



USB to RS-232 Selectable RS-422 – RS-485 Industrial Adapter

Product Manual

Coolgear
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Revision History

Revision	Date	Author	Comments
1.0	07/06/2015	Coolgear	Old format
1.1	02/05/2018	Coolgear	New manual format

About this document

This product manual outlines installation and features of the USB-COMi-M USB to RS-232 Selectable RS-422 – RS-485 Industrial Adapter.

Scope

The scope of this manual is to give the user of the product an understanding of its use with detailed diagrams and verbiage. The manual helps the users to apply the product to their application.

Intended Audience

This product is intended for use in office or industrial applications where serial communication between device and computer is necessary. It can be used for devices for POS, factory automation equipment, multi-drop data collection devices, bar code readers, time clocks, scales, data entry terminals, PC to PC long distance communications, ATMs and serial communication applications.

Product Support

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1. Introduction

The USB-COMi-M adds one RS-232, RS-422 or RS-485 serial port by connecting to a USB port; 6-pin terminal block and a DB9 male connector are available for optimal flexibility for serial connection. Supplies power output of 5V/150mA through pin-5 of the terminal block to serial device. The USB to Industrial Serial Adapter provides instant connectivity to RS-232/422/485 communication devices for factory automation equipment, multi-drop data collection devices, barcode readers, time clocks, scales, data entry terminals, PC to PC long distance communications, ATMs and serial communication in harsh environment.

WEIGHT	4.7 oz
UPC	729440690960
ADAPTER DIMENSIONS	77.18mm(L to DB-9 connector) x 58.18mm(81.37 w/ears) x 22.55mm(H)
CABLE LENGTH	3ft.
WARRANTY	1 year from date of purchase
COLOR	Black
PORTS	1x DB-9 male / 1x 6-wire terminal

1.1 About the Adapter

Protocol	Connector	Shell
Adds one DB-9 serial port and one 6-wire terminal connection to your desktop or laptop computer. Uses RS-232/422/485 Protocol communication.	One male DB-9 pin connector with hex nut tightening for secure connection and one terminal block connection for switching between signals.	Rugged SECC metal shell with PWR, TxD and RxD LED indicators for each serial COM signal connection.

1.2 Features

Feature List

- Adds a high speed RS-232/ 422 / 485 serial port via USB connection.
- 384 byte receive buffer.
- 128 byte transmit buffer for high speed data throughput.
- Requires no IRQ, DMA, I/O port.

- High speed serial port with the baud rate up to 921.6K bps.
- Data rates: 300 bps to 921.6K bps.
- Auto transmit buffer control for 2-wire RS-485 half-duplex operation.
- Termination resistors installed on-board.
- Monitor LEDs of TxD, RxD indicating port status.
- External 4-pin dip switch to set RS-232, RS-422, or RS-485 modes
- Virtual COM port drivers provided for Windows 7, Vista, 2003, XP, 2000.

Power Requirement:

- Input power: USB Self Power (500mA, 5V)
- Output power: 150mA, 5V power output for external devices requiring power.

1.3 Hardware Installation

Outside the unit, there is one 4-pin DIP switch which is set to select the mode of operation. You will need to set the switch settings to RS-232 mode, or RS-422, or RS-485 mode as per the requirements of your application.

The Mode Block Configuration Settings are listed as follows:

SW (External DIP Switch) for Mode Setting

	Operation Mode	S1	S2	S3	S4
RS-232	Standard RS-232 Mode	ON ON ON ON			
		OFF			
RS-422	4 wire with handshaking	ON	ON	ON	ON
RS-485	Full Duplex (4 wire)	ON ON ON ON			
		OFF			
	Half Duplex (2 wire) with Echo	ON ON ON ON			
		OFF OFF			
	Half Duplex (2 wire) without Echo	ON ON ON ON			
		OFF OFF OFF			

1.4 JP1 for Termination and Biasing Option Configuration

Inside the unit, there is a 2 x 7 (14 pin) header blocks which are jumpered to enable Tx, Rx, CTS 120 Ohm termination resistors and Tx, Rx 750 Ohm BIASing resistor.

