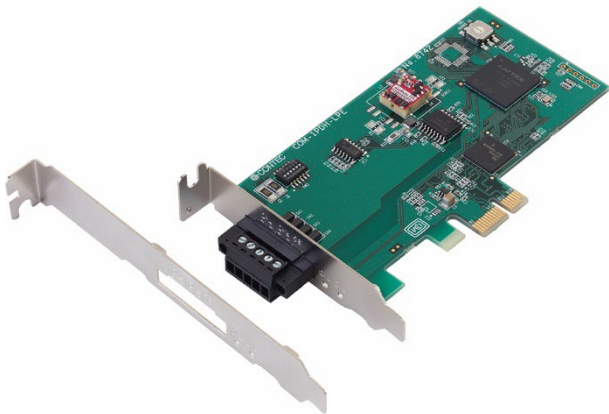


## RS-422A/485 1ch Serial I/O Board with Isolation for PCI Express Low Profile COM-1PDH-LPE



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

### Features

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

The product has one RS-422A/485-standard serial ports. Baud rates from 30 to 921,600bps can be set.

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

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

#### Isolation between PCs, surge protection for all signal lines

Between PCs are electrically isolated. As isolation of the bus is provided, this prevents electrical noise between the PC and external circuits. As surge protection is provided on all signal lines, you can safely use the boards in environments where you are concerned about surges causing incorrect operation or damage to the PC.

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

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

#### LEDs for operation check within

LEDs are installed to check the operations and enable you to view communication status.

#### Equipped with 2- piece terminal

The transmission line connection terminal that is linked to cables can be connected or disconnected to the board simultaneously. With tightened screws that prevent the terminal coming off, you can safely use the boards without unnecessary troubles.

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

Employed a buffer memory 128-byte dedicated to transmission and 128-byte for each channel.

These are FIFO format, useful for high speed communications and to reduce the load to the CPU when transmitting/receiving. As the device manager can be used to enable/disable the use of FIFO and set the FIFO trigger size, you can build an optimum system according to your use.

#### Support for Low Profile size slot / standard size slot

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.

This product is a low profile sized PCI Express bus-supported board designed for extending RS-422A/485 compatible serial communication functionality on your PC.

The product has one RS-422A/485 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.

It also comes with a Windows driver, which allows boards to be used as OS-standard COM ports.

- \* 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 July, 2022.

### Specification

Item	Specifications
Number of channels	1ch
Interface type	RS-422A/RS-485
Isolation specification	Bus isolation
Isolation pressure proof	Between bus : 500VAC
Transfer method	Asynchronous serial transfer (Full-duplex / half-duplex)
Baud rate	30 - 921,600bps *1 *2
Data length	5, 6, 7, 8 bits 1, 1.5, 2 stop bits *1
Parity check	Even, Odd, Non-parity *1
Loading LSI	162850 or equivalent (Each channel has 128-byte receive and 128-byte transmit FIFO buffers.)
Connecting distance	Within 1200m *3*4
Interrupt requests	1 level use
I/O address	Any 32-byte boundary
Power consumption	3.3VDC 550mA (Max.)
Operating temperature	0 - 50°C, 10 - 90%RH (No condensation)
Bus specification	PCI Express Base Specification Rev. 1.0a x 1
Dimension (mm)	121.69(L) x 67.90(H)
Connector used	Connector on the board : MC 1,5/ 5-GF-3,5 P26 THR [PHOENIX CONTACT] or equivalent to it Transmission line connection terminal : MC 1,5/ 5-STF-3,5 [PHOENIX CONTACT] or equivalent to it
Weight	60g
Standard	VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA

\*1 These items can be set by software.

For the "Standard COM Driver Software Setup Disk" on the bundled disk, the range is 15 - 921,600 bps.

\*2 Data transmission at high speed may not be performed normally depending on the environment including the type of status of connected material of cable and environment.

\*3 The table below lists an example of the relationship between baud rate and communication distance.

Communication distance	Baud rate
300m	115,200bps
600m	57,600bps
900m	19,200bps
1200m	9,600bps

- \*4 Communication cable: 28AWG, double shielded cable, twisted pairs used for each +/- signal line.  
The table below lists the maximum communication distances of the terminator resistor value and individual cable diameter.  
The terminators on the product (100Ω) and the terminators generally used with RS-422A/485(120Ω) are listed.

