USB/MPI+ Programming Cable Driver Procedure

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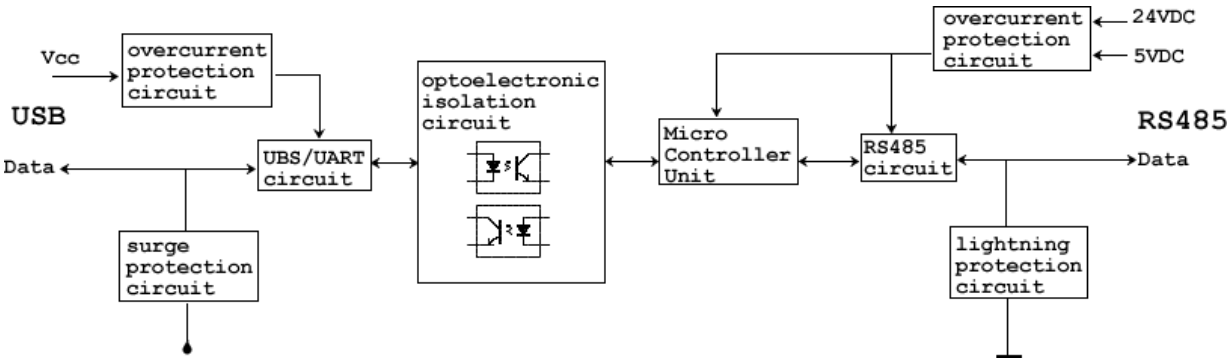
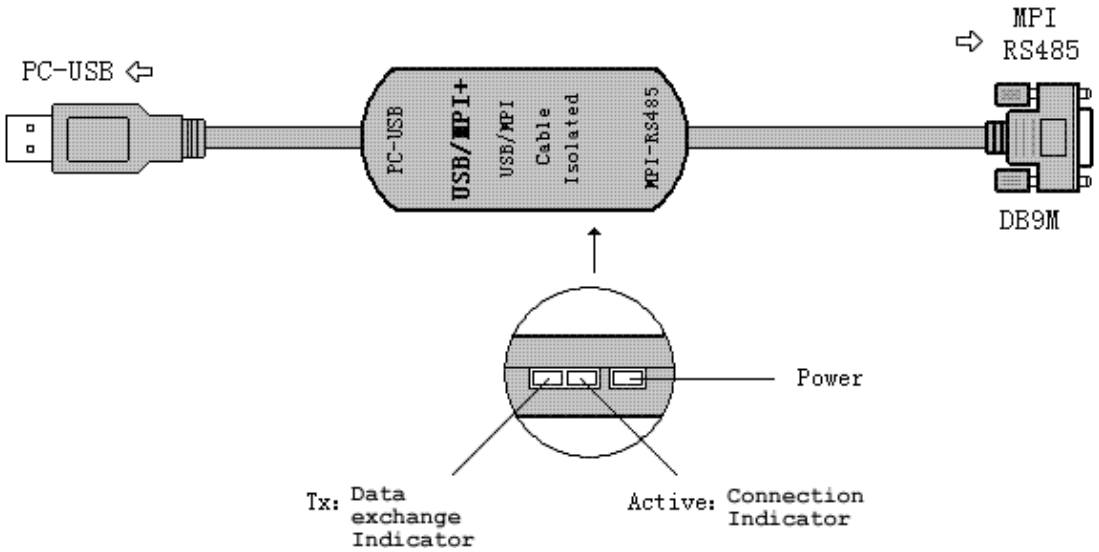
Introduction

USB/MPI+ is the optoelectronic isolated adapter for industrial design. There is anti-surging& anti-lightning protection circuit for the USB and RS485 interface. It support hot plug. It's suitable for the communication between Siemens S7-300/400 series PLC or other equipments with MPI interface and computer. In particular, it applies to the strong interfere industrial scene and the safeguard in the circuit guarantees the safely running of the system.

USB/MPI+ principle and figure structure:





Indicator	ON	Flash	Off
Power	Power On	Error	Error Or Power off
Active	Connected	Data exchange	Not Connected
Tx	Error	Data exchange	No Data exchange

Indicator State

USB/MPI+ programming cable simulate USB port as traditional serial port (usually COM3), which enables existing programming software(**STEP 7**) to communicate through simulated traditional port and PLC devices.

Functions

- Support Windows2000/Windows XP
- Support STEP7 V5.2 and higher
- Fully compatible with USB V1.1 and USB V2.0
- Power supply by both USB main line and MPI programming port(Total 1W).with Overcurrent Protection and Surge Protection
- High optoelectronic isolation voltage up to 1000VDC
- The USB port design with surge protection .The RS485 port design with overcurrent protection and lightning protection(500W)
- Baud rate of Com port on PC: 19.2Kbps~115.2Kbps
- Baud rate of MPI port on PLC: 19.2Kbps~187.5Kbps
- Support long distance communication up to 1000m
- Working temperature -20~+75'C
- Length 3 meters.Color:black
- One pc supports one USB programming cable only

System requirement

Please make sure your PC is IBM PC compatible and has the following system requirements before using the USB programming cable.

