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MultiPort USB

User Manual

Version 3.05 2020/11/20

www.sysbas.com

Revision History

Revision Date	Version	Pages	Description
July/14/2006	2.0	All	All new
Aug/02/2008	2.1	Partial	Partial edited
May/13/2009	2.2	Partial	Partial edited
May/26/2009	2.3	Partial	Partial edited
Oct./26/2009	2.4	Partial	Partial edited
Feb./06/2010	2.5	Partial	Partial edited
Oct./18/2010	2.6	Partial	Partial edited
Nov./16/2010	2.7	Partial	Partial edited
July/19/2011	2.8	Partial	Partial edited
Apr./10/2012	2.9	All	Partial edited
Apr./27/2016	3.0	Partial	Modify logo and driver setup page
May/09/2016	3.01	Partial	Added driver install/uninstall process
Aug/31/2017	3.02	Partial	Added port remap
March/21/2019	3.03	Partial	Added latching USB context
May/12/2020	3.04	Partial	Removed CD context
Nov/20/2020	3.05	Partial	Partial edited

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For any inquiries or comments,

please contact our technical support department. tech@sysbas.com

Contents

About Multiport(Multi-N) USB series

USB is a complex word of “Universal”, meaning all peripheral devices use the same connector, and “serial”, meaning devices are connected as a daisy chain through serial transmission. USB is an interface suggesting a solution to inconvenience and inefficiency caused by slow speed and limited device connection of existing external ports (serial or parallel). Compared to external ports that were only used to connect devices such as modems, printers and scanners, USB is powerful in that it connects all types of basic peripheral devices that were each connected via different types. Also, when a new device is plugged, it is auto-detected without any rebooting or setup process, enabling 127 connections maximum. Installation is handy since PnP (plug and play) is supported. No extra equipment is needed since most of the main-board chipsets include the USB controller.

USB cable type supported is type A, which can utilize the USB port of a computer or the USB hub. This product obtains power from USB, and this makes the product powerful since no external power supply is required.

Multiport USB Specifications

- Hardware

Number of Ports:	1, 2, 4, 8
USB Interface:	USB Specification 1.1/2.0
Serial Interface:	RS232 or COMBO (422/485)
LED:	Tx LED and Rx LED per each port
Serial Connector:	DB9 (Male) 1,2,4
	DB9 (Male/Female) 4/8 Panel type
Serial Communication Speed:	921.6Kbps maximum

External Power: Optional *[1]

- Software (Driver)

Supports Windows 7 or above.

Linux Driver *[2]

Both 32 bit and 64 bit operating systems are supported.

*[1]: You can connect an external power supply to panel type USB Multiport H/W ver. 1.6 or above.

*[2]: If you would like to use USB Multiport for Linux, please contact our technical support department. tech@sysbas.com

About latching USB

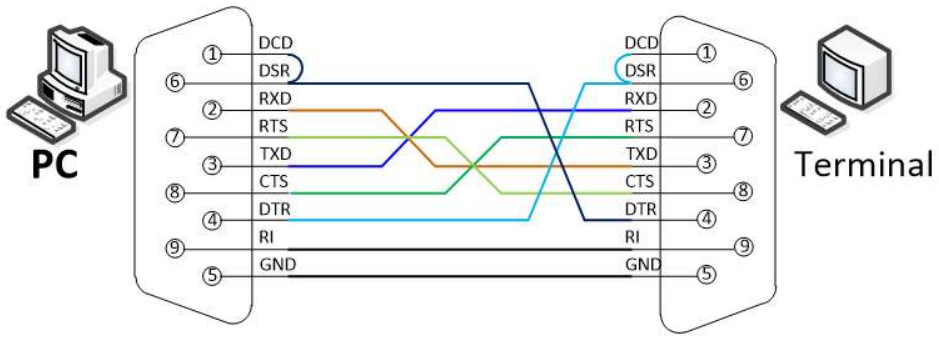
All USB Multiport products of SystemBase have latches on USB connection.
Unlike traditional screw-tightening model which require specific cables and connectors, **latching USB cable** provides locking function without the need to replace the product.

※ USB latching function may be limited to some manufacturers.
※ For normal mounting, you might hear a 'click' sound.
※ To facilitate connection and disconnection, press lightly on the spring button and sweep it.

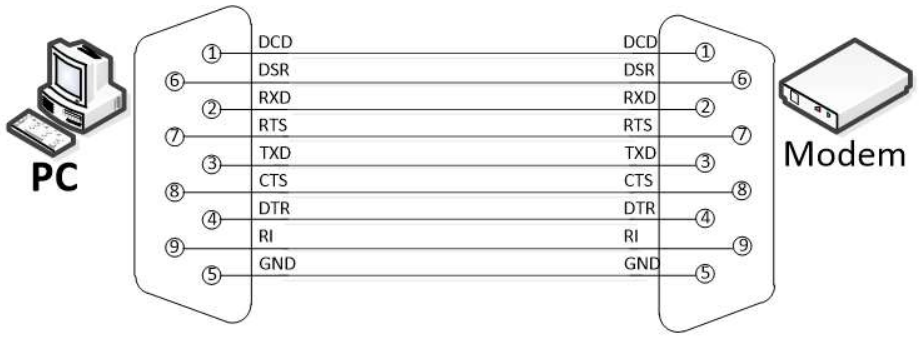
Connectivity Method

RS232

How to connect to a terminal



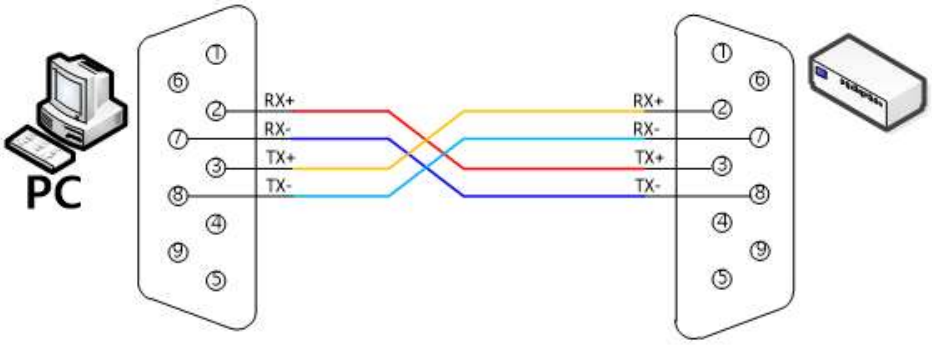
How to connect to a modem



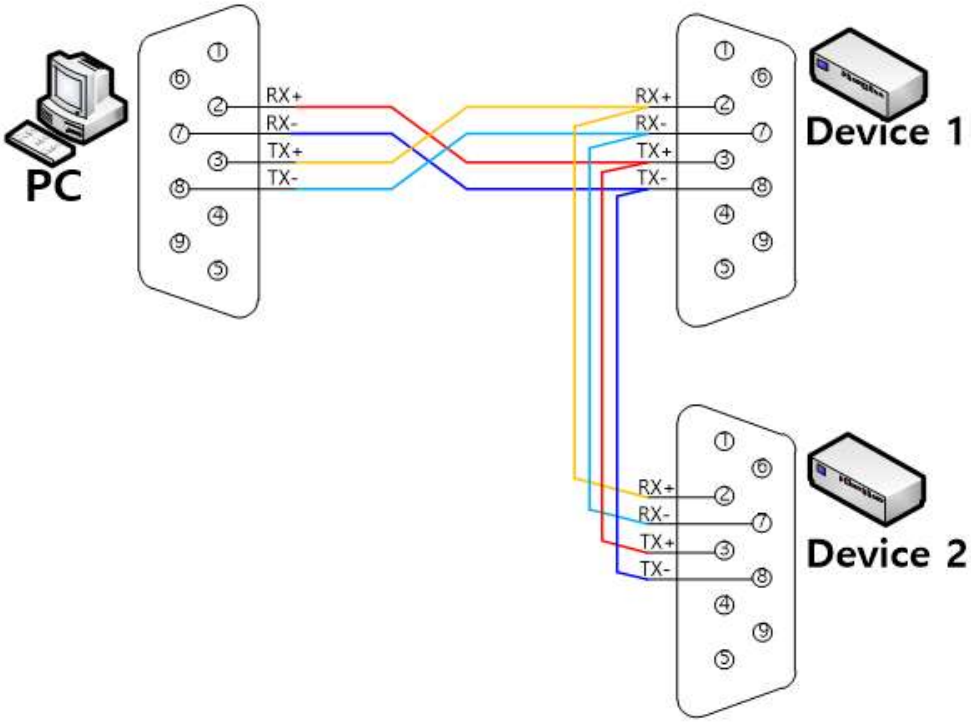
Termination Resistor

RS422

Point-to-Point Mode Connection



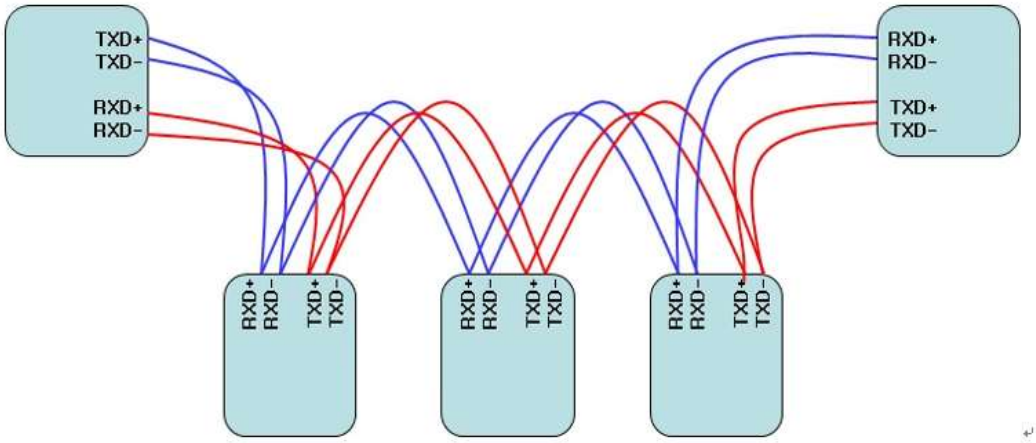
Multi-Drop Mode Connection



※ Please check the pinout of your device before connecting

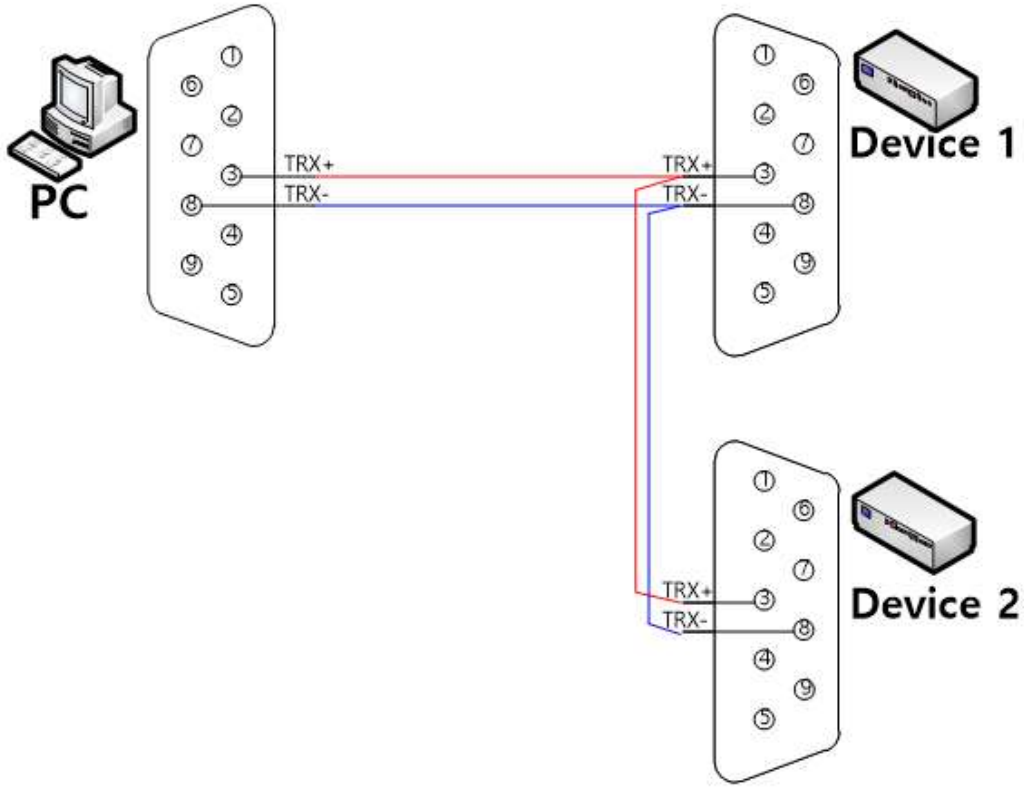
(More example in the next page.)

