USB to RS-422 / 485

US-101-485
USB To Serial Operation Manual

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Introduction

Thank you for your purchase of US-101-485 as the USB to serial adapter. Featuring USB (Universal Serial Bus) interface technology, it is converted the USB to RS-485/422, so can be easily adopted for industrial machines with RS-485/422 interfaces. US-101-485 is compatible with fully compatible with the USB V1.0~2.0. US-101-485's electrical power is from USB port and doesn't need any power adapter. You can connect a PC USB port or USB hub to US-101-485 via the USB cable and High-Speed RS-485/422 serial port which features easy connectivity for traditional serial devices in your working environments.

US-101-485 offers internal surge-protection on RS-485/422's data lines. Internal high-speed transient suppressors on each data line protect US-101-485 from dangerous voltages levels or spikes.

2
Package checklist

US-101-485 product is shipped with the following items:

- 1 unit of US-101-485 USB to RS-485/422 converter
- 1 unit of A type to A type USB cable
- User Operation Manual
- Software CD

NOTE: Notify your sales representative if any of the above items is missing or
    damaged

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Product Specification

- **Serial Port**

  - **RS-485/4225**
    - No. of Ports : 422/485 * 1 Port (Terminal Block)
    - RS-422 Signals : RxD+ , RxD- , TxD+ , TxD- in Full-duplex (Surge Protection)
    - RS-485 Signals : Data+ , Data- in Half-duplex (Surge Protection)
    - Receive buffer : 576 Byte
    - Transmit buffer : 640 Byte
    - Baud Rate Speed : 300 bps～230.4k bps
    - Built-in RS-422/RS-485 Terminal Resister (Surge Protection)
    - Connected Serial port type identification : Auto-Detection
    - Built in Terminal 100 Ohm Terminal resistor SW selection ON/OFF
    - 15KV ESD for all signal

- **USB Port**

  No. of Ports : USB * 1 Port
    - Chipset : Silicon Laboratories CP2102
    - Fully compatible with the USB V1.0, V1.2, V2.0
    - USB type A connector
    - Baud Rates : Full speed 12 Mbps.

- Driver OS Support
  - Windows – 98E / 2000 / XP / Server 2003 /Vista , Mac osx / os9 , Linux 2.4 / 2.6

- Power :USB bus power as voltage DC +5V

- Environment :
  - Operating Temperature: 0℃～60℃
  - Storage Temperature : -20℃～85℃

- Humidity: 5-95% RH

- Dimensions : 55 * 40 * 25 mm (W * D * H)

- WEIGHT : 35 gm

- Regulatory Approved.

 - EMC :   FCC Class A, CE Class A
  - WARRANTY :   9 months

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Product Panel Views Description

US-101-485 Product Views

USB Type A Connector ← (left label)

Serial I/O Port RS-485/422 → (right label)

Terminator → (right label)

USB Type A Connector

Power Outlet - The US-101-485 USB to RS-485/422 is powered by USB (Universal Serial Bus) port a single 5V DC (Inner positive/outer negative) power supply and 500mA of current. To connect the USB cable to between a PC USB port or USB hub and US-101-485's USB port.
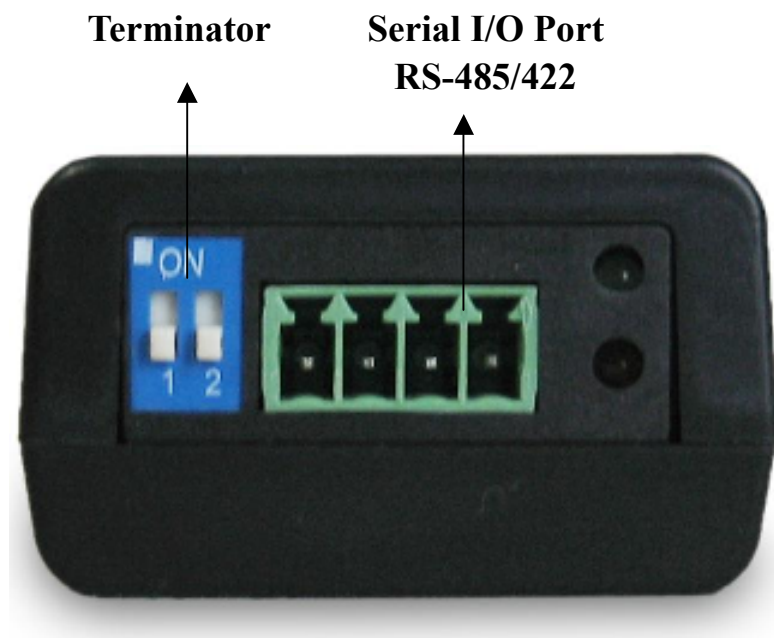

