USER'S MANUAL

PH485Y12

#1 to #2 RS-485/422 ISOLATED HUB (REPEATER, ISOLATOR & AMPLIFIER)

IPEX

(IP Electronix)

27 April 2024

Doc No: PH485Y12-UM-001

CONTENTS

1. INTRODUCTION

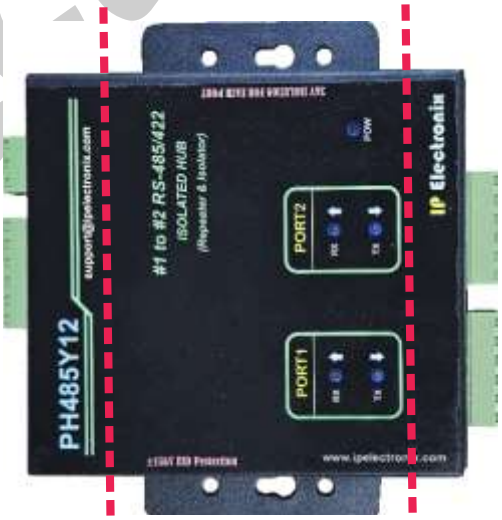
IPEX PH485Y12 is a 1 RS-232/485/422 to 2 RS-485/RS-422 HUB that provides #2 RS-485 (Half-Duplex) or RS-422 (Full-Duplex) ports from one single RS-485/RS-422 port. It works with Baud-Rate from 1200bps to 230400bps. Using this device, you can connect a RS-485/RS-422 line, to 2 different devices.

PH485Y12 can also be used as a RS-485/RS-422 Repeater and Amplifier. In addition, due to the fact that 3kV Optical and Electrical insulations have been used in the design of this device, this means all the ports are insulated from each other, so using this device in the RS-485/RS-422 line, can be very effective in eliminating electrically and electromagnetically noises. Also, the length of the RS-485/RS-422 line increases from 1200m to 2400m (1200m on each side).

Protection against Surge, ESD and EMI is considered in its design, so, **PH485Y12** is good for industrial usage and are useful for Industrial Automation, Telecommunications, SCADA systems, DCS systems...

This Device has two side:

Left Side **Right Side**



2. SPECIFICATIONS

- **RS-485/422 Repeater,** Isolator and Amplifier;
- **Number of Ports:** #1 RS-232, #1 RS-485/422 to #2 RS-485/422 Bi-Directional Repeater;
- **Serial Standard:** Meets or Exceeds the Requirements of RS-485/422 Standards;
- **RS-232 Signal:** TxD, RxD, GND;
- **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:** +9V 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:** 145mm x 118mm x 27mm (5.70in x 4.65in x 1.06in);
- **Operating Temperature:** -10°C to +70°C (+14°F to +158°F);
- **1 Year Guarantee** and **5 Years Support.**

1. PACKAGE CHECKLIST

Before installing the PH485Y12, verify that the package contains the following items:

1) #1 PH485Y12

2) #2 Din Rail Brackets with the corresponding screws

3) #1 Document and Driver CD-ROM

4) #1 220V AC to 12V DC Adaptor

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

2. TOP VIEW

3. BOTTOM VIEW

4. FRONT VIEW

5. BACK VIEW

8. PORT SETTINGS

To change the device settings, do the following steps:

1- Connect RS-232 or RS-485 Port to PC
2- Run "Hyper Terminal" Software with settings "115200, 8, N, 1"
3- Start the device and press 'S' to enter settings console page

Note: Console parameters are always "115200, 8, N, 1" and are fixed, even when you have changed the device settings.

Hyper-Terminal Settings

After turning on the device; press "S" to change the device settings

```
          << PH485Y12 is Starting >>

 Console Settings are: "115200,8,n,1" (Not Changeable)

  Left-Side Operating Settings are: "115200,8,None,2"
Right-Side Operating Settings are: "19200,8,None,1"

 Press <S> to Change Operating Settings
```

Main Menu

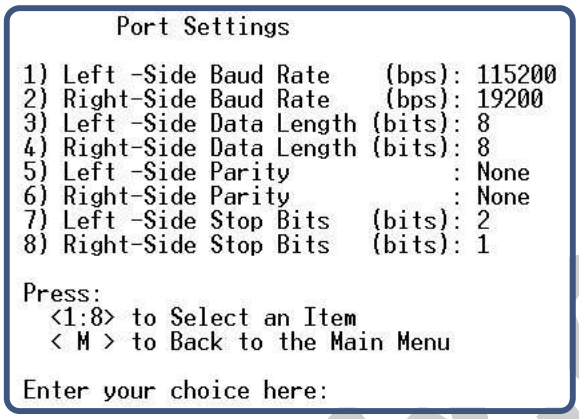
```
        PH485Y12 Main Menu

1) Port Settings
2) Start Up Melody: OFF
3) Device Tests
4) Factory Reset

Press:
  <1:4> to Select an Item
  < S > to Save and Exit
  < E > to Exit without Saving

Enter your choice here:
```

Main Menu

Press:

- "1" for change Port settings;
- "2" for change Melody settings;
- "3" for Device tests;
- "4" for Factory Reset the device;
- "S" to save the settings;
- "E" to Exit

Port Settings Menu



In this section you can change the settings for both Left-Side (RS-232) and Right-Side (RS-485/RS-422).