※ Please check the pinout of your device before connecting

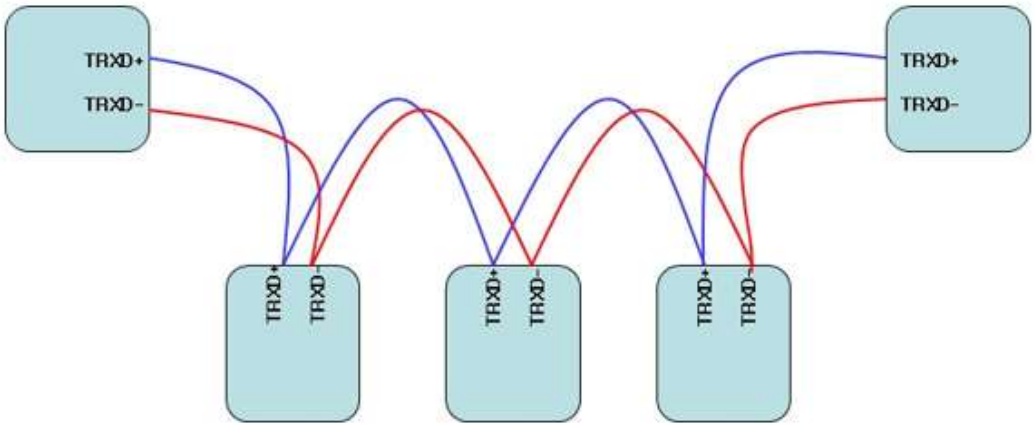


RS485

Connectivity Method



※ Please check the pinout of your device before connecting



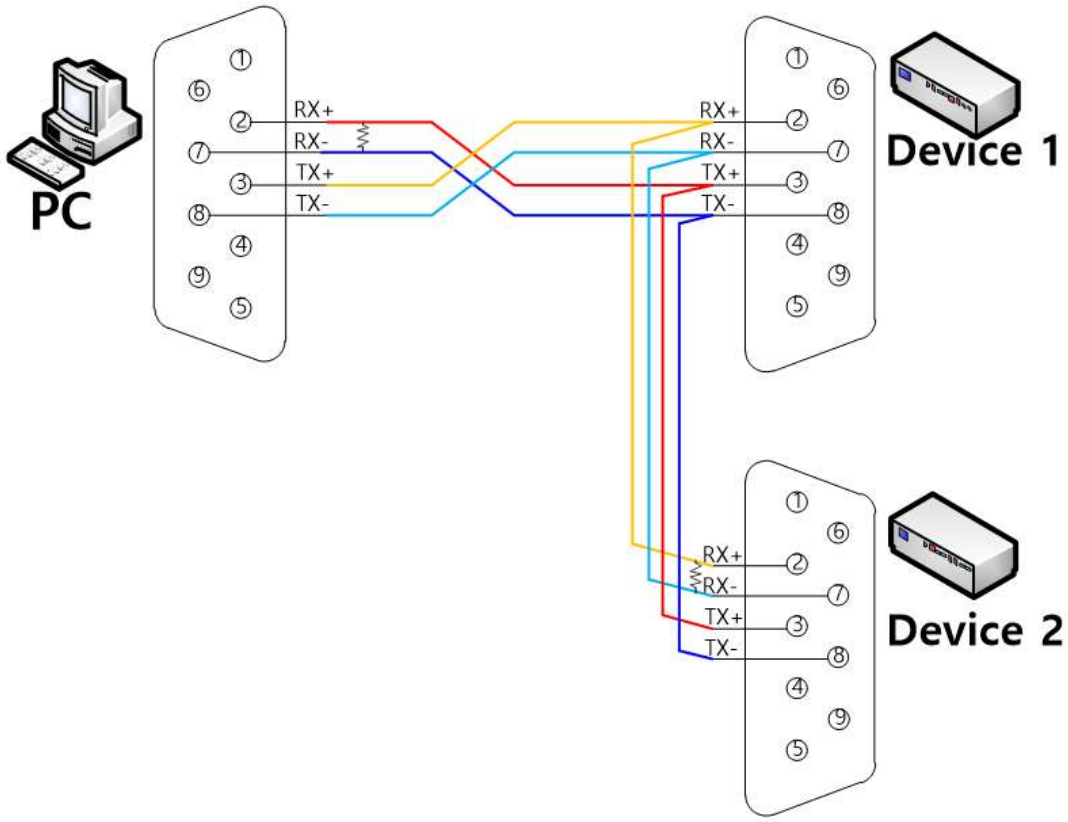
Termination Resistor

What is a termination resistor?

The purpose of using a termination resistor is to reduce the reflection wave in a network. Our USB to serial devices use 120 Ω resistor in RS422/RS485 communication when enabled.

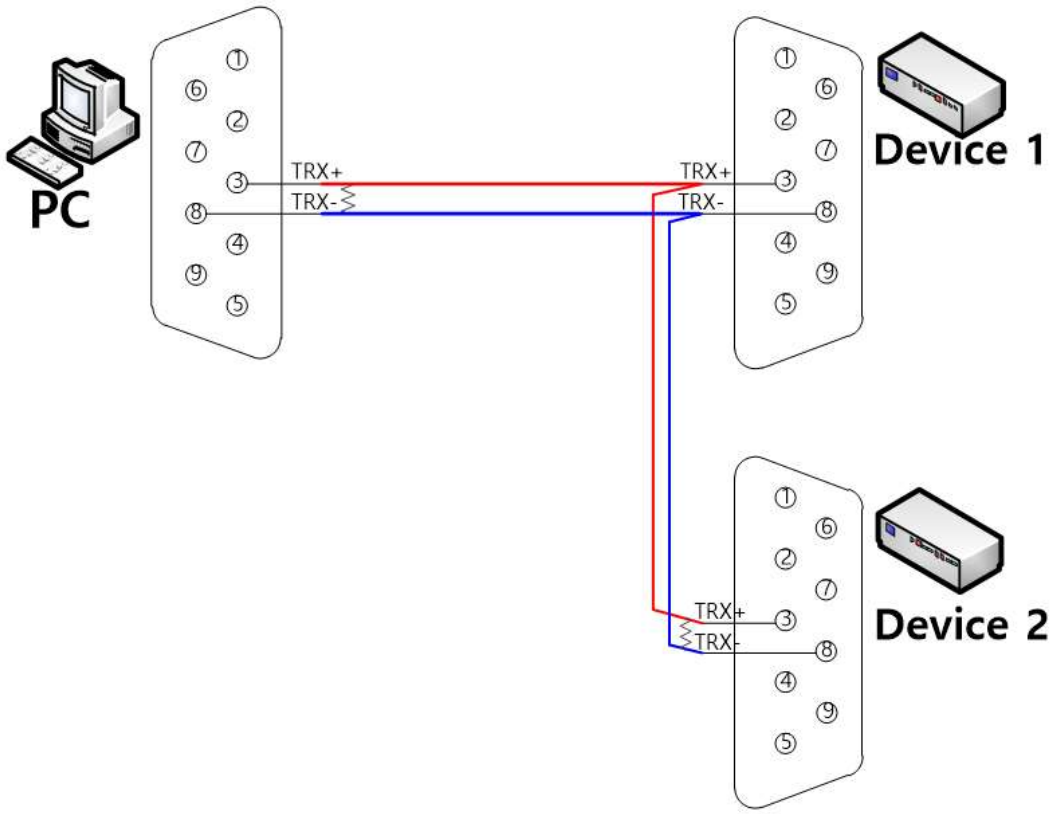
Installation

RS422 Mode



Termination Resistor

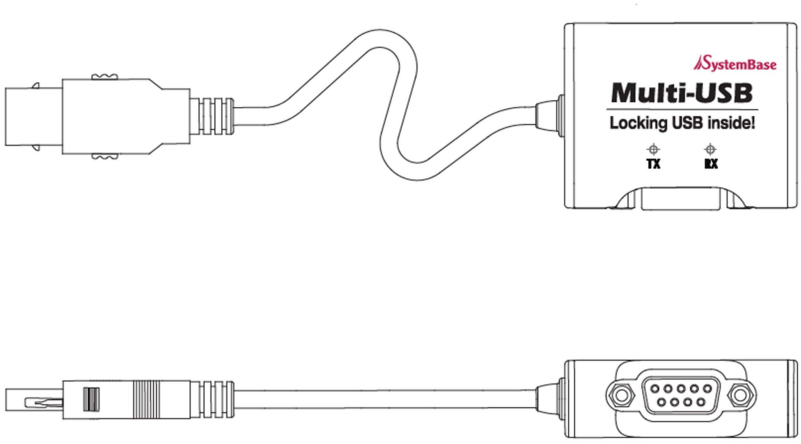
RS485 Mode



Multi-1/USB Ver4.0

Multi-1/USB Ver4.0 is a model that supports USB1.1 and USB 2.0. It is detected automatically when it is connected to a USB port with a computer using Linux or Windows. It supports maximum communication speed of 921.6Kbps. Furthermore, it is equipped with surge protector to protect internal systems from outer shock.

In Combo model, a user can set and/or enable communication mode and terminal resistor. Also, the LEDs are attached outside to show the current status of communication.

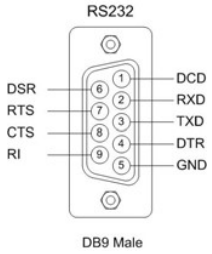


- Specification

Communication Speed	Maximum 921.6Kbps
Bus Interface	USB 2.0 (Full Speed)
Signal	RS232/RS422/RS485
Controller	FTDI 232R
Connector	DB9 Male
Protection	15kV Surge Protector
Supported OS	Windows 7 or above Linux Kernel 2.6 and above
Manufacturer	SystemBase Co., Ltd

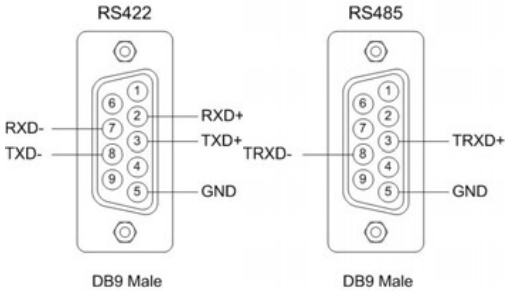
1. RS232 Model

- DB9 Male Pin Assignment

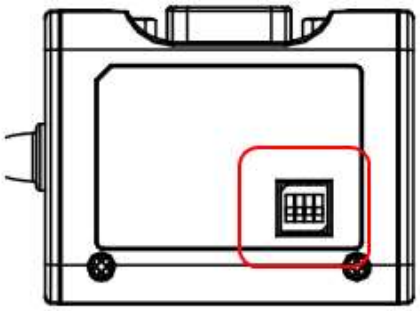


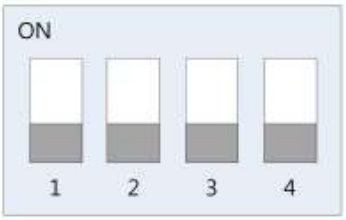
2. RS422, RS485 Model

- DB9 Male Pin Assignment



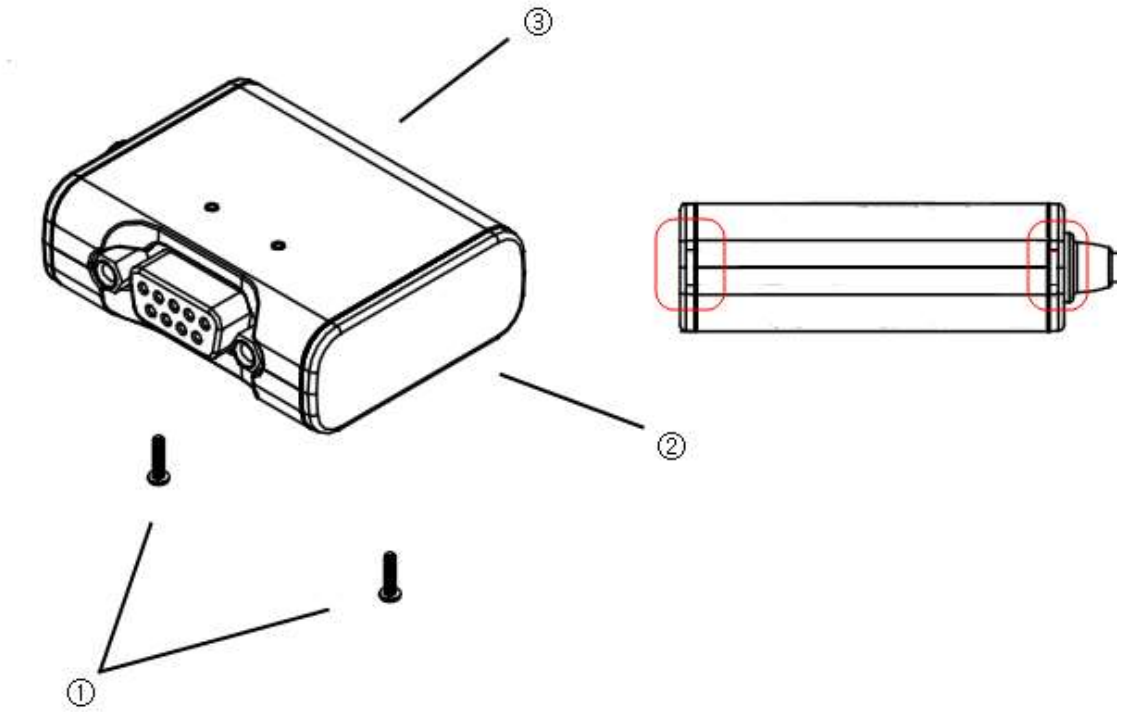
- DIP Switch Setting





		ON	OFF
1	Signal	RS485	RS422
2	Echo/Non-Echo Select	Echo	Non-Echo
3	RS422 terminal resistor	Enable	Disable
4	RS485 terminal resistor	Enable	Disable

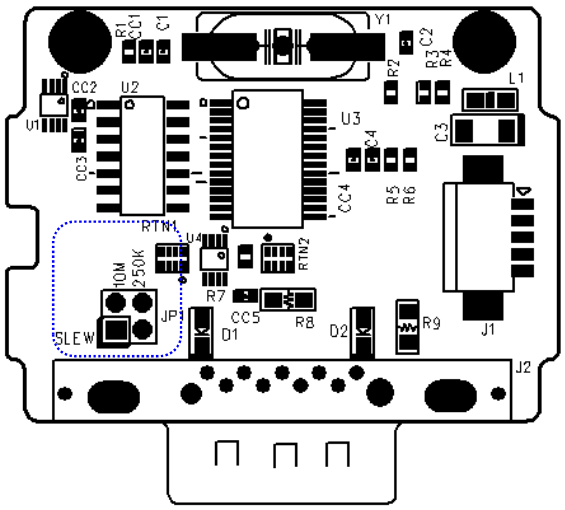
- Jumper Setting

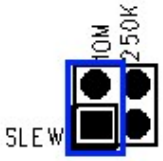


① Loosen two screws on the bottom case.

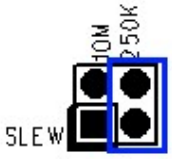
② Remove the side caps.
Look at the rear side of case, you can find the small grooved.

③ Top cover is slid to the inside of the case.





10M: Disable slew rate limit feature. Maximum communication speed for this mode is at 921.6Kbps.



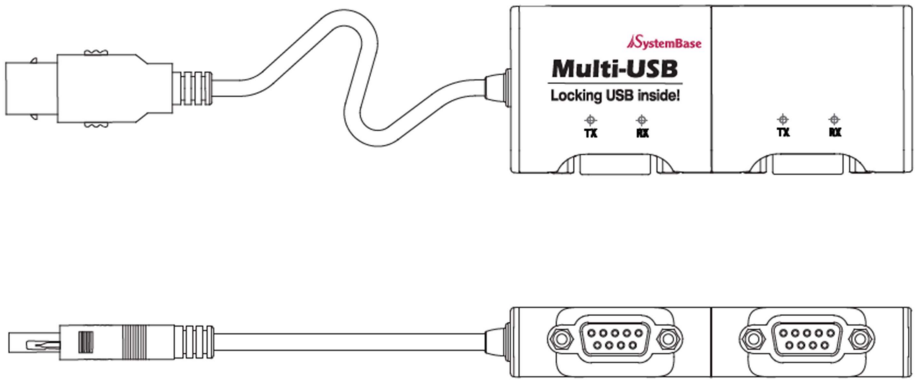
250K: Enable slew rate limit feature. Communication speed is limited to under 250Kbps.