USB Type A Port ← (label)
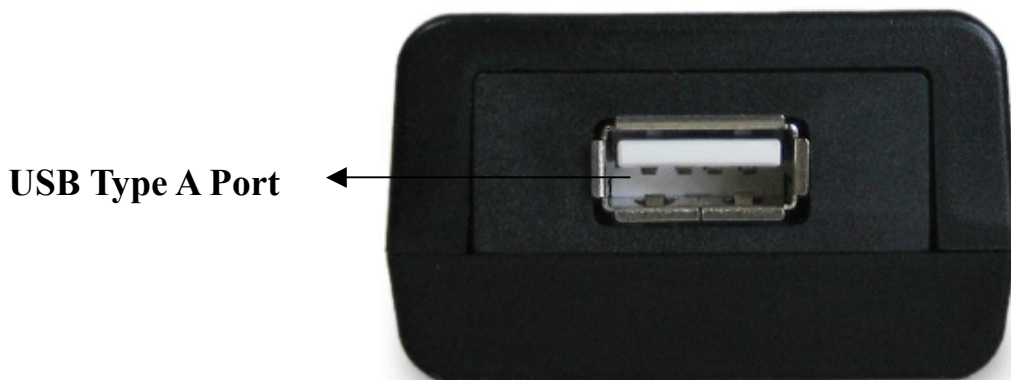
US-101-485's USB port is a USB type A connector and it is fully compatible with the USB V1.1～2.0

Serial I/O Port

Serial I/O Port of RS-485/422

To connected the serial data cable between the converter and the serial device. Follow the parameter setup procedures to configure the converter (see the following chapters).

Terminator   Serial I/O Port
                       RS-485/422

Terminator

The purpose is for compensating signal attenuation in long distance connection at RS-485/422 . If the switch 1 & 2 are set in "ON" position, the signal compensation will be activated. To disable the function, just to push switch 1 & 2 to opposite position.

LED Indicators

Power LED

SYS (Red)：

It is a power indicator (When the power is on, the SYS LED will be on.)

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US-101-485 Driver Installation

When setting up US-101-485 adapter for the first time, you have to install CP201x as "US-101-485 Driver" first in your computer device before connecting it. There are several kind OS as Windows 98 / XP / 2000 / VISTA…, Linux … , Mac…. The utility CD is enclosed in the device box.

All the US-101-485 USB to RS-485/422 Adapters must be installed the driver first before you use it.

● **Driver Installation**

Before when connecting up US-101-485 adapter for the first time, you have to install the driver software in your computer first. US-101-485's driver has supported several kinds of OS like Windows, Mac and Linux

A. Install CP210x_VCP_Win2K_XP software

Through CD-ROM and find adaptable OS to your computer equipment.
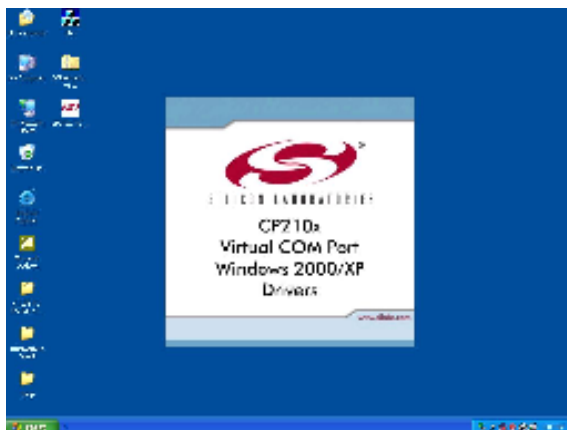
B. Choose "Next" Icon

