USB to Serial Converters Driver

Installation Guide

Document Reference No.: CP_000084

Version 1.0

Issue Date: 01-04-2022

Connective Peripherals Pte Ltd
178 Paya Lebar Road, #07-03 Singapore 409030
Tel.: +65 67430980   Fax: +65 68416071

E-Mail (Support): support@connectiveperipherals.com   Web: www.connectiveperipherals.com/products

Copyright © Connective Peripherals Pte Ltd

Table of Contents

1   Introduction

This guide will take you through the steps to install the drivers for your Connective Peripherals USB-Serial converter.

⚠️ Before following the driver install instructions or connecting your converter to the computer or the RS232/RS422/RS485 serial bus, consult the datasheet or user guide for your specific model of converter. This will cover important points about the hardware set-up which need to be completed before the converter is installed.

To find the datasheet or user guide for your product, please refer to the Document tab on the product page for your converter at the Connective Peripherals website at www.connectiveperipherals.com

USB2-H-5001-M

- FTDI FT232H Hi-Speed USB-Serial chipset
- 1 x RS485 port (up to 8MBaud) via DB-9 and Terminals
- Robust metal case with Power and Tx/Rx LEDs
- Powered from the USB port (USB Type B connector)

Click to expand

USB TO RS485 ADAPTERS (HIGH SPEED)

SKU USB2-H-5001-M

| Description | Document | Downloads | Order Information |

Part Number	Document Type	Version	File
USB2-H-5001-M USB2-H-5002-M USB2-H-5004-M USB2-H-5008-M USB2-H-5016-M	Datasheet	1.2	Download
USB2-H-5002	Datasheet	1.3	Download
USB2-H-5002	Quick Start Guide	1.3	Download
USB2-H-5004	Datasheet	1.2	Download
USB2-H-5004	Quick Start Guide	1.2	Download

Figure 1 - Hardware User Guides and Datasheets

This guide has installation instructions for the following OS:

- Windows 7-11
- Windows (XP and older)
- macOS
- Linux

2 Windows Driver Installation (Windows 7 – 11)

The driver installation can be done using either the Driver Executable or the Windows Update method below.

> You need to have administrator privileges to install any new drivers in Windows. To install the driver or update the configuration please log onto Windows as "Administrator" or ask your system administrator to install the USB to serial driver.

Connective Peripherals USB-Serial Converters use the FTDI chipset and drivers. If you already have older FTDI drivers installed, refer to section 2.7 for instructions on how to un-install these before proceeding to install the latest ones.
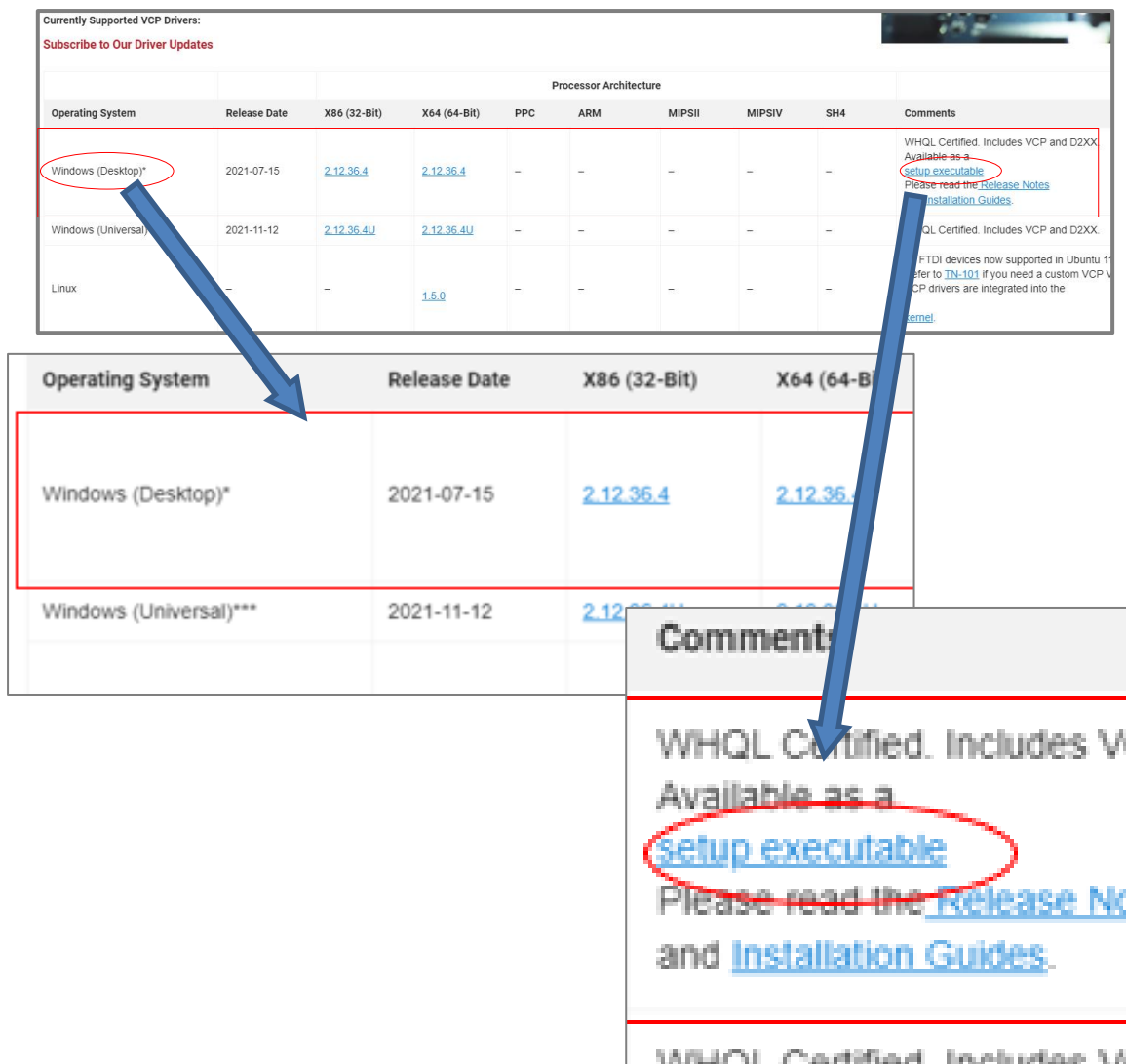
2.1 Option 1 – Driver Executable