You will need to open up the metal case and set the jumper setting for RS-422 mode or RS-485 mode as per the requirements of your application.

Settings are listed as follows:

Jumper	Function
1-2	Tx Termination of 120 Ohm. This jumper should always be populated for RS-485 mode.
3-4	Pull-up Tx+ to VCC by 750 Ohm Bias resistor. This jumper should be populated for pull-up Tx+.
5-6	Pull-down Tx- to GND by 750 Ohm Bias resistor. This jumper should be populated for pull-down Tx-.
7-8	Rx Termination of 120 Ohm. This jumper should always be populated for RS-422 mode.
9-10	Pull-up Rx+ to VCC by 750 Ohm Bias resistor. This jumper should be populated for pull-up Rx+.
11-12	Pull-down Rx- to GND by 750 Ohm Bias resistor. This jumper should be populated for pull-down Rx-.
13-14	CTS Termination of 120 Ohm. This jumper should always be populated for RS-422 mode.

Note: Sometimes, when operating in RS-422 or RS-485, it is necessary to configure termination and biasing of the data transmission lines. Generally this must be done in the cabling, since this depends on the installation of connections. Before applying the option, check your cable specification for proper impedance matching.

1.5 JP2: Enable the +5V 150mA Power for External Device

The USB-COMi-M provides a unique feature of supplying power output of 5V/150mA through Pin-5 of terminal block to the serial device requiring power. By default, this feature is disabled. To enable the power, you need to open the metal case and set the jumper (JP2) to the position of “ON”.

Jumper	Function
ON	Enable the Terminal Block Pin-5 to support a 5V 150mA power for external device requiring power
OFF	Disable the 5V 150mA power (Default)

1.6 Windows 7/ Vista / 2003 / XP / 2000 Driver Installation

You need to have administrator privileges to install any new drivers under Windows 7/ Vista / 2003/ XP / 2000. To install the driver or update the configuration please log onto Windows as "Administrator" or ask your system administrator to install the USB-COM driver.

Note: You need to install driver first, prior to hardware installation. Do not connect the USB-to-Serial Adapter to the USB port of your computer, before you finish driver installation.

Please proceed with the following steps to install the driver:

1. Insert the "USB COM Series Driver and Utility" CD into your CD-ROM.
2. The "USB COM Series Driver and Utility CD" dialog box appears.
3. Under "Driver Installation", double click "Windows 7, Vista, 2003, XP, 2000 driver" to install the device driver.
4. The USB COM install program will auto-detect the OS type and install the driver automatically. (**Note:** in Windows 7 or Vista OS you will find another dialog box, please click on "OK" to confirm the drivers install program).

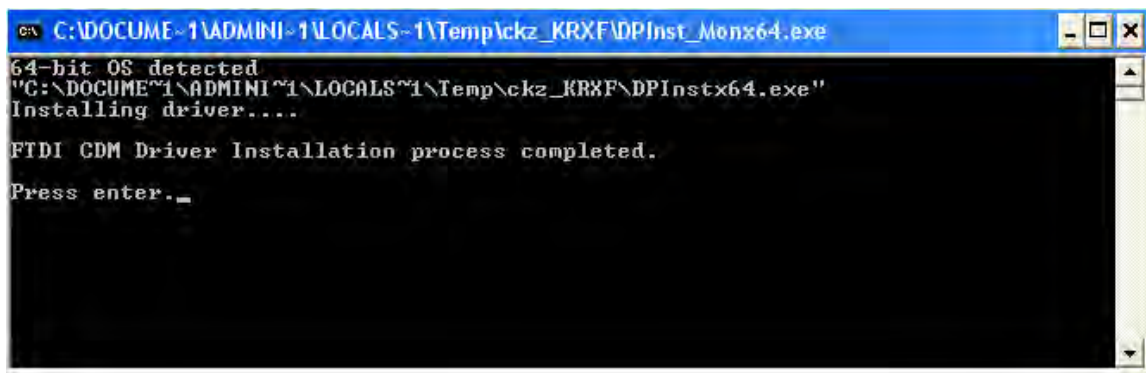


Figure 1

5. After the message "FTDI CDM Driver installation process completed" appears, press "Enter" to complete the driver installation.
6. Plug in the USB to Serial Adapter to the USB port of your computer. Windows will finish installing the driver files.

