Q: How to link serial devices through RS-485 on XP-8000?

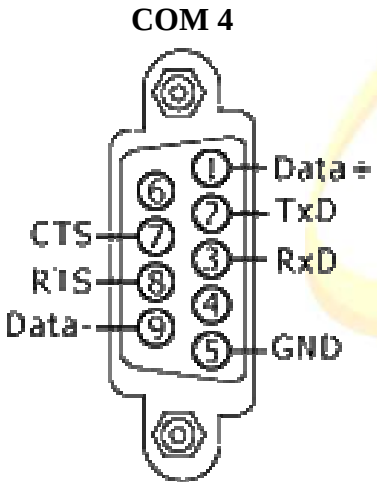
Applied to:

Platform	*OS version*	*XPAC utility version*
XPAC series	*All versions (WinCE6)*	*All versions*

XPAC is equipped with two RS485 COM ports (COM3, COM4) which enable the transmission rate up to a maximum of 115.2K bps. The medium for connection is a twisted-pair, multi-drop, 2-wire RS-485 network that can link i-7000, M-7000, RU-87Pn, high profile I-87K modules and the other serial devices.

Pin assignment of COM4:

COM3 can be configured as either RS-232 or RS-485, that only can select one at a time and its configuration depends on the pin connections as follows: RS-232 (RXD, TXD, CTS, RTS and GND) RS-485 (Data+ and Data-) there is no software configuration or hardware jumper needed.

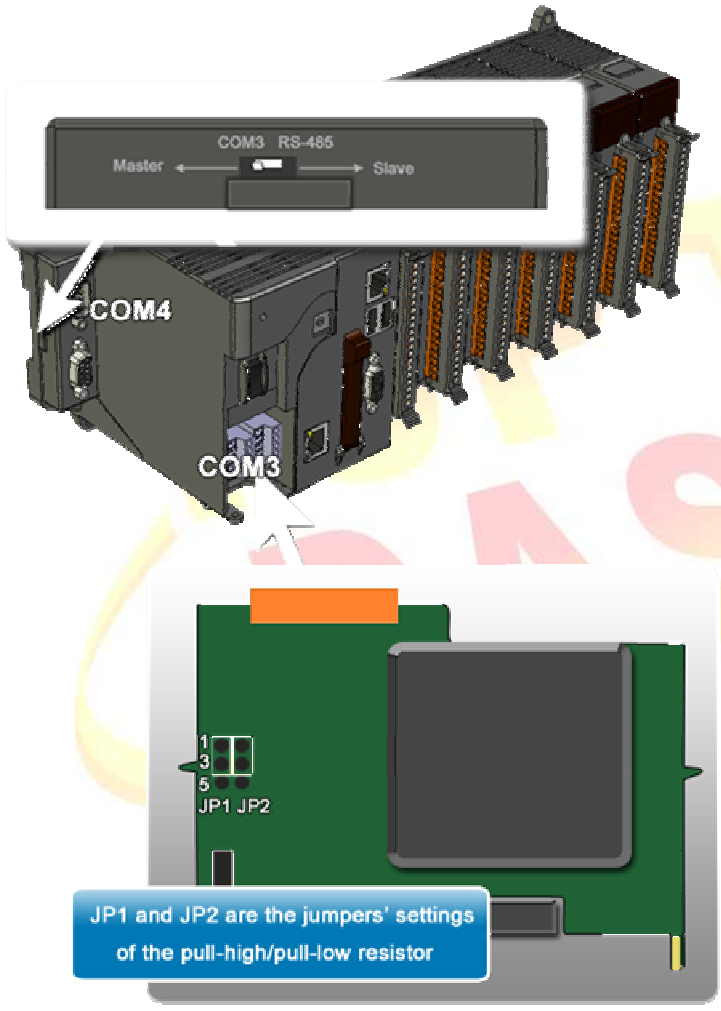


Master/Slaves Settings of COM4/COM3:

The RS-485 network based on master-slave architecture consists of a single master device and one

or more slave devices. The XPAC provides two RS-485 communication interfaces based on the master-slave system architecture, all of which have a pull-high/pull-low resistor, user can set it to master or slave for implementing an RS-485 multi-drop network.

One of the RS-485 communications, COM3, its pull-high/pull-low resistor located on power board, the other, COM4, located on the right side and its pull-high/pull-low resistor located on the bottom of the right side, as shown below.