The driver executable provides a fast and easy installation and does not depend on the Windows Update settings of the computer. It also allows installation on computers which do not have an internet connection, by copying the installer to a memory stick and transferring to the other computer.

2.1.1 Downloading the Driver

a.   Download the <u>latest version</u> of the driver setup executable file from the following link. Version 2.12.36.4 was the latest driver executable available when this manual was published (as circled below), but please check the link to the driver page below before installing your converter and use the latest version.
     https://ftdichip.com/drivers/vcp-drivers/

b.   To download the file, go to the *comments* column and right-click on the link "Setup Executable"

Figure 2 - Driver download from FTDI website

Note: If you wish to install the converter on a computer which is never connected to the internet, you can download the file using another computer and use a USB flash drive or similar to copy the file over to the computer which will be used with the converter.

c. Un-zip the file to extract the executable installer CDM212364_Setup.exe (for example, this can be done by right clicking the downloaded CDM212364_Setup.zip file and selecting "Extract All…") and selecting a suitable folder. By default, Windows will create a folder with the extracted files in it. Then browse to the folder which was created during the un-zip process.

2.1.2 Running the Installer

d. Right-click on the CDM212364_Setup.exe file and select 'Run as Administrator' to ensure that the program is run with administrator privileges.

e. Windows may display the warning below. This is just to notify you that you are running a file which was downloaded from the internet. If this appears, click 'Yes.'
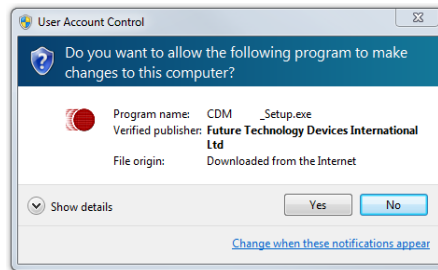
Figure 3 - User account control

f. The driver install wizard will appear as shown below. Click 'Extract' to proceed.
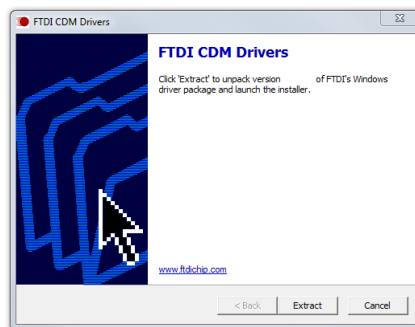
Figure 4 - Install Wizard initial window

g. Windows will now extract the files provided in the setup program.
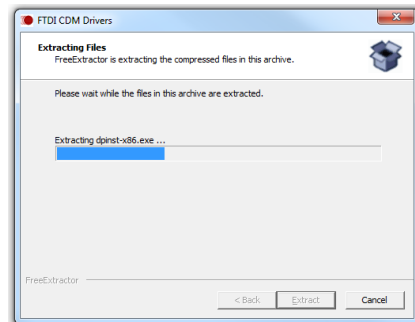
Figure 5 - Install Wizard – extracting files

h. Click 'Next' to begin installing the driver.
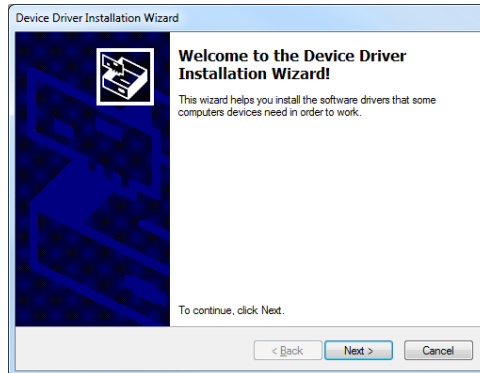
Figure 6 - Install Wizard – ready to install

