



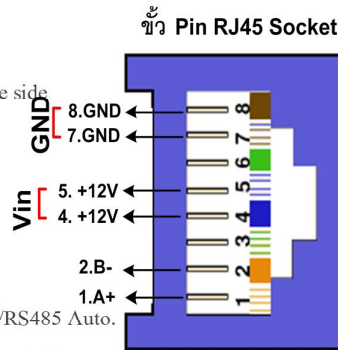
ET-RS232/RS485 AUTO is Converter device that converts signal for transmitting data from RS232 to RS485 or from RS485 to RS232. Signal on the side of Connector RS232 must be converted by IC Line Driver (MAX232) completely or it must be Signal from Port RS232 of PC and Signal on the side of Connector RS485 only uses 2 Wires. So, the format of transmitting data on the side of RS485 is Half-Duplex, it alternates between sending and receiving data between devices that are connected with this device. This Converter ET-RS232/RS485 AUTO automatically alternates functions between receiving and sending data, without external Signal Control.

1. SPECIFICATIONS OF ET-RS232/RS485 AUTO

- Use External Power Supply 7-24VDC
- Connector receives external Power Supply from 3 different ways; through Cable LAN at Connector RJ45; or, from Connector Terminal; or, from DC-Jack. Please choose only one way at a time
- Port RS232 is DB9 (MALE) as same as PC, but Pin 5 (GND) and Pin 9 (5V) provides Vout 5V to supports external device that requires Power Supply such as RS232 GPS Receiver
- Maximum Data Rate is 250 Kbps
- A 4000-foot long Cable (1.2Km) for connection on the side of RS485
- Convert Signal from RS232 to RS485 as Half-Duplex (using 2-Wire) and reverse direction for transmitting data automatically
- Convert Signal from RS485 to RS232 as Half Duplex (using 2-Wire)
- A maximum of 128 ET-RS232/RS485 AUTO can be connected together in parallel through PORT RS485; or a maximum of other 32 RS485 Devices can be connected together in parallel
- 2 Types of Connector on the side of RS485; Connector RJ45-Socket and Connector Terminal
- LED shows status of running; Yellow for sending data (Tx), Green for receiving (Rx) and Red for Power Supply (PWR)

2. CONNECTORS

CONNECTOR RS485: Connector for sending-receiving data on the side of RS485 as 2-Wire. There are 2 types of Connector; Connector Terminal and Connector RJ45. Please look at the picture below. This Connector can be connected with a 1.2Km long Cable.



CONNECTOR 7-24VDC: Connector Power Supply for ET-RS232/RS485 Auto. It receives DC Voltage in a range of 7V-24V. Supply power through 3 different ways;

1)Connector Jack Adapter, 2)Connector Terminal, and 3)Connector RJ45. Please choose only one type at a time. Picture below shows position of Pins.

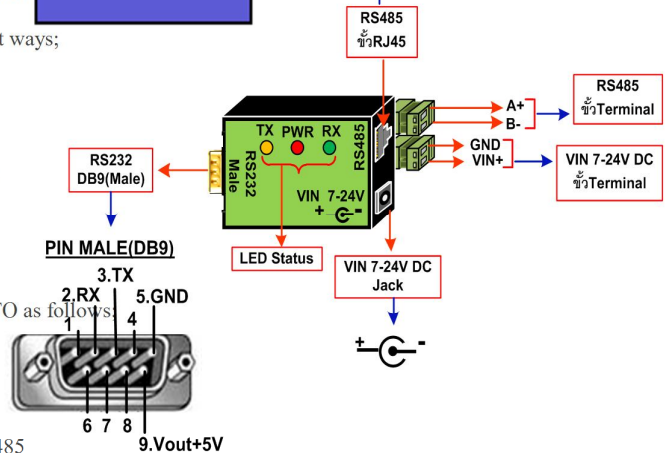
CONNECTOR RS232: Connector is MALE Type for sending-receiving data on the side of RS232. Pin 9 of this connector also provide Voltage Output 5V to support the connected devices. Pin position is shown in the picture.

LED Status: LED Status: This LED shows status of ET-RS232/RS485 AUTO as follows:

LED PWR (Red) : Turn ON and remains when it supplies Power to ET-RS232/RS485 Auto.

LED TX (Yellow) : It is flashing when it receives data on the side of RS485 and sends data on the side of RS232.