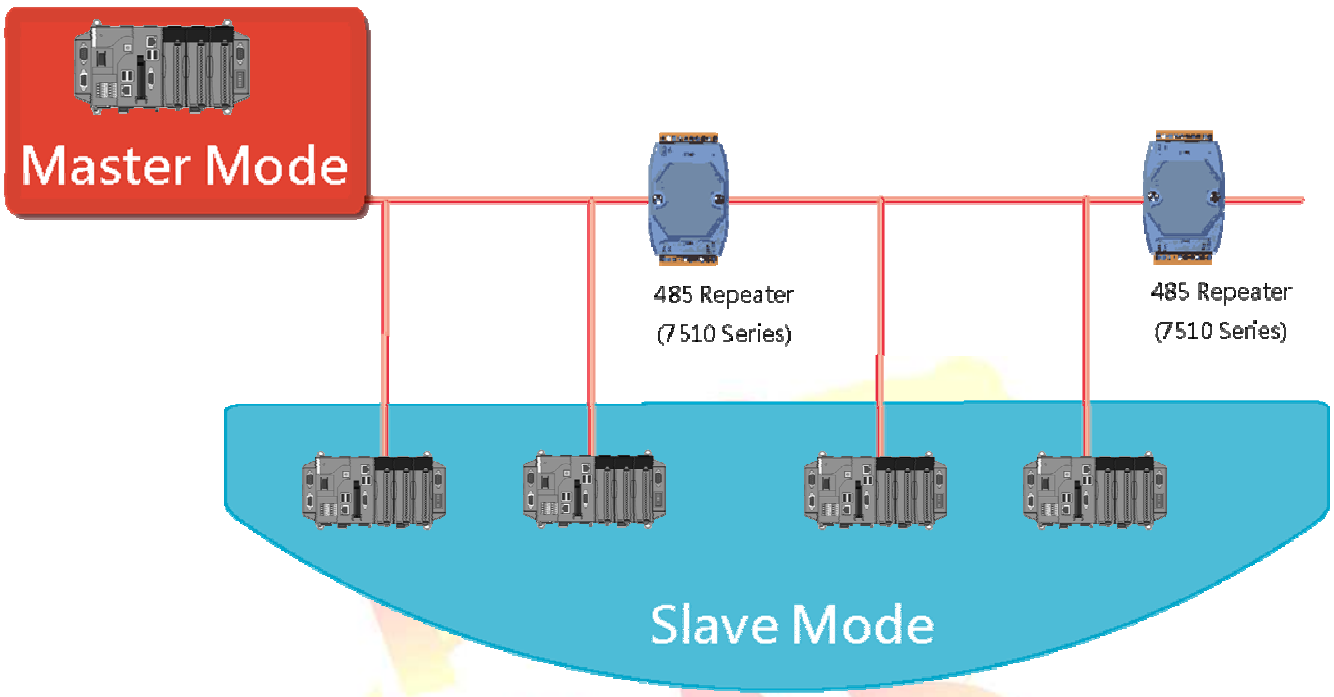
Tips & Warnings

⚠ If XPAC is used as a Slave device on RS-485 network, it's better to use COM3.

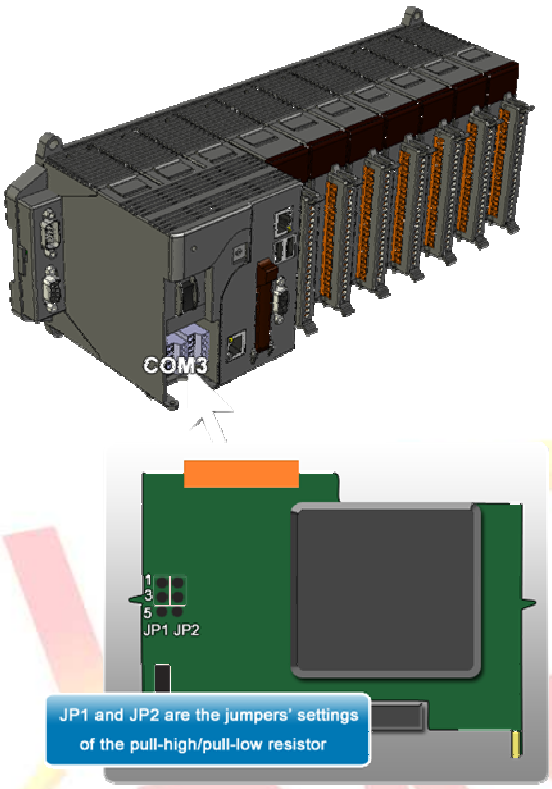
XPAC as a Master (default):