i. You must review the license terms shown before installing the driver, and then select the appropriate radio button. By proceeding with the installation, you confirm your acceptance of these terms.
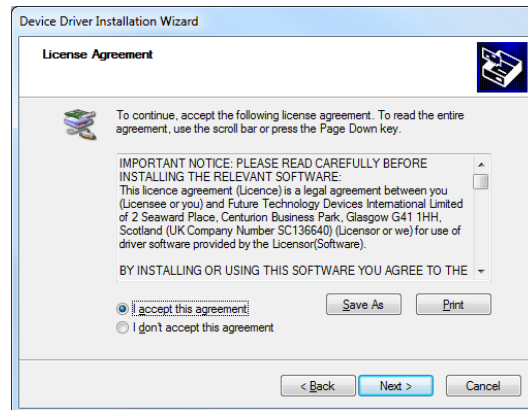
Figure 7 - Install Wizard – license agreement

j. The wizard will then show the drivers being installed.
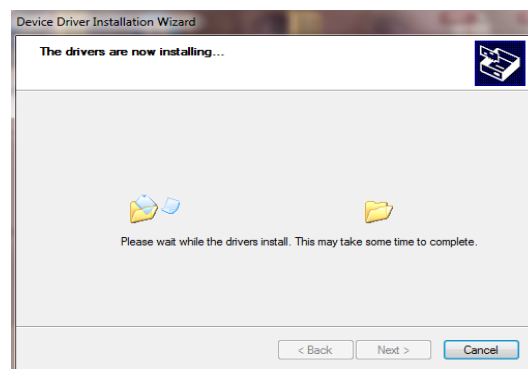
Figure 8 - Install Wizard – installing

k. Finally, the following screen will show that the drivers were installed correctly. Both items have green ticks next to them and have status 'Ready to use.'

Figure 9 - Install Wizard – completion

2.1.3 Connecting the Converter

The driver files are now on your system ready for Windows to find them when it detects the converter being plugged in.

You can now connect your Connective Peripherals adapter and installation will complete.

Note that you may see a message bubble pop up to say that Windows is installing a device and after a few seconds this will complete.

Please proceed to section 2.3 below to verify the installation. You do <u>not</u> need to run the steps shown in the Windows Update section in Option 2 below.


2.2 Option 2 - Windows Update

If your computer is currently connected to the internet, these steps will help you to install the driver automatically using Windows Update.

<u>Note</u> If you have already completed the steps to install the driver using the executable installer, installation is complete and you do not need to conduct the steps in this section.