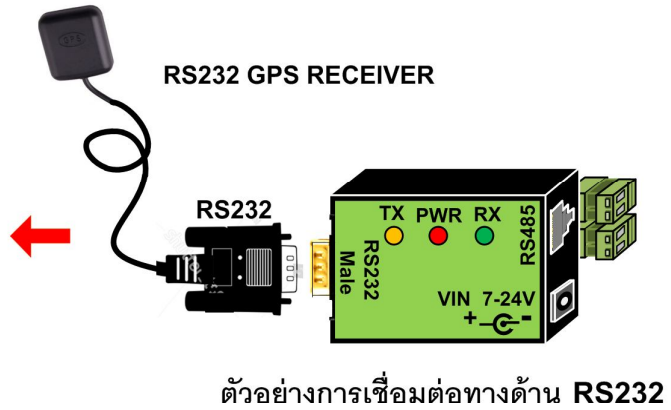
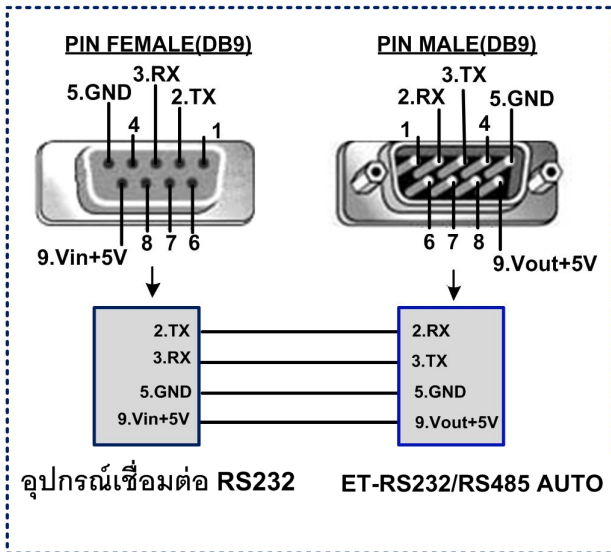
LED RX (Green) : It is flashing when it receives data on the side of RS232 and sends data on the side of RS485.





3. HOW TO CONNECT ET-RS232/RS485 AUTO

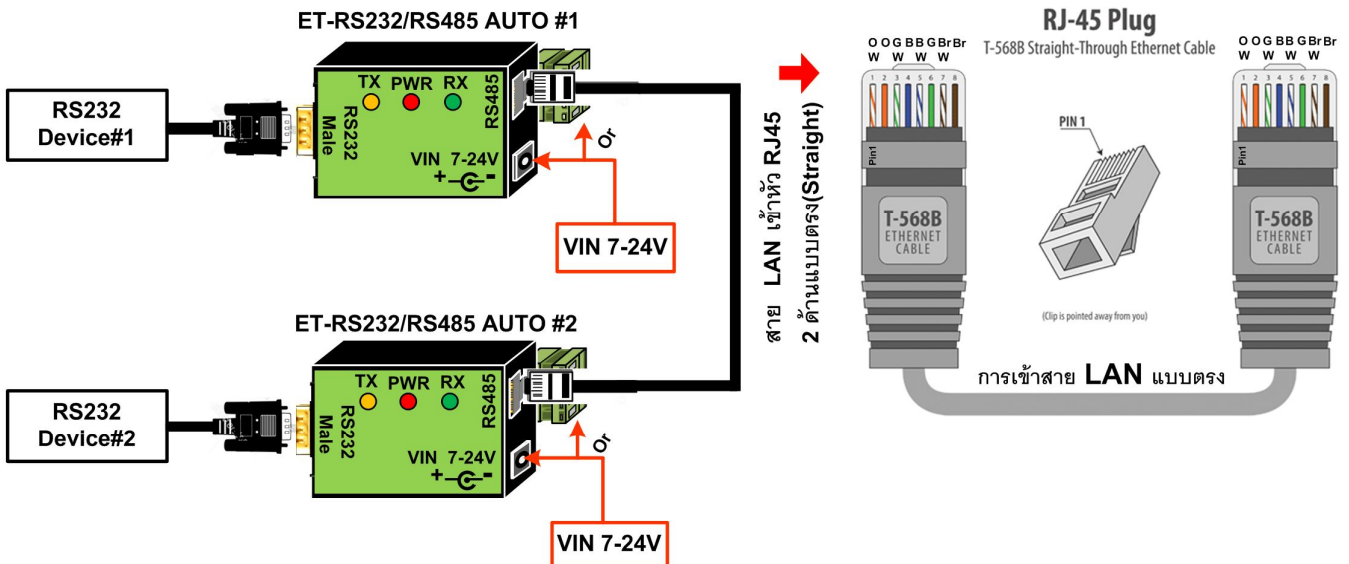
3.1) **HOW TO CONNECT SIGNAL ON A SIDE OF PORT RS232:** Signal Data that will be connected to this Connector must be converted by IC Line Driver (MAX232) completely; or, it is connected to PORT RS232 of PC (it must use Cable DB9 and both terminals are FEMALE). It uses 3 main Connectors; Rx(Pin2), Tx(Pin3), and GND(Pin5). When connecting the circuit, Cable between Pin Tx and Pin Rx must be intersected as shown in the picture. For Pin9, it also provides Vout 5V; so, if any connected device requires 5V Power Supply, user can additionally connect cable to this Pin.