When one of XPAC is set to master, then all the other devices on the same network must be slave

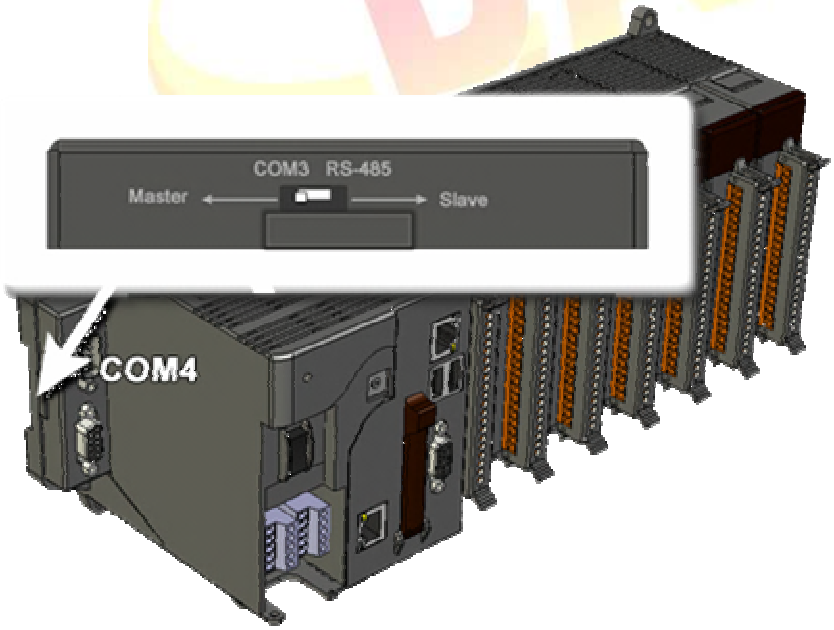
mode. If the network is up to 1.2 KM, it will need a repeater (7510 series) to extend the network length.



When XPAC as a master using COM3 communication interface, the pull-high/pull-low resistor located on the power board must adjust to enable as shown below.

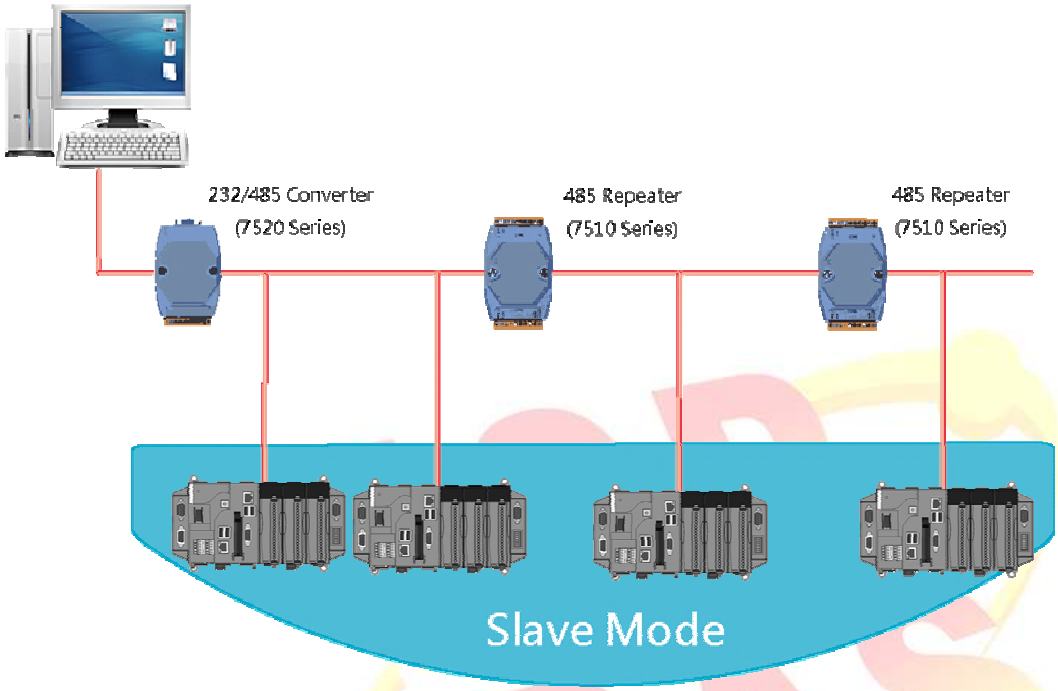


When XPAC as a master using COM4 communication interface, the pull-high/pull-low resistor located on the power board must adjust to enable as shown below.

