

USER'S MANUAL



PH232T485Y14

RS-232 to #4 RS-485/RS-422 ISOLATED HUB

IPEX

(IP Electronics)

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1. INTRODUCTION

IPEX PH232T485Y14 is a Bi-Directional RS-232 to 4 RS-485/RS-422 HUB that provides #4 RS-485/RS-422 ports from one single RS-232 port that converts RxD & TxD signals of RS-232 standard to differential (Data+ & Data-) signals of RS-485 standard and (RX+, RX- & TX+, TX-) signals of RS-422 standard at a same time. It works with Baud-Rate from 300bps to 230400bps. Using this device, you can connect a RS-232 line, to 4 different devices which have RS-485 or RS-422 ports.

Since RS-485 is a Half-Duplex standard, switching between Transmit and Receive is done automatically and further signals (such as RTS) are not required. **PH232T485Y14** supports Point-to-Point and Point-to-Multi Point Party Line network topologies.

There are 3kV Optical and Electrical insulations have between RS-232/TTL UART and RS-485/422 sides, thus using this device in the RS-485/RS-422 line, can be very effective in eliminating electrically and electromagnetically noises.

Protection against Surge, ESD and EMI is considered in its design, so, **PH232T485Y14** is good for industrial usage and is useful for Industrial Automation, Telecommunications, SCADA Systems, DCS Systems and ...

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2. SPECIFICATIONS

- **RS-232/TTL UART** to #4 **RS-485/422** Bi-Directional Isolated HUB;
- **Number of Ports:** #1 RS-232 to #4 RS-485/422 Bi-Directional Repeater;
- **Serial Standard:** Meets or Exceeds the Requirements of TIA/EIA-232-F and ITU v.28 Standards;
- **RS-232 Signal (Full Flow Control Support):** TxD, RxD, DTR, RTS, DSR, CTS, GND;
- **RS-232 Parity:** Even, Odd, None, Mark and Space;
- **Standard TTL** TxD and RxD Signals, suitable for directly connect to a Microcontroller
- **Serial Standard:** Meets or Exceeds the Requirements of RS-485/422 Standards;
- **RS-485 Signal:** Data+, Data-, GND;
- **RS-422 Signal:** TX+, TX-, RX+, RX-, GND;
- **RS-485/422 Parity:** Even, Odd, None, Mark and Space;
- **Maximum Communication Distance:** 2400m (1200m each side);
- **Loading:** RS-485 and RS-422 Side up to 32 Nodes are supported;
- **Fully Plug & Play;**
- **Wide Range Power Supply:** +8V to +48V DC;
- **Serial Transmission Speed** up to 230.4 kbps;
- **Power (Green)** LED Indicator;
- **Transmit (Blue)** and **Receive (Yellow)** LED Indicator;
- **Isolation Protection:** 3kV Instantaneous, 500V DC Continuous;
- **Surge Protection:** Embedded 1500W Surge Protection;
- **Magnetic Isolation:** 1.5 kV Built-in;
- **ESD Protection:** Exceeds ± 15 kV Using Human-Body Model (HBM);
- **Dimensions:** 218mm x 122mm x 30mm (8.58in x 4.80in x 1.18 in);
- **Operating Temperature:** -10°C to +70°C (+14°F to +158°F);
- **1 Year Guarantee** and **5 Years Support.**

3. PACKAGE CHECKLIST

Before installing the PH232T485Y14, verify that the package contains the following items:



1) #1 PH232T485Y14



2) #1 RS-22 Male to Female Cable



3) #1 Document and Driver CD-ROM



4) #4 DB9 Female Connector



5) #1 220V AC to 12V DC Adaptor



6) #2 Din Rail Brackets with the corresponding screws

NOTE: Notify your sales representative if any of the above items is missing or damaged.