The slew rate limit feature allows communication without errors by activating slew-rate driver to reduce reflection waves and EMI electromagnetic waves. However, communication speed is limited when it is enabled.

Multi-2/USB Ver4.0

Multi-2/USB Ver4.0 is a model that supports USB2.0. It is detected automatically when it is connected to a USB port with a computer using Linux or Windows. It supports maximum communication speed of 921.6Kbps. Furthermore, it is equipped with surge protector to protect internal systems from outer shock.

In Combo model, a user can set and/or enable communication mode and terminal resistor. Also, the LEDs are attached outside to show the current status of communication.

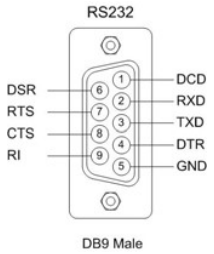


- Specification

Communication Speed	Maximum 921.6Kbps
Bus Interface	USB 2.0
Signal	RS232/RS422/RS485
Controller	FTDI 2232H
Connector	DB9 Male
Protection	15kV Surge Protector
Supported OS	Windows 7 or above Linux Kernel 2.6 and above
Manufacturer	SystemBase Co., Ltd

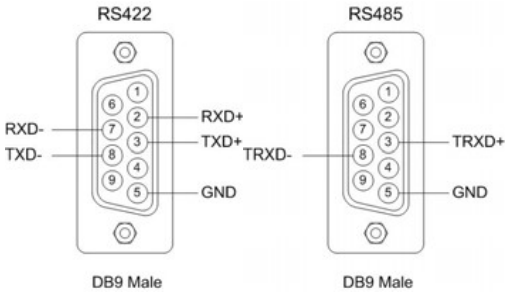
1. RS232 Model

- DB9 Male Pin Assignment

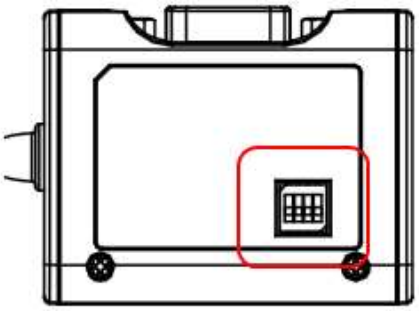


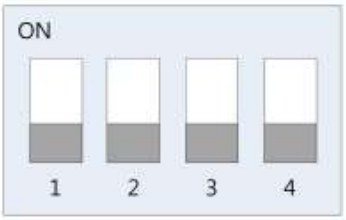
2. RS422, RS485 Model

- DB9 Male Pin Assignment



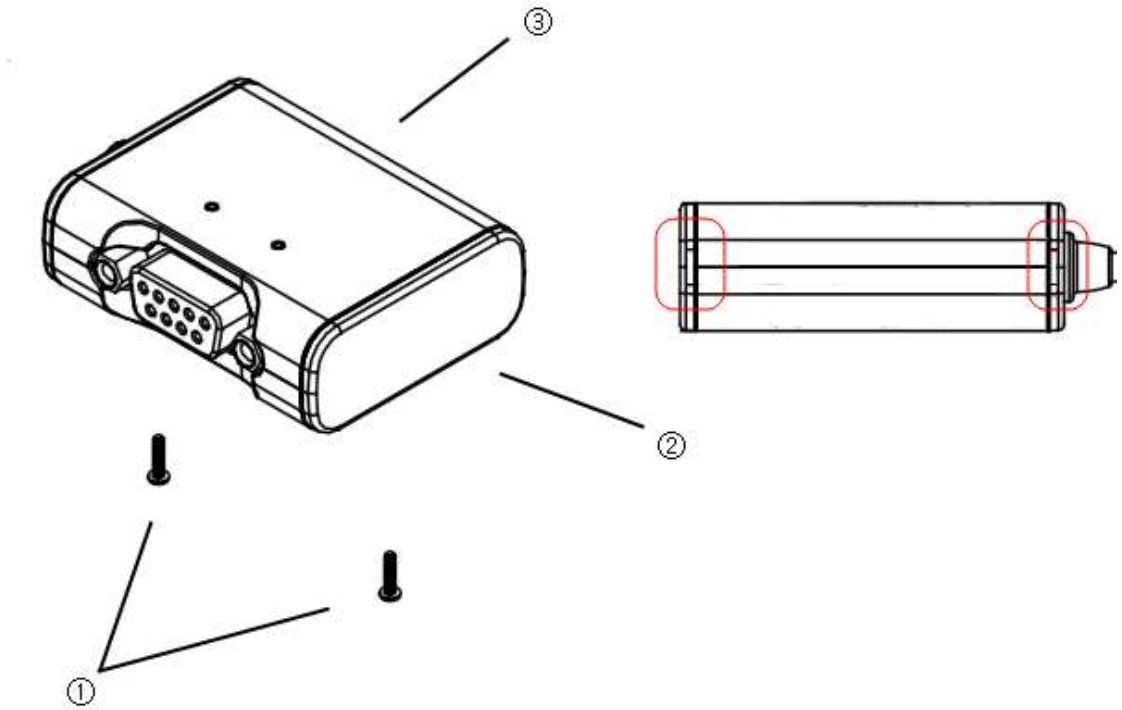
- DIP Switch Setting





		ON	OFF
1	Signal	RS485	RS422
2	Echo/Non-Echo Select	Echo	Non-Echo
3	RS422 terminal resistor	Enable	Disable
4	RS485 terminal resistor	Enable	Disable

- Jumper Setting

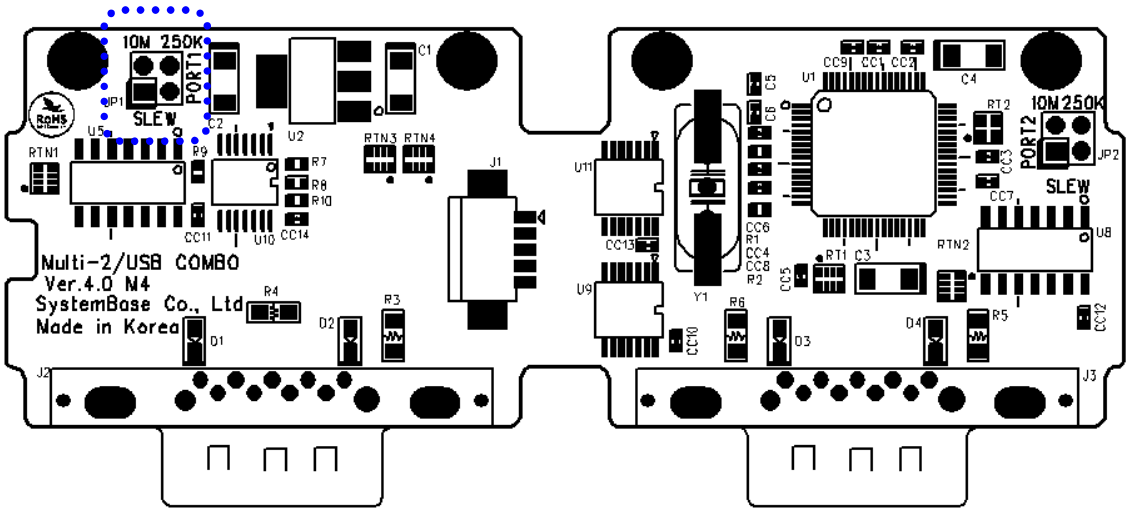


① Loosen four screws on the bottom case.

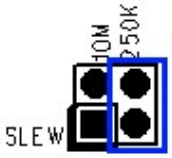
② Remove the side caps.

Look at the rear side of case, you can find the small grooved.

③ Top cover is slid to the inside of the case.



10M: Disable slew rate limit feature. Maximum communication speed for this mode is at 921.6Kbps.



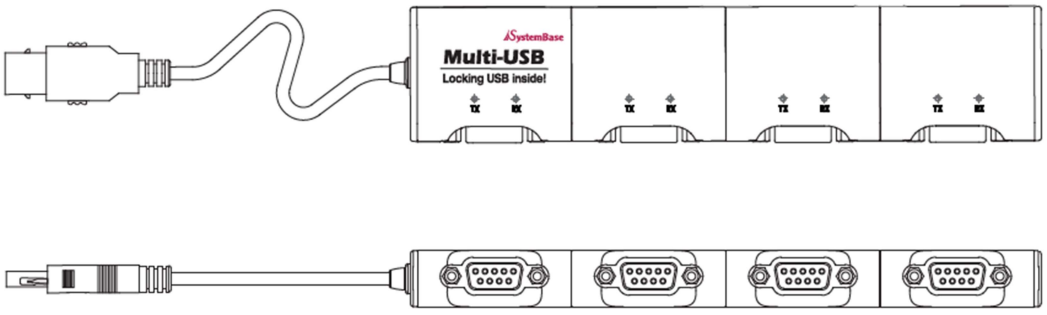
250K: Enable slew rate limit feature. Communication speed is limited to under 250Kbps.

The slew rate limit feature allows communication without errors by activating slew-rate driver to reduce reflection waves and EMI electromagnetic waves. However, communication speed is limited when it is enabled.

Multi-4/USB Ver4.0

Multi-4/USB Ver4.0 is a model that supports USB2.0. It is detected automatically when it is connected to a USB port with a computer using Linux or Windows. It supports maximum communication speed of 921.6Kbps. Furthermore, it is equipped with surge protector to protect internal systems from outer shock.

In Combo model, a user can set and/or enable communication mode and terminal resistor. Also, the LEDs are attached outside to show the current status of communication.

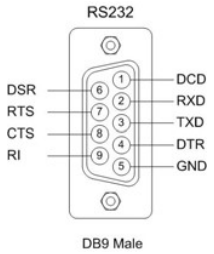


- Specification

Communication Speed	Maximum 921.6Kbps
Bus Interface	USB 2.0
Signal	RS232/RS422/RS485
Controller	FTDI 4232H
Connector	DB9 Male
Protection	15kV Surge Protector
Supported OS	Windows 7 or above Linux Kernel 2.6 and above
Manufacturer	SystemBase Co., Ltd

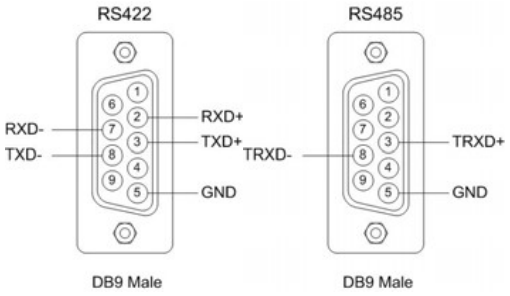
1. RS232 Model

- DB9 Male Pin Assignment

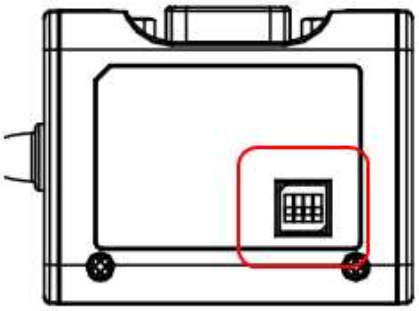


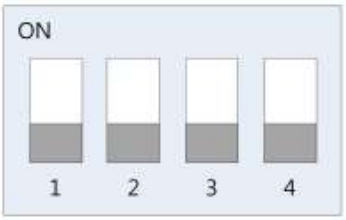
2. RS422, RS485 Model

- DB9 Male Pin Assignment



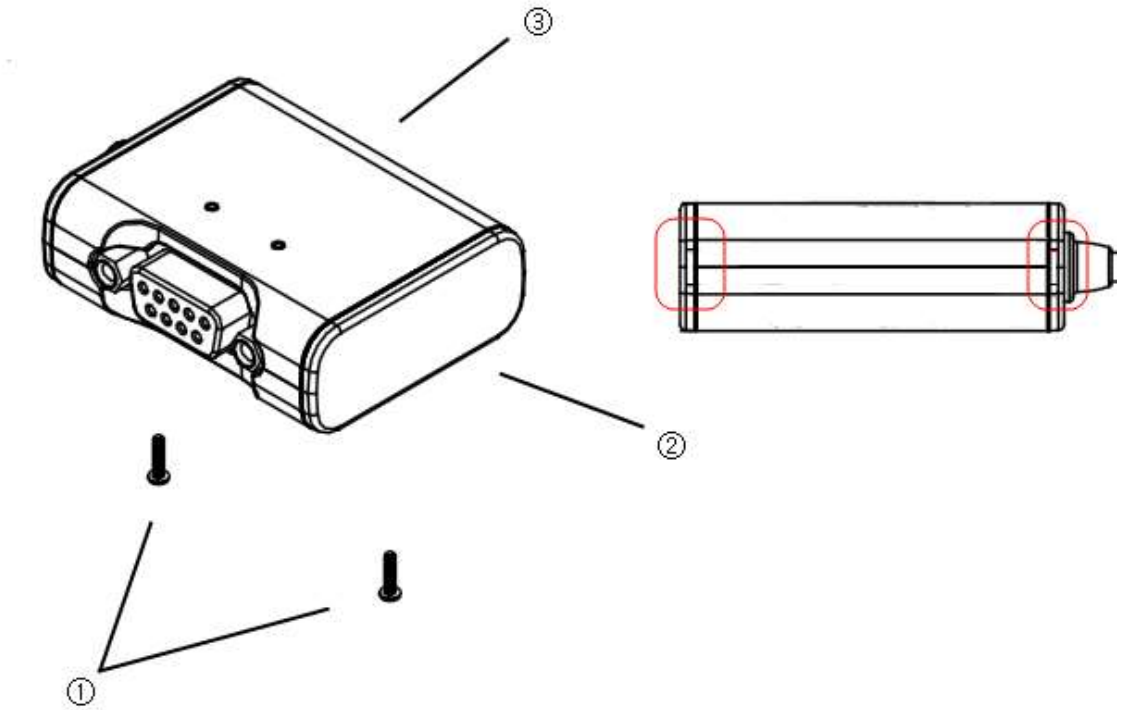
- DIP Switch Setting





		ON	OFF
1	Signal	RS485	RS422
2	Echo/Non-Echo Select	Echo	Non-Echo
3	RS422 terminal resistor	Enable	Disable
4	RS485 terminal resistor	Enable	Disable

- Jumper Setting

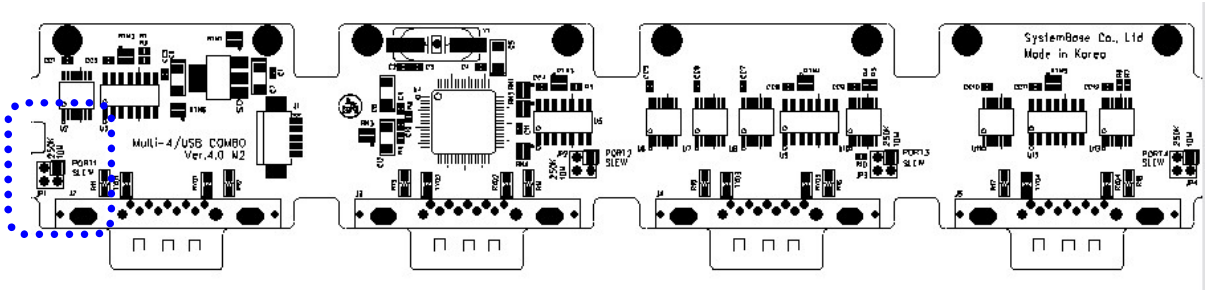


① Loosen eight screws on the bottom case.

