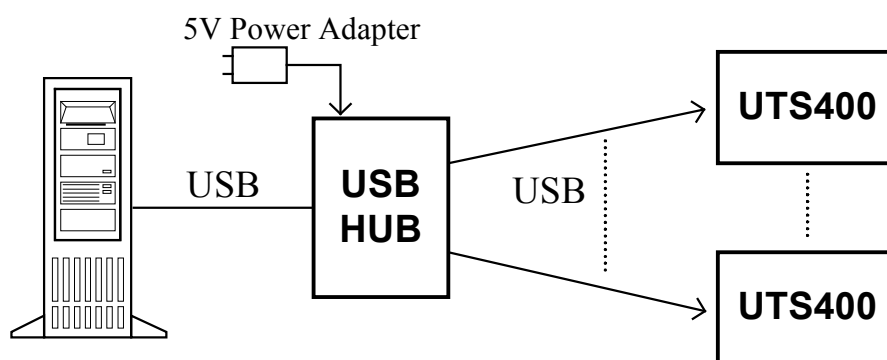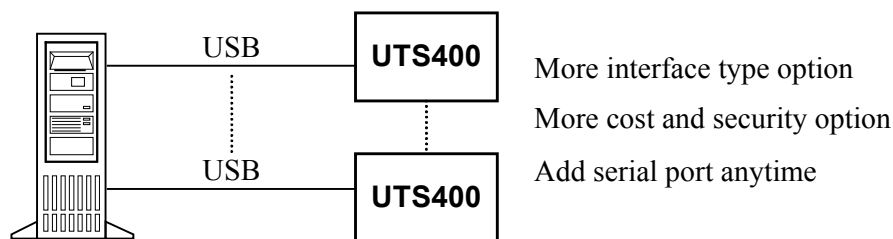# RAYON's USB to Serial Port Product Line

Even though RAYON's USB to serial port box just support up to four serial ports per box. User can use USB hub (If your PC did not support enough USB connectors) to connect more boxes to support more serial ports. User can also have one port or two ports model to meet target application environment.

Generally USB bus connector can offer 5V power supply. So RAYON's USB to serial port converter box will use bus power mode. In normal condition desktop PC will offer up to 500mA current in USB bus. The maximum power consumption in RAYON's box is 400mA current. So it is no problem for RAYON's box to be connected with desktop PC's USB connection. But some notebook PC may just offer 100mA current in USB bus. In this condition user may need to use RAYON's box with self-power version. We need to use external 5V power adapter for USB to serial port converter box.

USB   UTS400   More interface type option

USB   UTS400   More cost and security option

Add serial port anytime

5V Power Adapter

USB   USB HUB   USB   UTS400   UTS400

Due to different cost consideration and security consideration RAYON's USB to serial port converter box can have different models to meet user's environment. Because RS232 interface is used in common ground transmission method. When we use USB cable to connect PC and converter box, we will have same signal ground for PC and converter box. When we use RS232 cable to connect external equipment with RS232

connector in converter box. We will have same signal ground for external equipment and PC through converter box. In rigid application environment we may have big ground bounce in external equipment. Such ground bounce signal will go through converter box to PC. If there were bad ground connection between PC and external equipment, then we may have data transmission error condition or IC damaged in PC, converter box or external equipment. In this condition we may need to have isolated ground loop between PC and external equipment. So we need to have ground isolated RS232 serial port in converter box to protect whole application environment.

Model	RS232	RS422/RS485	isolated RS232	isolated RS422/485	Total
UTS111	1	1	x	x	1
UTS112	2	2	x	x	2
UTS101-I	x	x	1	x	1
UTS131-I	x	x	x	1	1
UTS111-I	x	x	1	1	1
UTS102-I	x	x	2	x	2
UTS132-I	x	x	x	2	2
UTS112-I	x	x	2	2	2
UTS301-I	1	1	x	1	2
UTS310-I	1	1	1	x	2
UTS400	4	x	×	×	4
UTS040	×	x	4	×	4
UTS004	×	x	×	4	4
UTS485	2	x	×	2	4
UTS134	×	4	x	x	4
UTS022	×	x	2	2	4
UTS114	4	4	x	x	4

For cost sensitive application we have UTS400 box to support four RS232 serial ports. It is suitable for low cost requirement and good signal ground environment.

For security concern application we have UTS101-I/UTS102-I/UTS040 box to support one/two/four GROUND isolated RS232 serial ports. Each serial port will be GROUND isolated with other serial port and USB bus (to PC). So we can let all external equipment without ground loop to PC and other equipment. It is suitable for rigid application environment.

For remote connection environment we have UTS131-I/UTS132-I/UTS004 box to support one/two/four GROUND isolated RS422 or RS485 interface settable serial ports. For this high security box we can support remote full duplex RS422 connection and half duplex RS485 multi-drop application environment. Because we have optical isolated in signal, so we can solve the ground loop problem between PC and external equipment.

Some user may need to have RS232 serial port for local connection, RS422 for remote connection and RS485 for multi-drop environment. UTS485 box can support two RS232 serial ports and two GROUND isolated RS422/RS485 serial port. From cost point of view we do not offer GROUND isolated feature in RS232 serial port. From security point of view we support GROUND isolated feature in RS422/RS485 serial ports. We use terminal block connector in RS422/RS485 serial ports. It is easy for RS485 multi-drop connection.

Now you can find that you just need one USB cable to connect RAYON's USB to serial port converter box. It is very easy to add extra four serial port with RS232, RS422, RS485 interface to meet your environment. For different cost and security requirement you can have one optimum solution to meet your requirement. When you need more than four serial ports in your application, you can add more converter box in any combination for serial port's interface type. When you buy one bulk box from other manufacture, you may pay more money for interface option. Or you are always short of one interface type to meet your application environment. For example you may buy 16 RS232 serial ports product and need one RS485 ports later. You may find one RS232 equipment with too many data error condition due to bad GROUND connection. It is too high cost to buy 16 RS232/RS422/RS485 settable serial port version's product. From RAYON's product line you can have two low cost UTS400 boxes for 8 RS232 serial ports, one UTS040 box for 4 GROUND isolated RS232 serial ports and one UTS485 box for 2 RS232 and 2 GROUND isolated RS422/RS485 serial ports. From maintenance consideration you may have whole 16 serial port in one box to be down for one serial port damaged. To use RAYON's product you just have one box down for serial port damaged. From system management consideration you may have self-power product in 16 serial port models. When PC is shutdown, you may still let your box in power on condition. When PC is power on, you may still let your box in power off condition. To use RAYON's product you always have correct condition to work with PC.