- Intel is compatible with 586DX4-100MHz CPU or higher
- A standard USB port (4-pin A plug)
- Operating system is Windows2000 or Windows XP

The setting of driver procedure

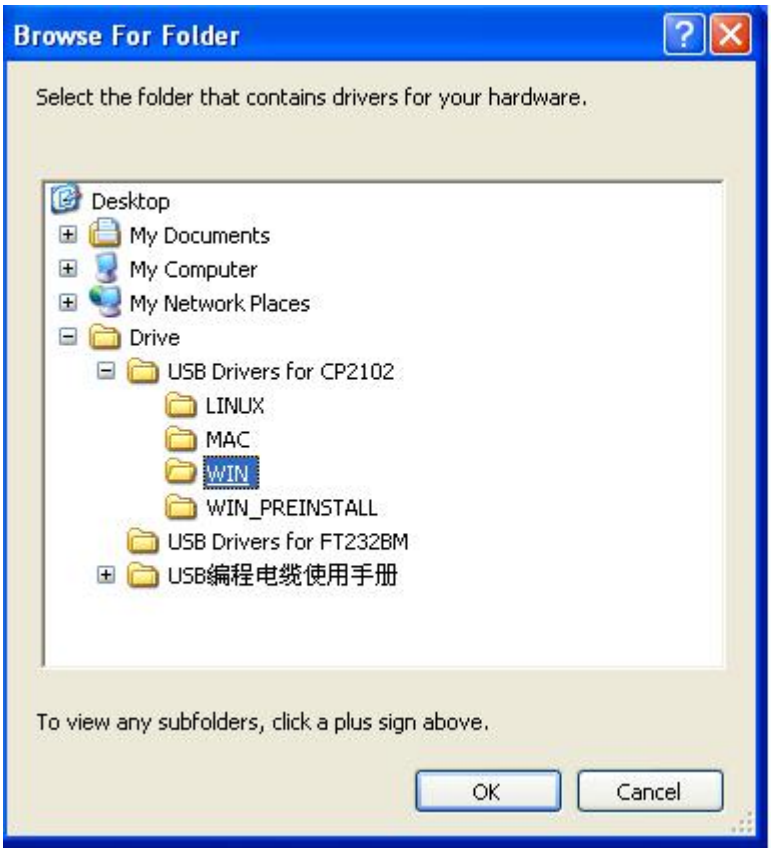
Please set the driver procedure according to the following steps:

1. Turning on PC power that will connect the USB programming cable and make sure the USB port working well.
2. Put the USB programming cable into USB port and Windows will detect the device and help to add new hardware and jump to new device setting. Insert the driver CD and click “next” to continue, or select the driver on the hard disk.

If Windows does not show “find new hardware”, please click “Universal Serial bus controllers” in the hardware list of device manager, and choose the USB device with question mark. Click the right key of mouse and operate to update driver procedure.

If insert the driver CD,you should select the recommended item and click “Next”

If the driver is saved on the hard disk, you should select the second item and click “Next”. You can find the driver on the “WIN” folder.



3. Windows will detect the setting information, and load the driver to install.

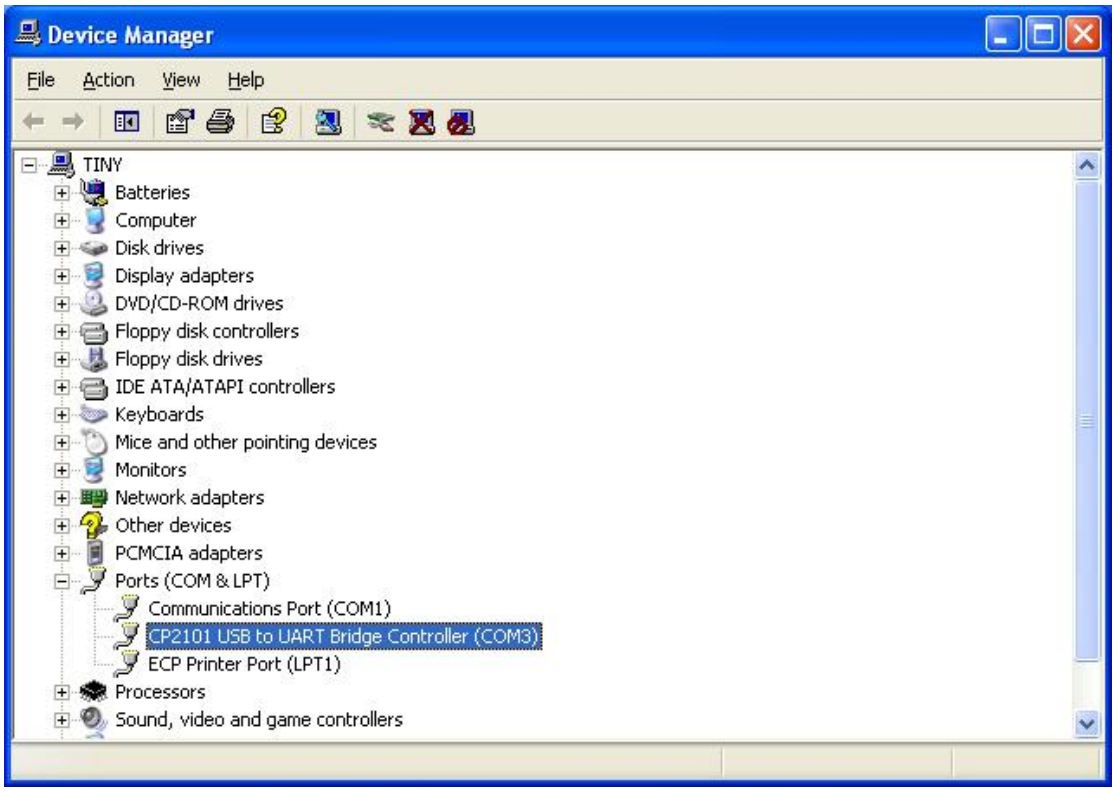
4. Continue to set up, copy the driver procedure files to your hard disk by

Windows.