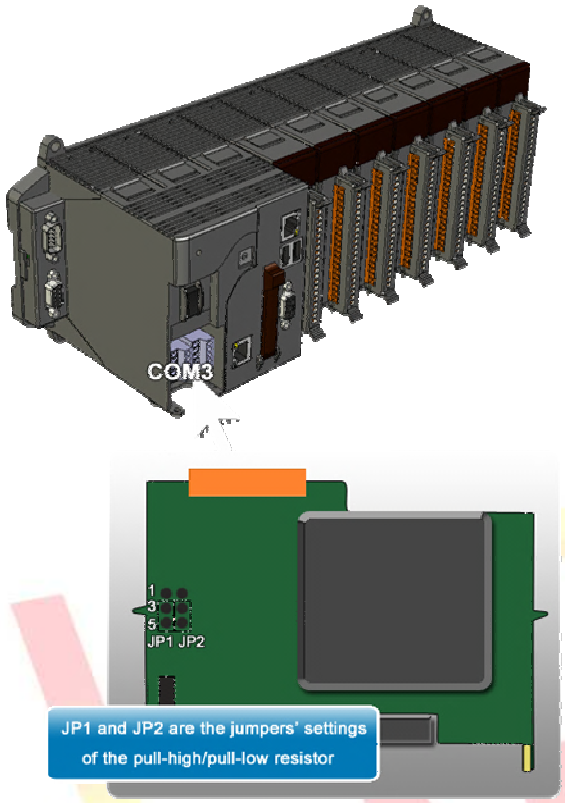


XPAC as a Slave:

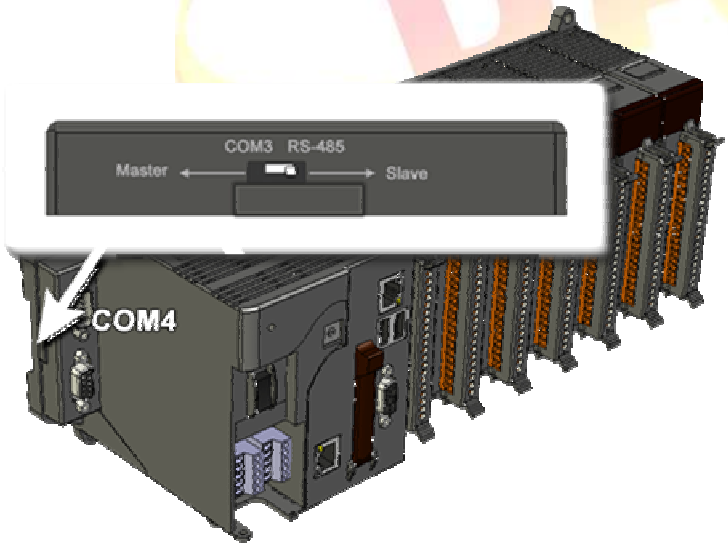
For most of application, when using one 7520 series as RS-232/485 converter, its pull-high/pull-low resistors are set to enabled. Then the XPAC-8000 and all the other devices on this network must be slave mode (the pull-high/pull-low resistors must be disabled). If there are repeaters on the RS-485 network, there will be pull-high/pull-low resistors on both sides of the repeaters (I-7510)



When XPAC as a slave using COM3 communication interface, the pull-high/pull-low resistor located on the power board must adjust to disabled as shown below