1.7 Check Installation

You can now verify the installation has been completed successfully by looking under Device Manager of the System Properties screen. (Go there by Start-Setting- Control Panel-System Properties-Hardware-Device Manager.

The device should have installed as a "USB Serial Port (COMx)" attached to "USB Serial Converter (A/B or A/B/C/D)".

Change COM Port Properties & COM Port Number

This feature is particularly useful for programs, such as HyperTerminal, which only work with COM1 through COM4. Please ensure that you do not change the COM Port Number already in use.

To change the virtual COM port properties:

- Select the "USB Serial Port"
- Click "Properties".
- Select "Port Setting" and "Advanced".
- Click the drop down arrow on COM Port Number and scroll to the required COM port. Select "OK".
- Return to the Device Manager Screen. You will see that the USB Serial Port installation has been changed to the new COM Port Number.

1.8 Uninstalling Windows 2003/xp/2000 Drivers

Please proceed with the following steps to uninstall the 2003/XP/2000 driver:

1. Insert the "USB COM Series Driver and Utility" CD into your CD-ROM.
2. The "USB COM Series Driver and Utility CD" dialog box appears.
3. Under "Driver uninstalling", double click "Windows 2003, XP, 2000 driver uninstall" to uninstall the device driver.
4. When following dialog box appears, double click "Clean System" to uninstall the 2003/XP/2000 drivers.



Figure 2

5. You need to disconnect all USB to serial Adapters from your PC, when the message below appears. Double click "OK" to start uninstalling Windows 2003/XP/2000 USB to Serial drivers.



Figure 3

6. Double click "Yes" to confirm it.

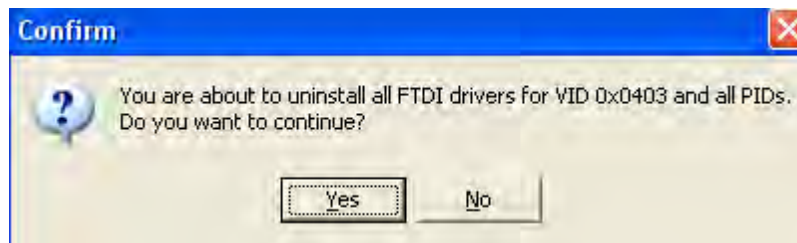


Figure 4

7. Click "No" to proceed.

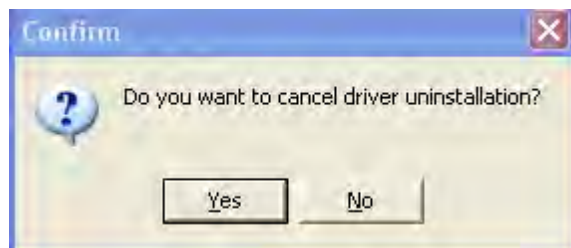


Figure 5

8. When the message "Status: System clean completed" appears, double click "Exit" to complete the USB to serial drivers uninstall.