5. When Windows appears “Completing the Found New Hardware Wizard”, click “finish” to end setting up.

6. After setting up, please make sure the "port (COM and LPT)" of "Start \ Settings \ Control Panel \ system \ hardware \ Device Manager" appears "CP2101 USB to UART Bridge Controller(COMx)". This COMx is the COM message of the USB programming cable. From then on, as long as you insert the programming cable, the COM port will appear. You just have to choose this COM port in application software such as programming software or

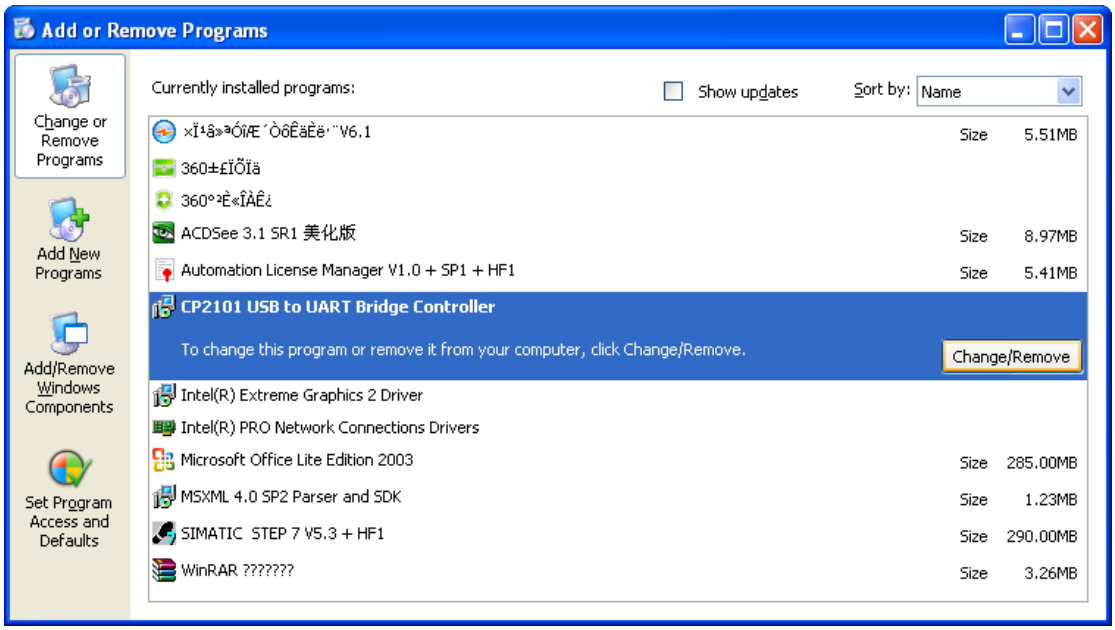
communication software.



The deletion of driver procedure

Deleting driver procedure is to discharge source of COM port so that other device can be used. When driver procedure has error, it should be deleted and reset up. Please delete the driver procedure as follows:

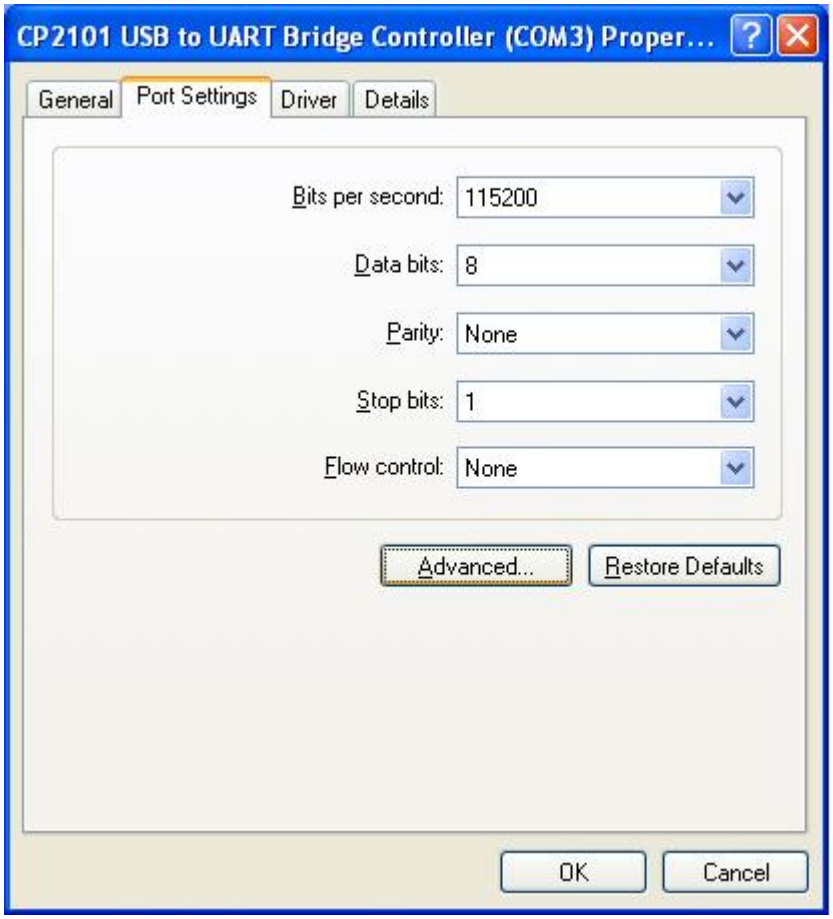
1. Unplug the USB programming cable from you PC.
2. Choose “USB Serial Converter Drivers”from "Add or Delete Programs” in operation panel, and click the “Change/Remove” button.