If your computer equipment is running Windows OS that the pop-up screen of installing massage will be showed as "CP210x VCP Drivers for Windows 2000/XP on your computer" and then to Click "Next" icon for going to next step.
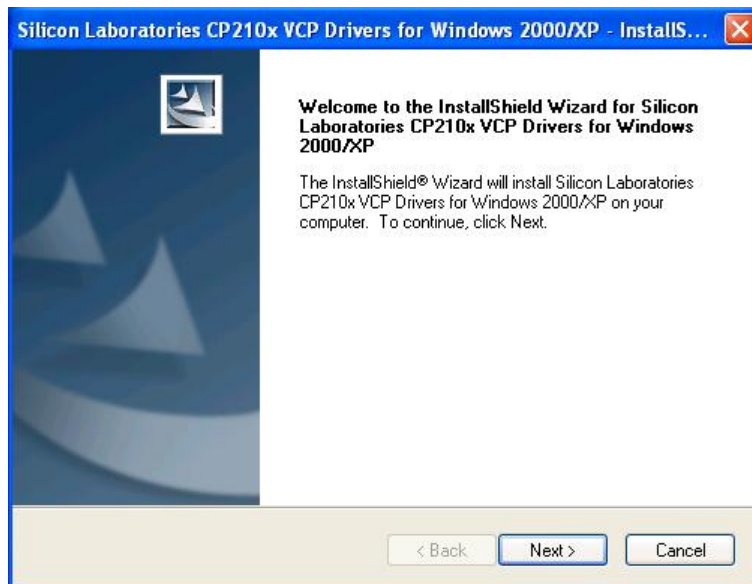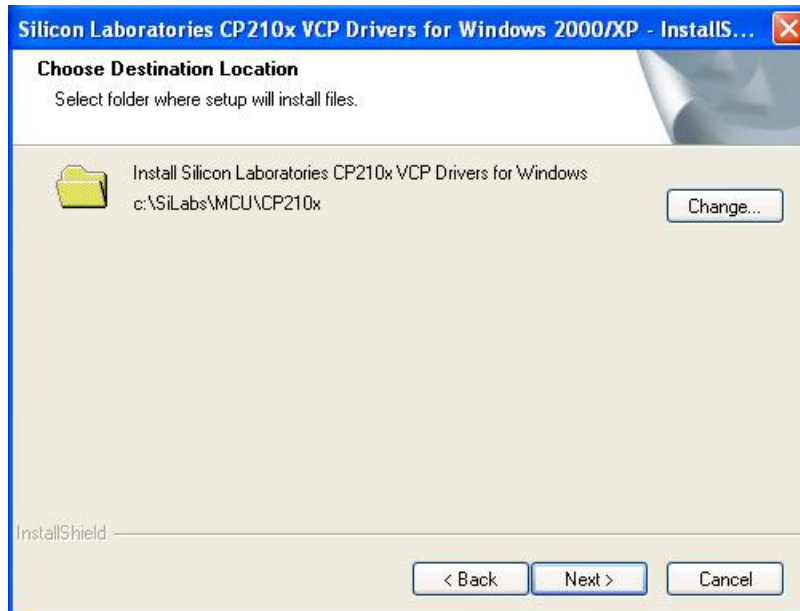

C. Choose "Accept" item of license agreement

After reading the license agreement then if you agree the terms to choose the item "I accept the term of the license agreement".
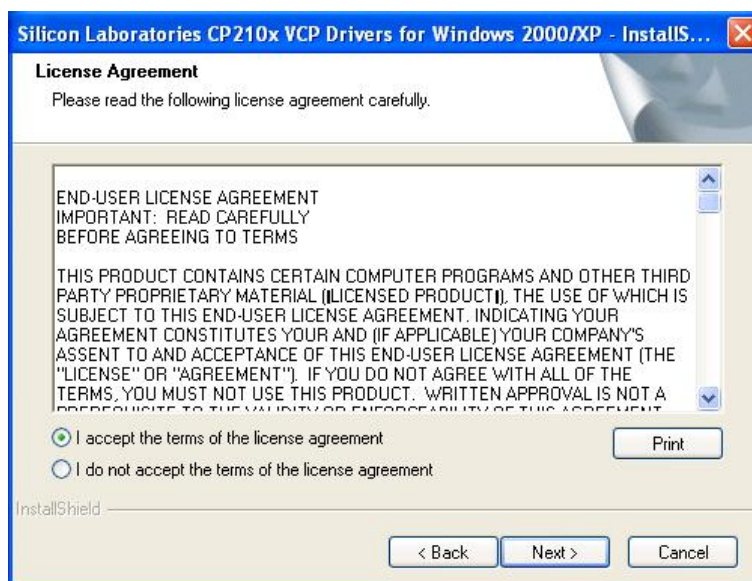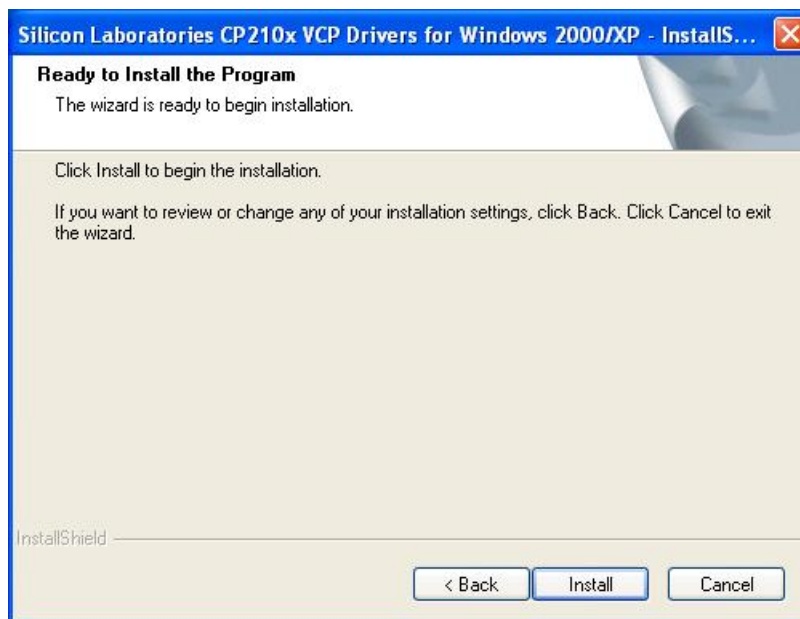
D. Choose destination location