Figure 6

9. Press "**Start**" button and select "**Control Panel**".
10. Open the Add or Remove program.

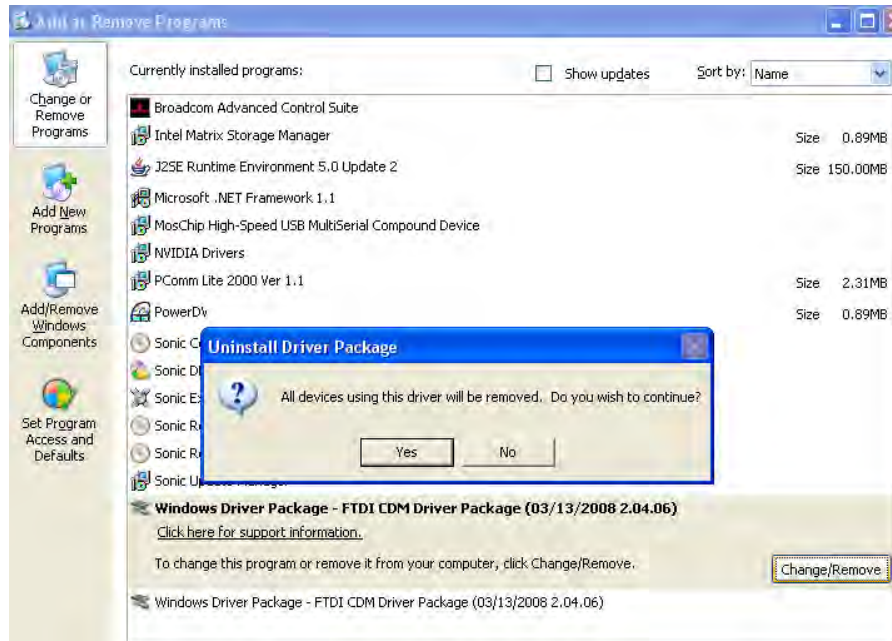


Figure 7

11. Remove the first “Windows Driver Package – FTDI CDM Driver Package (...)”.
12. Click “Change/Remove” and “Yes” to remove the first Windows Driver Package.
13. Remove the second “Windows Driver Package – FTDI CDM Driver Package (...)”.
14. Click “Change/Remove” and “Yes” to remove the second Windows Driver Package.
15. Reboot the computer to complete the driver uninstall.

2. Uninstalling Windows 7 or Vista Drivers

Windows 7 and Vista have many new security features. You need to proceed with the following steps to uninstall the Vista driver:

1. The USB to serial devices must connect to the PC.
2. Press “Start” button and select “Control Panel”.
3. Select “Classic View” from the top left hand corner and then “System” from the list.
4. Select “Device Manager” from the top left hand corner.

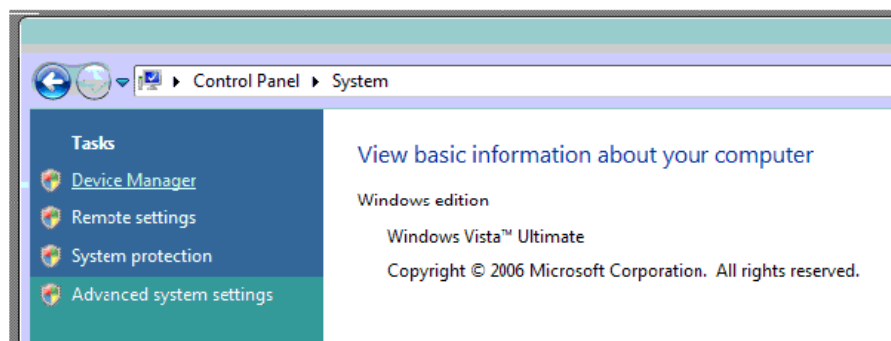


Figure 8

5. Locate your Device under the Ports (COM & LPT) section and right click on it to bring up the menu shown.

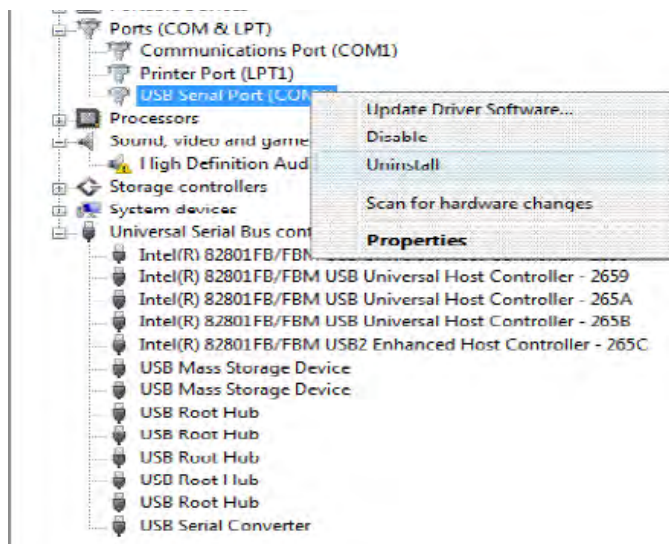


Figure 9

6. Select uninstall and be sure to click the box for “Delete the driver software for this device” in the next window and press “OK”.