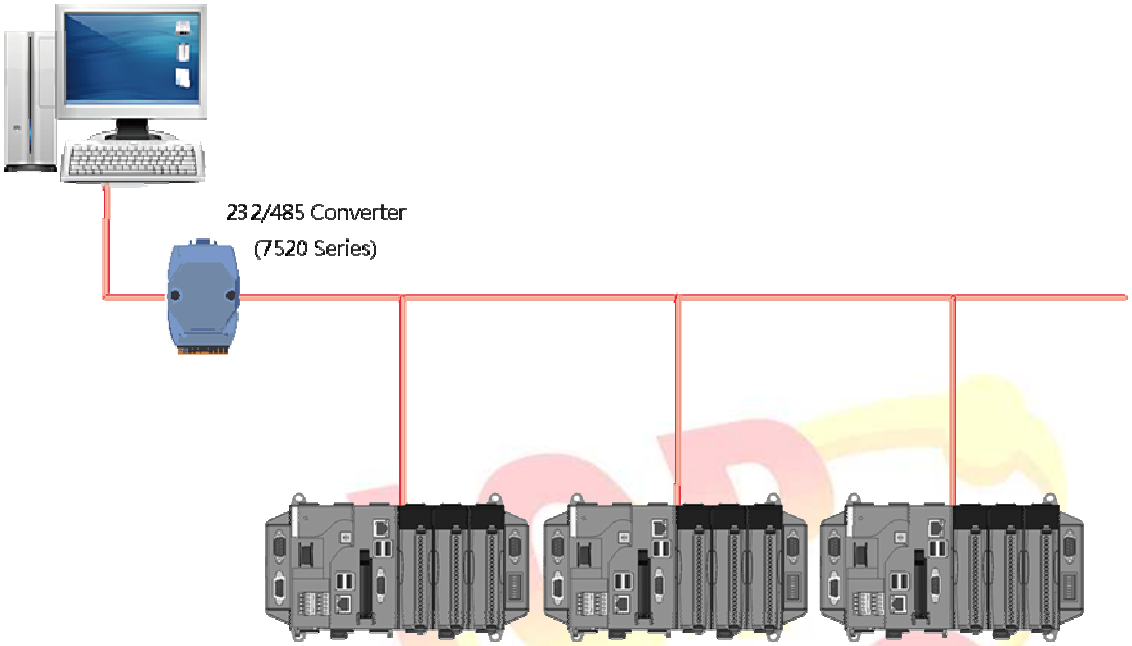
When XPAC as a Slave using COM4 communication interface, the pull-high /pull-low resistor located on the power board must set to “Slave” as shown below.



Four kinds of RS-485 networks

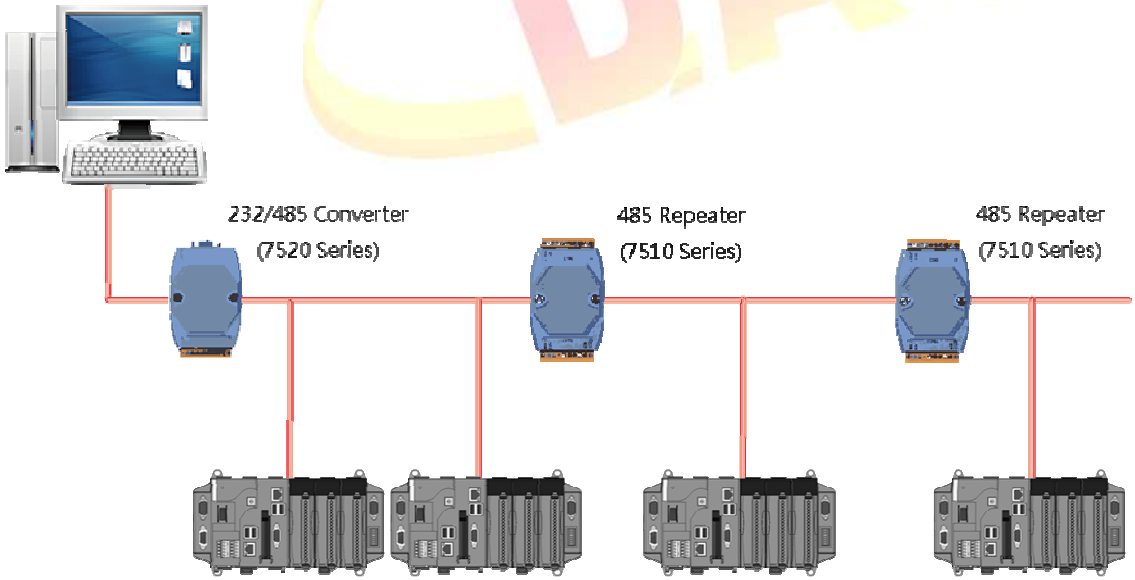
1. Basic RS-485 Network.

