

ET-RS422/485 ISOLATION DIN



SPECIFICATIONS OF ET-RS422/485 ISOLATION DIN

1. CHIP ADM2587E is used as Line Driver to convert Signal ISOLATE
2. Baud Rate 115.2 kbps
3. Cable 4000 feet (1.2 km) in length
4. Change Signal RS232 to RS422 as Full Duplex by using 4-Wire
5. Change Signal RS232 to RS485 by using 2-Wire
6. Half Duplex Connection uses 2-Wire to be either Automatic or Handshake (RTS ON, RTS OFF)
7. Use RS232 Connector as DB9 Type.
8. LED displays state of running; green LED for receiving data (RX), yellow LED for transmitting data (TX), and red LED for RS485
9. Be compatible with Voltage in the range of 9-24 VDC
10. Can install the box on Din rail

COMPOSITION OF ET-RS422/485 ISOLATION DIN



1. Connector Voltage is compatible with voltage in the range of 9-24VDC.
2. Signals of Connector RS422/485 are listed below;
 - TX(+) is Signal for transmitting data of RS422/485.
 - TX(-) is Signal for transmitting data of RS422/485.
 - RX(+) is Signal for receiving data of RS422/485.
 - RX(-) is Signal for receiving data of RS422/485.
3. Jumper chooses Fail Safe Bias Resistance; it only enables the device at the origin and destination. There is Signal TZ, TL, and TH on the side of transmitter and there is Signal RZ, RL, and RH on the side of receiver.
4. DIP Switch chooses format of connection as listed in the table below;

Mode	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6
RS422 (FULL)	ON	ON	OFF	OFF	OFF	OFF
RS485-RTS OFF	OFF	OFF	ON	ON	OFF	OFF
RS485-RTS ON	OFF	OFF	ON	OFF	ON	OFF
RS485-AUTO	OFF	OFF	ON	OFF	OFF	ON

Table shows how to choose format of connection by DIP SWITCH.



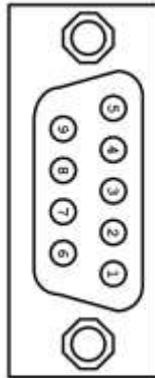
NOTE: When moving DIP Switch down, it becomes ON. Please look at the picture above, both DIP3 and DIP6 are in position ON.

- **RS422 (FULL)** converts Signal RS232 to RS422.
- **RS485-RTS OFF** uses Signal from Pin RTS to control the alternation of receiver and transmitter. If Signal RTS is OFF, it becomes transmitter; but if Signal RTS is ON, it becomes receiver instead.
- **RS485-RTS ON** uses Signal from Pin RTS to control the alternation of receiver and transmitter. If Signal RTS is ON, it becomes transmitter; but if Signal RTS is OFF, it becomes receiver instead.
- **RS485-AUTO** uses circuit internal ET-RS422/485 ISOLATION DIN to check signal of transmitting data. If it transmits any signal, the circuit will be transmitter; but if it does not transmit any signal, the circuit becomes receiver automatically.

5. It is Connector RS232 DB9 FEMALE and signals' name are shown in the table below;

PIN	NAME	DIR	DESCRIPTION
1	CD	IN	Carrier Detect
2	RXD	IN	Receive Data
3	TXD	OUT	Transmit Data
4	DTR	OUT	Data Terminal Ready
5	GND	-	Signal Ground
6	DSR	IN	Data Set Ready
7	RTS	OUT	Request To Send
8	CTS	IN	Clear To Send
9	RI	IN	Ring Indicator

Table shows details of PIN RS232.



It shows position of PIN RS232.

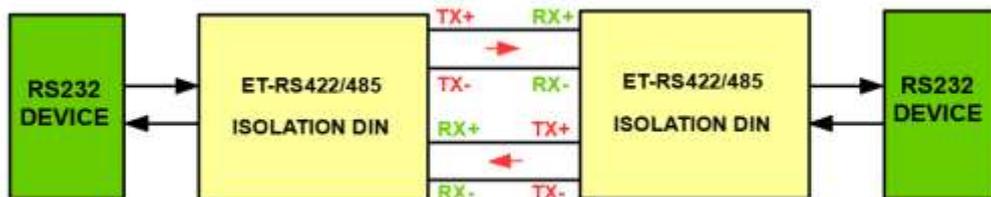
6. LED displays state of running ET-RS422/485 ISOLATION DIN as listed below;
- PWR displays the state when supplied power to ET-RS422/485 ISOLATION DIN
 - TX displays the state when transmitted data.
 - 485 displays the state when transmitted data in the format of RS485
 - RX displays the state when received data.