2.2.1 Ensure Windows Update is Enabled

Windows has settings which control whether it will check online for drivers. The screenshots below may vary between Windows versions, but the options are generally will be similar to those shown in Figure 10 and Figure 11 below. If your computer is not connected to the internet or if you have configured Windows to not allow checking online for drivers, you can use the Driver Executable method above instead (see section 2.1).
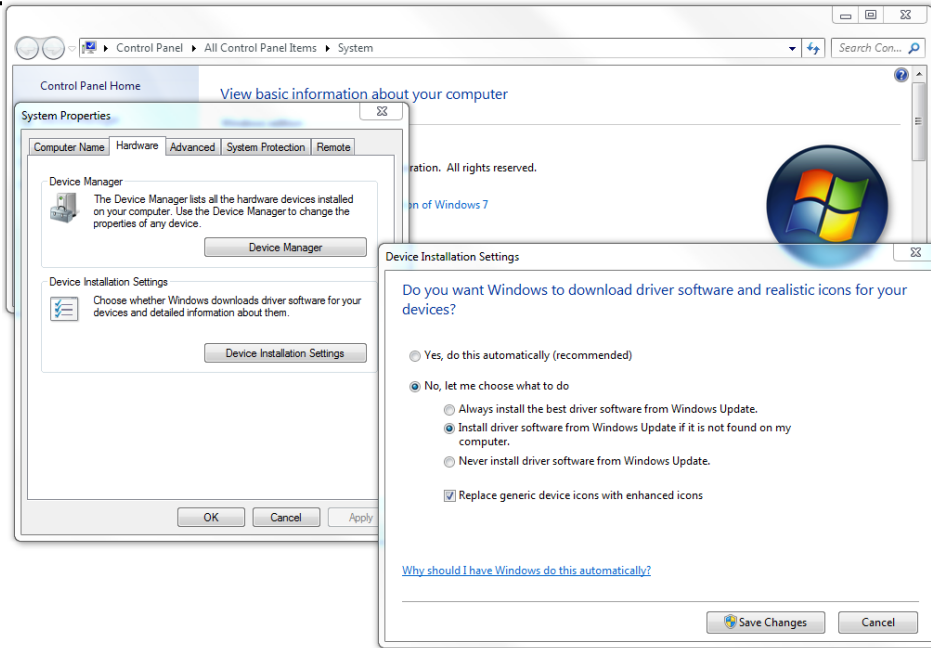
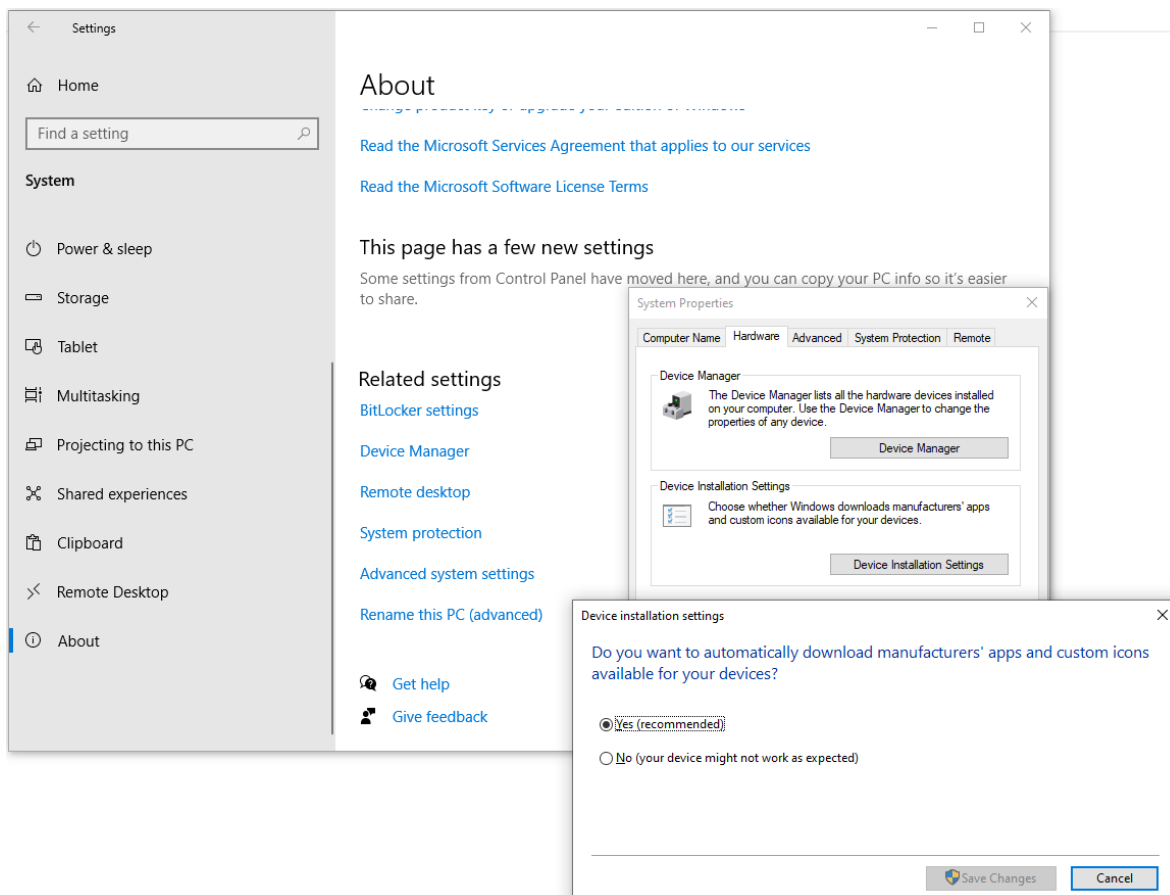**Figure 10 - Windows update settings (Windows 7)**

Figure 11 - Windows update settings (Windows 10)

2.2.2 Installation

a. Connect the power supply cable to the power inlet socket on the rear panel of the converter and connect the adapter to a power outlet. (Skip this step if your converter is a USB-powered model)

b. Connect the USB cable to your converter and the other end to an available USB port on your PC.

c. The computer will recognize the converter and display the Found New Hardware wizard. If this appears, proceed to the next step.

   Note that depending on your Windows update and Windows Driver settings, you may not see the New Hardware Wizard as Windows may proceed to install the driver automatically. You may instead see a small green animated icon in the task bar which shows that Windows is searching Windows Update in the background. In this case you can click the icon to see the status as shown below. Once it has found the drivers and installed them, you can proceed to step g.