It is for saving the CP201x driver software in destination location of computer.

E. Execute the program installation

Click the "install" icon to begin installation of CP210x driver.

F. install CP210x VCP Driver for Windows 2000/XP

After click "Install" icon, the installshield wizard is installing Silicon Laboratories CP210x drivers for Windows 2000/XP and installation location.
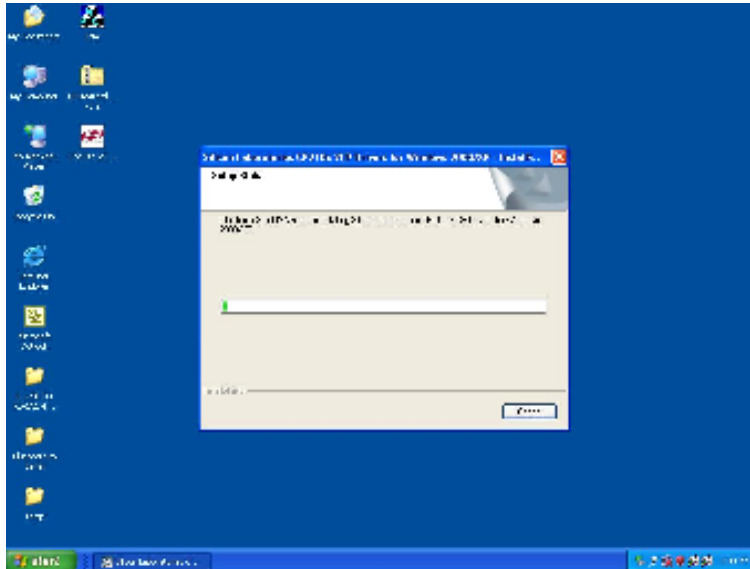
G. InstallShield Wizard Complete

CP201x VCP driver has successfully installed and click "Finish" icon for exiting the wizard.
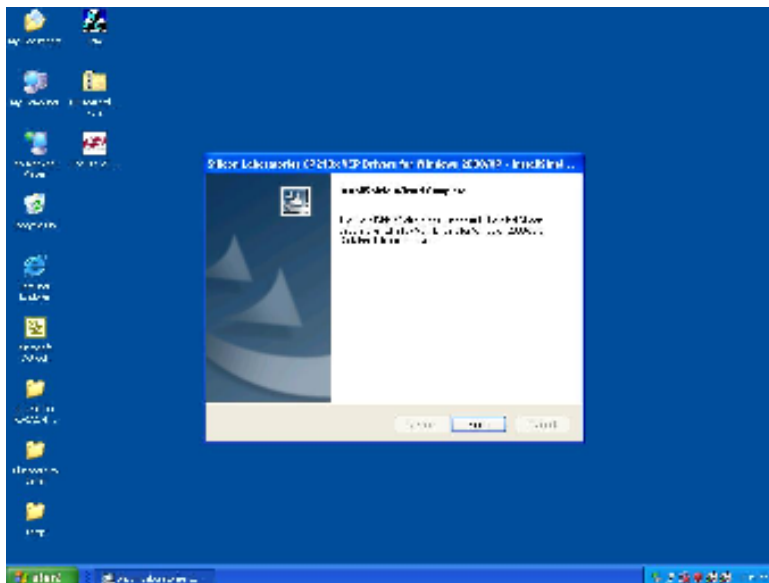
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US-101-485 Hardware Installation & Setup

● Hardware Installation

1. Power on your computer and until OS is ready after booting

2. There is a type A USB cable has two distinct connectors to connect the cable from a USB device to as on a computer or USB hub.