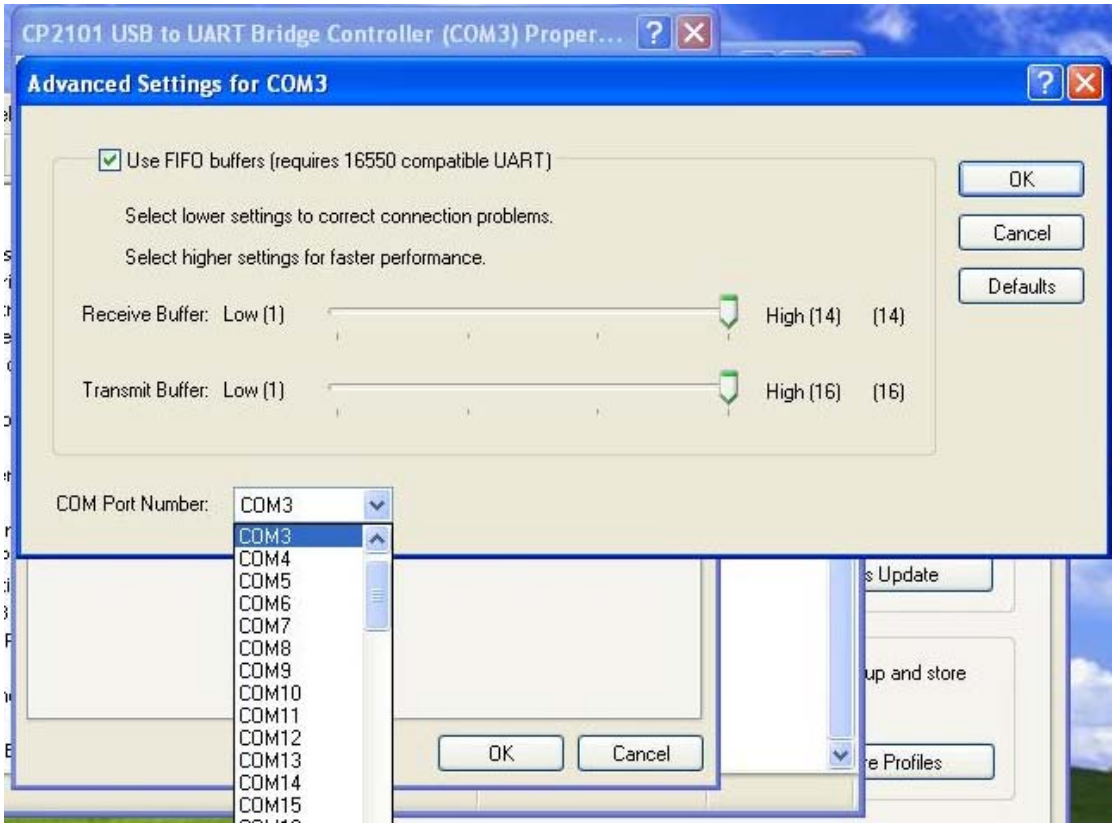


How to change COM setting

1. Delete the driver procedure of all USB to UART products to discharge COM port source, and reset up USB programming cable driver procedure. The device manager will display the cable address **COM3.**

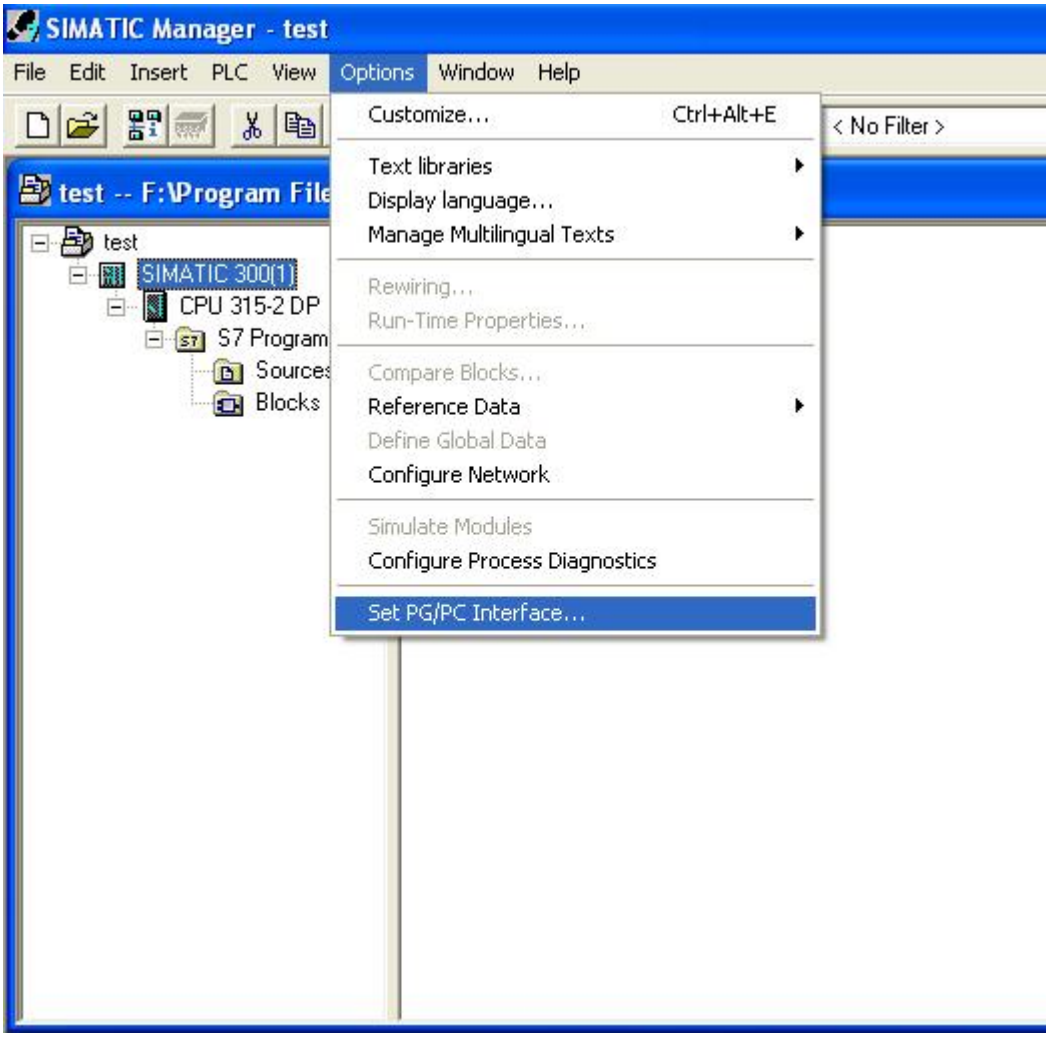
2. In Windows 2000/XP the COM slogan can be changed directly. Please double click COM port device that is need changing in the device manager, and the device attribute information window will appear. Choose “port setting” as the picture shows. Click "Advanced" button, and the advanced setting information window will appear. Set the COM port to the serial number you want and click "OK" button to complete.