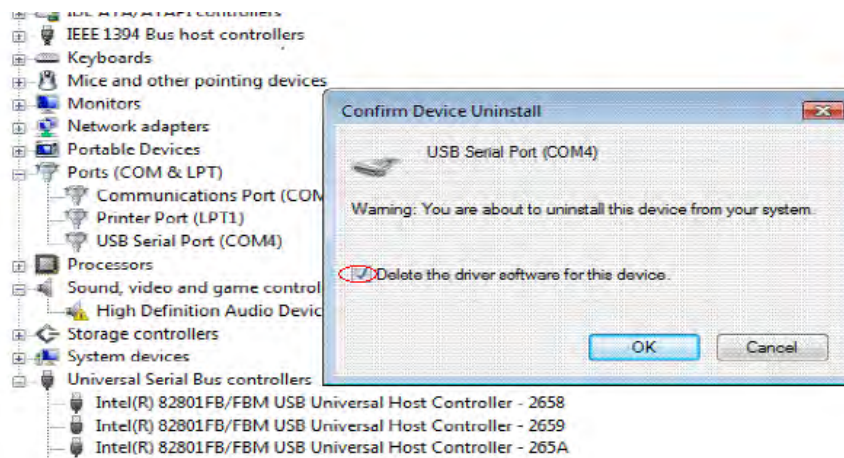


Figure 10

Note: if you have more than one USB Serial Port (COMx) installed in your PC, you need to repeat from step 5 to step 6 to delete the driver software for each port.

7. Locate your Device under the Universal Serial Bus Controllers section, and right click on it to bring up the menu shown.

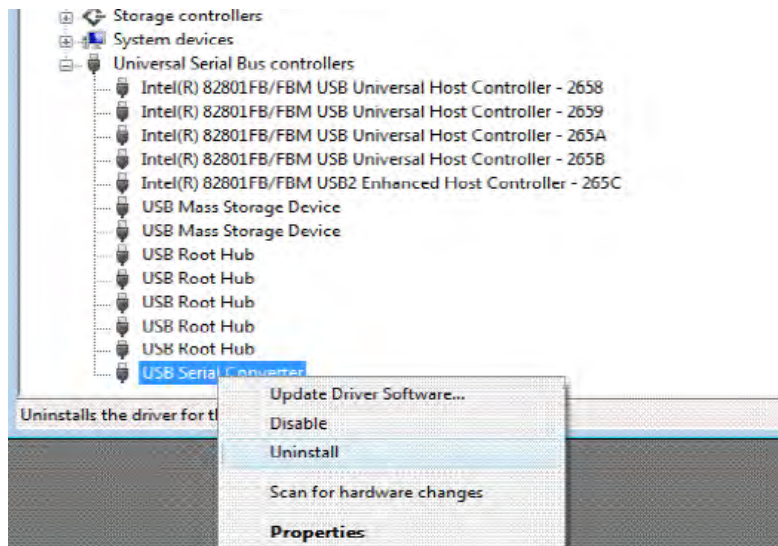


Figure 11

8. Select uninstall and be sure to click the box for “Delete the driver software for this device” in the next window and press “OK”.