Press:

- "1" and "2" for change Baud-Rate (between 1200 to 230400 bps);
- "3" and "4" for change Data-Length (5, 6,7, 8, 9 bits);
- "5" and "6" for change Parity (None, Odd, Even, Mark, Space);
- "7" and "8" for change Stop-Bits (1, 1.5, 2 bits);
- "M" to Back to the main menu;

After changing the device settings, back to the main menu and save new settings.

Notice: In a normal operating, RS-232 and RS-485/422 side's settings MUST be the same, however you can set them separately, if you want for example change the Baud-Rate …

9. RS-485/RS-422 SERIAL PORTS PIN CONFIGURATION

PIN	NAME	TYPE
1	RxD+	INPUT
2	RxD-	INPUT
3	TxD+	OUTPUT
4	TxD-	OUTPUT
5	GNDi	ISOLATED GROUND
6	GNDi	ISOLATED GROUND

RS-422

PIN	NAME	TYPE
1	—	—
2	—	—
3	Data+	IN/OUT
4	Data-	IN/OUT
5	GNDi	ISOLATED GROUND
6	GNDi	ISOLATED GROUND

RS-485

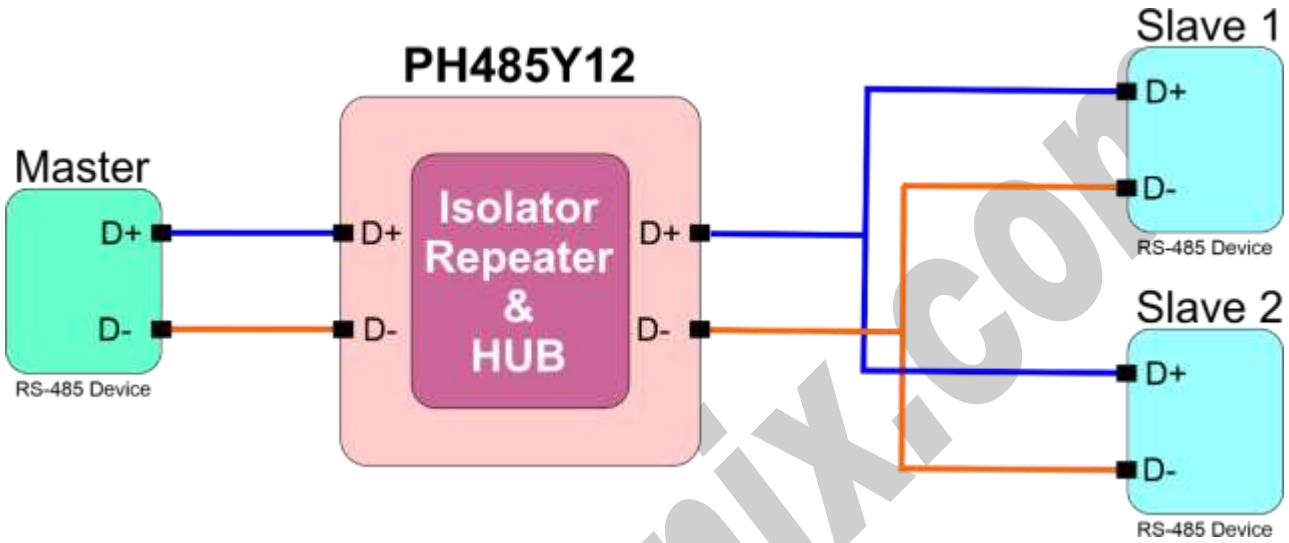
10. RS-232 SERIAL PORTS PIN CONFIGURATION