4. TOP VIEW



5. BOTTOM VIEW



6. FRONT VIEW



7. BACK VIEW

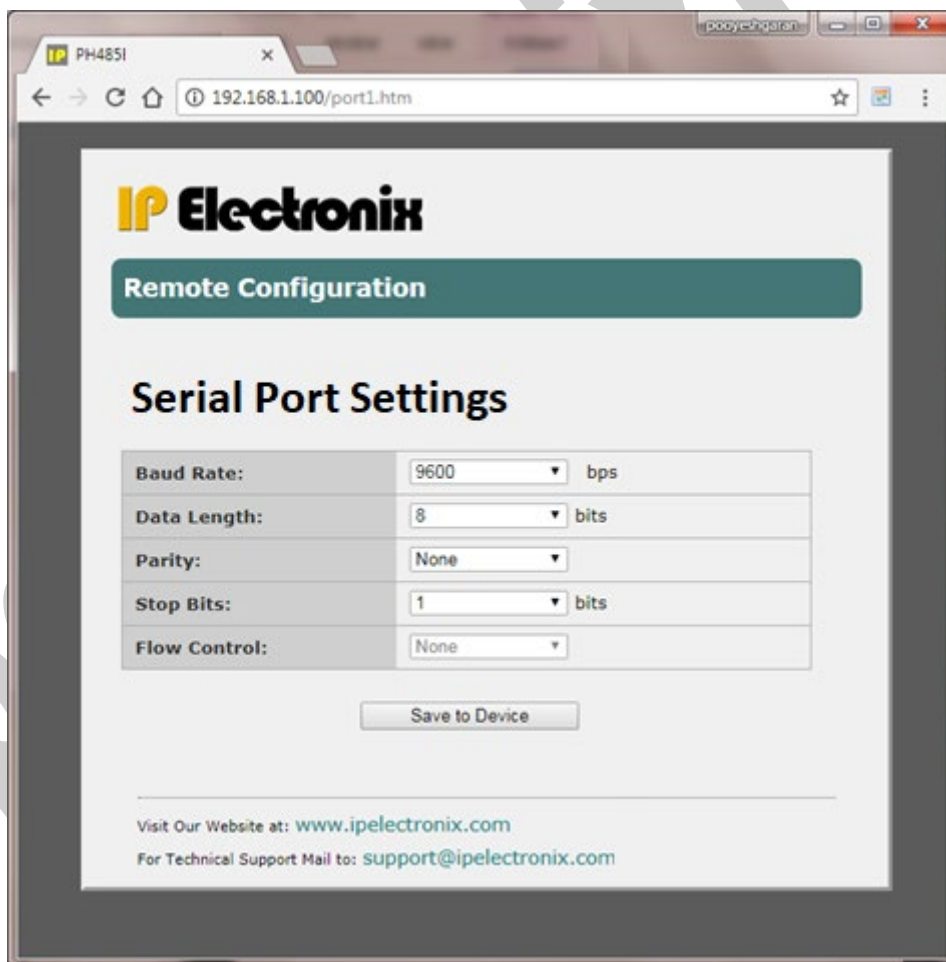


8. PORT SETTINGS

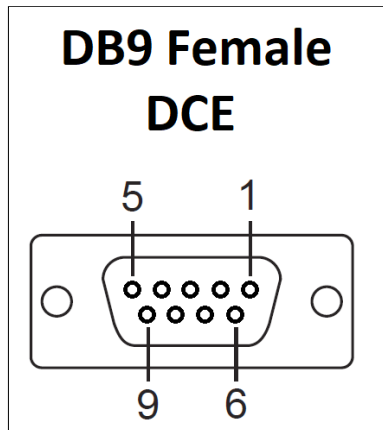
Connect PH232T485Y14 to your PC or Laptop by means of Ethernet RJ-45 port, the default IP of the device is 192.168.1.100 and the default subnet mask is 255.255.255.0.

Make sure the PC IP and is in the PH232T485Y14 IP Range and the PC subnet mask is same as PH232T485Y14.

Now open a web browser like Google Chrome or Firefox on your PC and type the device IP on the address bar of the web browser, then you can see the device port settings page as shown below and you can change the settings to what you want and then press save button to save them and close the browser.