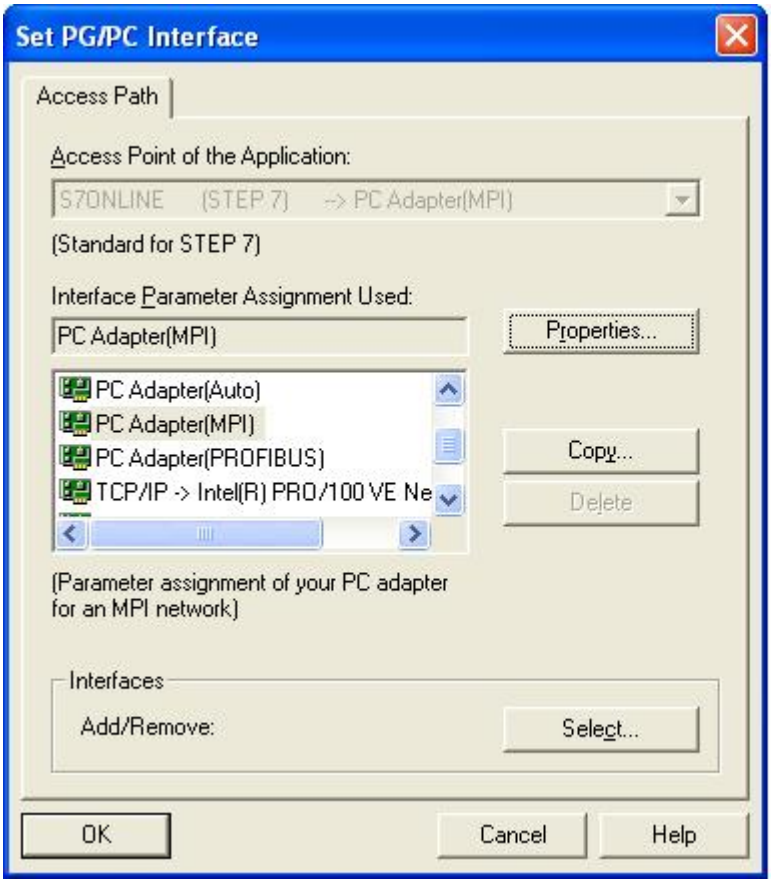

CP2101 USB to UART Bridge Controller (COM3) Proper...
Advanced Settings for COM3
Use FIFO buffers (requires 16550 compatible UART)
Select lower settings to correct connection problems.
Select higher settings for faster performance.
Receive Buffer: Low (1)
High (14) (14)
Transmit Buffer: Low (1)
High (16) (16)
OK
Cancel
Defaults
COM Port Number:
COM3
COM3
COM4
COM5
COM6
COM7
COM8
COM9
COM10
COM11
COM12
COM13
COM14
COM15
OK
Cancel
s Update
up and store
e Profiles

Setting of Step 7

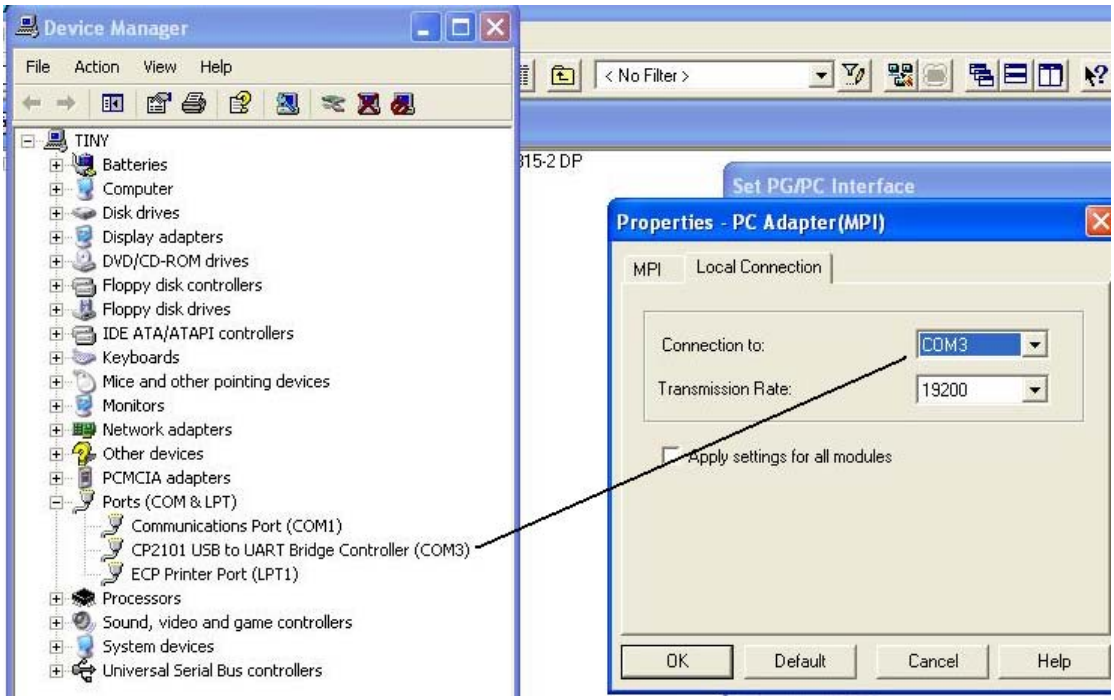
Open the main windows form(SIMATIC Manager)， choose “Options” menu then click “Set PG/PC Interface…” and will appear PG/PC setting window.



1、 Double click “PC Adapter(MPI) ” to open COM port and MPI port parameter setting dialog box. The adapter doesn’t support PC Adapter(PROFIBUS) option.

