PCI –compliant I/O
RS-422A/485 4ch Serial I/O board

COM-4DL-PCI

RoHS Compliant

Features

-Max. 230,400bps RS-422A/485 Serial Communication

COM-4DL-PCI has four RS-422A/485-standard serial ports.
Baud rates from 15 to 230,400 bps can be set.

- Boards can be used as standard serial ports when operating in a Windows environment

These products come with a driver library that allows the boards to be used under Windows in the same way as COM ports on a PC. Under Windows, these boards support the OS-standard Win32 API communication function as well as Visual Basic MSComm. The driver library also includes a diagnostic program to confirm hardware operation and to perform communication tests.

- 16 boards (max) can be installed with an access range from COM1 to COM256.

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

- Each channel is equipped with separate 64-byte FIFO buffers for transmit and receive.

Each individual channel has FIFO buffer memory (transmission: 64 bytes, reception: 64 bytes).
This feature is useful for high speed communications and to reduce the load to the CPU during transmitting/receiving.

- Cables and connectors are available as optional.

4 channels distribution cable is included. 37-pin D-SUB connectors (male type) for creating your own cables are available as optional.

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

The control lines for RTS+, RTS-, CTS+, CTS- can be controlled and monitored using an application.

This PCI board was designed for extending RS-422A/485 compatible serial communication functionality on your PC. COM-4DL-PCI has four RS-422A/485 communication ports.
With a 64 byte built-in FIFO buffer for transmission and reception of each channel, the product supports a baud rate of up to 230,400bps. It also comes with a Windows driver, which allows boards to be used as OS-standard COM ports.

Specifications

Item	Specification
Number of channels	4channels
Interface type	RS-422A/RS-485
Isolation specification	None
Isolation pressure proof	None
Transfer method	Asynchronous serial transfer (Full-duplex / half-duplex)
Baud rate	15 - 230,400bps *1 *2
Data length	5, 6, 7, 8 bits 1, 1.5, 2 stop bits *1
Parity check	Even, Odd, Non-parity *1
Loarding LSI	162850 or equivalent (Each channel has 64-byte receive and 64-byte transmit FIFO buffers.)
Connecting distance	Within 1200m *3
Interrupt requests	1 level use *4
Memory address	1024byte boundary
Power consumption (Max.)	5VDC 640mA
Operating temperature	0 - 50°C, 10 - 90%RH (No condensation)
PCI bus specification	PCI (32bit, 33MHz *5)
Dimension (mm)	121.69(L) x 105.68(H)
Connector used	37-pin D-SUB connector, 2031-2-37-S [mfd. by gallant, F(female) type] equivalent
Weight	95g

*1 These items can be set by software.
*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.
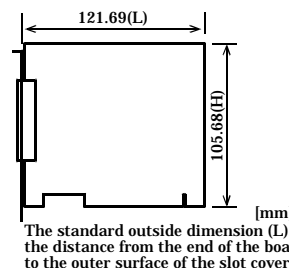
Communication distance	Baud rate
300m	115,200bps
600m	57,600bps
900m	19,200bps
1200m	9,600bps

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 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).

Board 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.

Support Software

Standard COM Driver Software "COM Setup Disk" (Included)
The purpose of this software is to allow the CONTEC serial communication boards to be used under Windows in the same manner as standard computer COM ports. 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 including 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 Visual Basic communication control (MSComm).

Operating environment
Operating Systems: Window Vista, XP, Server 2003, 2000
You can download the latest software versions from CONTEC's document site (http://www.contec.com/comdrv/).
For more details on supported operating systems, applicable languages and new information, please visit CONTEC's Web site.