9. RS-232 SERIAL PORT PIN CONFIGURATION



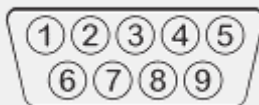
PIN	NAME	TYPE
1	DCD	OUTPUT
2	RxD	OUTPUT
3	TxD	INPUT
4	DTR	INPUT
5	GND	GROUND
6	DSR	OUTPUT
7	RTS	INPUT
8	CTS	OUTPUT
9	RI	OUTPUT

Data Communication Equipment (DCE)

10. RS-485/RS-422 SERIAL PORT PIN CONFIGURATION

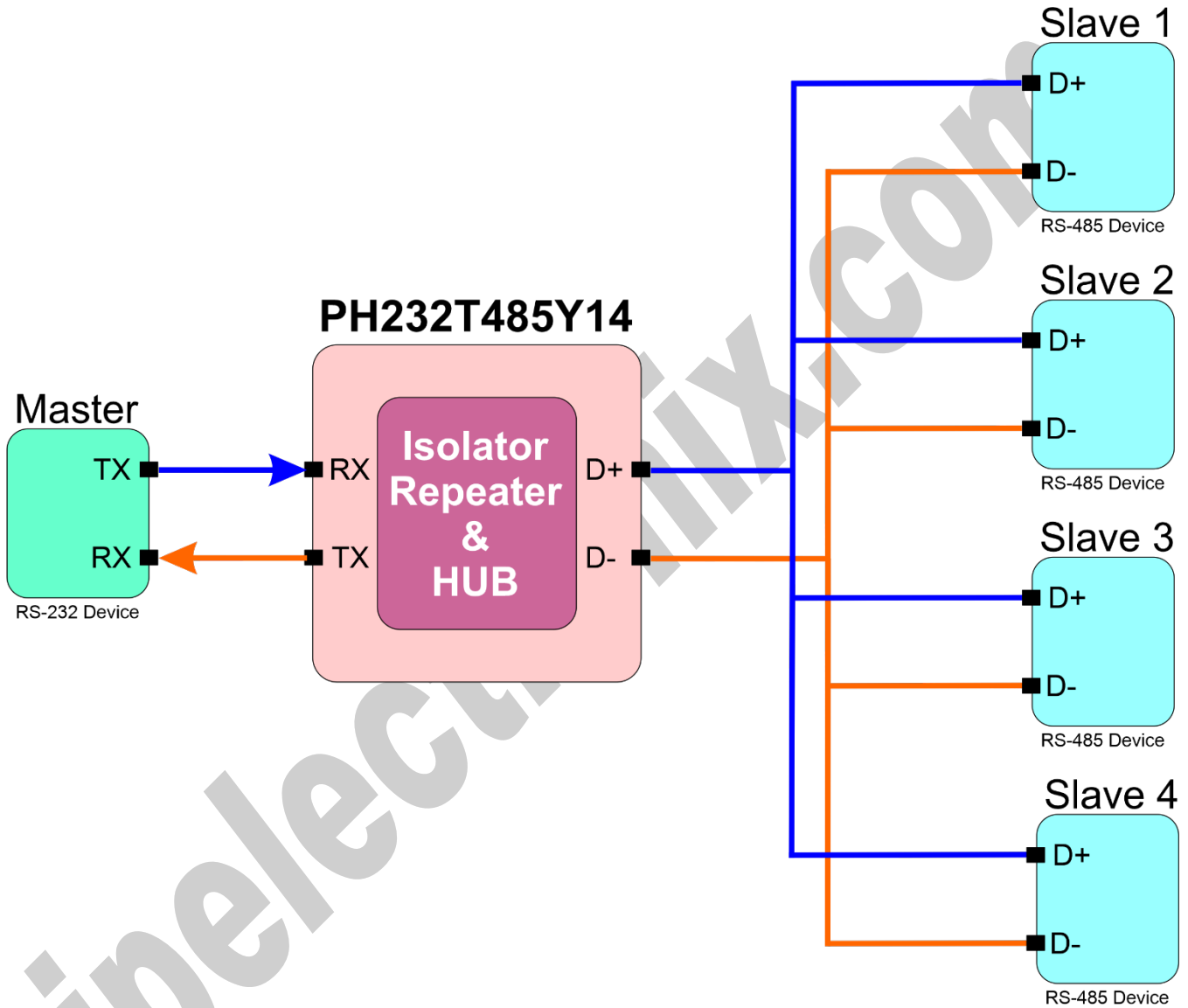
Port	Pin #	Name	Task	Type
RS-422	1	TX+	Transmit +	Output
	2	TX-	Transmit -	Output
	3	RX+	Receive +	Input
	4	RX-	Receive -	Input
	5	GND	Ground	GND
RS-485	6	NC	No Connection	-----
	7	DATA-	Data -	Bi-Directional
	8	DATA+	Data +	Bi-Directional
	9	GND	Ground	GND