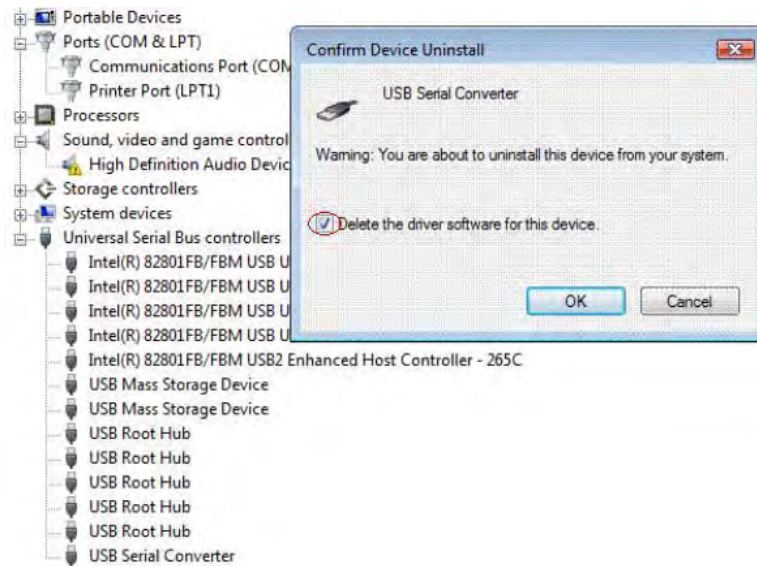


Figure 12

Note: if you have more than one USB Serial Converter installed in your PC, you need to repeat step 7 and step 8 to delete the driver software for all devices.

2.1 2.1 RS-232 Signal Pin-outs of DB-9 Male (CN2)

Pin 1	DCD
Pin 2	RxD
Pin 3	TxD
Pin 4	DTR
Pin 5	GND
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS
Pin 9	RI

2.2 RS-232 Signal Pin-outs of Terminal Block (TB1)

Pin 1	DCD
Pin 2	RxD
Pin 3	TxD
Pin 4	DTR
Pin 5	+5V
Pin 6	GND

2.3 RS-422 Signal Pin-outs of DB-9 Male (CN2)

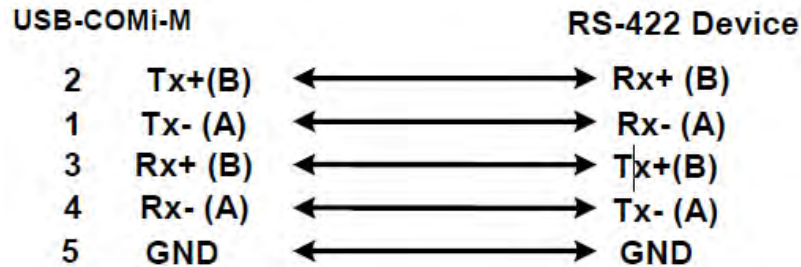
Pin 1	Tx- (A)
Pin 2	Tx+ (B)
Pin 3	Rx+ (B)
Pin 4	Rx- (A)
Pin 5	GND
Pin 6	RTS- (A)
Pin 7	RTS+ (B)
Pin 8	CTS+ (B)
Pin 9	CTS- (A)

2.4 RS-422 Signal Pin-outs of Terminal Block (TB1)

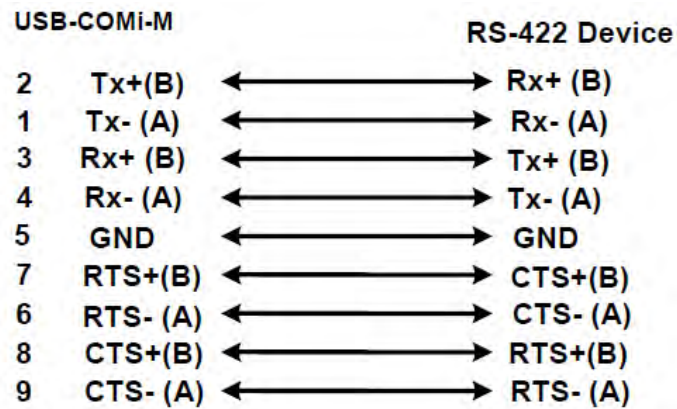
Pin 1	Tx- (A)
Pin 2	Tx+ (B)
Pin 3	Rx+ (B)
Pin 4	Rx- (A)
Pin 5	+5V
Pin 6	GND

