SW4485 HUB Instructions

【Introduction】

SW4485 is a RS-485 bus segmentation HUB, specially designed for conforming to RS-485's large-scale system requirements under the complex electromagnetic environment.Its supporting transmission rates reach up to 115.2Kbps. It adopts transparent transmission in both directions. It can divide a RS-485 BUS or RS-232 BUS to 4 RS-485 BUS, or transparently transmit any intersected RS-485 signal to RS-485 or RS-232 BUS on PC. Each RS-485 port of its lower position controller has reverse fault alarm and protection function,through which,the network reliability of RS-485 has been improved, and the maintenance time of network has been shortened efficiently. In order to ensure the safety and reliability of data communication, the RS-485 interfaces of SW4485 are supplied with 2KVAC isolation protection, 3 levels of ESD protection and 2 levels of electrostatic radiation protection; they can prevent lighting,common ground and radiated interference, safe and reliable, are suitable for outdoor application.

SW4485 also provide star-RS485 BUS connection. Users can easily improve the RS-485 BUS structure, split network segment. You can design a unique and reliable RS-485 system through making reasonable use of SW4485.

SW4485 adopts EMC protection design, supports wall-mounting and panel-mounting installation, and can be used at the harsh environment from -40℃ to 85℃.

【Packing List】

The first time use this product, please check the packaging is intact or not and the attachment is complete or not at first.

◎ 3onedata SW4485 HUB(with Terminals block) x1

◎ Instruction x1

◎ Warranty card x1

◎ Certificate x1

◎ accessories of wall-mounted or panel-mounted installation

If you find that the device is damaged or any parts of it is missing during transportation, please notify the Company or the Company's distributor, we will give you proper solution as soon as possible.

【Features】

◎ Support two RS-232 and RS-485 PC interfaces , and 4 RS-485 lower position controller ports

◎ Support baud rate from 300bps to 115200bps

◎ Support serial SW4485 cascade, expand 256 RS-485 bus at maximum

◎ Each lower machine interface can be connected to 32 standard RS-485 devices(nodes)

◎ Unique automatic circuit reverse alarm detection

◎ Have automatic transceiver conversion function with zero delay

◎ Support hot swap function, plug and play
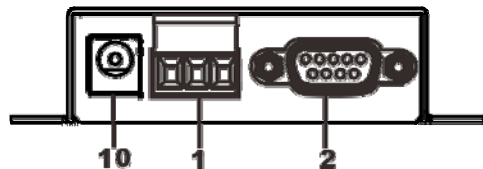
◎ Interface has 2KVAC isolation protection, 8KV ESD

protection(contact discharge) and 2-stage radiation immunity

◎ Industrial design, IP40 protection

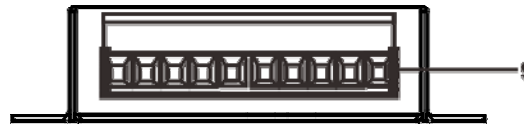◎Support DIN-Rail and wall mounting installation

◎ Working Temperature: -40℃~85℃

【Panel Layout】
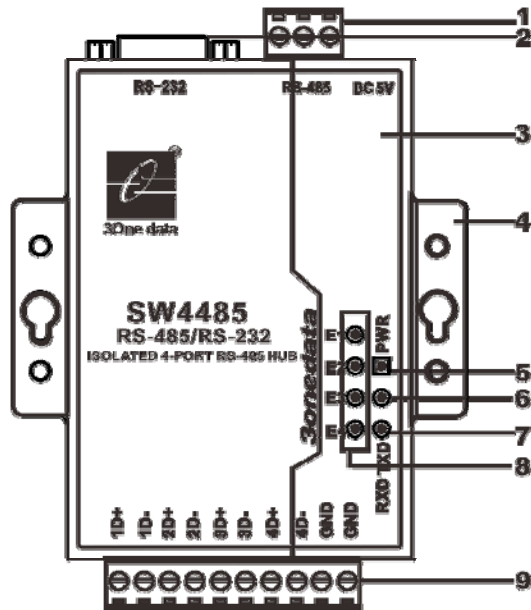
Main view

Top view

Bottom view

1. RS-485 PC port（3PIN terminal）

2. RS-232 PC port（DB9F）

3. Company name, product line identification

4. hangers

5. Power indicator（PWR）

6. data transmit status indicator(TXD)

7. data receiving status indicator(RXD)

8. Indicator of RS-485 lower position controller port（E1~E4）

9. RS-485 lower position controller port(10PIN terminal block)

10. DC-5V Power interface

【Dimensions】

Unit（mm）
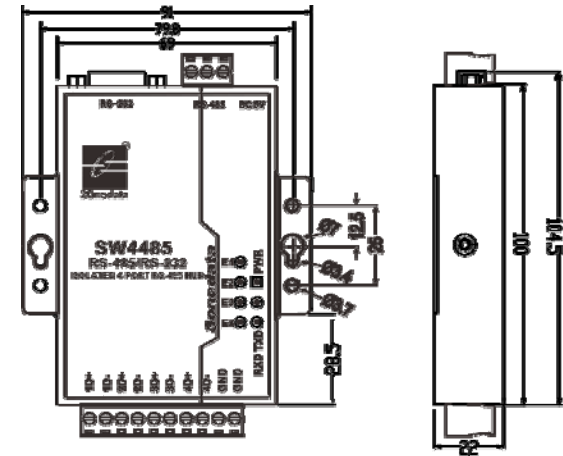
【Power Input】

The lower panel of SW4485 HUB provides access port of DC power, wherein the power input is 5VDC. Recommend to use the power adapter of DC head specification with 2.5mm inner diameter and 5.5mm outer diameter.
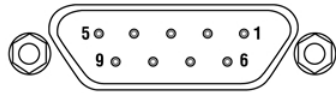
【Communication Interface】

RS-232 PC interface

For SW4485, RS-232 port is a standard DB9F socket, pin definition is consistent with RS-232 specification, here is the three-wire connection.