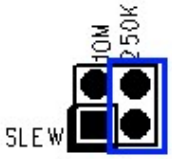
② Remove the side caps.

Look at the rear side of case, you can find the small grooved.

③ Top cover is slid to the inside of the case.



10M: Disable slew rate limit feature. Maximum communication speed for this mode is at 921.6Kbps.



250K: Enable slew rate limit feature. Communication speed is limited to under 250Kbps.

The slew rate limit feature allows communication without errors by activating slew-rate driver to reduce reflection waves and EMI electromagnetic waves. However, communication speed is limited when it is enabled.

Multi-4U Ver1.7

Multi-4U Ver1.7 is a model that supports USB2.0. It is detected automatically when it is connected to a USB port with a computer using Linux or Windows. It supports maximum communication speed of 921.6Kbps. Furthermore, it is equipped with surge protector to protect internal systems from outer shock.

If you use 5VDC adapter, the power can be supplied to 9th pin of DB9 with maximum 1A.

In Combo model, a user can change communication mode with the switch.

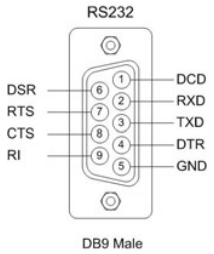
Also, the LEDs are attached outside to show the current status of communication.

- Specification

Communication Speed	Maximum 921.6Kbps
Bus Interface	USB 2.0
Signal	RS232/RS422/RS485
Controller	FTDI 4232H
Connector	DB9 Male
Protection	15kV Surge Protector
Supported OS	Windows 7 or above Linux Kernel 2.6 and above
Manufacturer	SystemBase Co., Ltd

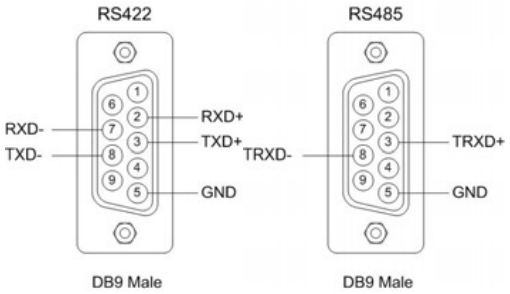
1. RS232 Model

- DB9 Male Pin Assignment

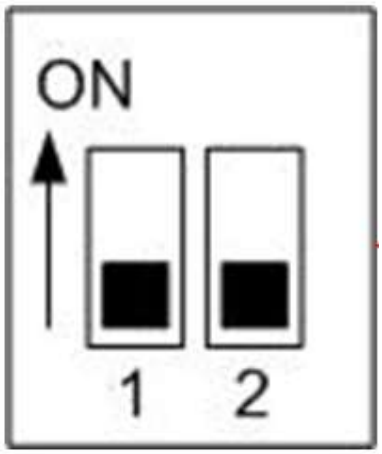


2. RS422, RS485 Model

- DB9 Male Pin Assignment



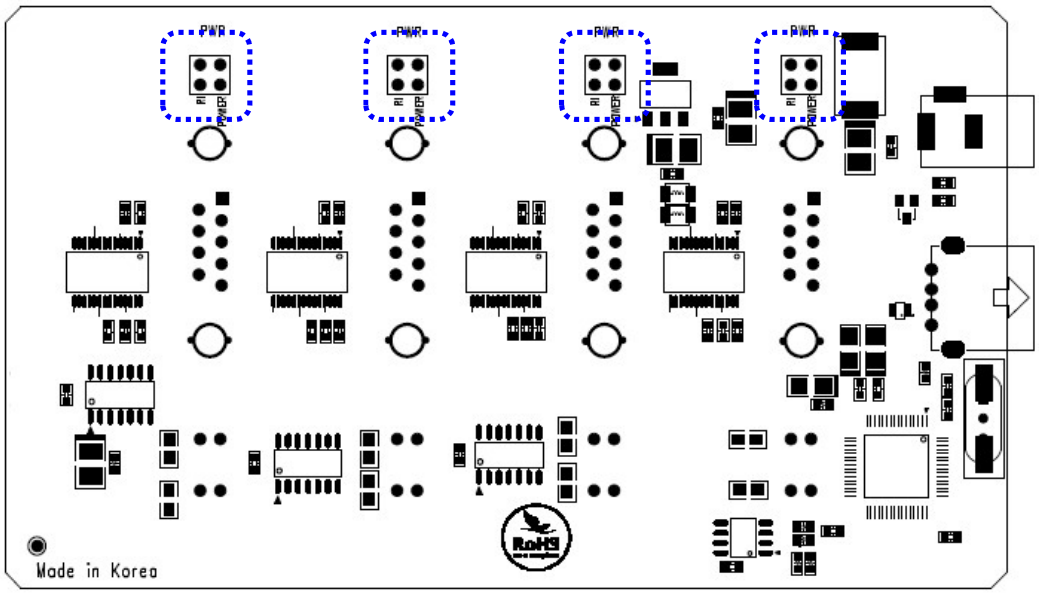
DIP Switch Setting

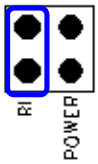


1	2	Signal	Mode
OFF	OFF	RS422	Point to Point
OFF	ON	RS422	Multi-Drop
ON	OFF	RS485	Non-echo
ON	ON	RS485	Echo

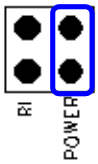
-Jumper Setting

- RS232



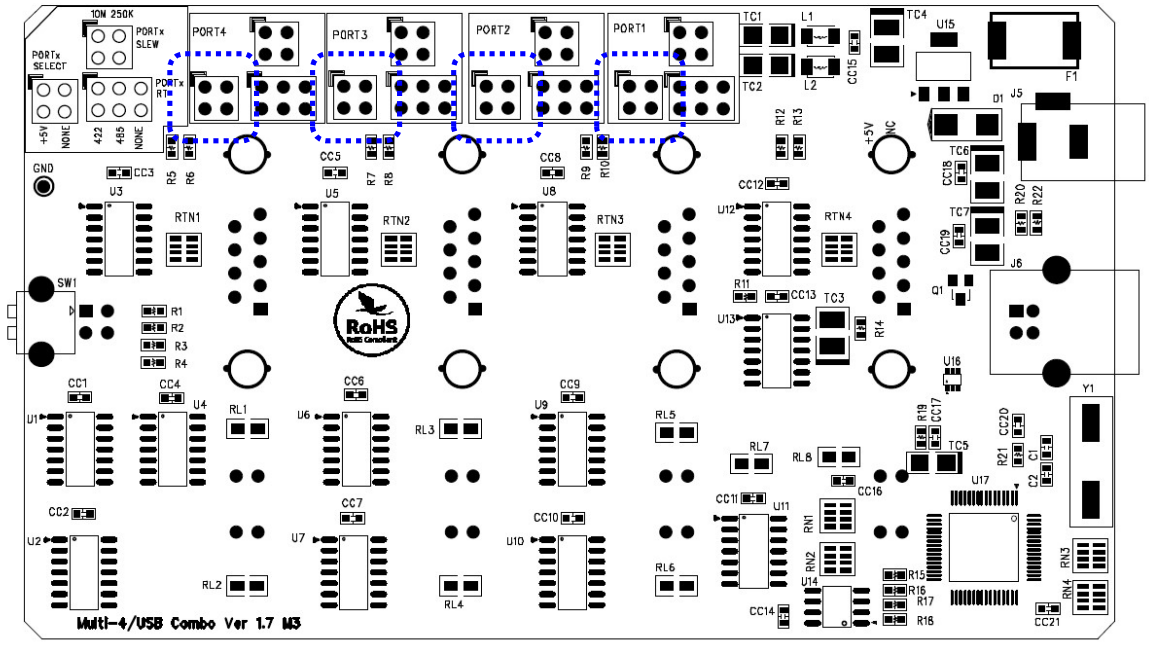


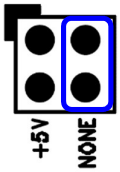
RI: Use 9th pin of DB9 connector as RI signal. (Default)



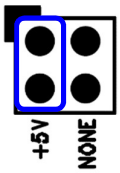
Power: Use 9th pin of DB9 connector to supply +5V DC power.
(Requires an adapter.)

- COMBO

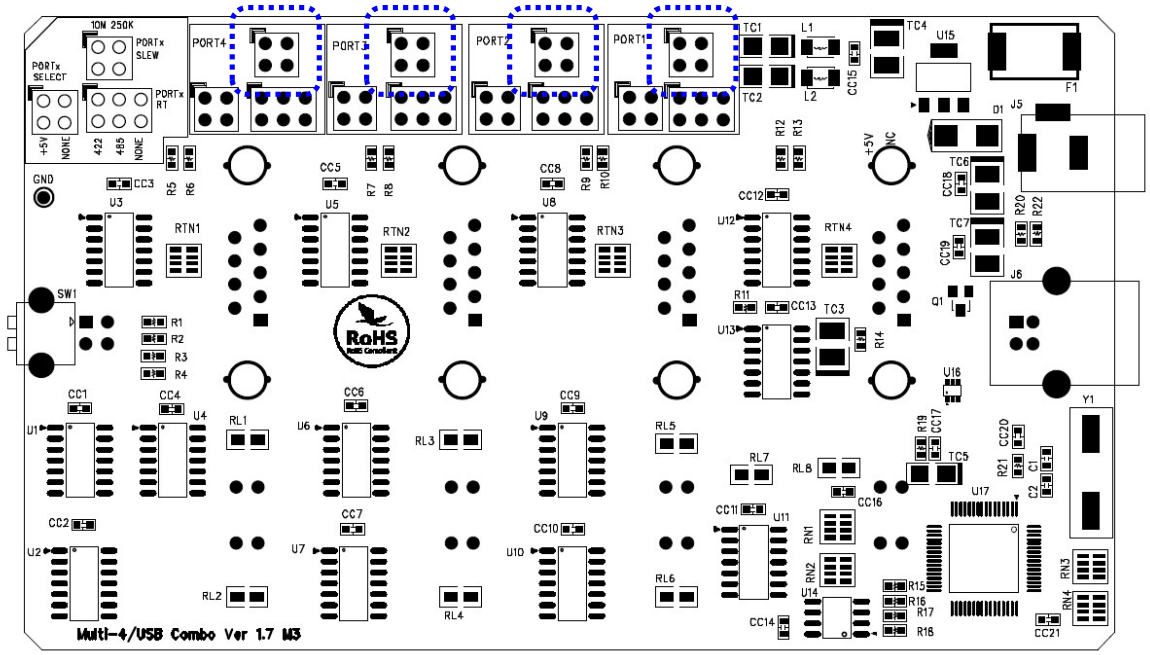


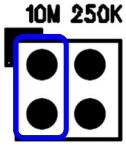


NONE: Do not supply any power to 9th pin of DB9. (Default)

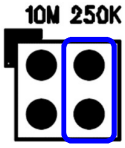


+5V: Use 9th pin of DB9 to supply +5V DC power.
(Requires an adapter.)



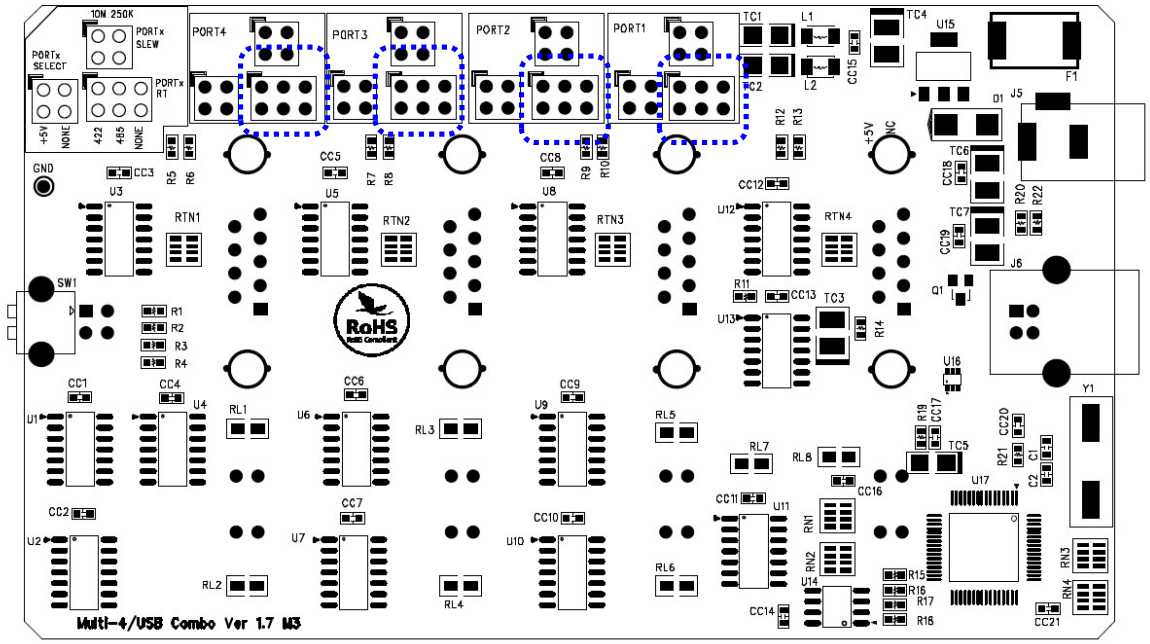


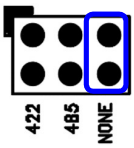
10M: Disable slew rate limit feature. Maximum communication speed for this mode is at 921.6Kbps. (Default)



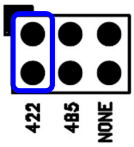
250K: Enable slew rate limit feature. Communication speed is limited to under 250Kbps.