Optional Cables and Connectors

Connection Conversion Cable (37M→9M x 4, 250mm)

Five 9-pin D-SUB (female) connectors:CN5-D9F

Five 37-pin D-SUB (male) connectors:CN5-D37M

Packing List

-Board (COM-4DL-PCI) …1
-First step guide …1
-COM Setup Disk (CD-ROM *1) …1
-Distribution cable (0.25m) …1

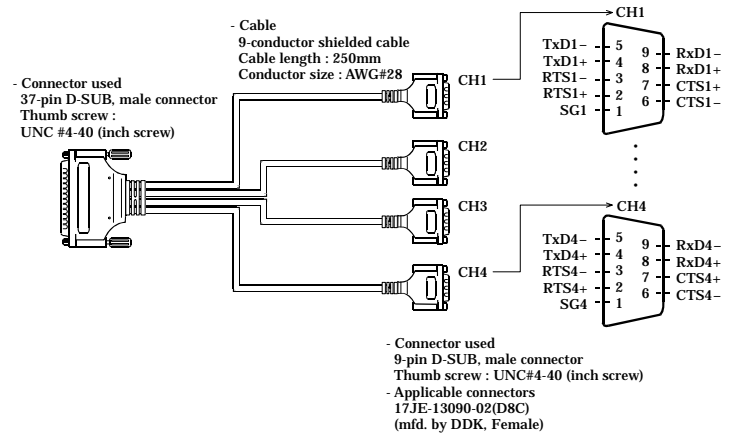*1:The CD-ROM contains the driver software and User's Guide.

Connection to External Devices

In addition to connecting directly to the board's connector, you can also connect external devices via a connection distribution cable.

Using 9-pin D-SUB Connector Distribution Cable
Use the bundled distribution cable or PCE37/9PS (purchased separately) to connect to external devices after dividing into four 9-pin D-SUB male connector channels.

Specification of "The bundled distribution cable

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

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

- 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 distribution cable (Option)
Connection Conversion Cable (37M→9M x 4, 250mm)

⚠ CAUTION
The SG lines for CH1 - 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.
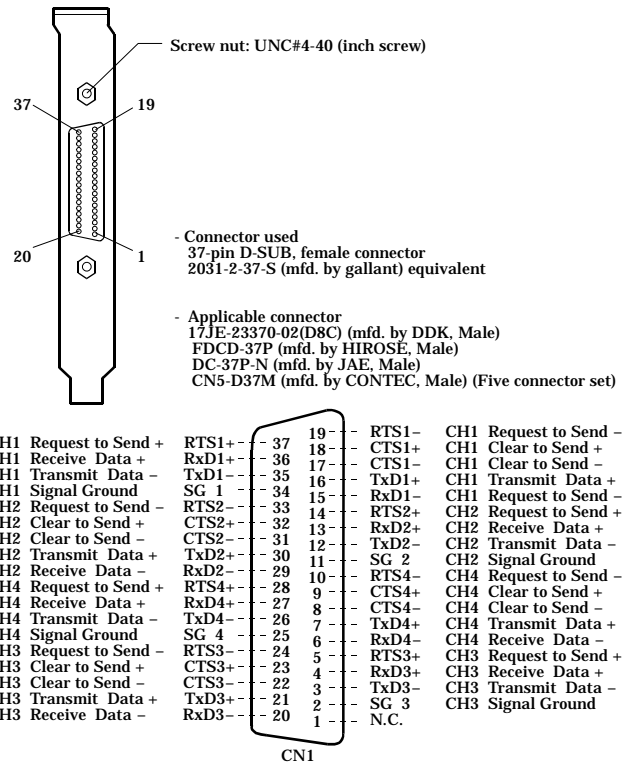Note that the option cable is not a twisted-pair cable.