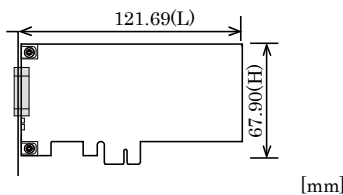
Maximum communication distances of the terminator resistor value (100Ω) and cable diameter

Terminator Resistor(Ω)	Cable Diameter	Maximum Communication Distance(m)
100	AWG28	400
	AWG26	700
	AWG24	1100
	AWG22	1200

Maximum communication distances of the terminator resistor value (100Ω) and cable diameter

Terminator Resistor(Ω)	Cable Diameter	Maximum Communication Distance(m)
120	AWG28	500
	AWG26	800
	AWG24	1200
	AWG22	1200

## Board Dimensions



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

## Packing List

Board [COM-1PDH-LPE] ...1  
First step guide ... 1  
Disk [COM Setup Disk] ...1  
Transmission line connection terminal ...1  
Standard size bracket ...1  
Warranty Certificate ...1  
Serial Number Label ...1

## Support Software & Service

### Standard COM Driver Software COM Setup Disk (Bundled)

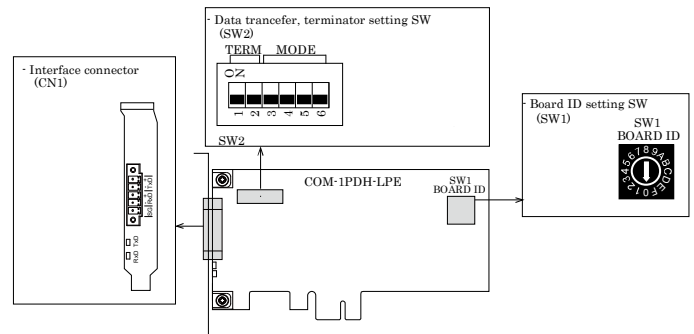
The purpose of this software is to allow the CONTEC serial communication boards to be used under Windows in the same way as the standard COM ports on the PC. By installing additional boards, you can use COM ports in the range COM1 - COM256.  
The boards can be used for all types of serial communications 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). Supports the communication class of .NET Framework 2.0 (SerialPort class).

For more details on the supported OS, applicable language and new information, please visit the CONTEC's Web site.

## Parts of the Board and Factory Defaults

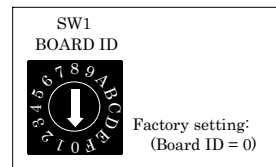
Note that the switch setting shown below is the factory default.



## Setting the Board ID

If you install two or more boards on one personal computer, assign a different ID value to each of the boards to distinguish them.

The board IDs can be set from 0 - Fh to identify up to sixteen boards. If only one board is used, the original factory setting (Board ID = 0) should be used.



## Setting Transmission Mode

The data transfer mode setting switch is used to switch between full duplex and half duplex and to specify whether to use RTS/CTS in full duplex mode. Set the appropriate data transfer mode for the device with which you are communicating. Bits 3 - 5 are used to set the data transfer mode. Since the bit 6 does not have a function, the bit 6 can set either ON or OFF.

Transmission mode	Half duplex	Full duplex
		When there are no RTS and CTS
Setting mode	TERM MODE OZ 1 2 3 4 5 6	TERM MODE OZ 1 2 3 4 5 6
	TXD is only used for data transmission; the sending and receiving modes should be switched over using the modem control register.	With above setting, RTS and CTS are connected in the board. Communication is available without wiring of RTS and CTS.

## LED Indicator

If you install two or more boards on one personal computer, assign a different ID value to each of the boards to distinguish them.

The board IDs can be set from 0 - Fh to identify up to sixteen boards. If only one board is used, the original factory setting (Board ID = 0) should be used.