HOW TO CONNECT & USE

Connect ET-RS422/485 ISOLATION DIN to COM PORT of computer through Cable RS232 and another one side is connected to Cable to connect to RS422/485 devices or may be connected to another one box (please read more information in the next section). When using ET-RS422/485 ISOLATION, it requires connecting to Power Supply 9-24VDC.

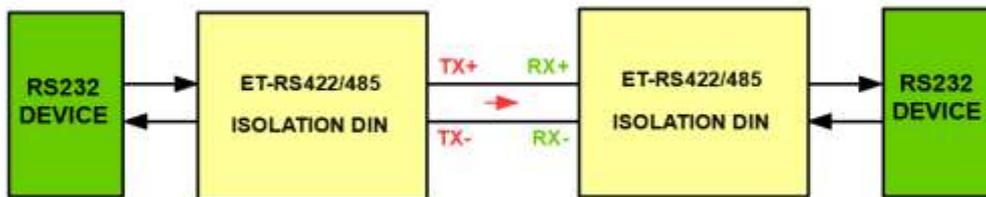
HOW TO CONNECT SIGNAL AS RS422

RS422 Connection as Full Duplex: It transmits/receives data in both directions; it can transmit and receive data simultaneously. Each set has 2 pairs of Cable (4-Wire); when it transmits-receives data, it looks like talking on the telephone. Connect signal from the Circuit Receiver to the Circuit Transmitter of both sides. When transmitting-receiving data by this way, it requires connecting to “Point-to-Point” device; it requires a device at the origin and another one device at the destination. The reason why it uses this RS422 Connection is because it increases the distance for transmitting-receiving data longer without modifying any program.

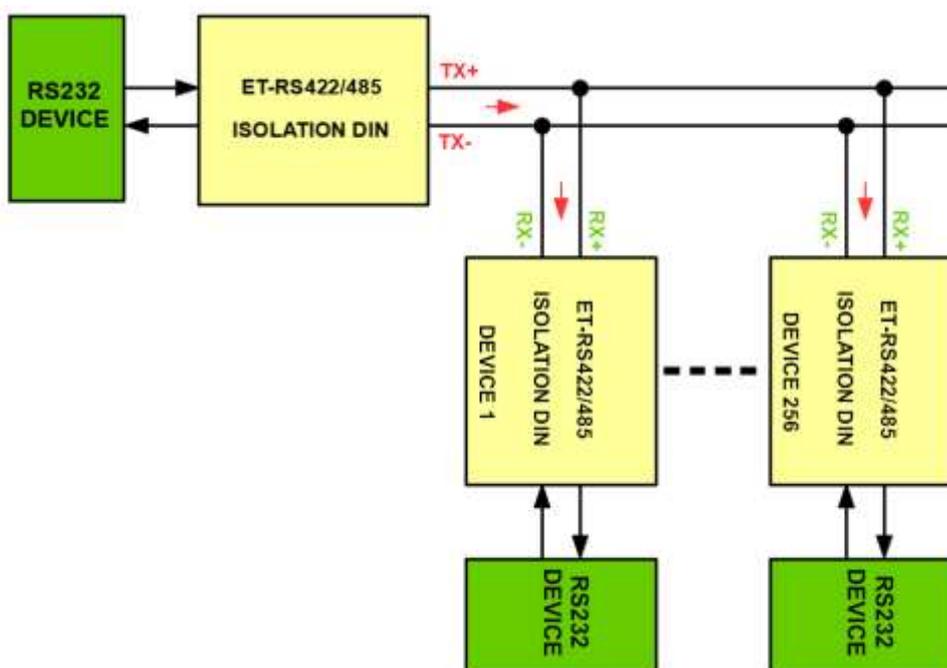


Picture shows how to connect Cable RS422 as Full Duplex.

RS422 Connection as Simplex: It transmits-receives data in only one direction; its direction of communication is fixed either to be receiver or transmitter only. When connecting signal in this way, it requires a pair of Cable (2-Wire). There is an advantage of this connection type because it uses only one Circuit Transmitter but it can connect to 256 positions on the side of Circuit Receiver; moreover, it uses a pair of Cable only.