2.5 RS-422 Signal Wiring

- Point-to-Point 4 Wire Full Duplex



- RS-422 with Handshaking



2.6 RS-485 4-Wire (Full Duplex) Signal Pin-outs of DB-9 Male (CN2)

Pin 1	Tx- (A)
Pin 2	Tx+ (B)
Pin 3	Rx+ (B)
Pin 4	RX- (A)
Pin 5	GND

2.7 RS-485 4-Wire (Full Duplex Signal Pin-outs of Terminal Block (TB1)

Pin 1	Tx- (A)
Pin 2	Tx+ (B)
Pin 3	Rx+ (B)
Pin 4	RX- (A)
Pin 5	+5V
Pin 6	GND

2.8 RS-485 2-Wire (Half Duplex) Signal Pin-outs of DB-9 Male (CN2)

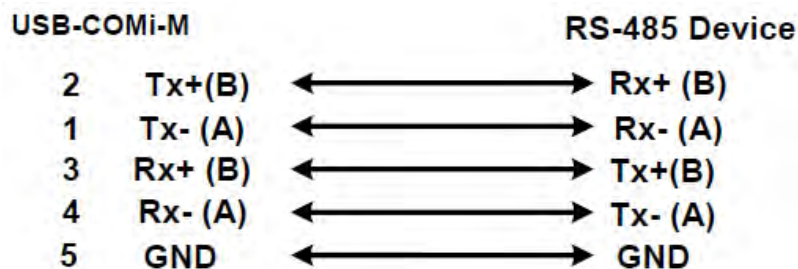
Pin 1	Data- (A)
Pin 2	Data+ (B)
Pin 5	GND

2.9 RS-485 2-Wire (Half Duplex) Signal Pin-outs of Terminal Block (TB1)

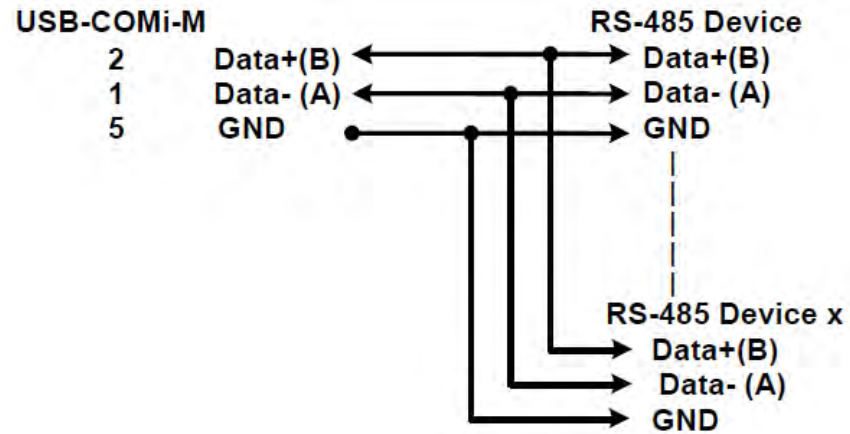
Pin 1	Data- (A)
Pin 2	Data+ (B)
Pin 5	+5V
Pin 6	GND

2.10 RS-485 Signal Wiring

- Point-to-Point 4-Wire Full Duplex



- Multi-drop RS-485 2-Wire Half-Duplex



3. Notes, Tips, Warnings, and Safety

Note

You need to install driver first, prior to hardware installation. Do not connect the USB-to-Serial Adapter to the USB port of your computer, before you finish driver installation. [Reference section 1.3](#)

If you have more than one USB Serial Converter installed in your PC, you need to repeat step 7 and step 8 to delete the driver software for all devices. [Reference section 2.](#)

Tip

N/A

Warning

N/A

Safety

N/A

4. Product URL

<https://www.coolgear.com/product/single-port-usb-to-rs-232-selectable-rs-422-or-rs-485-industrial-adapter>