The slew rate limit feature allows communication without errors by activating slew-rate driver to reduce reflection waves and EMI electromagnetic waves. However, communication speed is limited when it is enabled.

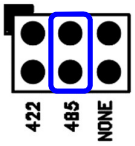




NONE: Disable termination resistors.



422: Enable RS422 terminal resistor.



485: Enable RS485 terminal resistor.

Multi-8U Ver1.7

Multi-8U Ver1.7 is a model that supports USB2.0. It is detected automatically when user connects USB port with computer. It supports maximum communication speed of 921.6Kbps. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. And, when a DC adapter is used, it can supply power thorough 9th pin of DB9 with maximum 1A.

In Combo model, a user can set a communication mode with the switch.

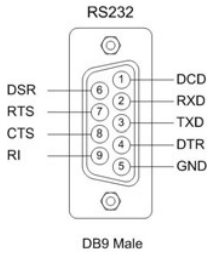
Also, the LED is attached outside to show the current status of signal lines.

- Specification

Communication Speed	Max 921.6Kbps
Bus Interface	USB 2.0
Signal	RS232/RS422/RS485
Controller	FTDI 4232H
Connector	DB9 Male
Protection	15kV Surge Protector
Supported OS	Windows 7 or above Linux Kernel 2.6 and above
Manufacturer	SystemBase Co., Ltd

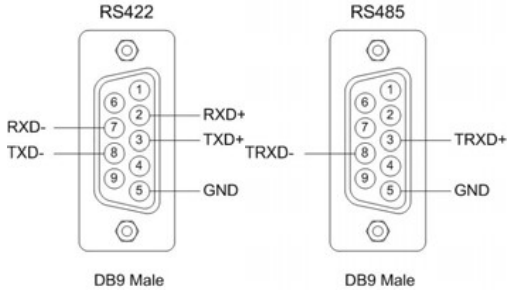
1. RS232 Model

- DB9 Male Pin Assignment

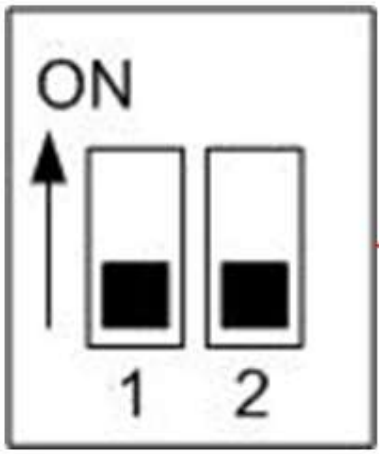


2. RS422/RS485 Model

- DB9 Male Pin Assignment



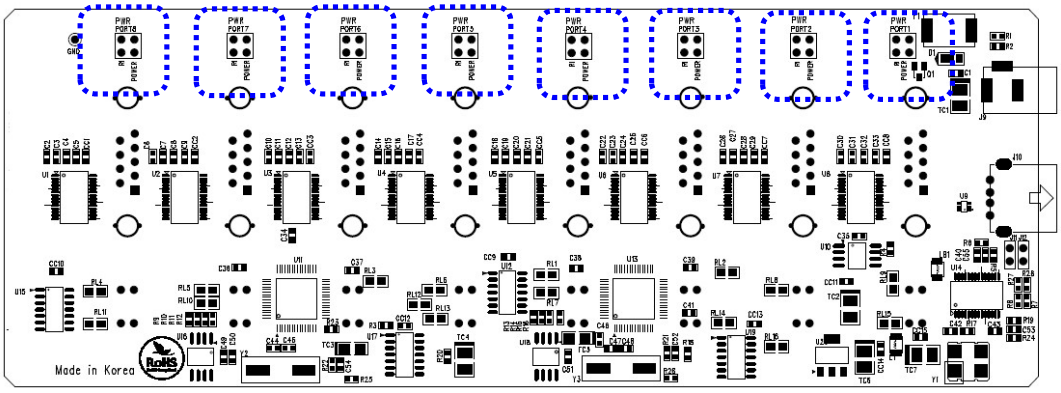
DIP Switch Setting

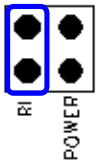


1	2	Signal	Mode
OFF	OFF	RS422	Point to Point
OFF	ON	RS422	Multi-Drop
ON	OFF	RS485	Non-echo
ON	ON	RS485	Echo

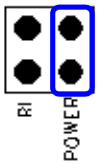
-Jumper Setting

- RS232





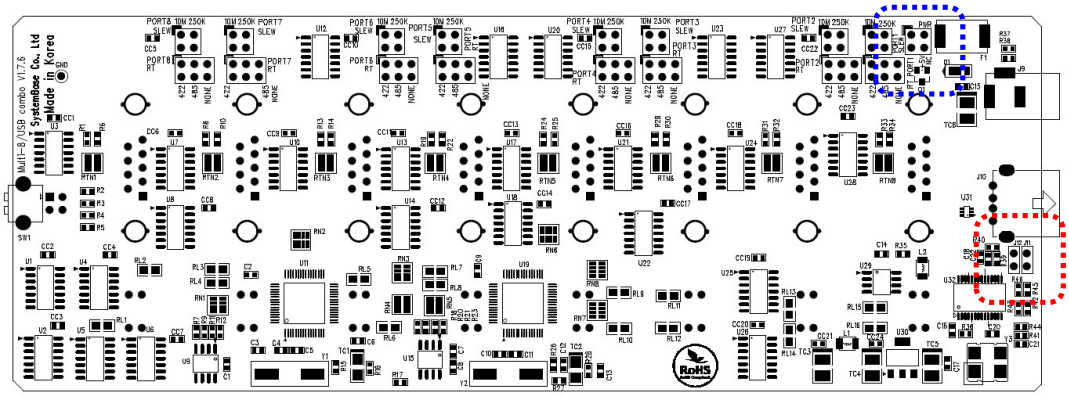
RI: Use 9th pin of DB9 connector as RI signal. (Default)

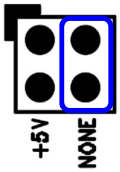


Power: Use 9th pin of DB9 connector to supply +5V DC power.
(Requires an adapter.)

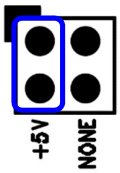
Mode: **Used as power mode setting. (Keep default. Do not temper with it.)**

- COMBO



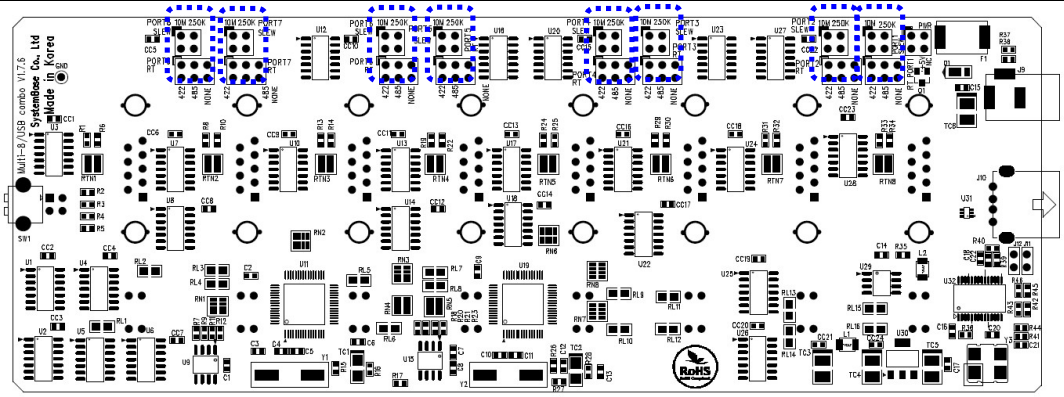


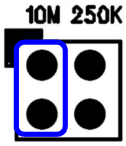
NONE: Do not supply any power to 9th pin of DB9. (Default)



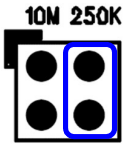
+5V: Use 9th pin of DB9 to supply +5V DC power.
(Requires an adapter.)

Mode: **Used as power mode setting. (Keep default. Do not temper with it.)**



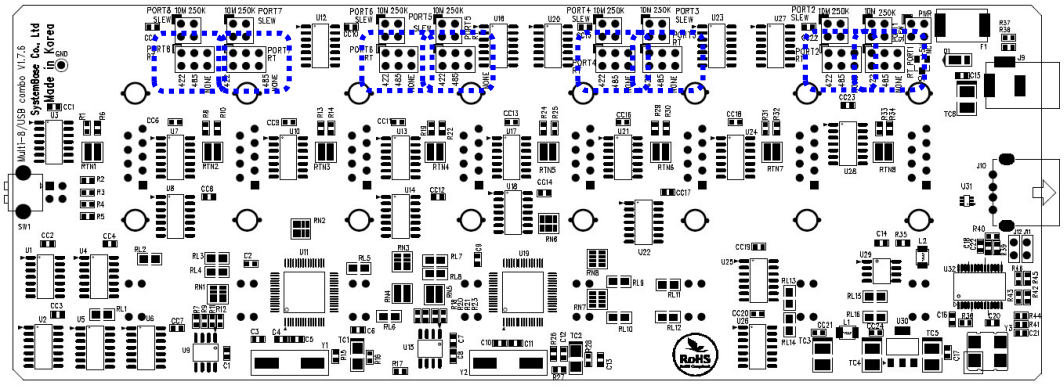


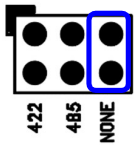
10M: Disable slew rate limit feature. Maximum communication speed for this mode is at 921.6Kbps. (Default)



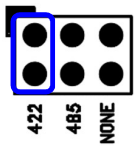
250K: Enable slew rate limit feature. Communication speed is limited to under 250Kbps.

The slew rate limit feature allows communication without errors by activating slew-rate driver to reduce reflection waves and EMI electromagnetic waves. However, communication speed is limited when it is enabled.

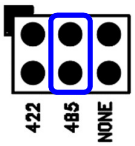




NONE: Disable termination resistors.



422: Enable RS422 terminal resistor.



485: Enable RS485 terminal resistor.

Multi-4U/8U V1.6

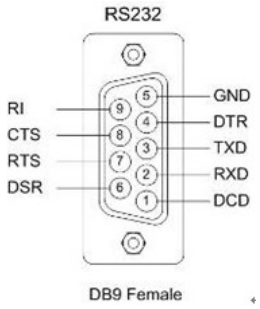
Multi-4U/8U V1.6 may operate with USB power only. But it can operate with an external adapter when it needs more stable power supply. It can supply +5V when the device requires. This feature is useful when small devices such as a cash box, a bar-code reader and a printer are connected to a PC POS system. A +5V DC can be supplied even when Multi-4/8 USB is not using an external adapter. This power is supplied through 9th pin of DB9 connector.
(Caution: Never use an adapter except +5V DC. Or else, it may damage the product.)

- Specification

Communication Speed	Max 921.6Kbps
Bus Interface	USB 2.0
Signal	RS232/RS422/RS485
Controller	FTDI 2232D
Connector	DB9 Female
Protection	15kV Surge Protector
Supported OS	Windows 7 or above Linux Kernel 2.6 and above
Manufacturer	SystemBase Co., Ltd

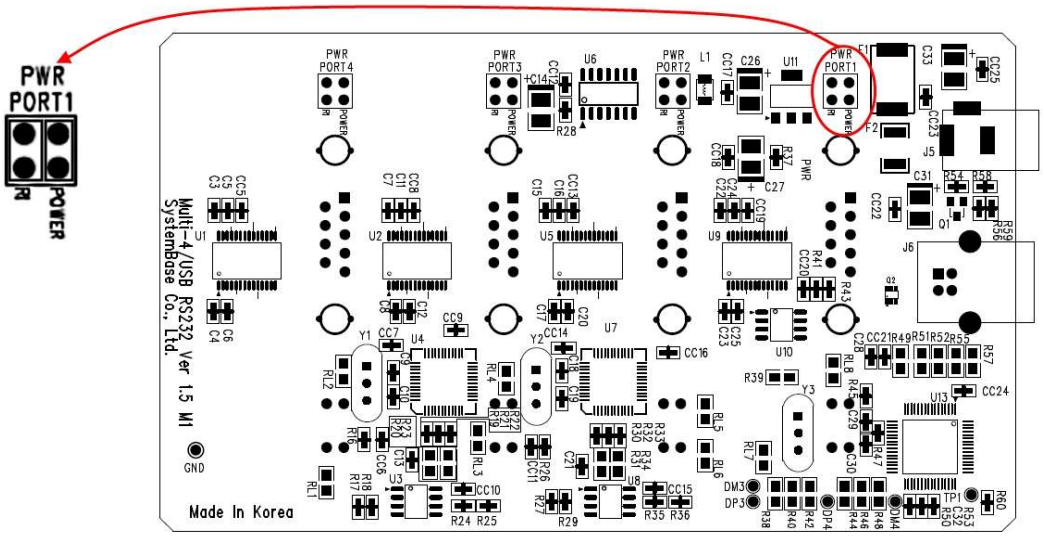
1. RS232 Model

- DB9 Female Pin Assignment

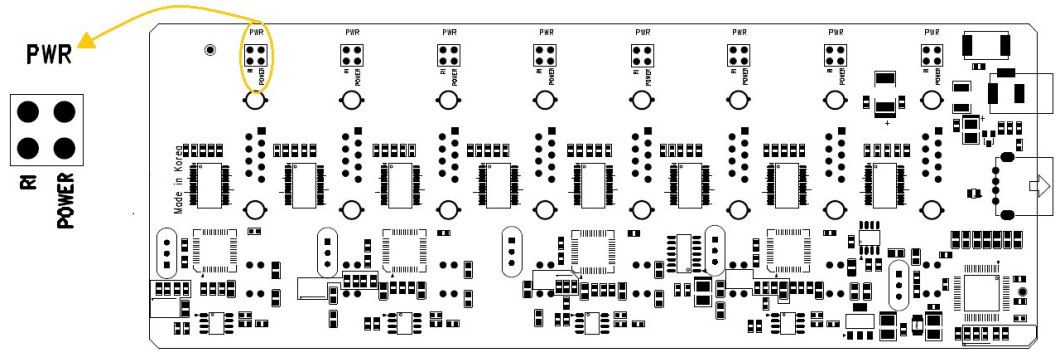


- External Voltage Supply Jumper

Multi-4U RS232 V1.6



Multi-8U RS232 V1.6



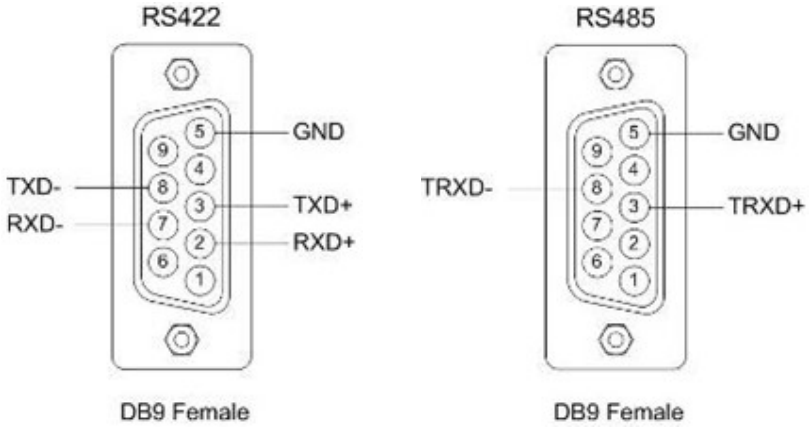
There are jumpers for each ports inside the case. Users can select modes by changing the position of a jumper.