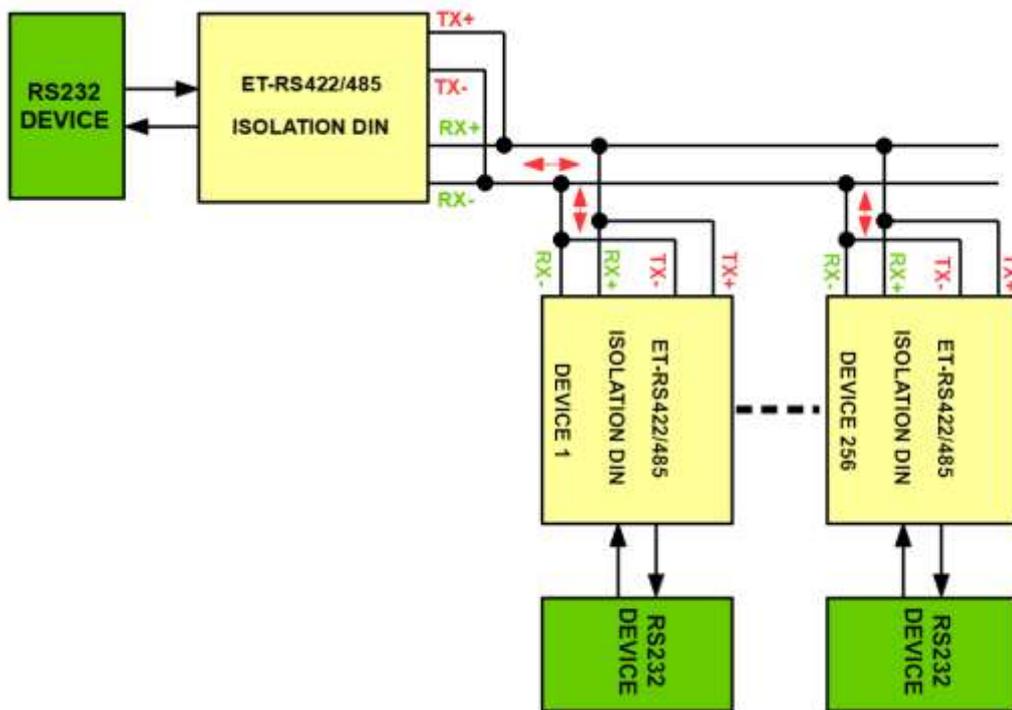
Picture shows how to connect Cable RS422 as Simplex.



Picture shows how to connect Cable RS422 when receiving data from many devices simultaneously.

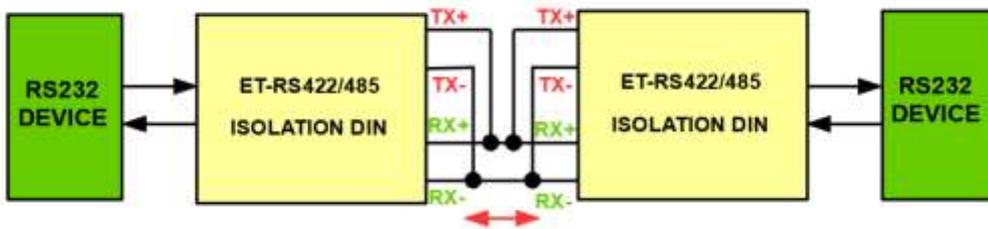
HOW TO CONNECT SIGNAL AS RS485

Connect whole system as Parallel: When connecting device in this way, it has to set priority of devices that are connected together in the system. A device must be set as Master device, it will be an intermediate for transmitting-receiving all data, or it may set order of transmitting-receiving data to other devices. For Slave devices, it must be set to receive data all the time first. Master device scans each Slave device carefully to check if there is any data for transmitting; if yes, the Master device will check where the destination is and it commands the specific device to receive the data directly. Next, the direction of Master device will be changed to be receiver instead in order to set the Cable free (floated) and both devices is allowed to transmit data. After both sides transmitted data completely, the Slave device must send Command to notify the Master device to know that the transmission is complete and the Master device will scan the next Slave device.



Picture shows how to connect Cable RS485 as Parallel.

Point-to-Point Connection: This way is to transmit-receive data between 2 devices by using a pair of Cable. Direction of both devices must be controlled to be both receiver and transmitter. For communication, it has to set regulations of transmitting-receiving data; both devices must alternate between transmitter and receiver, it cannot transmit-receive data simultaneously.



Picture shows how to connect Cable RS485 as Point-to-Point.

NOTE: When connecting signal as RS485, the side of TX and RX must be connected as parallel; so Fail Safe Bias Resistance is also connected as parallel. In this case, it has to remove Jumper RZ, RL, RH or TZ, TL, TH and now there is only one Fail Safe Bias Resistance.