SW4485I

HUB User Manual

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【Summarize】

The product is RS-485 HUB is designed for RS-485 system in complicated electromagnetic environment. It supports a transmission rate up to 115.2KBPS, and adopts two-way transparent transmission, which allows one RS-485 bus or one RS-232 bus to be divided into 4 RS-485 buses, or any divided RS-485 signal to be transparently transmitted to host computer RS-485 or RS-232 hub. Each RS-485 port of slave computer is provided with reverse connection alarm and protection function, with which the reliability of existing RS-485 network is greatly improved, effectively reducing the network maintenance time. To ensure the security and reliability of data communication, the RS-485 ports are provided with 2KVAC isolation protection, level-4 electrostatic protection and level-2 radiated susceptibility, effectively preventing surge current, common ground and radiated interference, making the hub safe and reliable and suitable for outdoor application.

The product also comes with RS-485 bus star connection. Users can easily improve RS-485 bus structure and divide the network segment. Proper utilization of HUB device can help design a unique and reliable RS-485 system. The product adopts EMC protection and supports DIN-rail installation, allowing it to be used reliably in severe environment at a temperature of -40℃ ~75℃.

【Packing list】

The RS232/RS485 converter is shipped with the following items. If any of these items are missing or damaged, please contact your customer service representative for assistance.

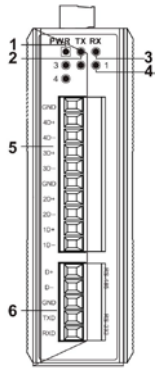
- Industrial Isolation RS-232/485 to 4 port RS485 HUB x 1
- User Manual x 1
- DIN-Rail mounting kit x 1

【Features】

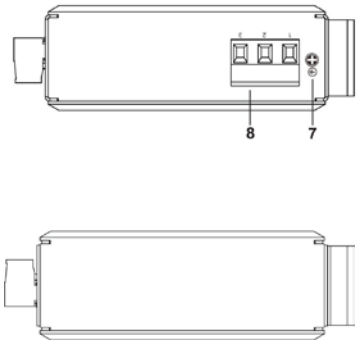
- Support two host computer RS-232 and RS-485 ports and four slave computer RS-485 ports
- Support transmission rate 300~115200bps
- Support multiple HUB device cascade connection as many as 256-way RS-485 bus
- Each slave computer port can connect 32 standard RS-485 devices (nodes)
- Special automatic reverse connection alarm
- Zero-delay automatic send/receive conversion function
- Port is provided with 2KVAC isolation protection,Level-4 electrostatic protection and level-2 radiated susceptibility
- Industrial design, IP40 protection
- Support DIN-rail installation
- Working temperature -40～75℃

【Panel layout】

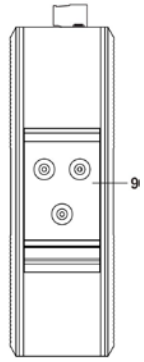
Front panel view



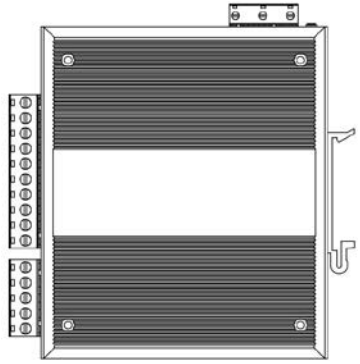
Vertical view and Bottom view



Rear view

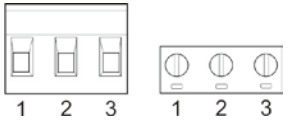


Side view



1. Power indicator
2. Host computer RS-232/485 transmits data indicator
3. Host computer RS-232/485 receive data indicator
4. Slave computer RS-485 Link/ACT indicator
5. Slave computer 4-port RS-485 terminal blocks
6. Host computer RS-232/485 terminal blocks
7. Ground screw
8. Power input terminal block
9. DIN-Rail mounting kit