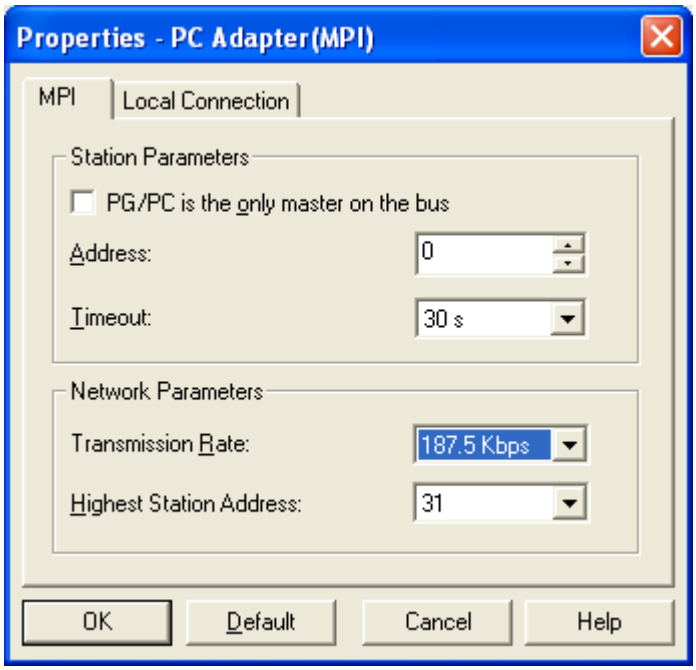


2、 Click “Local Connection” to set COM port parameter, choose correctly COM port in the device manager after install the driver, and set the transmission rate as 19200bps or 38400bps,which is both OK, then the USB/MPI+ will adapt the baud rate automatically.

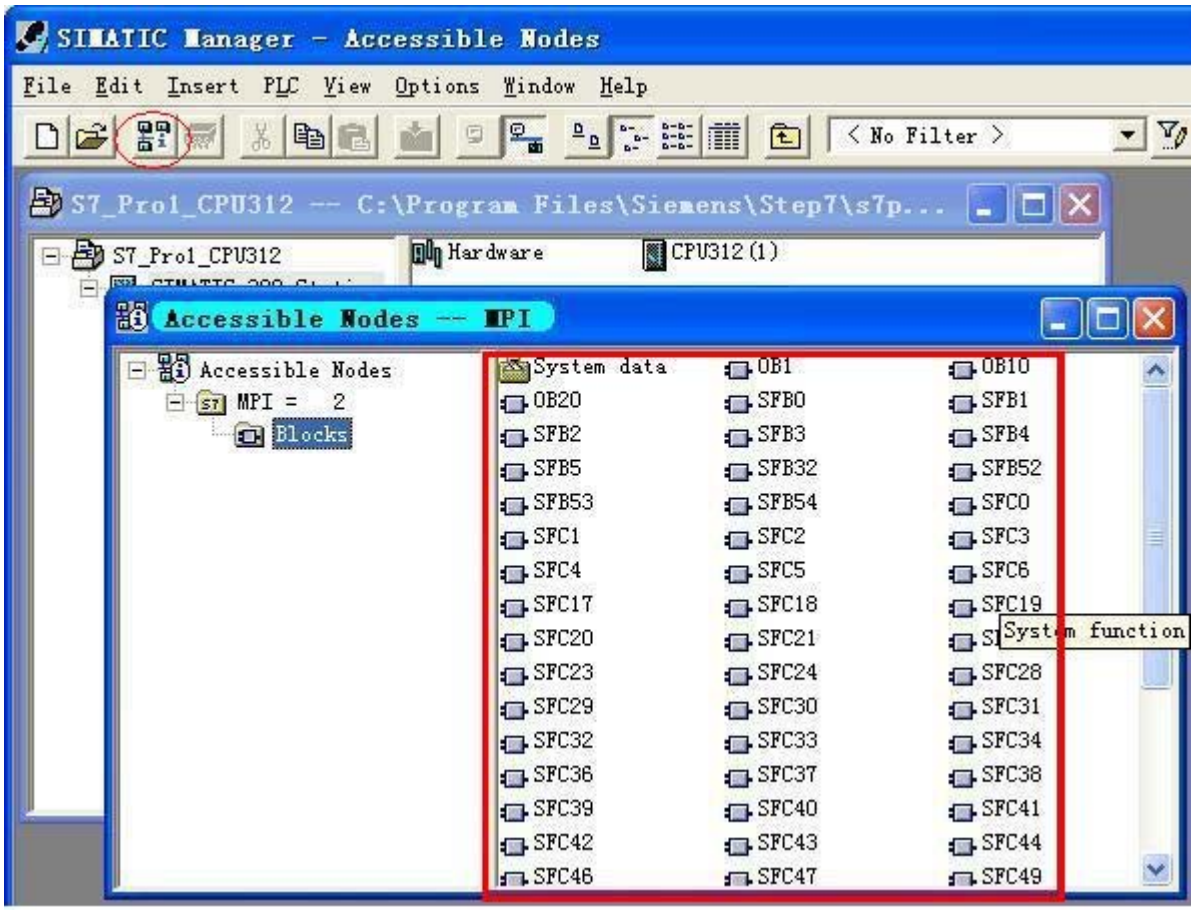


3、 Click “MPI” tab to set the MPI port parameter and the baud rate

187.5Kbps or 19.2Kbps is both OK. Then USB/MPI+ will adapt the baud rate of MPI port automatically. Other parameters are default.