Figure 12 - Windows installing driver in background

d. Select the option to allow Windows to connect to Windows Update to search for a driver. *Note that you must be connected to the internet to allow this to work. If you are not able to connect to the internet during the install process, use the Driver Executable method. In this case, disconnect the USB cable from the computer and cancel the Found New Hardware wizard before proceeding to step (a) of the Driver Executable section above (see the start of section 2.1).*

e. Select 'Install the software automatically (recommended).' Windows will download the driver from Windows Update and install it.

f. For some converters in the ES-U-xxxx family, Windows will display the Found New Hardware wizard several more times to install all the serial ports on the converter. Each time the wizard is displayed, repeat steps (c) to (e) above.

g. Once installation is complete, you will see the following message. Please proceed to section 2.3 below to verify the installation. You do <u>not</u> need to run the steps shown in the Driver Executable section in Option 1 above.
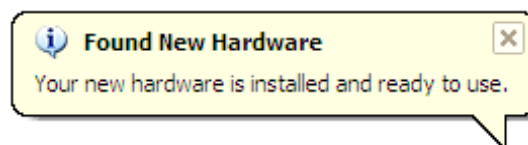

Figure 13 - Hardware installed successfully

2.3 Verifying the Installation

To verify installation, open the Device Manager. This can be found by searching for Device Manager in the search bar.
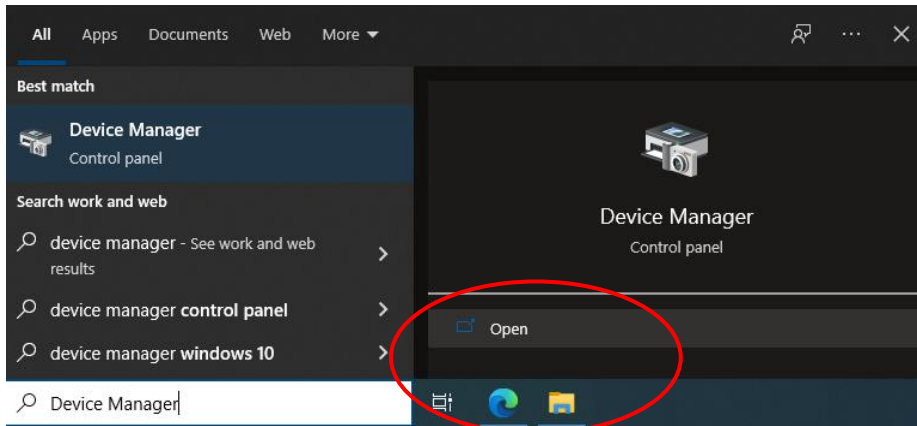
Figure 14 - Opening Device Manager

The device will show in two sections of Device Manager. Firstly, it will show under the Universal Serial Bus Controllers section. Also, it will also show under Ports (COM & LPT). This Ports entry is only visible when the Virtual Com Port (VCP) mode is enabled (the adapter will have this enabled by default when supplied).

There will be one entry per port. A single-port converter will have one USB Serial Port (COM) entry under Ports and one USB Serial Converter entry under Universal Serial Bus Controllers as shown in Figure 15.

The screenshot in Figure 16 shows a 4-port converter such as the USB2-H-1004-M and the four entries can be seen.