USB Type A port   USB Type A connector
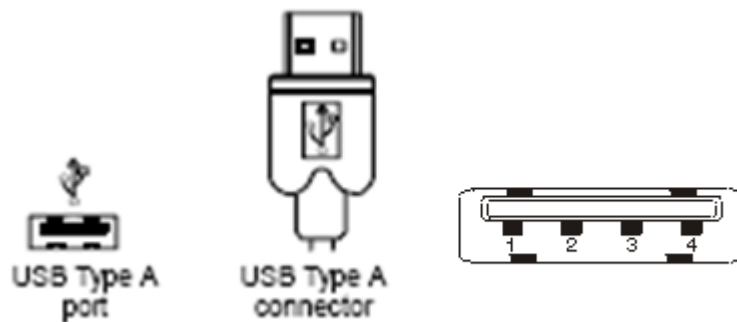
3. Connect USB cable between a PC USB port or USB hub and US-101-485 adapter.
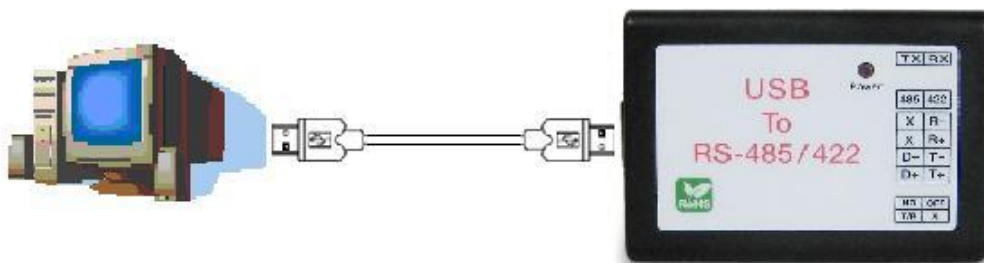
4. Connect the serial port RS-485/422 equipments to US-101-485 of USB to serial adapter.

5. After connecting US-101-485 USB to serial converter then a massage as " New device has been connected" will be pop-up on screen. However, the CT201x VCP driver needs to be installed in PC in advance.

6. The SYS indicator of red LED will be turn into on. The US-101-485 USB to serial adapter is active.

● Hardware Setup

When US-101-485 adapter has successfully connected and you can setup more detail parameters by computer's manage.

A. Into "Manage" icon in My Computer

Click "My Computer" icon and then press the right side button of mouse. After you click the manage item on list bar then "Computer Management(Local) list will be pop-up .
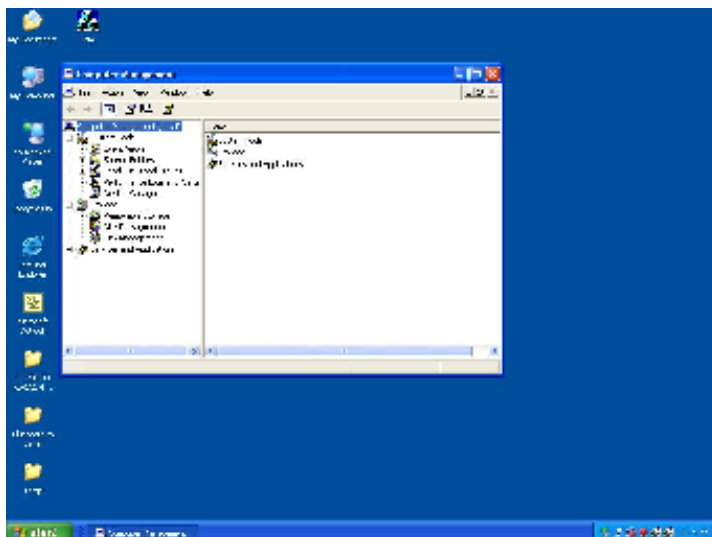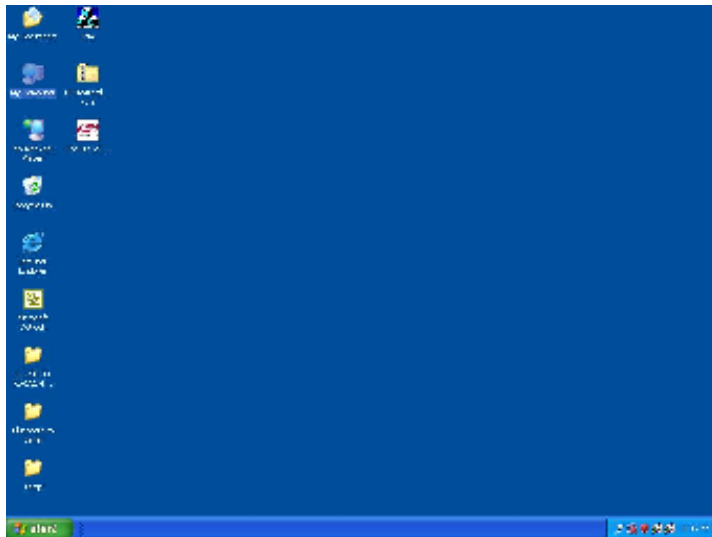
B. Choose "Device Manager" and click "Ports(COM & LPT)" in Device Manager

