate	30 - 921,600bps *1*3
Data length	5, 6, 7, 8 bits 1, 1.5, 2 stop bits
Parity check	Even, Odd, Non-parity
Controller chip	162850 or equivalent (Each channel has 128-byte receive and 128-byte transmit FIFO buffers.)
Connecting distance	15m(Typ.)
Interrupt requests	1 level use *2
I/O address	Any 32-byte boundary
Power consumption	3.3VDC 170mA (Max.) (JP1 pins 1 and 2 connected) *3 5VDC 170mA (Max.) (JP1 pins 2 and 3 connected) *3
PCI Bus specification	32bit, 33MHz, Universal key shapes supported *3
Dimension (mm)	121.69(L) x 63.41(H) *3
Weight	60g

*1   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.

*2   The interrupt signals from all channels are connected as a single interrupt signal on the PCI bus.

*3   Product with different board numbers are different in these specifications. See "Differences by Board Number" at the end of this document.

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

3. COM-4(LPCI)H

Function Specifications

Item	Specifications
Number of channels	4ch
Interface type	RS-232C
Transfer method	Asynchronous serial transfer
Baud rate	30 - 921,600bps *1*3
Data length	5, 6, 7, 8 bits 1, 1.5, 2 stop bits
Parity check	Even, Odd, Non-parity
Controller chip	162850 or equivalent (Each channel has 128-byte receive and 128-byte transmit FIFO buffers.)
Connecting distance	15m(Typ.)
Interrupt requests	1 level use *2
I/O address	Any 32-byte boundary
Power consumption	3.3VDC 210mA (Max.) (JP1 pins 1 and 2 connected) *3 5VDC 210mA (Max.) (JP1 pins 2 and 3 connected) *3
PCI Bus specification	32bit, 33MHz, Universal key shapes supported *3
Dimension (mm)	121.69(L) x 63.41(H) *3
Weight	60g

*1   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.

*2   The interrupt signals from all channels are connected as a single interrupt signal on the PCI bus.

*3   Product with different board numbers are different in these specifications. See "Differences by Board Number" at the end of this document.

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

4. COM-8C-LPCI

Function Specifications

Item	Specifications
Number of channels	8ch
Interface type	RS-232C
Transfer method	Asynchronous serial transfer
Baud rate	30 - 921,600bps *1*3
Data length	5, 6, 7, 8 bits 1, 1.5, 2 stop bits
Parity check	Even, Odd, Non-parity
Controller chip	162850 or equivalent (Each channel has 128-byte receive and 128-byte transmit FIFO buffers.)
Connecting distance	15m(Typ.)
Interrupt requests	1 level use *2
I/O address	Any 32-byte boundary
Power consumption	3.3VDC 210mA (Max.) (JP1 pins 1 and 2 connected) 5VDC 210mA (Max.) (JP1 pins 2 and 3 connected)
PCI Bus specification	32bit, 33MHz, Universal key shapes supported
Dimension (mm)	121.69(L) x 63.41(H) *3
Weight	60g

*1 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.
*2 The interrupt signals from all channels are connected as a single interrupt signal on the PCI bus.
*3 Product with different board numbers are different in these specifications. See "Differences by Board Number" at the end of this document.

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

2.Physical Dimensions

121.69(L)

63.41(H)

[mm]
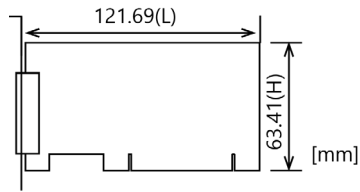
The standard outside dimension (L) is
the distance from the end of the card to
the outer surface of the slot cover.

3.Differences by Board Number

The products are different in specifications, depending on the board number as listed below.

COM-1(LPCI)H

Item	Board No.			
	No.7211	No.7211A	No.7211B	No.7211C or later
PCI bus specification	32bit, 33MHz	32bit, 33MHz	32bit, 33MHz	32bit, 33MHz
Universal key shapes supported	Absent*1	Present*2	Present*2	Present*2
Power voltage setting jumper (JP1)	Absent	Present	Present	Present
Power consumption	5VDC 150mA(Max.)	5VDC 100mA(Max.) 3.3VDC 100mA(Max.)	5VDC 160mA(Max.) 3.3VDC 160mA(Max.)	5VDC 160mA(Max.) 3.3VDC 160mA(Max.)
Baud rate	2 - 921,600bps	2 - 921,600bps	2 - 921,600bps	30 - 921,600bps

COM-2(LPCI)H

Item	Board No.			
	No.7219, No.7219A	No.7219B	No.7219C	No.7219D or later
PCI bus specification	32bit, 33MHz	32bit, 33MHz	32bit, 33MHz	32bit, 33MHz
Universal key shapes supported	Absent*1	Present*2	Present*2	Present*2
Power voltage setting jumper (JP1)	Absent	Present	Present	Present
Power consumption	5VDC 150mA(Max.)	5VDC 100mA(Max.) 3.3VDC 100mA(Max.)	5VDC 170mA(Max.) 3.3VDC 170mA(Max.)	5VDC 170mA(Max.) 3.3VDC 170mA(Max.)
Baud rate	2 - 921,600bps	2 - 921,600bps	2 - 921,600bps	30 - 921,600bps

COM-4(LPCI)H

Item	Board No.			
	No.7210, No.7210A	No.7210B	No.7210C	No.7210D or later
PCI bus specification	32bit, 33MHz	32bit, 33MHz	32bit, 33MHz	32bit, 33MHz
Universal key shapes supported	Absent*1	Present*2	Present*2	Present*2
Power voltage setting jumper (JP1)	Absent	Present	Present	Present
Power consumption	5VDC 150mA(Max.)	5VDC 150mA(Max.) 3.3VDC 150mA(Max.)	5VDC 210mA(Max.) 3.3VDC 210mA(Max.)	5VDC 210mA(Max.) 3.3VDC 210mA(Max.)
Baud rate	2 - 921,600bps	2 - 921,600bps	2 - 921,600bps	30 - 921,600bps

COM-8C-LPCI

Item	Board No.	
	No.8642, No.8642A	No.8642B or later
Baud rate	2 - 921,600bps	30 - 921,600bps

*1 : 5 V is supplied to the 5V pin.

*2 : Power voltage is set by jumper.

Customer Support and Inquiry

CONTEC provides the following support services for you to use CONTEC products more efficiently and comfortably.
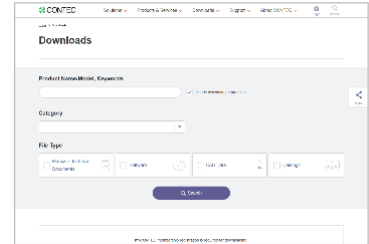
1.Services

CONTEC offers the useful information including product manuals that can be downloaded through the CONTEC website.

Download

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

You can download updated device driver, firmware, and differential manuals in several languages. Membership registration (myCONTEC) is required to use the services.

Revision History

— 51 —

MONTH YEAR	Summary of Changes
September 2014	The First Edition.
May 2025	Changed the layout of the manual. Specification differences added.

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