RI: Use 9th pin of DB9 connector as RI signal. (Default)

Power: Use 9th pin of DB9 connector to supply +5V DC.

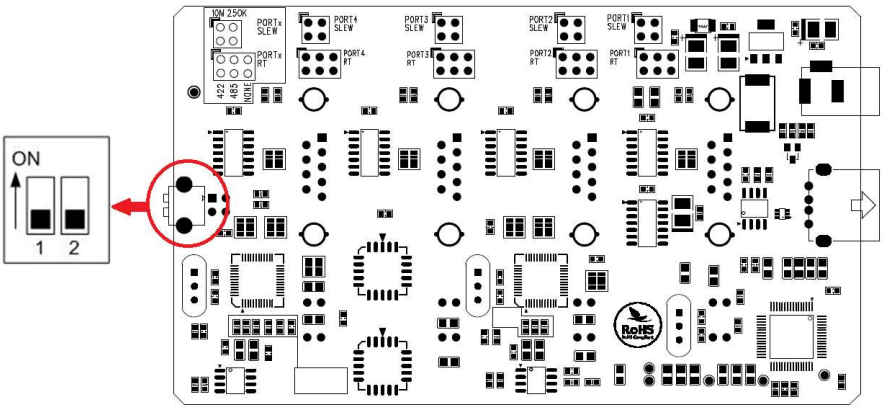
2. Combo (RS422/RS485) Model

- DB9 Female Pin Assignment

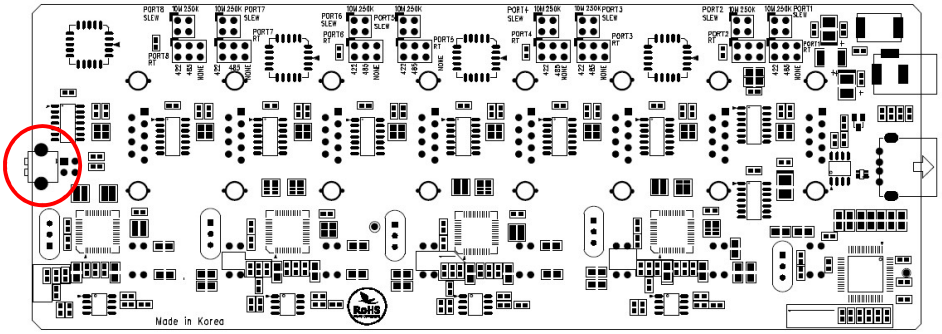


- Switch for selecting RS422/RS485 Signal

Multi-4U Combo V1.6



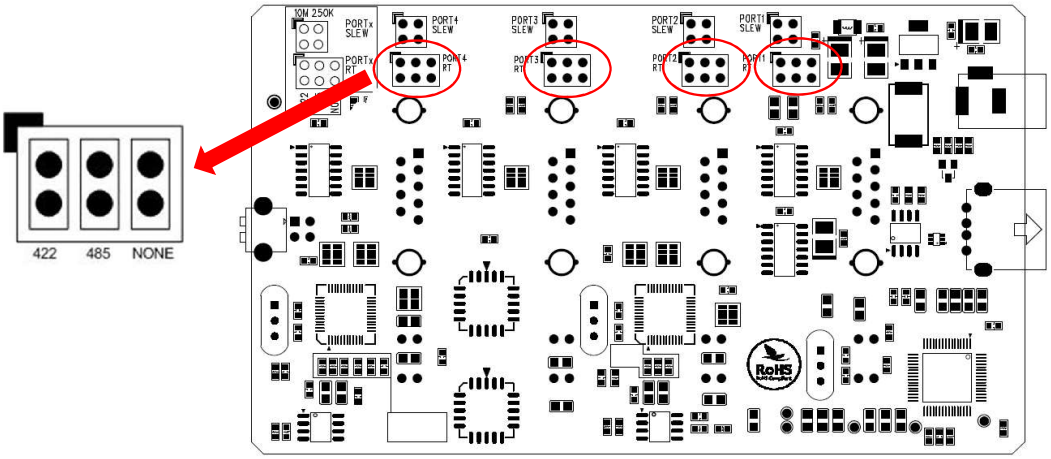
Multi-8/USB Combo V1.6



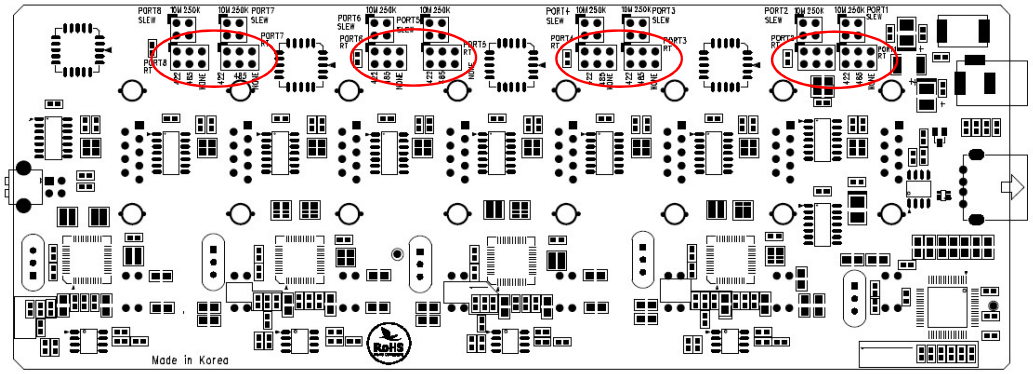
1	2	Signal	Mode
OFF	OFF	RS422	Point-to-Point
OFF	ON	RS422	Multi-Drop
ON	OFF	RS485	Non-Echo
ON	ON	RS485	Echo

- Port# RT: RS422, RS485 Terminal Resistor

Multi-4U Combo V1.6



Multi-8/USB Combo V1.6



422: Enable terminal resistor for RS422.

485: Enable terminal resistor for RS485.

NONE: Disable terminal resistors. (Default)

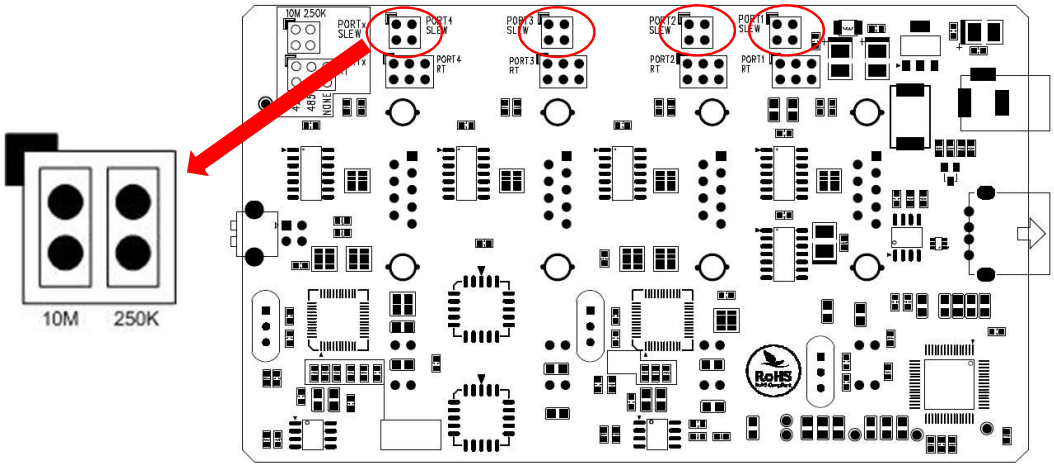
- External Voltage Supply

- In Multi-4/8 USB Combo model, +5V is always supplied through the 9th pin of DB9 connector. Users can connect 9th pin to the device if they require to supply +5V DC to the device.

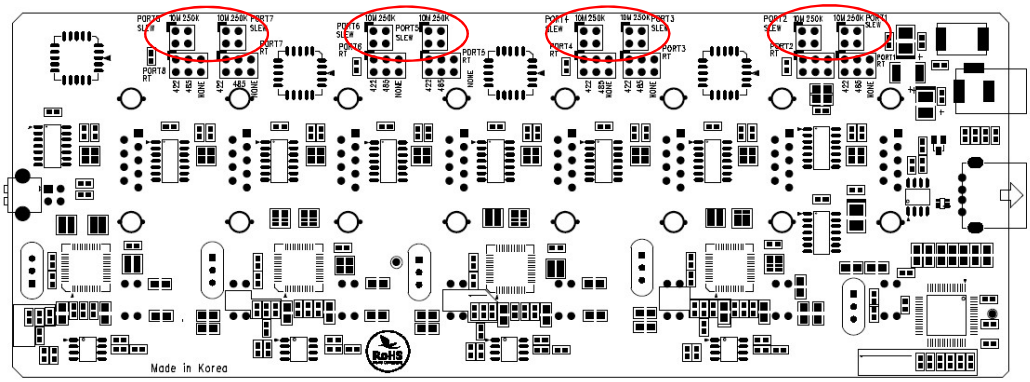
- Jumper for Slew Rate Setting

The slew rate limit feature allows communication without errors by activating slew-rate driver to reduce reflection waves and EMI electromagnetic waves. However, communication speed is limited when it is used.

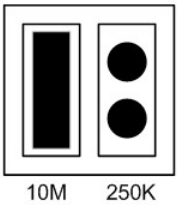
Multi-4/USB Combo V1.6



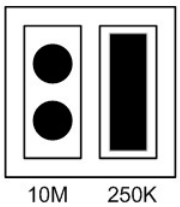
Multi-8/USB Combo V1.6



Disable Slew Rate Limit (Default)



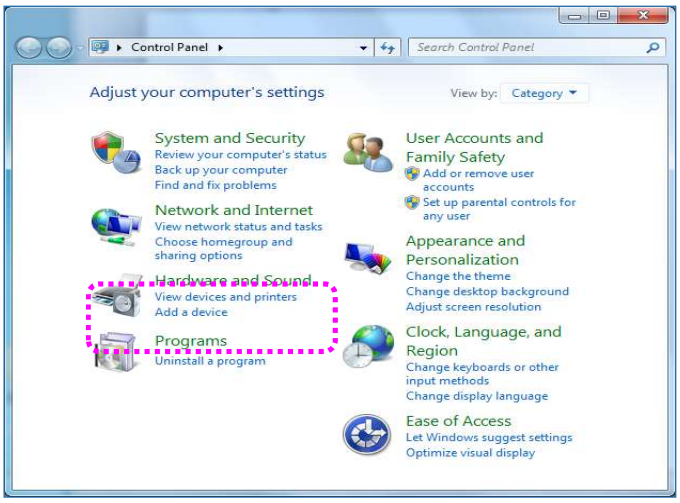
Enable Slew Rate Limit



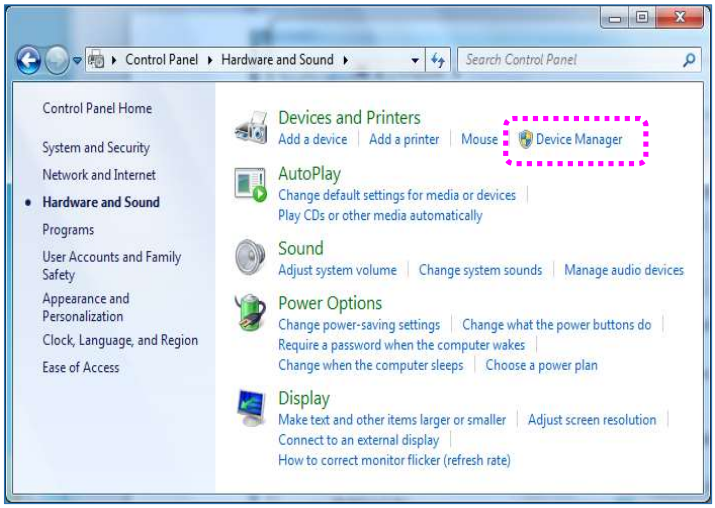
Manually Installing Windows Device Driver

Install procedures for 64bit drivers are identical to 32bit drivers.

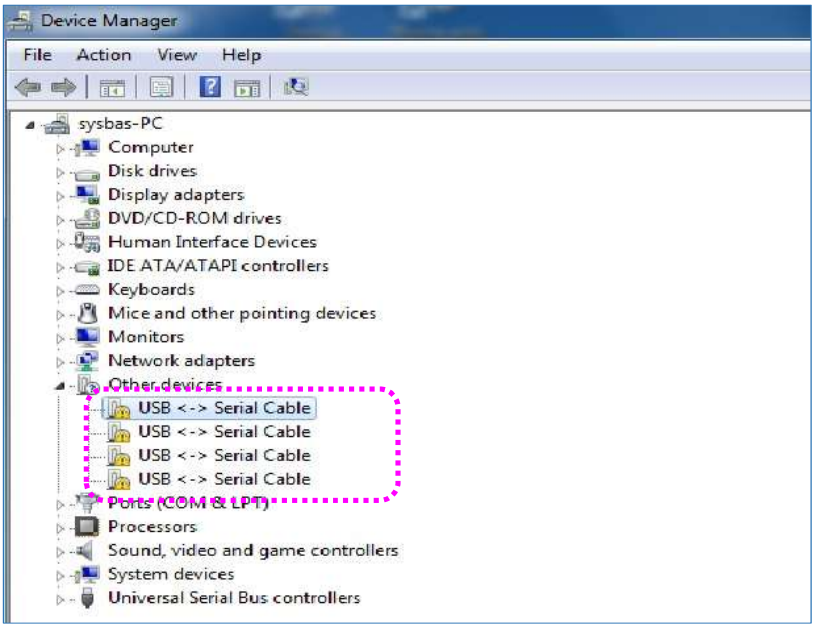
1. Run Windows.
2. Connect USB Multiport to the USB port in the computer.
3. Download USB driver from SystemBase website(www.sysbas.com) and unzip the file.
4. Click “Hardware and Sound” from “Control Panel”.