Click "Device Manager" item, all devices of computer will be list on right site of screen and then click "Ports (COM & LPT) item for looking for more COM devices.
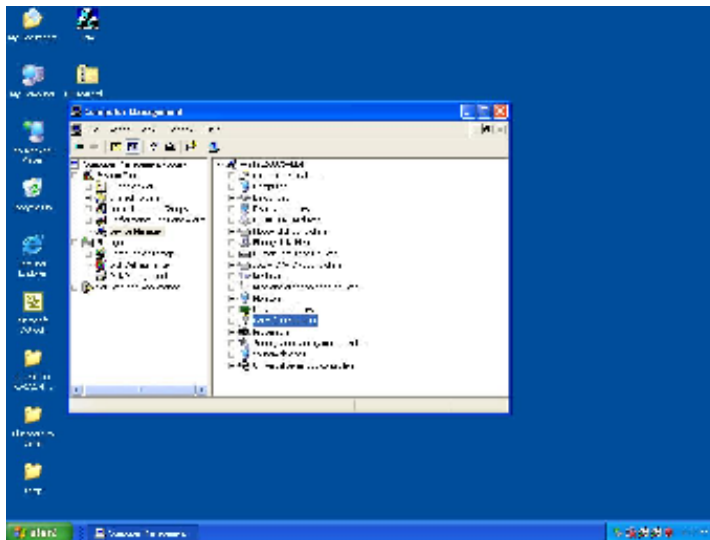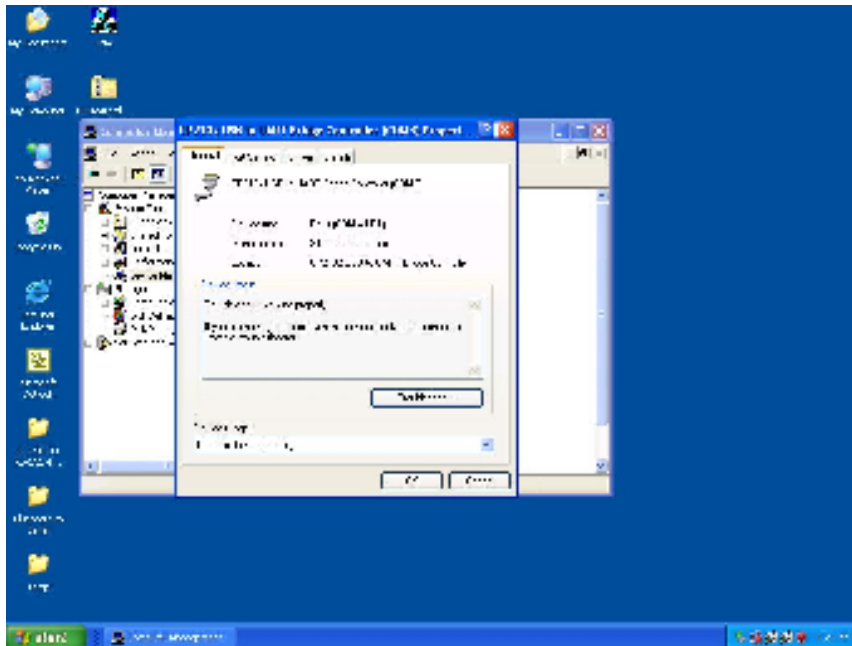