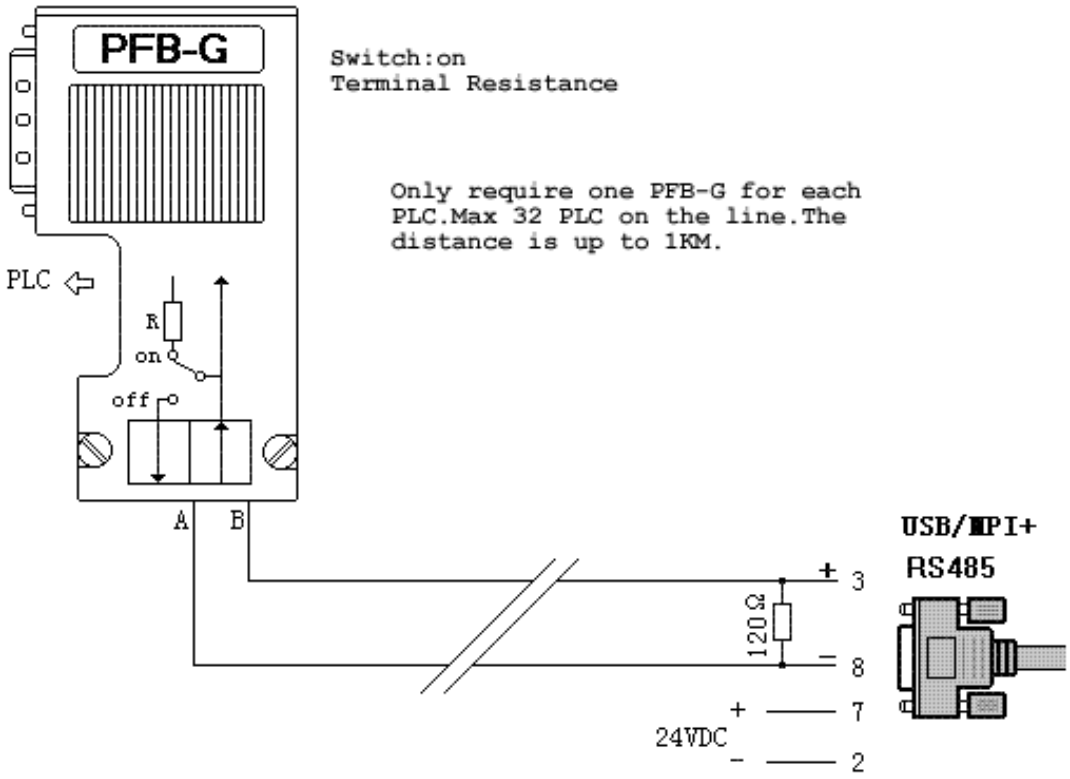


4、 Online test: After USB/MPI+ adapter connects S7-300/400PLC and PC ,then click the red circled button in the main menu as follows and will appear the data in the red marked frame and show the online test is OK. And now all the settings are finished. Now you can go on the work such as program download and upload, monitoring etc.


SIMATIC Manager - Accessible Nodes
File Edit Insert PLC View Options Window Help
< No Filter >
S7_Pro1_CPU312 -- C:\Program Files\Siemens\Step7\s7p...
S7_Pro1_CPU312
Hardware
CPU312(1)
Accessible Nodes -- MPI
Accessible Nodes
MPI = 2
Blocks
System data
OB1
OB10
OB20
SFB0
SFB1
SFB2
SFB3
SFB4
SFB5
SFB32
SFB52
SFB53
SFB54
SFC0
SFC1
SFC2
SFC3
SFC4
SFC5
SFC6
SFC17
SFC18
SFC19
SFC20
SFC21
SFC23
SFC24
SFC28
SFC29
SFC30
SFC31
SFC32
SFC33
SFC34
SFC36
SFC37
SFC38
SFC39
SFC40
SFC41
SFC42
SFC43
SFC44
SFC46
SFC47
SFC49
System function

About Long Distance Communication

For USB/MPI+, the largest communication distance is up to 1000m at the communication speed of 187.5Kbps. It needs to splice 120ohm terminal resistance between 3 and 8 pin on the RS485 port(DB9 Male) to eliminate signal reflection, and connect 24VDC power between 7 and 2 pin. But requires one PFB-G for each PLC.