PIN	NAME	TYPE
1	TxD	OUTPUT
2	RxD	INPUT
3	GND	GROUND

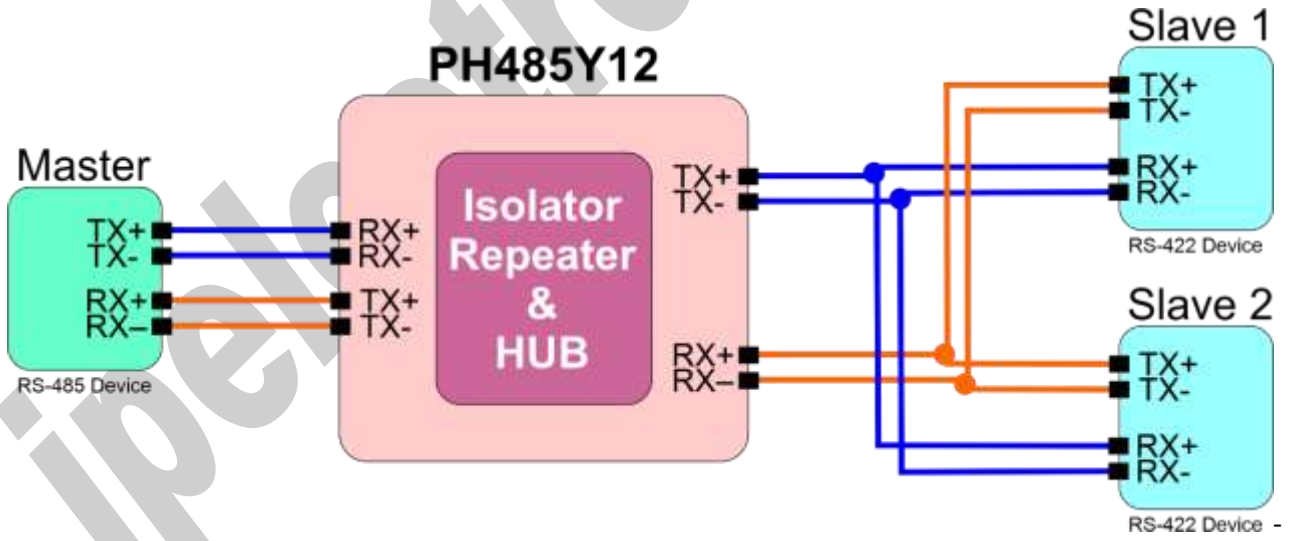
RS-232

11. PH485Y12 CONNECTION DIAGRAM

- **PH485Y12 in RS-485 Mode**



- **PH485Y12 in RS-422 Mode**

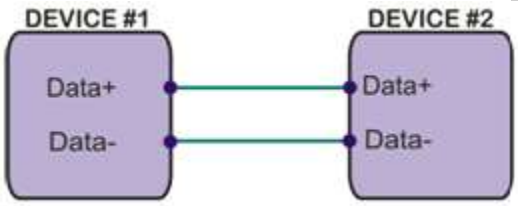


- **PH485Y12 in Mixed Mode**

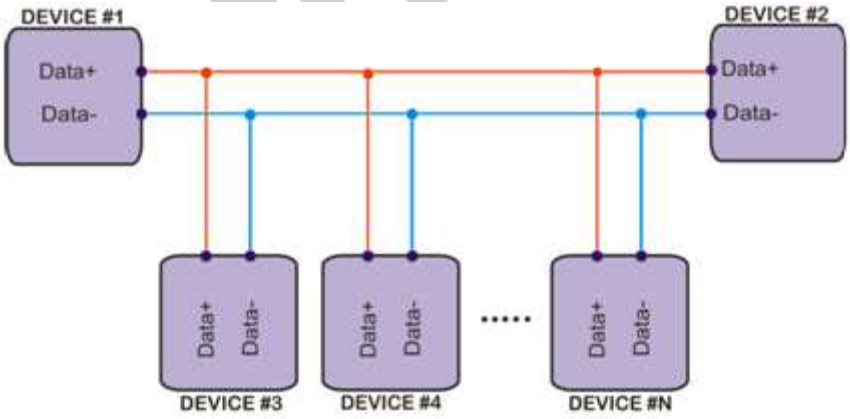
It is possible to use PH485Y12 in mixed mode, this means you can use one side in RS-485 mode and another side in RS-422 mode.

12. RS-485 CONNECTING METHODS

- **RS-485: Point to Point Connection**

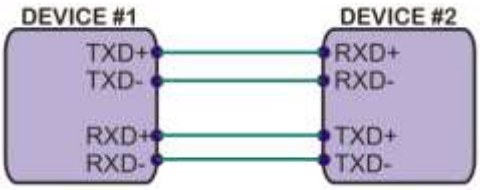


- **RS-485: Multipoint Network**

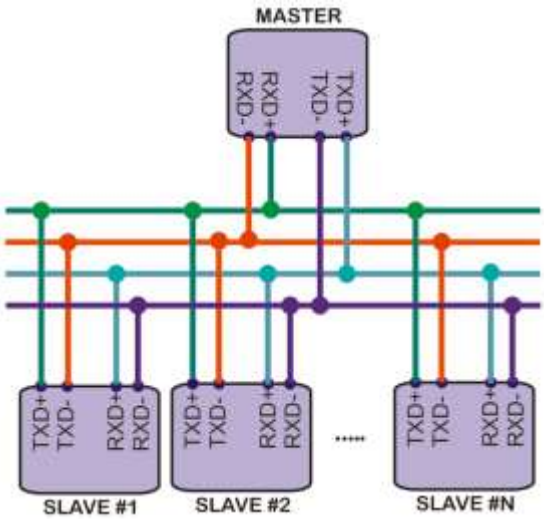


13. RS-422 CONNECTING METHODS

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



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



14. 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.

15. TECHNICAL SUPPORT

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