C. Detail parameters of CP210x USB to UART Bridge Controller

Click "CP210x USB to UART Bridge Controller" for getting more detail information of the device.
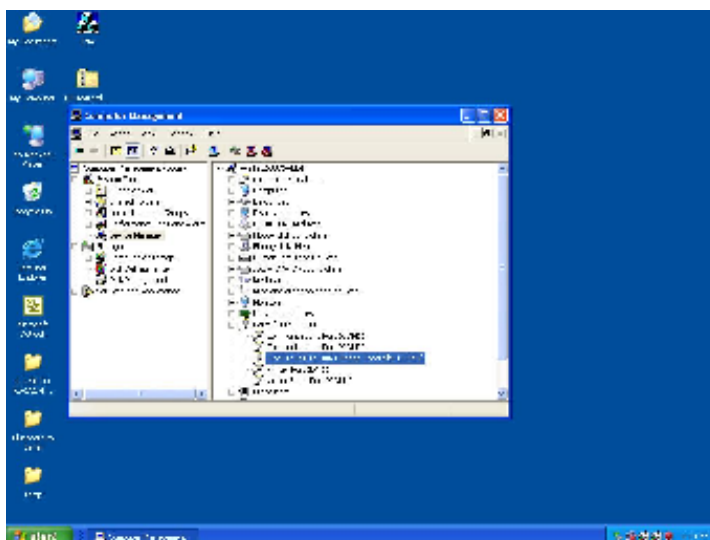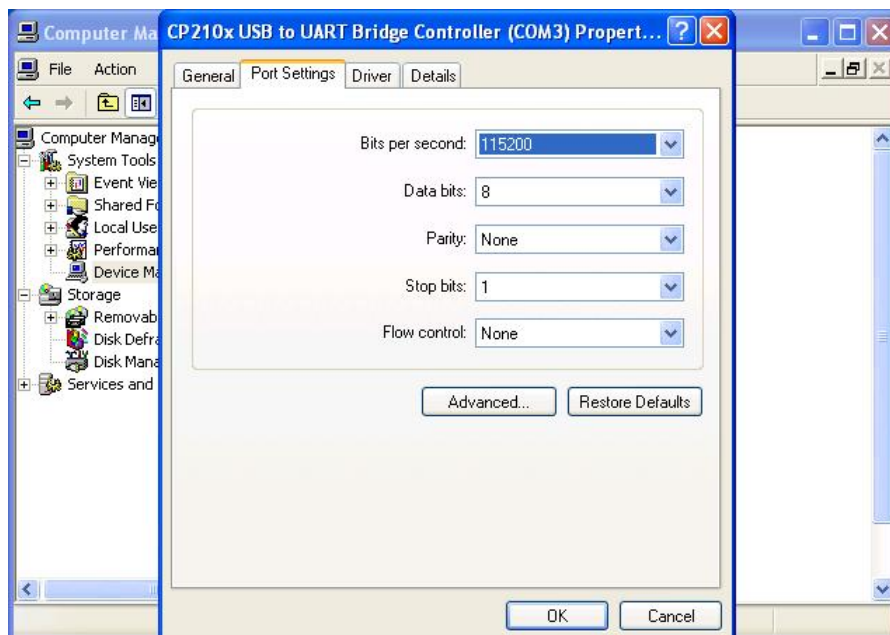
D. Device general status of CP210x USB to UART Bridge Controller

This is showing the statues of device and some product general information. COM port number of device is also display on.
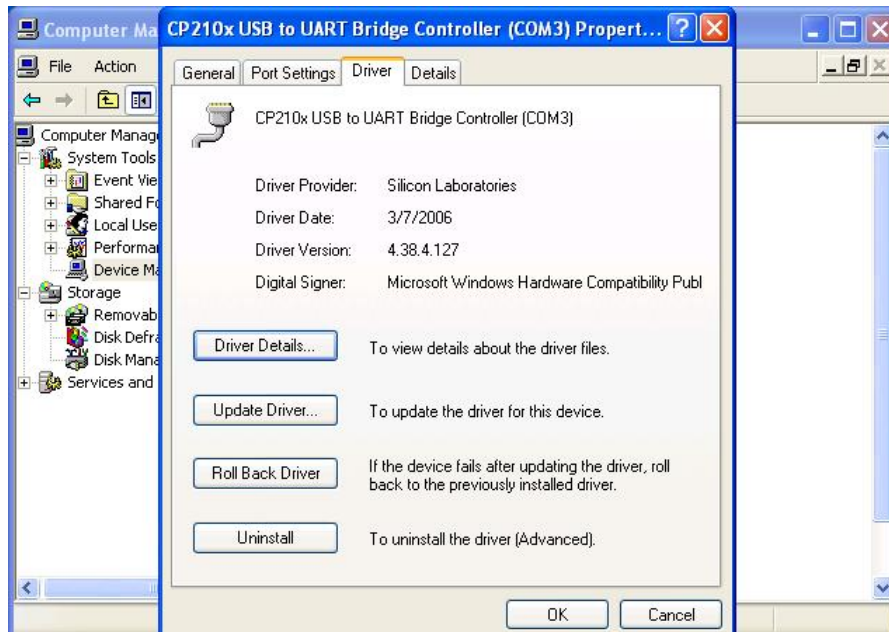