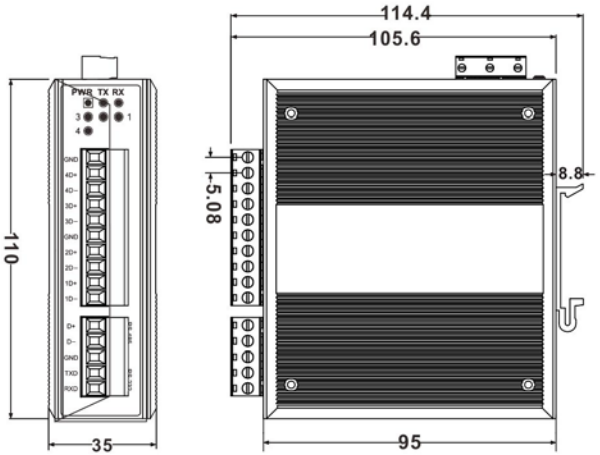
【Power supply input】



The product provides 3 bits terminal block (1/V-, 2/GND, 3/V+), V-, V+ is 12～48VDC power input. It can also work if connection opposite.

【Dimension】

Unit (mm)

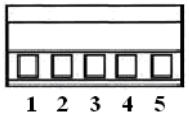


【Communication connector】

Serial port connection

Host computer RS-232/485 serial port

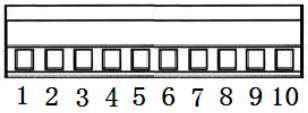
Host computer RS-232/485 serial port adopts 5bit terminal blocks connector. The PIN defines is as follows, RS-232/485 port:



PIN	PIN define	Description
1	D+	RS-485＋Signal input (out)
2	D-	RS-485－Signal input (out)
3	GND	Signal ground
4	TxD	RS-232 Transmit data
5	RxD	RS-232 Received Data

Slave computer RS-485 serial port

Slave computer 4 channel RS-485 serial port adopts 10bit terminal blocks connector. The PIN defines is as follows, RS-485 port:



PIN	PIN define	Description
1	GND	Signal ground
2	4D+	RS-485＋Signal input (out) for serial port 4
3	4D-	RS-485－Signal input (out) for serial port 4
4	3D+	RS-485＋Signal input (out) for serial port 3
5	3D-	RS-485－Signal input (out) for serial port 3
6	GND	Signal ground
7	2D+	RS-485＋Signal input (out) for serial port 2
8	2D-	RS-485－Signal input (out) for serial port 2
9	1D+	RS-485＋Signal input (out) for serial port 1
10	1D-	RS-485－Signal input (out) for serial port 1

RS-485 Port fault alarm and protection

RS-485 port fault alarm and protection is the solution to connect multiple RS-485 devices, an effective way to enhance its reliability. The HUB device has 4 slave computer RS-485 serial ports, and each port has reverse connect protection function, and can work in shutdown mode. Any RS-485 port reverse connection will only affect its RS-485 BUS system, will not affect the normal work of other interface connected with RS-485 system. Users can quickly determine fault port and other connected devices according to the fault alarm light.

Note: The connection of slave computer RS-485 serial ports of the same HUB device is wrong connection.

【LED Indicator】

LED indictor light on the front panel of product, the function of each LED is described in the table as below.

System Indication LED		
LED	Statue	Description
PWR	ON	Power is being supplied/working well
	OFF	Power is not being supplied/ not working well
TXD	Blinking	Data is being transmitted
	OFF	No data is being transmitted
RXD	Blinking	Data is being received
	OFF	No data is being received
1~4	ON	Power is on the device, the corresponding interface of D1~D4 is on the state of data receive/transmit
	Blinking	The corresponding interface of D1~D4 is transmitting/receiving data
	OFF	Fault alarm: Power is not on the device or power is on the device but the corresponding interface of D1~D4 is reversed

【Installation】

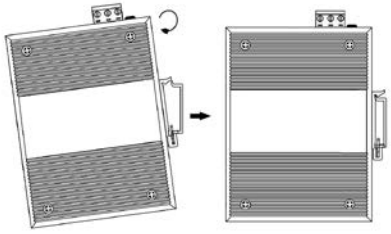
Before installation, confirm that the work environment meet the installation require, including the power needs and abundant space. Whether it is close to the connection equipment and other equipments are prepared or not.