Connector Type: DB9 Male

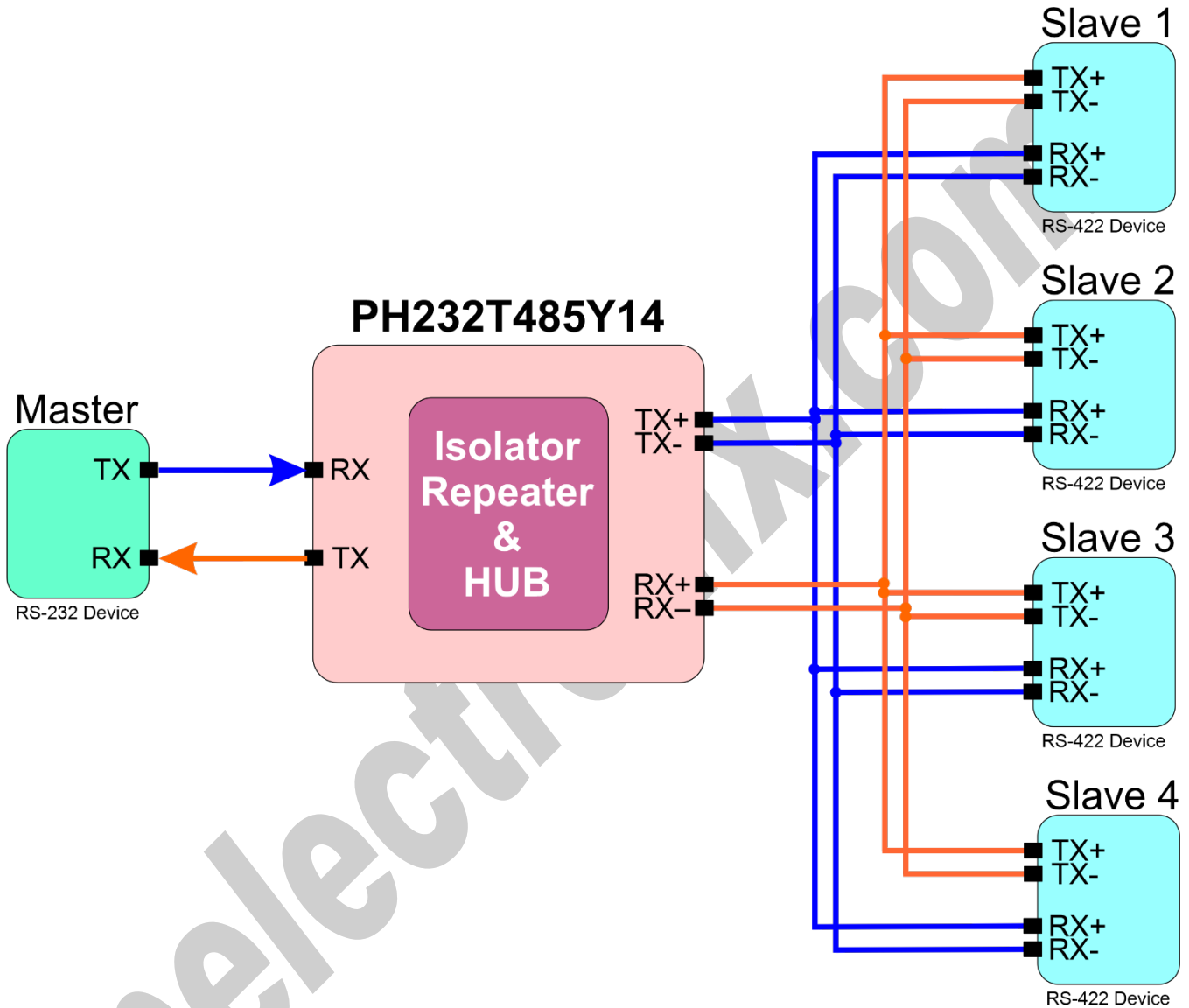


11. PH232T485Y14 CONNECTION DIAGRAM

- PH232T485Y14 in RS-485 Mode



- **PH232T485Y14 in RS-422 Mode**



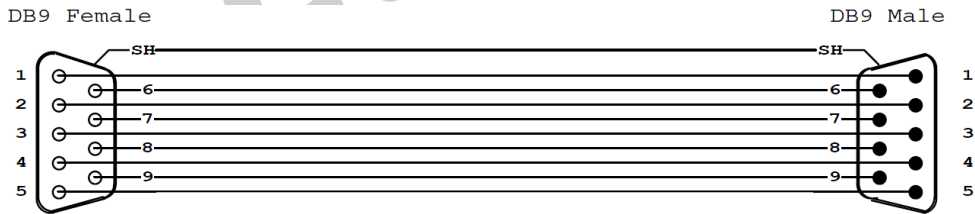
- **PH232T485Y14 in Mixed Mode**

It is possible to use PH232T485Y14 in mixed mode, this means you can use each port as RS-485 or RS-232 separately.

12. RS-232 CONNECTING METHODS

- Modem Connection (to a Modem, any DCE devices)

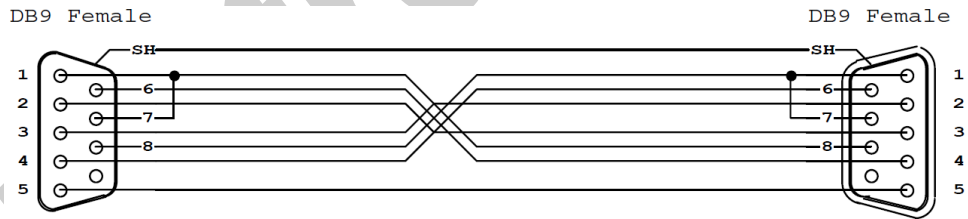
DTE DB9-Male Pin Number		Modem or other DCE devices DB9-Female Pin Number	
Pin 1: DCD	(Input)	Pin 1: DCD	(Output)
Pin 2: RxD	(Input)	Pin 2: RxD	(Output)
Pin 3: TxD	(Output)	Pin 3: TxD	(Input)
Pin 4: DTR	(Output)	Pin 4: DTR	(Input)