Connecting directly to the port connector
If connecting an external device directly from the connector on the board, use a CN5-D9F or equivalent connector. : PCE37/9PS

Pin Assignment
Interface Connector < COM-4DL-PCI >

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

- Connector used
  37-pin D-SUB, female connector
  2031-2-37-S (mfd. by gallant) equivalent

- Applicable connector
  17JE-23370-02(D8C) (mfd. by DDK, Male)
  FDCD-37P (mfd. by HIROSE, Male)
  DC-37P-N (mfd. by JAE, Male)
  CN5-D37M (mfd. by CONTEC, Male) (Five connector set)

|						
CH1	Request to Send +	RTS1+	37	19	RTS1−	CH1 Request to Send −
CH1	Receive Data +	RxD1+	36	18	CTS1+	CH1 Clear to Send +
CH1	Transmit Data −	TxD1−	35	17	CTS1−	CH1 Clear to Send −
CH1	Signal Ground	SG 1	34	16	TxD1+	CH1 Transmit Data +
CH2	Request to Send −	RTS2−	33	15	RxD1−	CH1 Receive Data −
CH2	Clear to Send +	CTS2+	32	14	RTS2+	CH2 Request to Send +
CH2	Clear to Send −	CTS2−	31	13	RxD2+	CH2 Receive Data +
CH2	Transmit Data +	TxD2+	30	12	TxD2−	CH2 Transmit Data −
CH2	Receive Data −	RxD2−	29	11	SG 2	CH2 Signal Ground
CH4	Request to Send +	RTS4+	28	10	RTS4−	CH4 Request to Send −
CH4	Receive Data +	RxD4+	27	9	CTS4+	CH4 Clear to Send +
CH4	Transmit Data −	TxD4−	26	8	CTS4−	CH4 Clear to Send −
CH4	Signal Ground	SG 4	25	7	TxD4+	CH4 Transmit Data +
CH3	Request to Send −	RTS3−	24	6	RxD4−	CH4 Receive Data −
CH3	Clear to Send +	CTS3+	23	5	RTS3+	CH3 Request to Send +
CH3	Clear to Send −	CTS3−	22	4	RxD3+	CH3 Receive Data +
CH3	Transmit Data +	TxD3+	21	3	TxD3−	CH3 Transmit Data −
CH3	Receive Data −	RxD3−	20	2	SG 3	CH3 Signal Ground
				1	N.C.	

CN1

Types of Cables and Connection Examples

The figures below show examples of how to connect the cable for the board.
The RS-422A/485 interface works based on a differential signal whereby the signal is carried by the potential difference between two lines (+ and -).   Using twisted pair cable is recommended to improve resistance to noise.
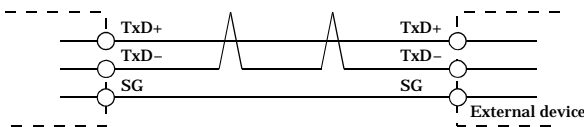
Example Connection RTS and CTS to a External Device in Full Duplex
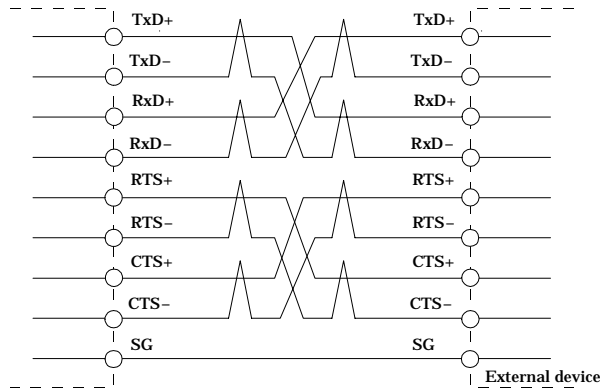
Example Connection RTS and CTS to a External Device in Full Duplex
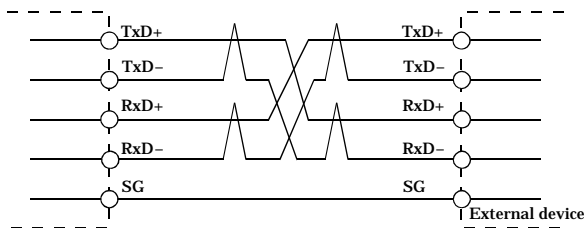
Example Connection in Half Duplex

⚠ **CAUTION**
If you are connecting between external devices and this board with faulty wiring, it will become the cause of failure.