1. Avoid in the sunshine, keep away from the heat fountainhead or the area where in intense EMI.
2. Examine the cables and plugs that installation requirements.
3. Examine whether the cables be seemly or not according to reasonable scheme.
4. Power: 12 ~ 48VDC
5. Environment: Working Temperature: -40～75℃
   Relative humidity 5%～95%

DIN Rail Installation

In order to use in industrial environments expediently, the product adopt 35mm DIN-Rail installation, the installation steps as below:

1. Examine the DIN-Rail attachment
2. Examine DIN Rail whether be firm and the position is suitability or not.
3. Insert the top of the DIN-Rail into the slot just below the stiff metal spring.
4. The DIN-Rail attachment unit will snap into place as shown below.



Wiring Requirements

Cable laying need to meet the following requirements,

1. It is needed to check whether the type, quantity and specification of cable match the requirement before cable laying;
2. It is needed to check the cable is damaged or not, factory records and quality assurance booklet before cable laying;
3. The required cable specification, quantity, direction and laying position need to match construction requirements, and cable length depends on actual position;
4. All the cable cannot have break-down and terminal in the middle;
5. Cables should be straight in the hallways and turning;
6. Cable should be straight in the groove, and cannot beyond the groove in case of holding back the inlet and outlet holes. Cables should be banded and fixed when they are out of the groove;
7. User cable should be separated from the power lines. Cables, power lines and grounding lines cannot be overlapped and mixed when they are in the same groove road. When cable is too long, it cannot hold down other cable, but structure in the middle of alignment rack;
8. It should have corresponding simple signal at both sides of the cable for maintaining.

【Specification】

Communication Parameters

Interface Protocol: compliant with EIARS-232/485

Serial port number: 1 host computer RS-232 port or 1 host computer RS-485 port, 4 slave computer RS-485 ports

RS-232 signal: TxD, RxD, GND

RS-485 signal: D+, D-, GND

Parity bit: None, Even, Odd, Space, Mark

Data bit: 5bit, 6bit, 7bit, 8bit

Stop bit: 1bit, 1.5bit, 2bit

Baud rate: 300bps~115200bps

Direction control: RS-485 adopts ADDC technology

Transmission media: CAT.5E shielded twisted pair or dedicated line for RS-485

Load capacity: support 32 nodes (customizable to 128 nodes) polling

Port protection: 2KVAC isolation protection, level-4 electrostatic protection, level-2 radiated susceptibility

Transmission distance: RS-485 1200m, RS-232 is less than 15m

Connector

Host computer RS-232/485: 5PIN terminal blocks

Slave computer RS-485: 10PIN terminal blocks

Indicator

PWR: power indicator

TXD: Host computer serial port data sending status indicator

RXD: Host computer serial port data receiving status indicator

1~4: Slave computer RS-485 port status indicator

Power

Input voltage: 12-48VDC

Load power: 0.7W@24VDC

Mechanical structure

Shell: IP40 protection, high-strength metal shell

Installation: DIN-rail installation

Weight: 384.8g

Dimension (L*W*H): 110mm*95mm*35mm

Working environment

Working temperature: -40~75℃

Storage temperature: -40~85℃

Humidity: 5%~95% (no condensation)

Industry standard

EMI: FCC Part 15, CISPR (EN55022) class A

EMS: EN61000-4-2 (ESD), Level 4
EN61000-4-3 (RS), Level 2

Shock : IEC 60068-2-27

Free fall: IEC 60068-2-32

Vibration test: IEC 60068-2-6

Certification:

CE, FCC, RoHS, UL508 (pending)

Warranty period: 3 years