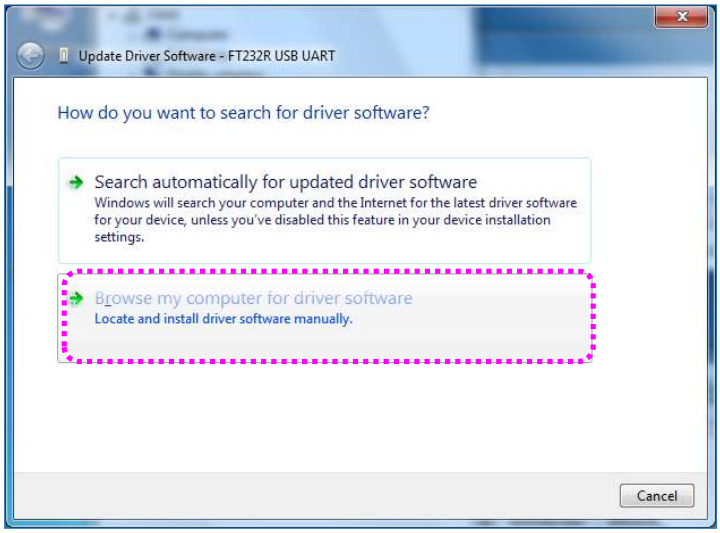
5. Following picture shows “Device Manager” after step 4.
   Click “Device Manager”.



6. Right click “USB <-> Serial Cable” in “Device Manager”. Then choose “Update Driver Software”.

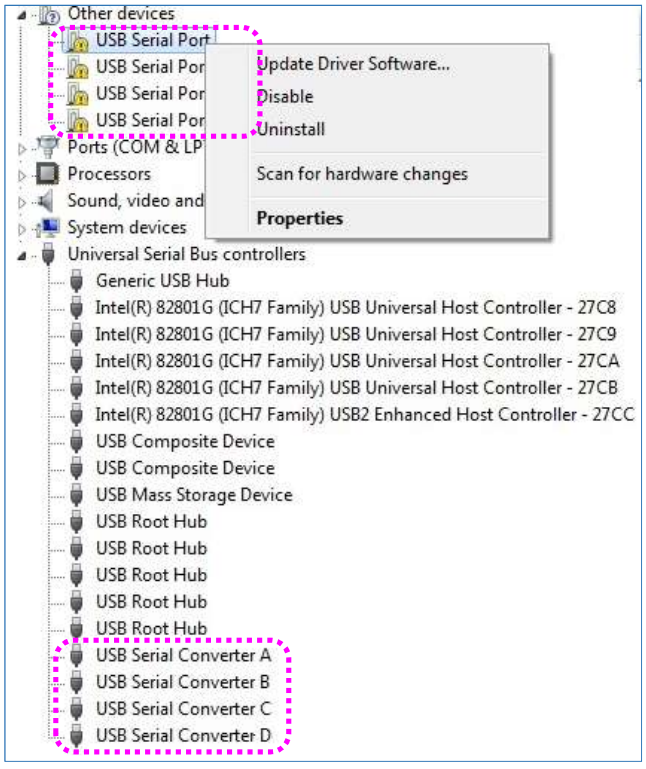


7. Click “Browse my computer for driver software” in order to install driver manually.

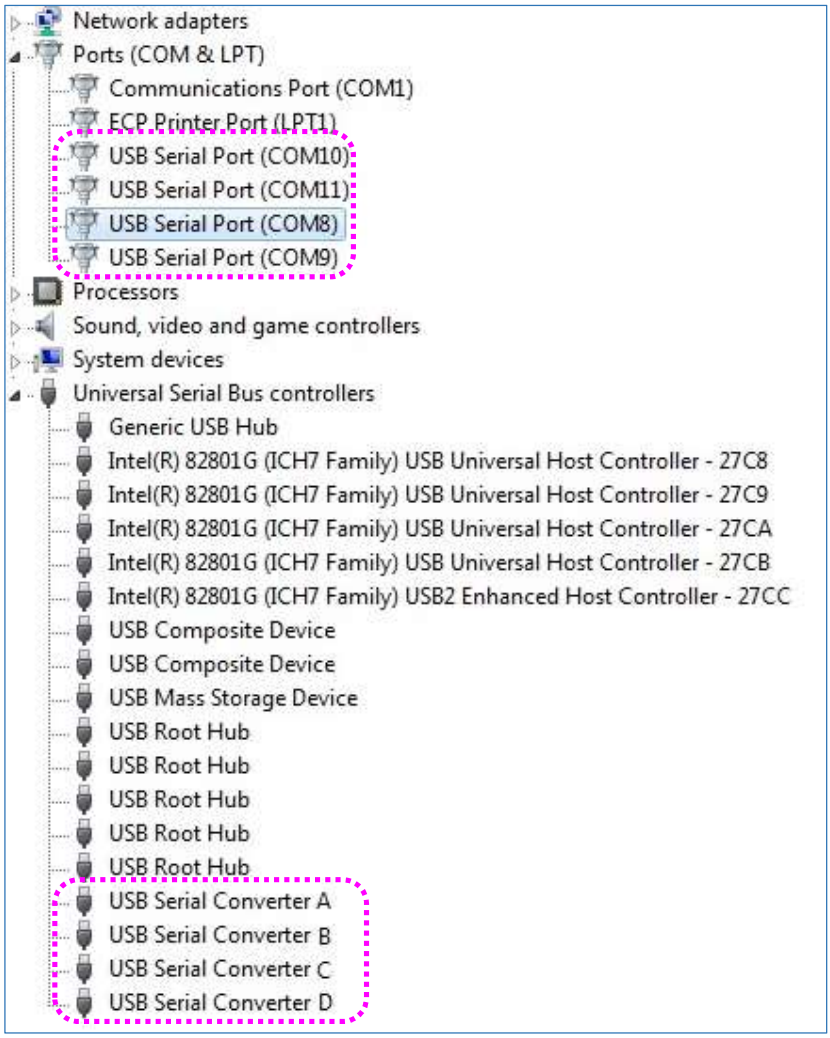


8. Click “Browse” and set driver software’s location to:
[Drive letter]:₩Driver₩32bit or [Drive letter]:₩Driver₩64bit

9. Confirm that “USB Serial Converter” is installed. Then, right click "USB Serial Port" and follow the same process from number 6 again.



10. Following picture shows “Device Manager” after the drivers are installed.



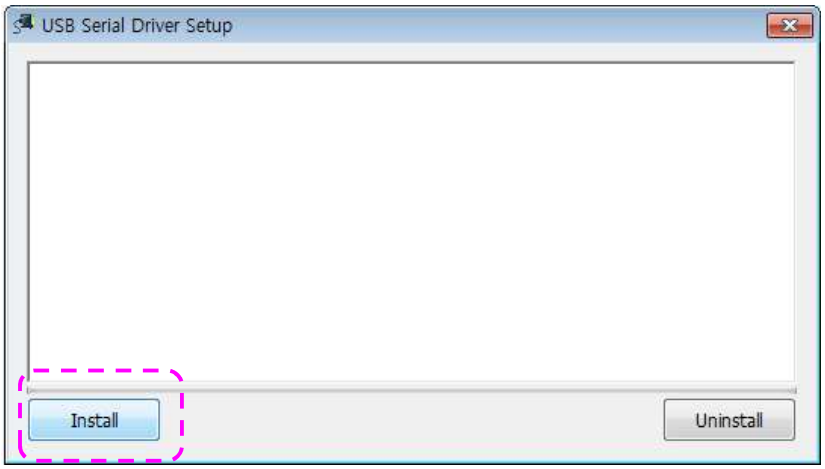
11. “USB Multiport” installation for Window is now finished.

Automatic Driver Installation in Windows

This procedure applies to Windows 7, 8, 8.1, 10. (32 and 64bits)

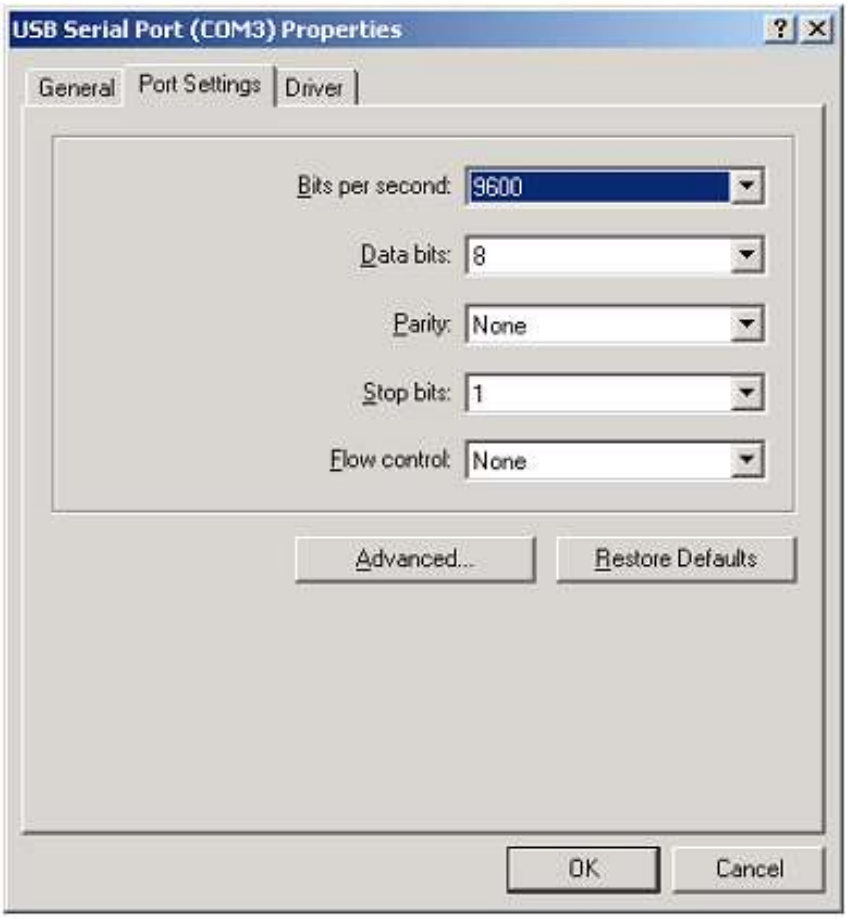
The 32-bit setup utility does not work with 64-bit Windows, nor does the 64-bit setup utility work with 32-bit Windows.

1. Run Windows.
2. Connect USB MultiPort to the USB port in the computer.
3. Download USB driver from SystemBase website(www.sysbas.com) and unzip the file. Open the folder named [Drive letter]:₩Driver₩32bit or [Drive letter]:₩Driver₩64bit
4. Run “USB_Serial_Driver_Setup”.
5. Click “Install”.

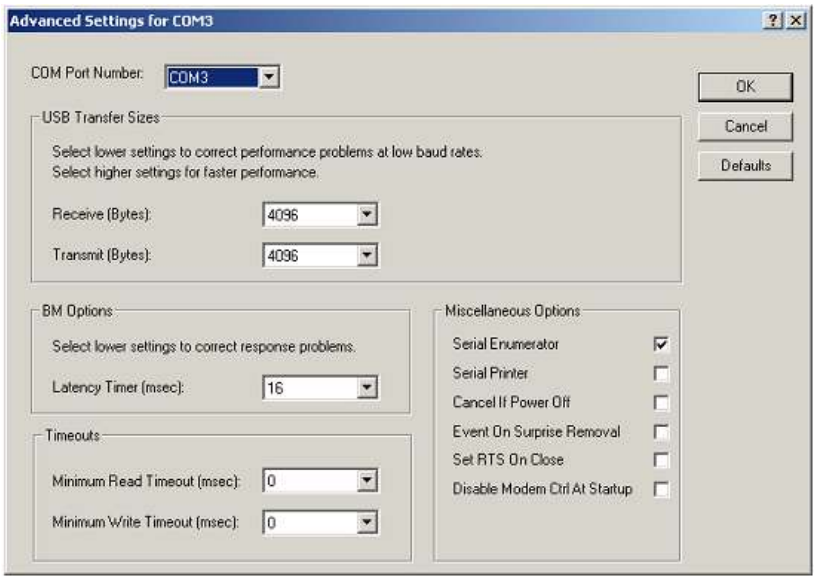


Windows Device Driver Setup

1. An advanced properties page is available for USB device. To access the advanced properties page, open "Device Manager" from “Control Panel”. Find the USB serial port you want to change the properties and right-click on it. Select "Properties" from the menu then select the "Port Settings" tab to get to the window below.



2. This page allows configuration of the basic device parameters (i.e. Baud rate, data bits, parity, stop bits and flow control). To access more advanced settings, click on the "Advanced…" button to display the advanced properties page. (shown below)



3. This page will allow the following parameters to be altered:

   COM port number: You can change the serial port number.

   - USB buffer sizes: Select maximum size of send or receive data.
   - Latency timer: Alter this to correct compatibility problems for obsolete applications.
   - Read and write timeout values.

     You can alter this for timing of timeout event if there are no more Tx/Rx data.
   - Serial Emulator: The function of the serial enumerator is to detect a Plug-and-Play enabled device (such as a serial mouse or serial modem) that is attached to the USB serial port.
   - Serial Printer: If enabled, serial printer will disable timeouts to allow for long delays associated with paper loading.
   - Cancel If Power Off: The Cancel If Power Off option can be used to assist with problems encountered when going into a hibernate or suspend condition. This will cancel any requests received by the driver when going into hibernate or suspend.
   - Event on Surprise Removal: The Event On Surprise Removal option is generally left unselected. If an application sets SERIAL_EV_EVENT2 (refer Windows DDK) in it is event bitmask and this feature is enabled, the device driver will signal this event on surprise removal.