Pin 5: GND	(Ground)	Pin 5: GND	(Ground)
Pin 6: DSR	(Input)	Pin 6: DSR	(Output)
Pin 7: RTS	(Output)	Pin 7: RTS	(Input)
Pin 8: CTS	(Input)	Pin 8: CTS	(Output)
Pin 9: RI	(Input)	Pin 9: RI	(Output)



(Modem Cable)

- **Null Modem Connection (to PC, PLC, RTU or any other DTE devices)**

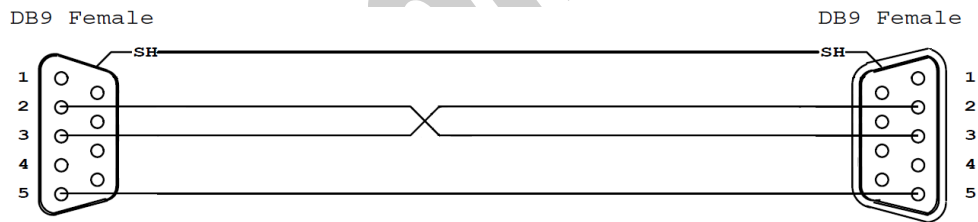
DTE DB9-Male Pin Number		PC, PLC or other DTE devices DB9-Male Pin Number	
Pin 1: DCD	(Input)	Pin 7: RTS	(Output)
Pin 2: RxD	(Input)	Pin 3: TxD	(Output)
Pin 3: TxD	(Output)	Pin 2: RxD	(Input)
Pin 4: DTR	(Output)	Pin 6: DSR	(Input)
Pin 5: GND	(Ground)	Pin 5: GND	(Ground)
Pin 6: DSR	(Input)	Pin 4: DTR	(Output)
Pin 7: RTS	(Output)	Pin 8: CTS	(Input)
Pin 8: CTS	(Input)	Pin 7: RTS	(Output)
Pin 7: RTS	(Output)	Pin 1: DCD	(Input)