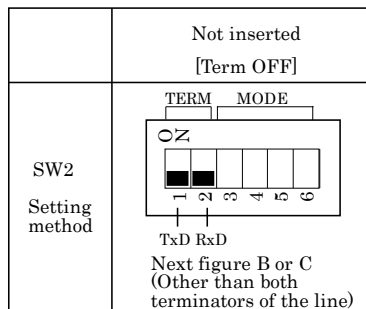
<div> <input type="checkbox"/> TxD         <input type="checkbox"/> RxD       </div>		
LED	Operation	Meaning
RxD(Green)	Flashing	When receiving RS-422A/485
	OFF	When not receiving RS-422A/485
TxD(Green)	Flashing	When transmitting RS-422A/485
	OFF	When not transmitting RS-422A/485

## Setting of Terminator

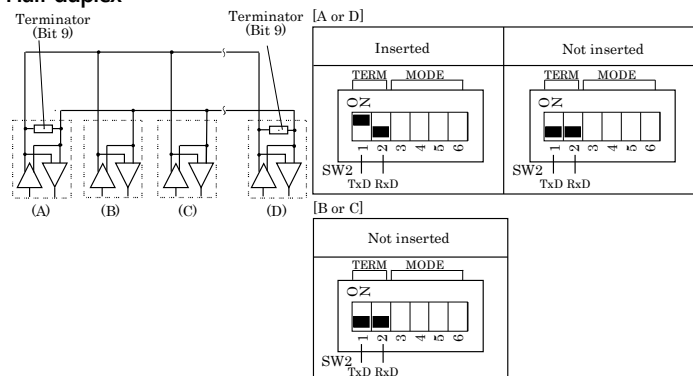
The terminator setting switch controls whether or not a terminator is inserted into each signal line. Set the terminators on or off in accordance with the devices with which you are communicating. The terminators on the board are 100Ω resistors.

### Setting Procedure

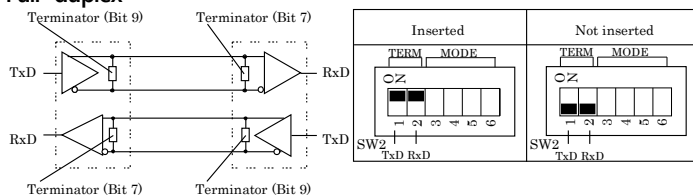
If you wish to use a terminator of other than 100Ω, set the terminator switch OFF and insert an external terminator. The diagrams below show examples of terminator installation for half and full duplex setting.



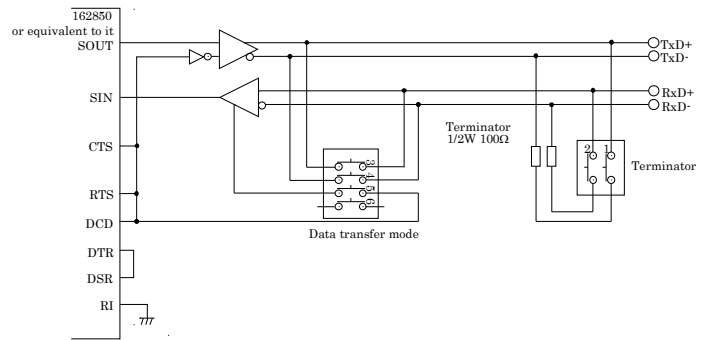
### Half-duplex



### Full -duplex



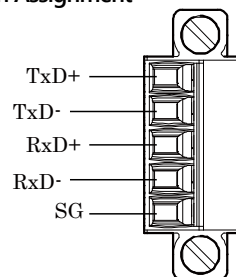
The figure below shows the circuit associated with the data transfer mode setting switch and terminator setting switch.



## External Connection

Connect an external device directly from the connector on the board, use the provided transmission line connection terminal for creating your own cables.

### Pin Assignment



- Connector on the board  
MC 1,5/ 5-GF-3,5 P26 THR  
[PHOENIX CONTACT] or equivalent
- Transmission line connection terminal  
MC 1,5/ 5-STF-3,5  
[PHOENIX CONTACT] or equivalent
- Applicable wire  
AWG28-16

### Interface connector signal layout

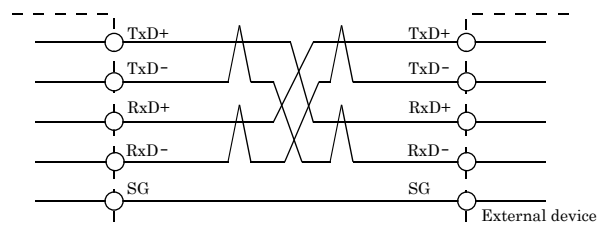
Signal Name	Meaning
TxD+	Transmission data (+)
TxD-	Transmission data (-)
RxD+	Reception data (+)
RxD-	Reception data (-)
SG	Signal ground

## Types of Cable and Example Connections

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 Oneself loop to RTS and CTS in Full Duplex



### Example Connection in Half Duplex