E. "Port Settings" communication detail information

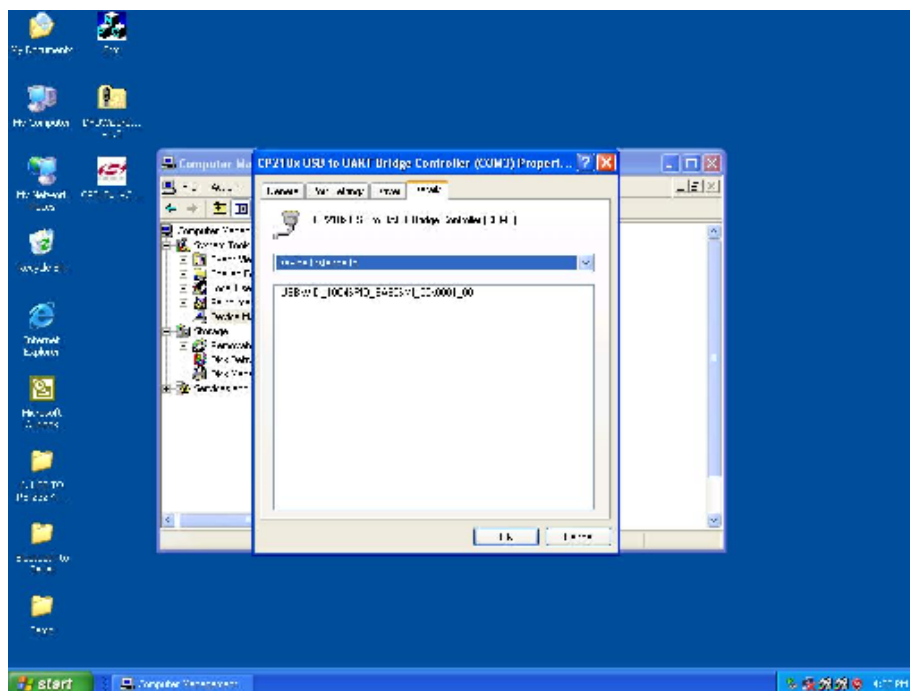This is for checking and setting more detail parameters of device for communicating.

F. "Driver" detail information

The driver detail information as you installed in your computer.

G. "Details" item

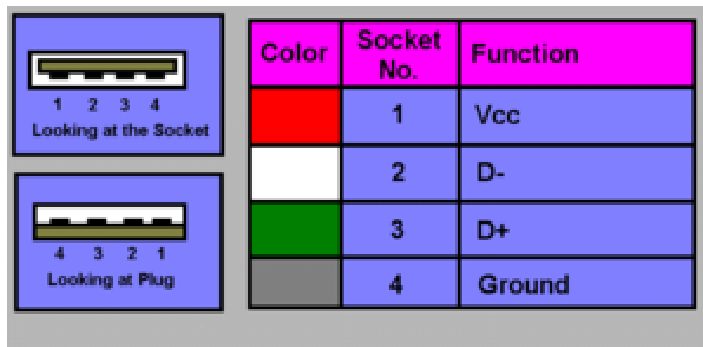It is for checking device ID numbers as device instance ID.
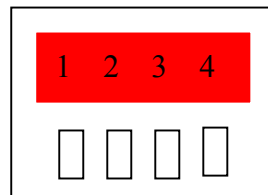
Appendix A

Pin outs and Connector

□ **USB Layout Diagram**

Type A USB Connector

Color	Socket No.	Function
(red)	1	Vcc
(white)	2	D-
(green)	3	D+
(gray)	4	Ground

□ **RS-422 Pin Assignment**

The pin assignment scheme for a 4-pin RS-422 is given below.

RS-422 : PIN 1 : T+   PIN 2 : T-   PIN 3 : R+   PIN 4 : R-
RS-485 : PIN 1 : D+   PIN 2 : D-

□ **RS-422 Wiring Diagram**

Serial Device		US-101-485
R-	2	T-
R+	1	T+
T-	4	R-
T+	3	R+

☐ RS-485 Wiring Diagram

Serial Device   US-101-485

D-   2   D-

D+   1   D+

Serial Device   US-101-485