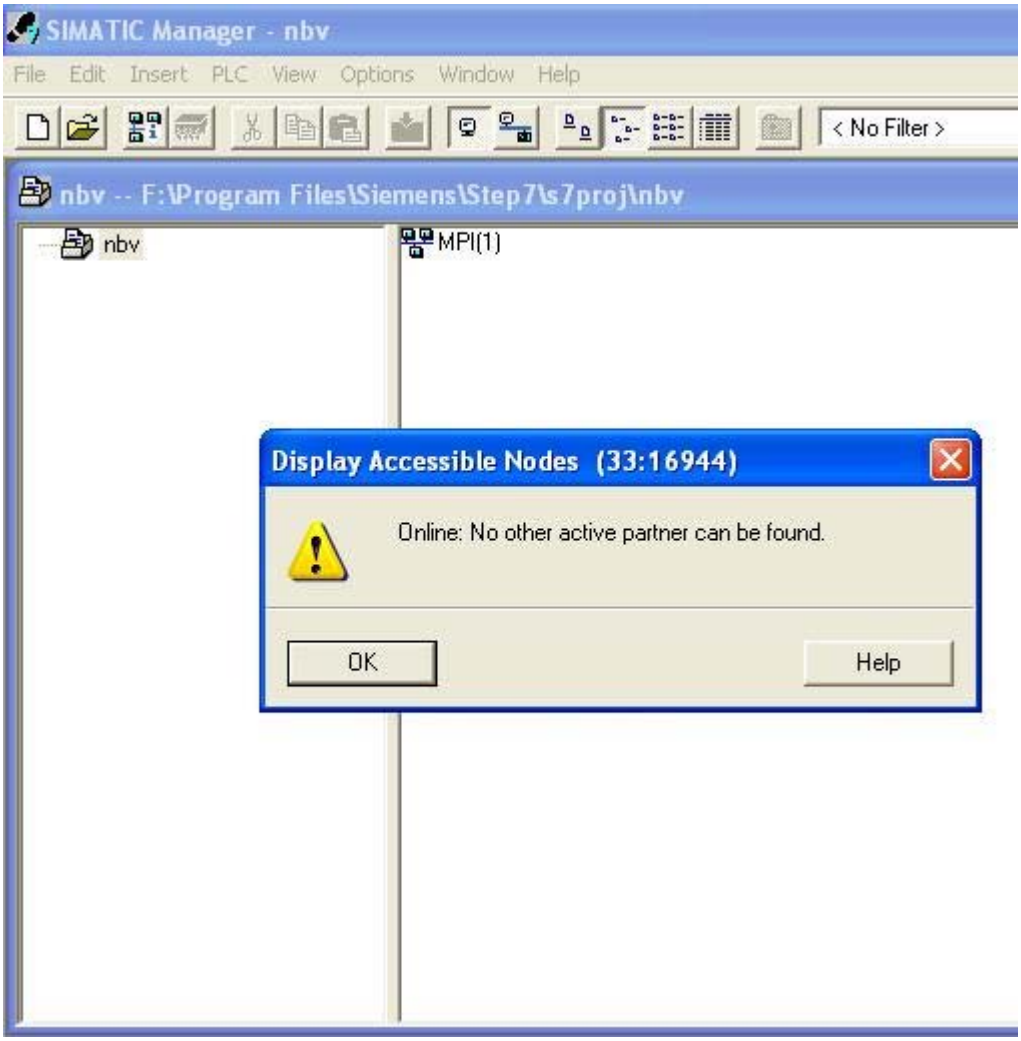


Notes and Troubleshoot

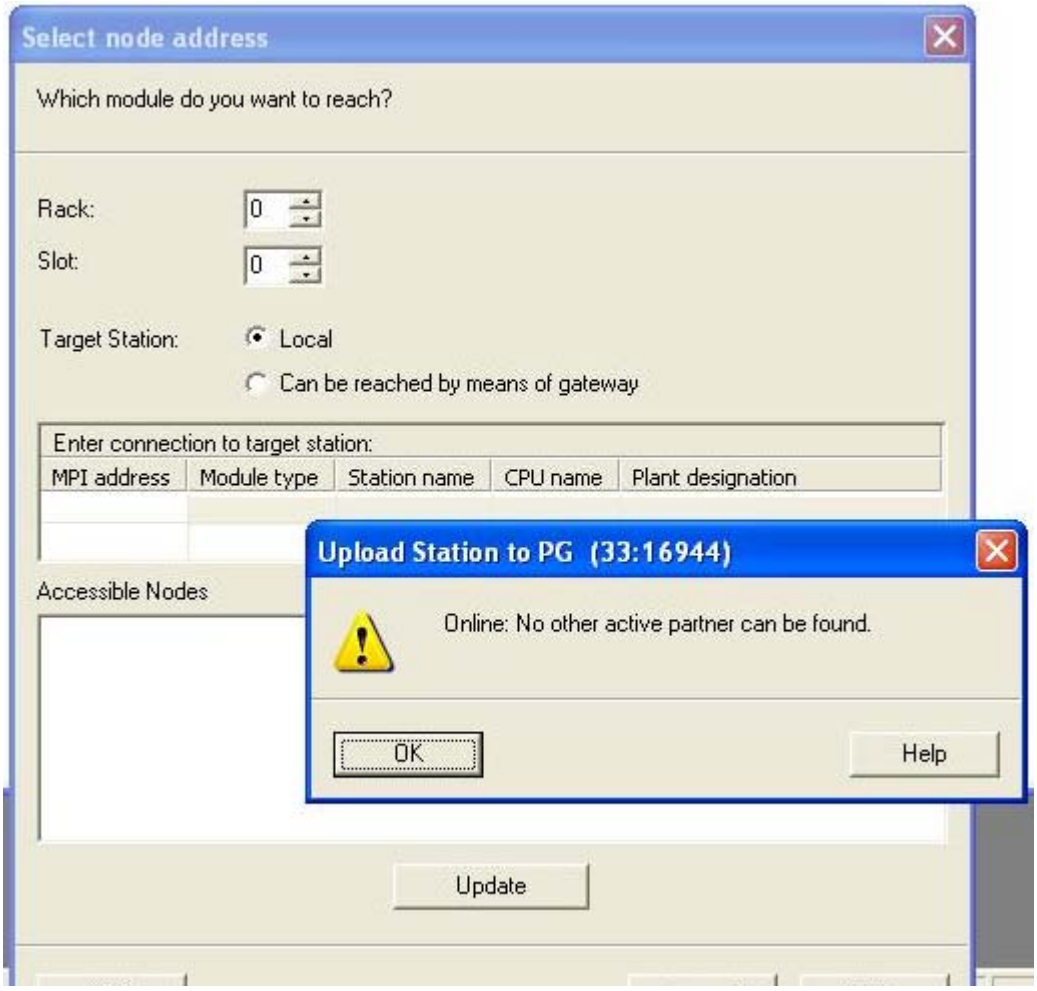
1. If the USB programming cable could not be detected when opening the PC, or some other outstanding issues occur, please replug it again.

2.USB to UART is plug and play USB device. When data are being transmitted, please don't disconnect it.

3. Sometimes when Windows System failures or outstanding issues when plug or unplug the USB cable occur, please restart the computer and PLC.
4. At beginning，if appear the following window，pls don't worry. That's because the MCU of the adapter is startup and then results in the temporary unsmooth communication. At this time, you need to reclick the button.



5. If it appears the following window when uploading the program, pls don't worry too. You can change the "Rack" as "1" and retry, or change "Target Station" as "Can be reached by means of gateway" and retry.


Select node address
Which module do you want to reach?
Rack:
0
Slot:
0
Target Station:
Local
Can be reached by means of gateway
Enter connection to target station:
MPI address
Module type
Station name
CPU name
Plant designation
Accessible Nodes
Update
Upload Station to PG (33:16944)
Online: No other active partner can be found.
OK
Help

Rejection provision

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