Some application software requires you to enter the COM port number assigned to your serial adapter. This can be found under the Ports (COM & LPT section). In the examples below, the single-port USB2-H-5001-M (Figure 15) has COM 7 allocated and the four-port USB2-H-1004-M (Figure 16) has COM ports 4 – 7 assigned.
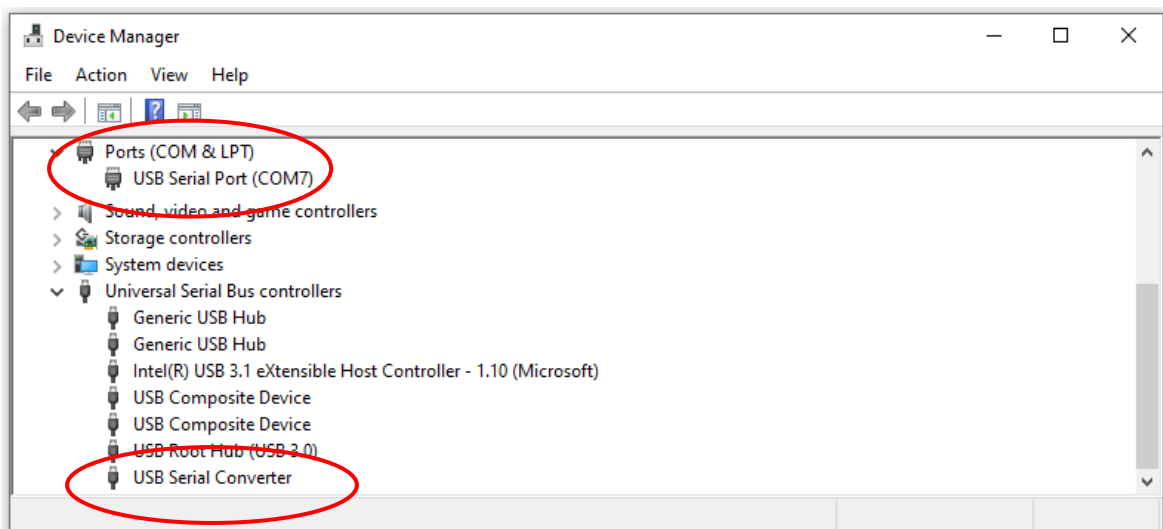
Figure 15 - Device Manager after installing a converter with one port
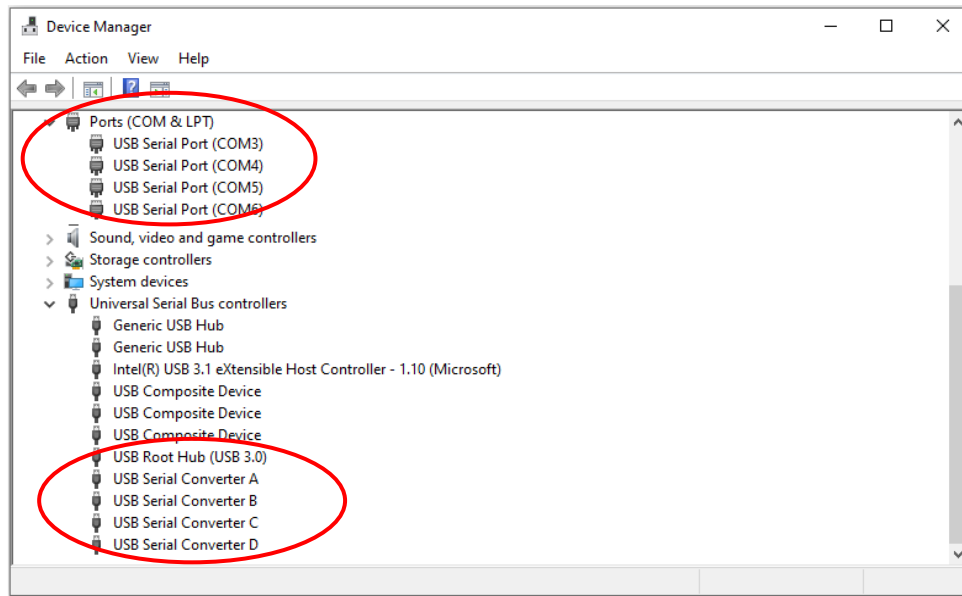
Figure 16 - Device Manager after installing a converter with four ports

2.4 Changing COM Port Properties and COM Number

This feature is particularly useful for programs which only work with COM1 through COM4. Please note that you cannot change to a COM port number which is already in use.

To change the virtual COM port properties:

a. Double-click the "USB Serial Port" in the Device Manager.

b. Select "Port Setting" and "Advanced."

c. Click the drop-down arrow on COM Port Number, scroll to the required COM port and Select "OK".

d. Return to the Device Manager Screen. You will see that the USB Serial Port installation has been changed to the new COM Port Number.
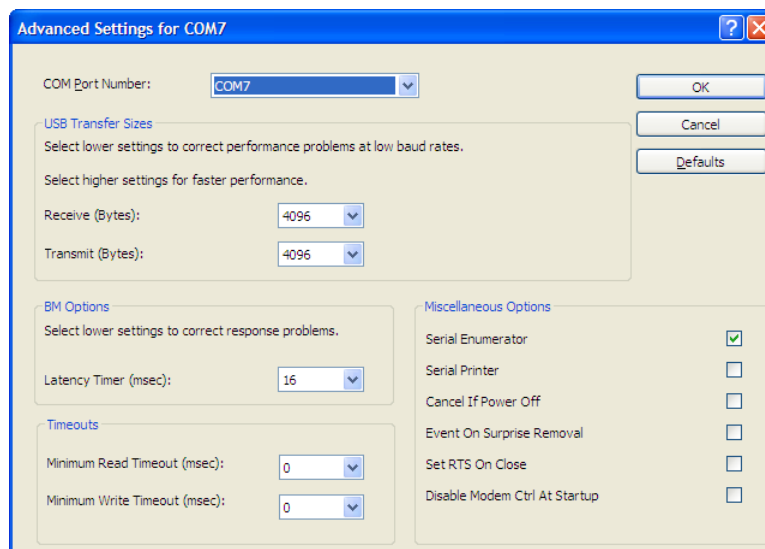
Figure 17 - Advanced port settings dialog

2.5 Resolving Driver Issues

Some common Windows Device Driver issues can be resolved by changing the advanced driver options.

- **Device Times Out**
  The default settings of the device driver assume typical data transfers of hundreds to thousands or more bytes at a given time. Some applications, such as a GPS device, only send data in short packets, often only a few bytes. If this is the case, it may be necessary to adjust the driver buffer size and/or latency timer to smaller values. These values can be adjusted through the Advanced Driver Options as noted in Figure 17 on page 12.

