



# HK-5112 8-PORT RS-485 HUB USER MANUAL

## I. Summary

With a double-core and non-stop inside design, HK-5112 is a RS-485 bus splitting hub specially designed to meet the requirements of RS-485 under sophisticated electromagnetic field environment. A transmission rate as high as 115.2 KBPS is supported by this product. What's more, photoelectrical isolation technology is adopted for RS-485 interface to avoid induction of lighting or surge into the converter and equipments to make sure the safety and reliability of signal transmission. The built-in photoelectrical isolator and the 1,500W surge protection circuit can provide a high isolation voltage of 2,500V for an efficient restriction of lighting and ESD, and at the same time, lighting strike and grounding interference can be reduced to the least extent. This product is suitable for outdoors engineering with adoption of outside switch power supply.

Under RS-485 mode, the determination circuit adopted can determine the direction of the data stream and switch the control circuit on a automatic basis for an very easy solution of the long-existed transmission delay of RS-485. The transmission distance is as far as 1,200 meters with a very stable performance. This product is widely used in express way toll system, road monitoring system and electricity monitoring system with nice performance and competitive price.

RS-485 star topology bus connection is provided by HK-5112 RS-485 HUB. Short circuit and open circuit is provided for all the terminals. Photoelectrical isolation of 2,500V is provided. Re-construction of RS-485 bus structure and network range splitting can be easily realized to improve communication reliability. In the case of lighting strike or equipment failure, the affected range shall be isolated to make sure the normal function of other ranges. This feature can increase greatly the reliability of existing RS-485 with achievement of shorter time for network maintenance. Proper application of HK-5112 RS-485 HUB can help you with a nice design of RS-48 system of high stability.

## II. Parameters

1. Interface features: compatible with RS-232C and RS-485 standards of EIA/TIA.
2. Electric interface: RS-232C interface for the 1st -3rd pins of the 5-PIN terminals, and RS-485 interface for the 4th 5th pins of the 5-PIN terminals.
3. Transmission media: twisted-pair cable or shielded cable.
4. Working mode: asynchronous half-duplex.
5. Signal indication: 11 signal indicator including power (PWR), send(TXD), receive(RXD) and failure(E1-E8).
6. Isolation degree: a isolation voltage of 2,500 VRMS 500VDC non-stop and DC/DC isolation module.
7. Transmission rate: 300BPS-115.2K.
8. Protection grade: RS-232 interface? 5KV ESD protection, RS-485 interface 1,500W lightning strike surge protection for each line.
9. Transmission distance: 0-5km (115,200-300BPS)
10. Measurements: 210mmX130mmX33mm
11. Working environment: -40 to 80 , relative humidity 5% to 95%.

## II. Panel and signal indicators

There are 11 indicator lights on the front panel of HK-5112, and on the back panel there are 1 5-pin terminal for RS-485 or RS-232 input and 8 ports 3-pin terminals for photoelectrical isolation input ports.

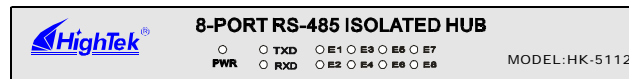


Figure 1. Front Panel of HK-5112

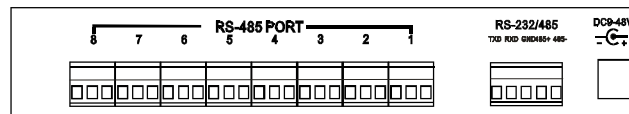


Figure 1. Back Panel of HK-5112

Interpretation of front panel indicators:

- PWR--Power, green for power on.
- TXD--Data sending indication, green for normal transmission from INPUT port to OUTPUT ports 1-8.
- RXD--Data receiving indication, yellow for normal transmission from OUTPUT ports 1-8 to INPUT port.
- E1-E8--Failure alarm indicators for ports 1-8, the lights stay ON to indicate short circuit or wrong signal connection of ports 1-8. E1 is for port 1, E2 for port 2, and so on. Problems can be determined by the user according to different light indicators.

## IV. Electric interfaces and definitions:

### RS-232C/RS-485 definition

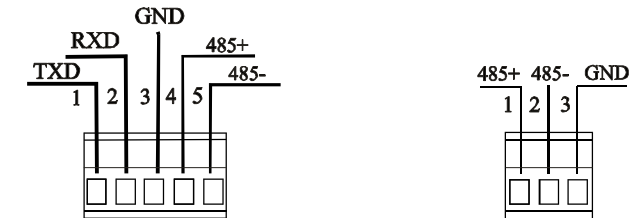


Fig 3. RS-232C/RS-485 input interface Fig 4. RS-485 output interface

### 1.RS-232C/RS-485 input interface definition

5-PIN Terminal Interface	Definition	Signal Direction
1	TXD	OUT
2	RXD	IN
3	GND	
4	485+	
5	485-	

### 2.RS-485 output interface definition

5-PIN Terminal Interface	RS-485
1	485+
2	485-
3	GND