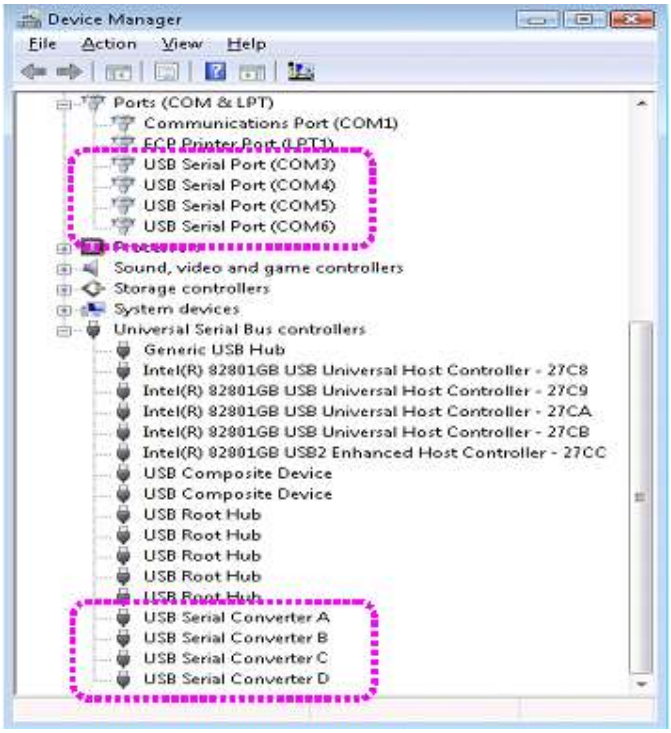
- Set RTS on Close: Selecting the Set RTS on Close option will set the RTS signal on closing the port.
- Disable Modem Control at Startup: This option is used to control the modem control signals DTR and RTS at startup. In normal operation, the modem control signals at startup follow the behavior of the legacy port. However, due to timing differences between a legacy COM port and a virtual COM port, a "spike" on one of these signals in the legacy port can appear as an assertion of the signal in the virtual COM port.
- Devices that monitor these signals can enter the wrong state after an unplug-replug cycle on USB. Note that if ₩ the "Serial Enumerator" option in the property page is selected, then the enumeration sequence causes the modem control signals to change at startup. So if it is necessary to select "Disable Modem Ctrl At Startup", then it is likely that "Serial Enumerator" should be unchecked in the property page.

- DO NOT adjust these parameters if there is no specific problem in using device.

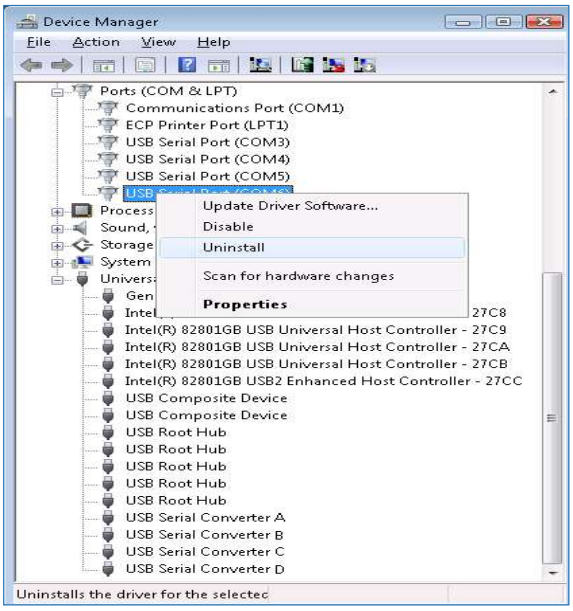
Manually Removing Windows Device Driver

1. Run “Device Manager”. Do not remove USB MultiPort from the USB port yet. USB Multiport should be removed after all removal processes are completed.

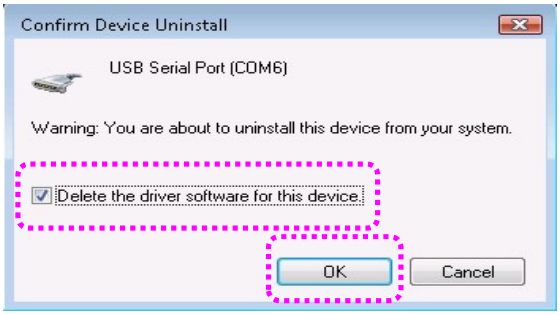
2. “USB Serial Converter A/B/C/D” controllers and “USB Serial Port” serial ports can be found. The number of ports may vary depending on the product you are using. Serial ports should be removed first.



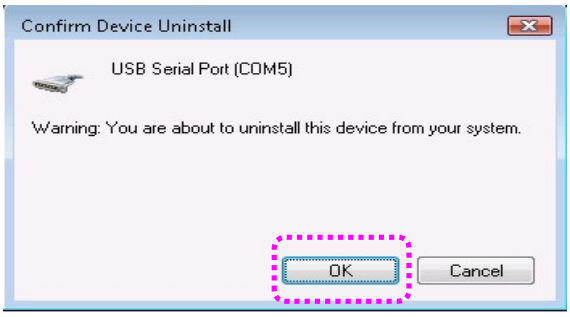
3. Find 'USB Serial Port (COM#)' under "Device Manager->Ports->USB Serial Port (COM#)" and right click on any "USB Serial Port". Click "Uninstall".



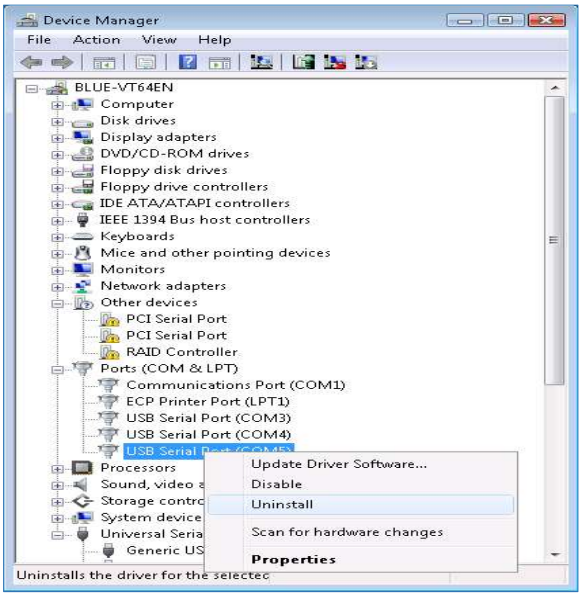
4. Check the following check box, and click "OK".



5. Remove the rest of the USB serial ports.

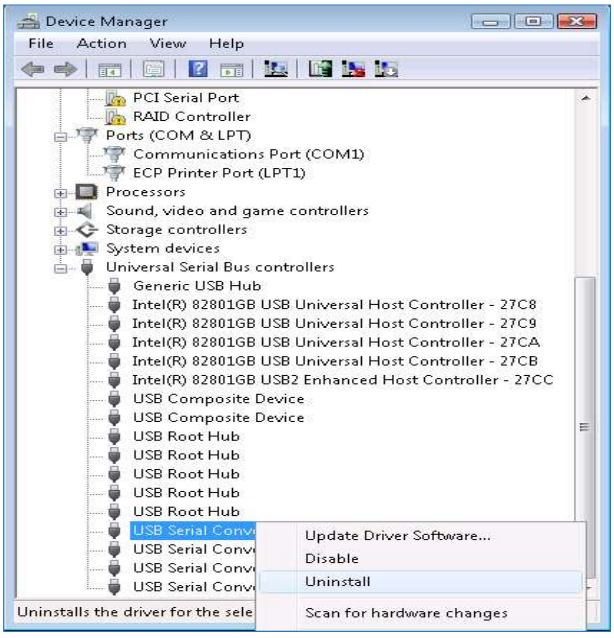


6. Unlike the previous Window when deleting, check box cannot be found. Click “OK” to remove current port. Repeat step 5~6 until all serial ports are removed.



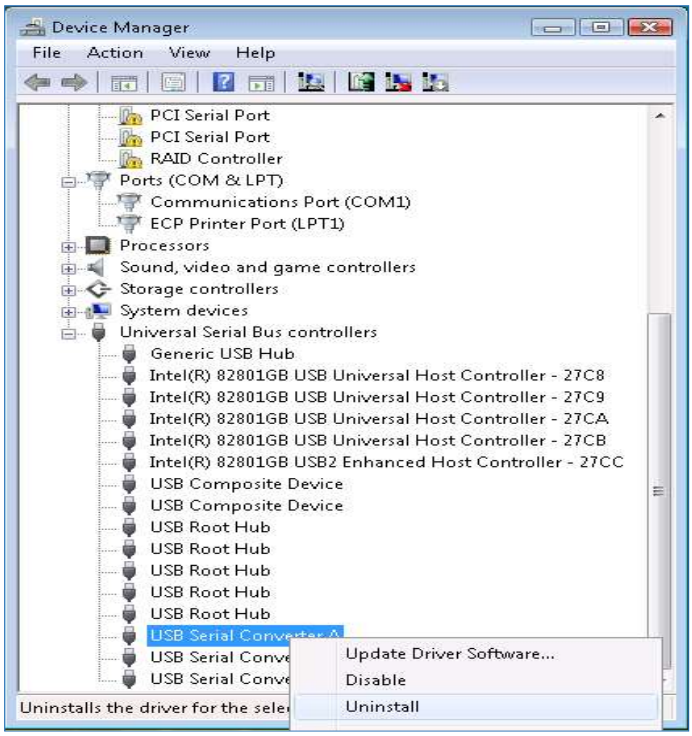
7. “USB Serial Port” removal is now completed. We will now continue with “USB Serial Converter” removal.

8. Right click on one of the “USB Serial Converter” and click “Uninstall”.



9. Check the “check box” and click “OK”.

10. Remove rest of “USB Serial Converters”.



11. Repeat steps 10~11 until all USB serial converters are removed.

12. Remove USB MultiPort from USB connection port.

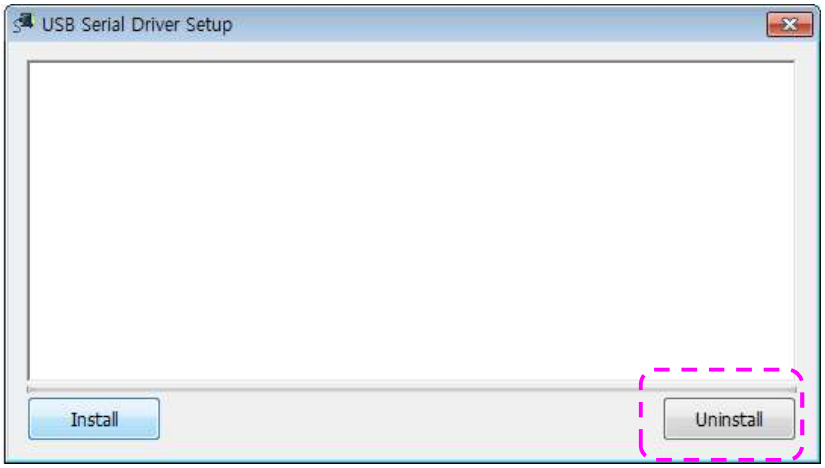
13. USB MultiPort drivers are now completely removed from your system.

Automatic Driver Uninstallation in Windows

This procedure applies to Windows 32 and 64 bits. If you want to uninstall the device drivers manually, please refer to manual uninstallation pages.

The 32-bit setup utility does not work with 64-bit Windows, nor does the 64-bit setup utility work with 32-bit Windows.

1. Run Windows.
2. Connect USB Multiport to the USB port in the computer.
3. Download USB driver from SystemBase website(www.sysbas.com) and unzip the file. Open the folder named [Drive letter]:₩Driver₩32bit or [Drive letter]:₩Driver₩64bit
4. Run “USB_Serial_Driver_Setup”.
5. Click “Uninstall”.

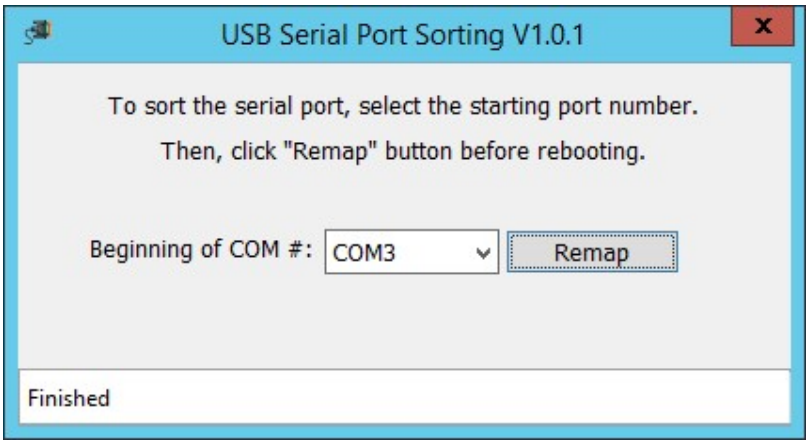


Serial port sorting program (USBSerial_Remap)

The following is a description of the utility needed to change the serial port number or to sort sequentially when installing and using MultiPort /USB on a computer.

Execution order of USB Serial_Remap

1. Restart your computer with the MultiPort / USB disconnected.
2. After restarting your computer, connect MultiPort / USB to USB connector.
3. Run USBSerial_Remap.exe and specify the starting port number where you want to change the current port number then click the **Remap** button.



4. When the Windows is restarted, the port alignment is completed.

Multi-4U/8U Version History

Version	Feature
V 1.0 V 1.1	Using V DC by 12V from an adapter 5V or 12V DC power supply by d-sub pin#9. Using linear regulator for V1.0 and switching regulator for V1.1.
V 1.2	DC power has nothing to do with bus power supplied from USB port. DC power is used to supply power to d-sub pin#9. Use 5V DC adapter to supply 5V power Use 12V DC adapter to supply 12V power Provide power to d-sub pin#9 using external power supply, an adapter.
V 1.5	Providing +5V power supply to RI signal (d-sub pin #9) DC can be used additional BUS power supply and external power supply. DC must be used 5V adapter. Using GL850
V 1.6	Providing +5V power supply to RI signal (d-sub pin #9) DC can be used additional BUS power supply and external power supply. DC must be used 5V adapter. Using GL850A (Discontinued GL850) ※ Latching USB connecter is applied to all existing model.
V1.7	Switched to high performance USB 2.0 controller, the performance increases by 30% Providing +5V power supply to RI signal (d-sub pin #9) The DC power can be used additional to BUS power supply. ※ Latching USB connecter is applied to all existing model.

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