3.2) **HOW TO CONNECT SIGNAL AS POINT-TO-POINT ON A SIDE OF RS485:** It transmits data between 2 devices by using a pair of Cable. Both devices alternate between receiving and sending data; it can't send and receive data at the same time. ET-RS232/RS485 AUTO alternates directions of transmitting data on the side of RS485 automatically. The connection format is shown in the diagram below;

Example 1: How to connect as Point-To-Point

การต่อแบบ Point to Point ระหว่างอุปกรณ์ RS232 โดยใช้ ET-RS232/ RS485 Auto ต่อผ่านสาย LAN

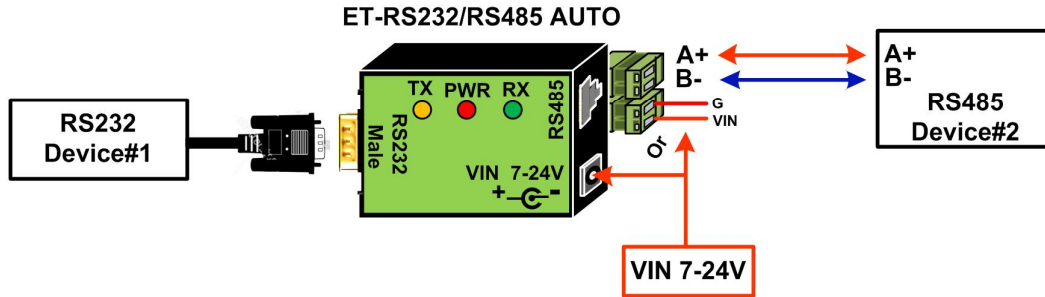


For Power Supply of ET-RS232/RS485 AUTO, it has to supply power to both devices; in this case, it has to choose only one connector



Example 2: How to connect as Point-To-Point

การต่อแบบ Point to Point ระหว่างอุปกรณ์ RS232 กับอุปกรณ์ RS485 โดยใช้ ET-RS232/RS485 Auto ต่อผ่านหัว Terminal