The basic component of the RS-485 network consist of a Master Controller (or using a PC as a host controller), and some RS-485 devices.



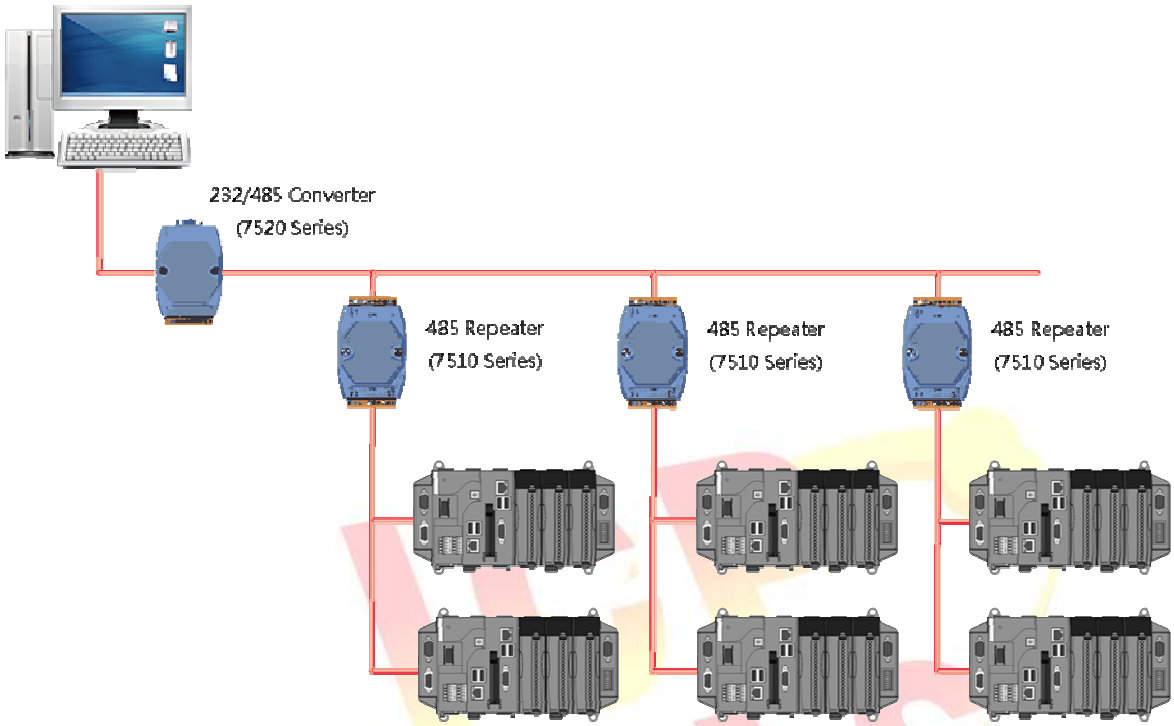
2. Daisy Chain RS-485 Network.

All RS-485 devices are wired directly to the main network, if the network is up to 1.2 km, it will need a repeater (7510 series) to extend the network length.