DB9F RS-232 serial interface

Pin	Pin Name	Pin Meaning
1	—	No connection
2	TxD	Data transmit terminal
3	RxD	Data receiving terminal
4	—	No connection
5	GND	Ground Line
6	—	No connection
7	—	No connection
8	—	No connection
9	—	No connection

RS-485 PC Interface:

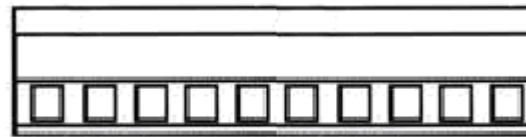For SW4485, RS-485 PC port matches 3 terminals, the pin is defined as follows:

RS-485 terminal

3 Terminal	Pin Meanin	Signal Instruction
1	D+	+ signal of RS-485 input (out)
2	D-	- signal of RS-485 input (out)
3	GND	Signal Ground

RS-485 lower position controller　port:

For SW4485, RS-485 lower position controller port matches 10 terminals, pin defined as follows:

RS-485 terminal

10 terminals	Pin Meaning	Signal Instuction
1	1D+	+ signal of RS-485 input (out) side
2	1D-	- signal of RS-485 input (out) side
3	2D+	+ signal of RS-485 input (out) side
4	2D-	- signal of RS-485 input (out) side
5	3D+	+ signal of RS-485 input (out) side
6	3D-	- signal of RS-485 input (out) side
7	4D+	+ signal of RS-485 input (out) side
8	4D-	- signal of RS-485 input (out) side
9	GND	Signal Ground
10	GND	Signal Ground

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. SW4485 HUB has 4 lower position controller 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　lower position controller ports of the same SW4485 HUB is wrong connection.

【LED Indicator】

The LED indicator's monitoring working state of SW4485 HUB can fully simplify resolution of fault. Detailed states of each indicator are shown in the following table:

System Indication LED		
LED	state	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
E1~E4	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】

To confirm the device's working environment before installation: the supply voltage, the installation space, the installation method, etc. Please confirm the following installation requirements carefully:

◎ Check installation needed cables and connectors
◎ Based on reasonable configuration requirements, check the cable is in place(less than 100m)
◎ Product does not provide installation components, users need to prepare them according to the selected type: screws, nuts and tools to ensure reliable installation.
◎ Power: 5VDC
◎ Environment:
　Working Temperature: -40~85℃
　Humidity: 5%~95%
◎ Installation Type: Wall-mount and Panel-mount

Cable Laying

Cable laying should meet the following conditions:
◎ Check all cable specifications, models and quantity meet the demand or not before cable laying.
◎ Check the cable is damaged or not , whether has factory leaving record and quality

assurance or other quality certificate.
◎ Required laying cables' specifications, quantity, direction, laying position are adhere to construction requirements, laying length should be based on the actual location.
◎ The laying cable do not have broken line or connector in the middle
◎ Cables should be straight int the aisle neatly inside, turning uniform, smooth and flat.
◎ Cable in the channel should be straight, not beyond the channel in order to avoid shelter other inlet and outlet holes, cable out of the groove part or cable bend part should be bundled and fixed.
◎ User cables and power cord lay separately. Cable, power cord, ground lay in the same channel can not be folded or blended. If the cable is too long, it must be placed in the middle of the cable frame regularly rather than pressed on other cables.
◎ The end of the cable should be labeled appropriately, and the identify content must be clear and concise to have convenient maintenance.

【Specifications】

Communication Parameter

Interface Protocol: meet EIARS-2332/485 agreement

Interface Number: 1 RS-232 PC interface, 1 RS-485 PC interface, 4 RS-485 lower position controllor interfaces.

RS-232 signal: TxD, RxD, GND

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

Check: 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 data flow to automatic control technology

Transmission Media: twisted-pair shielded cable or UTP 485 dedicated line

Load Capacity: RS-485 terminal supports 32-point polling environment (can be customized 128 points)

Port Protection: 2KVAC isolation protection, 3 levels of ESD protection, 2 levels of electrostatic radiation protection

Transmission Distance: RS-485 terminal 1200m, RS-232 terminal recommends no more than 5m

Interface mode

RS-232 PC port mode: DB9M Male

RS-485 PC port mode: 3PIN terminal

RS-485 Lower Position Controller port mode: 10PIN terminal

Indicator

PWR: power indicator

TXD: data transmit status indicator

RXD: data receiving status indicator

E1~E4: status indicator of RS-485 lower position controller interface

Power

Input: 5VDC

No-load Power: 0.455W@5VDC

Full Power: 0.485W@5VDC

Mechanical Structure

Shell: IP40 protection grade, high-strength metal casing

Installation: Wall-mount and Panel-mount

Weight: 250.8g

Size: 22mm×69mm×100mm

Working Environment

Working Temperature: -40~85℃

Storage Temperature: -40~85℃

Humidity: 5%~95%(no condensation)

Industry Standard

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

EMS: EN61000-4-2(ESD), Lece3

Shock: IEC60068-2-27

Free Fall: IEC60068-2-32

Shake: IEC60068-2-6

Warranty Period: 5 years

Approvals： CE, FCC, RoHS, UL508(Pending)

Please visit http://www.3onedata.com to check the latest product certification.