  - The buffer size can be reduced to 64 bytes (see Receive Size and Transmit Size drop-down boxes).

  - The latency timer can be set as low as 2ms. A setting of 1ms will cause unnecessary USB traffic and could adversely affect data transmission.

- **Erratic mouse pointer (or my adapter appears as a mouse)**
  The device driver defaults to query an attached device to find out whether it is a mouse or modem, consistent with native COM port operation. Some RS232 peripherals constantly send short packets of data, causing the host system to "think" a mouse or modem has been attached. These short packets will interfere with normal mouse operation causing the pointer to jump around the screen. If this happens, disconnect the RS232 device and uncheck the Serial Enumerator option, also found on the advanced driver options screen (see Figure 17 on page 12).

- **COM port number in use**
  Windows keeps track of all COM port assignments. If multiple products have been connected to a single system, the COM port number will increase, even if the other devices are not attached. If the higher COM port assignments are not acceptable for the application, known unused COM port numbers should be uninstalled according to the FTDI installation guide https://ftdichip.com/document/installation-guides/ or by running the driver un-install process from section 2.7 followed by re-installing the driver to give a fresh install.

2.6 Further Information on Resolving Driver Issues

The following resources may be helpful:

- **Look at the Installation guide for your operating system at the link below**
  https://ftdichip.com/document/installation-guides/

- **Look at the troubleshooting app note**
  TN_104_Guide-to-Debugging_Customers_Failed_Driver_-Installation

- If other devices with FTDI chips are installed in the system, check with the manufacturers of these devices for the latest device drivers as all devices should use the latest FTDI drivers to avoid conflicts.

If you have tried the steps shown above and are still having problems with your Connective Peripherals converter, you can contact Connective Peripherals support using the contact information on this page: https://connectiveperipherals.com/pages/contact-us

2.7 Removing existing FTDI drivers

This procedure for Windows shows how to remove the currently installed FTDI drivers thereby helping to ensure a clean install.

If the computer has had any earlier versions of the FTDI driver installed, it is recommended to remove the old one first. Also, in the event of issues installing the driver or issues in opening and using the COM port provided by the unit, it is recommended to remove and re-install the drivers.

This procedure is provided for information only. FTDI / Connective Peripherals accept no responsibility whatsoever for any problems or consequences resulting from its use. Users requiring further information should consult the CDM Uninstaller user guide and the installation guides provided for each OS on the FTDI website.

a. Disconnect the USB cable of your FTDI converter(s) from the PC before running the uninstaller.
b. Create a folder on your desktop called CDMuninstaller. Then download the driver uninstaller from the link below and save it into the folder you created.

   http://www.ftdichip.com/Support/Utilities/CDMUninstaller_v1.4.zip
   Note: If you wish to run this uninstaller tool on a computer which is never connected to the internet, you can download the file using another computer and use a USB flash drive or similar to copy the file over to the computer which will be used with the converter.

c. Unzip the CDMUninstaller program.

d. Right-click on the file CDMuninstallerGUI.exe and select 'Run as Administrator' to ensure that the program is run with administrator privileges. You should see the window shown in Figure 18 below.

Figure 18 - CDM Uninstaller – Initial window

e. Leave the Vendor ID as 0403 and delete the entry 6001 in the Product ID box to leave it blank as shown in Figure 19.
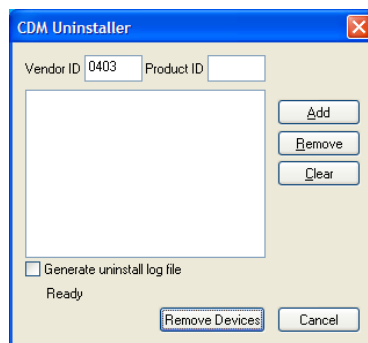

Figure 19 - Changing Product ID window

f.   Then click the 'Add' button and the window will look like the one shown in Figure 20.
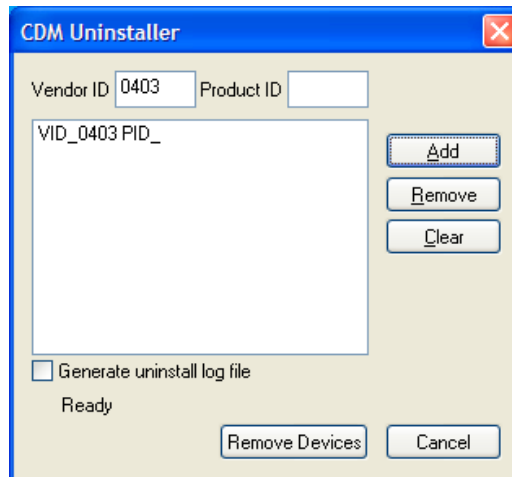

Figure 20 - CDM Uninstaller – Adding to list

g.   Finally, click 'Remove Devices' at the bottom of the Window and the drivers for all FTDI converters will be removed. You will get one or more message boxes popping up (see Figure 21) to confirm this.