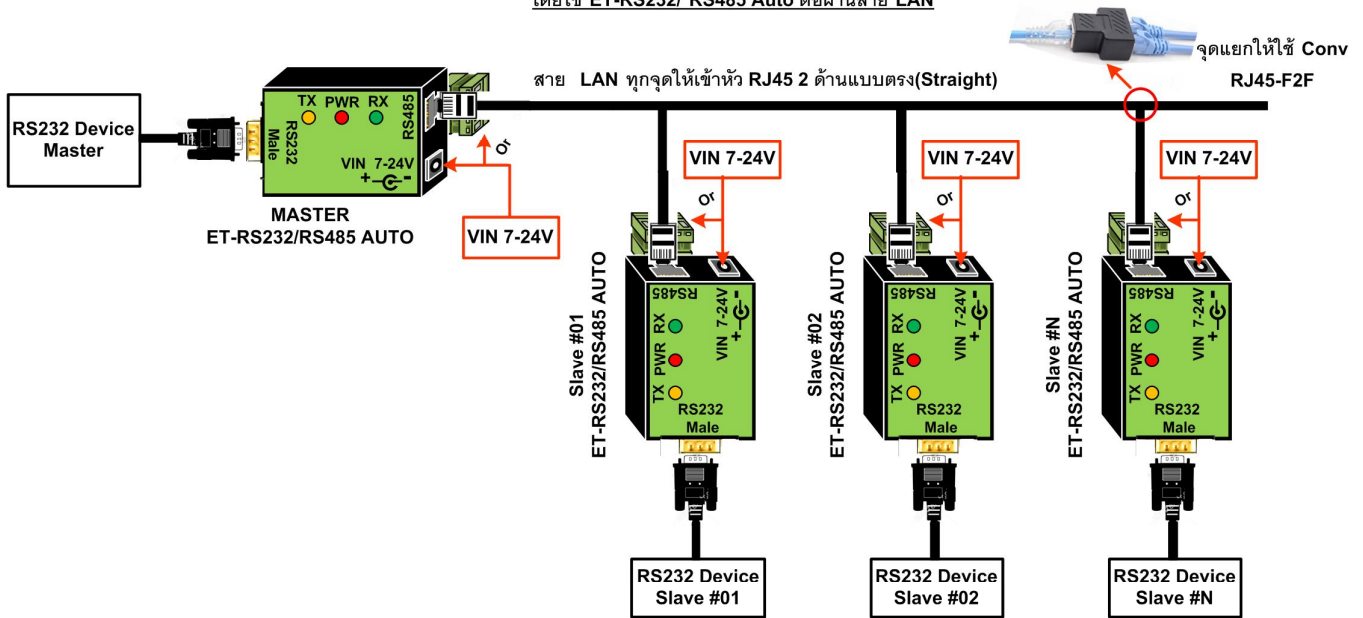


For Power Supply of ET-RS232/RS485 AUTO, it has to choose only one connector and please check the pin's position correctly.

3.3) **HOW TO CONNECT SIGNAL AS PARALLEL ON A SIDE OF RS485:** For this connection format, Priority of connected devices in the system is the most important; a device is setup as Master to control sequence of sending-receiving all data of other connected devices in the system, and other devices in the system are setup as Slave and have to wait to receive data all the time. The Master device always scans each Slave device to check if there is data for sending to any Slave device. If yes, the Master device commands the specified Slave device to wait and receive data directly; next, the Master device switches direction to receive signal instead in order to release the Cable; and finally, both devices are allowed to receive and send data. When it succeeded in sending and receiving data, the Slave device must send Command to tell the Master device to know that it is complete, and the Master device starts scanning the next Slave device.

Example 1: How to connect Signal as Parallel

การต่อแบบขนานทั้งระบบ ระหว่างอุปกรณ์ RS232 โดยใช้ ET-RS232/ RS485 Auto ต่อผ่านสาย LAN

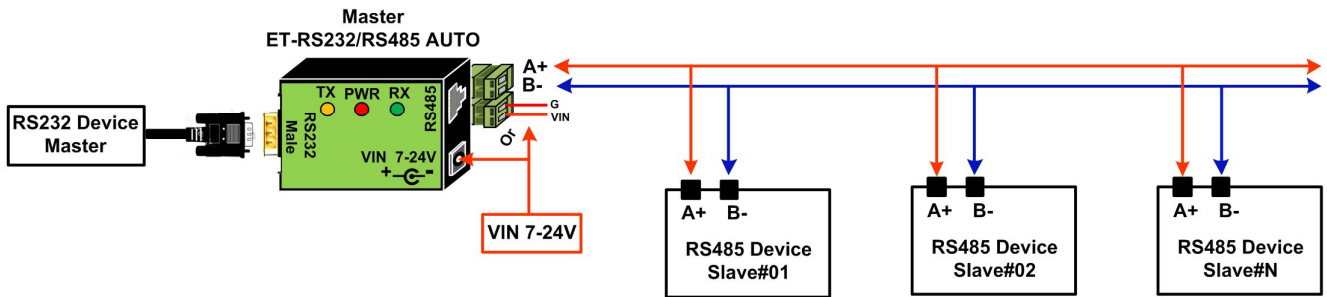


When all systems are connected as parallel by connecting ET-RS232/RS485 Auto on both sides, there are a maximum of 128 devices can be connected together. For Power Supply, it has to provide power to every ET-RS232/RS485 Auto; in this case, it has to choose only one Connector of each device and it has to check Connector Power Supply correctly.



Example 2: How to connect Signal as Parallel

การต่อแบบขนานทั้งระบบ ระหว่างอุปกรณ์ RS232
กับอุปกรณ์ RS485 โดยใช้ ET-RS232/RS485 Auto ต่อผ่านหัว Terminal



When all systems are connected as parallel by setting ET-RS232/RS485 Auto as Master device, there are a maximum of 32 RS485 devices that are connected as parallel on a side of Slave. For Power Supply of ET-RS232/RS485 Auto, it has to choose only one Connector of each device and it has to check Connector Power Supply correctly.