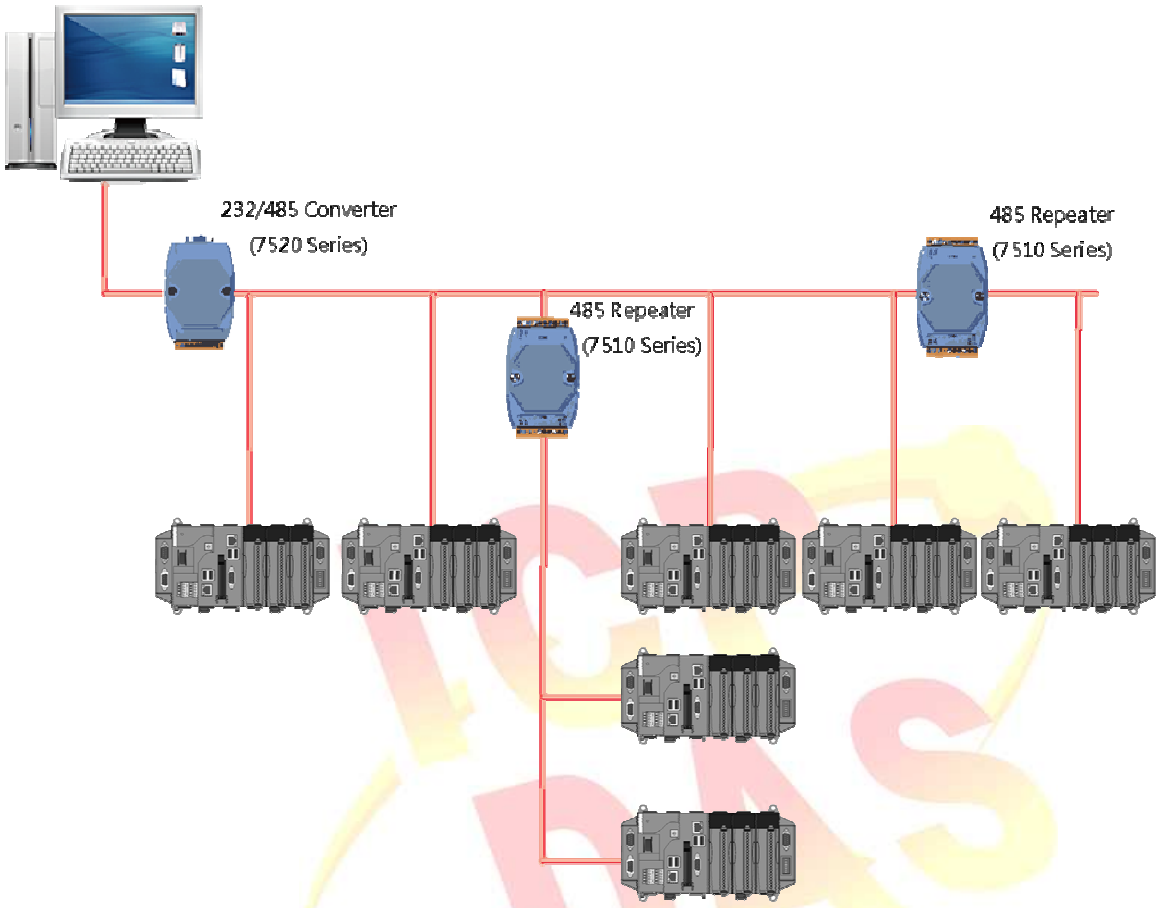
3. Star Type RS-485 Network.

There are branches along the main network. In this case, it is better to have a repeater to isolate or filter the noise that is made by devices.



4. Random RS-485 Network.

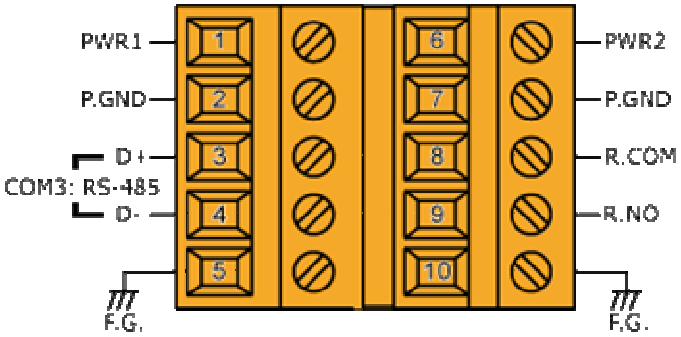
There are branches along the main wire. In this case, it is better to have a repeater to isolate or filter the noise that is made by devices



To link serial devices through RS-485 of COM3/COM4, please perform the following steps:

COM3 hardware connection

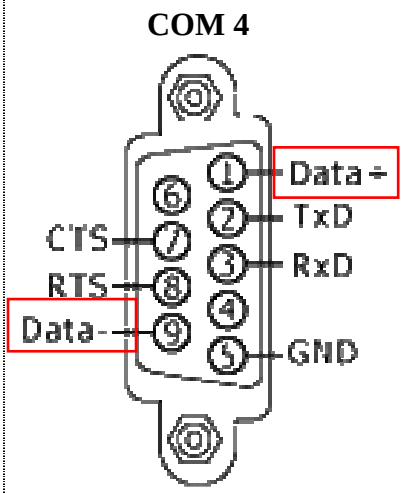
Step 1: Find the pin of Data+ Data- on COM3



Step 2: Connect the “Data+” and “Data-”. (Example below)

COM4 hardware connection

Step 1: Find the pin of Data+ Data- on COM4.



Step 2: Connect the “Data+” and “Data-”. (Example below)