Figure 21 - CDM Uninstaller – Device removed

h.   Once the drivers have all been uninstalled (the large text box will be blank again like Figure 18 above and the status message will be back to 'ready') you can close the program.

i.   It is recommended to re-start the PC at this stage.

j.   You can now proceed to install the latest driver using the instructions in section 2.

3 Linux

Many distributions include a sio driver for FTDI chipsets.

Distributions containing the ftdi_sio and using Kernel 3.0.27 onwards support the FTDI devices used in Connective Peripherals converters in the sio driver

For legacy distributions which include ftdi_sio but have a Kernel older than 3.0.27, some of the latest revisions (rev B or later which use FT-X series chipsets) of the Connective Peripherals converters may not be supported as the Kernel and sio pre-date the USB-serial chipsets used.

Connective Peripherals have a udev rule below which adds the Product ID of the FT231X (0x6015) to the sio driver. This allows the updated version of the product to work on some legacy Linux versions.

```
#This file adds a specified PID to the ftdi_sio driver when a matching device is
connected to the system.
#
ACTION=="add",          ATTRS{idVendor}=="0403",          ATTRS{idProduct}=="6015",
RUN+="/sbin/modprobe ftdi_sio" RUN+="/bin/sh -c 'echo 0403 6015 > /sys/bus/usb-
serial/drivers/ftdi_sio/new_id
```

For distributions which do not have sio drivers built in, it may be possible to use the FTDI Linux drivers. Please refer to the driver's page and install guides below.

To install this udev rule on your Linux distribution the following procedure can be used:

1. Open a terminal window in Linux.

2. Go to the **/etc/udev/rules.d** directory.

3. Using your preferred Linux text editor, create a new file with the following name: **99-usbftdi.rules**

    The "sudo" command can be used here to create files.

4. Copy the above rule into the **99-usbftdi.rules** file, then save and close the file.

5. To install the udev rule run the following command in the terminal, or reboot your machine:

    sudo udevcontrol_reload rules

More details on creating and installing udev rules can be found in the following: [TN 101 Implementing Custom FTDI VID and PID Codes using Linux](#)

Installation Guides   http://www.ftdichip.com/Support/Documents/InstallGuides.htm
Drivers   http://www.ftdichip.com/Drivers/VCP.htm

Note: Compatibility with legacy OS versions is not guaranteed and any support is at the discretion of Connective Peripherals as the operating system is no longer supported by the OS manufacturer.

4 Mac

OS X versions from Mavericks onwards include an Apple-provided driver for FTDI chipsets.

Some older OS X versions post-Mavericks include an FTDI driver supporting the FT232B and FT232R but not supporting the FT231X chipset which is used in rev B and C of some products. In these cases, the FTDI-provided VCP driver can be used with the updated product. These are available from the *Currently Supported Drivers* table at FTDI VCP Drivers page (see link below) and can be installed using the procedure explained in the Mac OS X Installation guide (see the Install Guides link below)

For OS X Sierra and OS X High Sierra, the driver included with the OS supports the FT-X chip series and so can support the rev B and later models.

Installation Guides   http://www.ftdichip.com/Support/Documents/InstallGuides.htm
Drivers   http://www.ftdichip.com/Drivers/VCP.htm

Note: Compatibility with legacy OS versions is not guaranteed and any support is at the discretion of Connective Peripherals as the operating system is no longer supported by the OS manufacturer.

5 Older Windows Versions

For current versions (Windows 7 up to Windows 11) the latest FTDI drivers should be used. Installation can be conducted as shown in section 2 by either manual installer or Windows Update.

For older versions of Windows (before Windows 7) please refer to the FTDI device drivers and installation guides for your operating system which are available at the following links.
The drivers are available under the No Longer Supported section of the table.

Installation Guides   http://www.ftdichip.com/Support/Documents/InstallGuides.htm
Drivers   http://www.ftdichip.com/Drivers/VCP.htm

Driver 2.08.24 was the last driver signed for Windows XP and later drivers may not install due to the digital signing requirements and updates to the driver which are only supported by Windows 7 and later.

Note: Compatibility with legacy OS versions is not guaranteed and any support is at the discretion of Connective Peripherals as the operating system is no longer supported by the OS manufacturer.

6 Contact Information

Global Headquarters – Singapore

Connective Peripherals Pte Ltd
178 Paya Lebar Road
#07-03
Singapore 409030

Tel: +65 67430980
Fax: +65 68416071

E-Mail (Sales)   sales@connectiveperipherals.com
E-Mail (Support)   support@connectiveperipherals.com
Web Site URL   http://www.connectiveperipherals.com
Web Shop URL   http://www.connectiveperipherals.com

Appendix A - List of Figures & Tables

List of Figures

List of Tables

NA

Appendix B - Revision History

Revision	Changes	Date (DD-MM-YYYY)
1.0	Initial release	01-04-2022