(Null Modem Cable)

- **Simple Null Modem Connection (to PC, PLC... Without Hardware Flow control)**

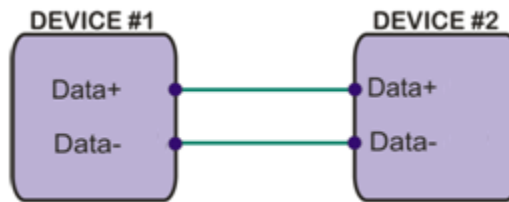
DTE DB9-Male Pin Number		PC, PLC or other DTE devices DB9-Male Pin Number	
Pin 2: RxD	(Input)	Pin 3: TxD	(Output)
Pin 3: TxD	(Output)	Pin 2: RxD	(Input)
Pin 5: GND	(Ground)	Pin 5: GND	(Ground)



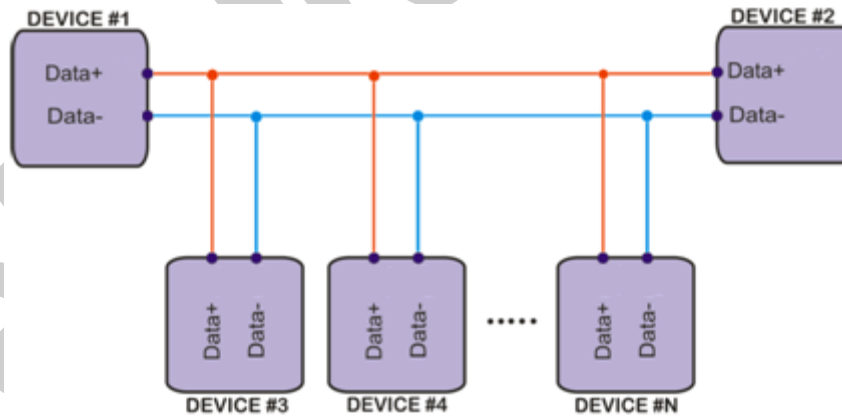
(Simple Null Modem Cable (Without Hardware Handshaking))

13. RS-485 CONNECTING METHODS

- RS-485: Point to Point Connection

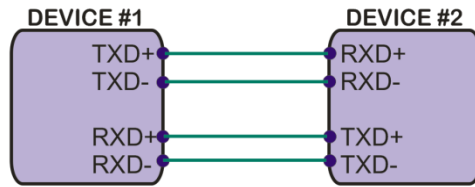


- RS-485: Multipoint Network

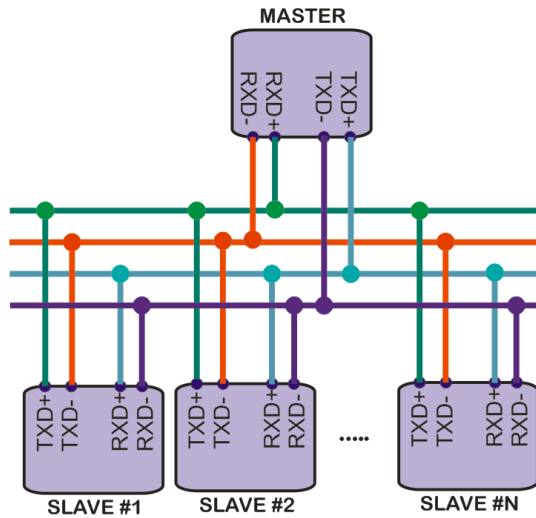


14. RS-422 CONNECTING METHODS

- **RS-422: Point to Point**



- **RS-422: Multi-Drop Network**



15. GUARANTEE

All products manufactured by **IPEX** are under warranty regarding defective materials for a period of one year from the date of delivery to the original purchaser.

16. TECHNICAL SUPPORT

If you have any technical question or need any technical support, please contact us using this Email address: support@ipelectronix.com.

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