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RS485 HUB

USR-HUB-S series

User Manual

USR-HUB102S, USR-HUB104S, USR-HUB108S



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1. Product Overview

The USR-HUB series is an industrial-grade line of USB hubs, RS485 hubs, and serial converters. Designed for large-scale RS485 systems, it offers flexible configurations (1-to-2/4/8, 2/4-to-1, etc.) to meet complex communication needs.

It supports 1-input to multi-output RS485 expansion and signal relay. Independent port drivers create a star network, isolating faulty segments via short-circuit/open-circuit protection to maintain system stability.

With 2500V optical isolation and 600W surge protection, it effectively suppresses lightning, ESD, and common-ground interference. An external power supply ensures high reliability for outdoor engineering.

Auto-detected data flow direction resolves RS485 half-duplex latency. Supporting up to 115.2Kbps and 1200m transmission, it is widely used in highway toll, road surveillance, and power data acquisition systems, offering reliable performance at a competitive cost.

The RS485 hub features differentiated hardware output interfaces to accommodate diverse customer requirements, offering multiple specifications for selection.

model	specifications	specific description
USR-HUB102S	Extended type	Optical isolation type, 1 master and 2 slave, 2-channel RS485 hub
USR-HUB104S	Extended type	Industrial-grade lightning and surge protection with opto-isolation, featuring 1 master and 4 slave units 1-port RS485/232 to 4-port RS485 hub adapter
USR-HUB108S	Extended type	Industrial-grade lightning and surge protection with opto-isolation, featuring 1 master and 8 slave units 1-port RS485 to 8-port RS485 hub adapter
USR-HUB201S	cache type	Industrial-grade lightning and surge protection with optical isolation, featuring 2 master and 1 slave (buffered type)
USR-HUB401S	cache type	Industrial-grade lightning and surge protection with opto-isolation, featuring 4 master and 1 slave (buffered type)
USR-HUB104S-DC	data concentrator	Industrial-grade lightning and surge protection with opto-isolation, featuring 1 master and 4 slave data concentrators The master station can centrally read/write multiple

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		Modbus-RTU slaves through modules. 1 master and 4 slave units for RS485 data acquisition and buffering, with a single slave port supporting up to 32 terminal devices
USR-HUB108S-DC	data concentrator	Industrial-grade lightning and surge protection opto-isolated data concentrator with 1 master and 8 slave units The master station can centrally read/write multiple Modbus-RTU slaves through modules. 1 master and 8 slave units for RS485 data acquisition and buffering, with a single slave port supporting up to 32 terminal devices

2. Product Introduction-1 Master 2 Slave

The USR-HUB102S is a photoelectrically isolated 2-channel RS485 hub.

It features one RS485 input converted to two RS485 outputs (1 input to 2 outputs) and RS485 signal relay functionality.

2.1. Product Parameter

specifications	explain
product model	USR-HUB102S
Interface properties	Compatible with RS232, RS485, TIA/EIA standards
Electrical interface	Industrial terminal block
signal input	RS485 Bus 1
signal output	2-channel RS485
way to install	RS485 Star Bus Architecture
GPRS support node	Each RS485 channel supports 128 nodes
transmission medium	Twisted pair or shielded cable
operate mode	Asynchronous half-duplex (two-way communication)
working power supply	DC9-40V 500mA
signal indication	Three indicator lights: Power (POW), Transmit (TXD), and Receive (RXD).
Isolation level	Isolation voltage: 2500Vrms, 500V DC insulation, continuous DC/DC mode

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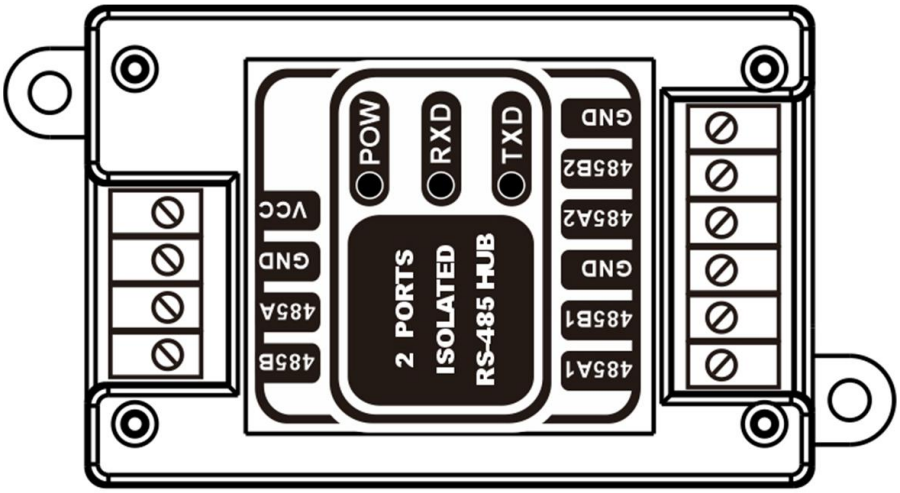
Protection level	± 15KV ESD protection and 600W surge protection per line for lightning strikes
Applicable Communication	All serial communication software used is plug-and-play.
transmission speed	300bps to 115.2Kbps (adaptive baud rate, protocol-agnostic)
transmission distance	0-3 km (115200bps-300bps)
service environment	-20℃ to 75℃, relative humidity 5% to 95%
External dimensions	100*54*32mm (with back clamp and positioning holes)

2.2. product size

100*54*32mm (with back clamp and positioning holes), hole spacing 90mm



2.3. Interface identifier



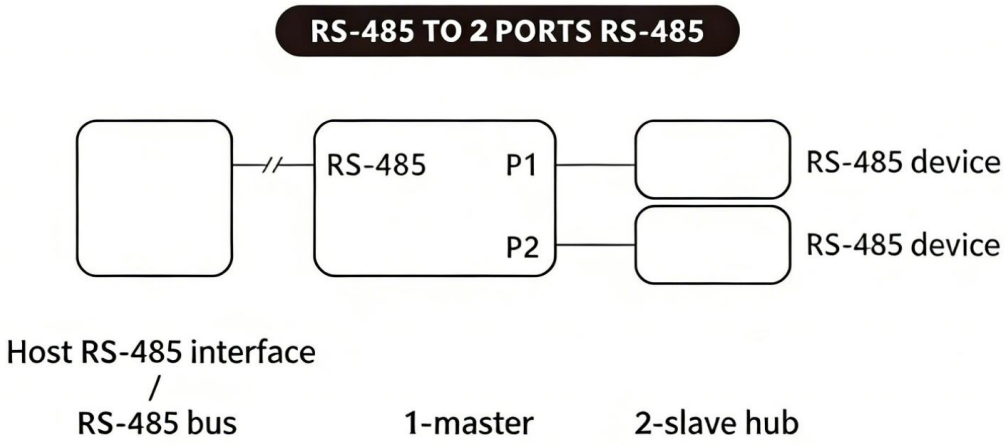
order number	characteristic	function definition
1	485B	RS485-
2	485A	RS485+
3	GND	Negative terminal of power supply
4	VCC	Positive terminal of power supply (9-40V)

order number	characteristic	function definition
1	485A1	RS485+
2	485B1	RS485-
3	GND	RS485 ground
4	485A2	RS485+
5	485B2	RS485-
6	GND	RS485 ground

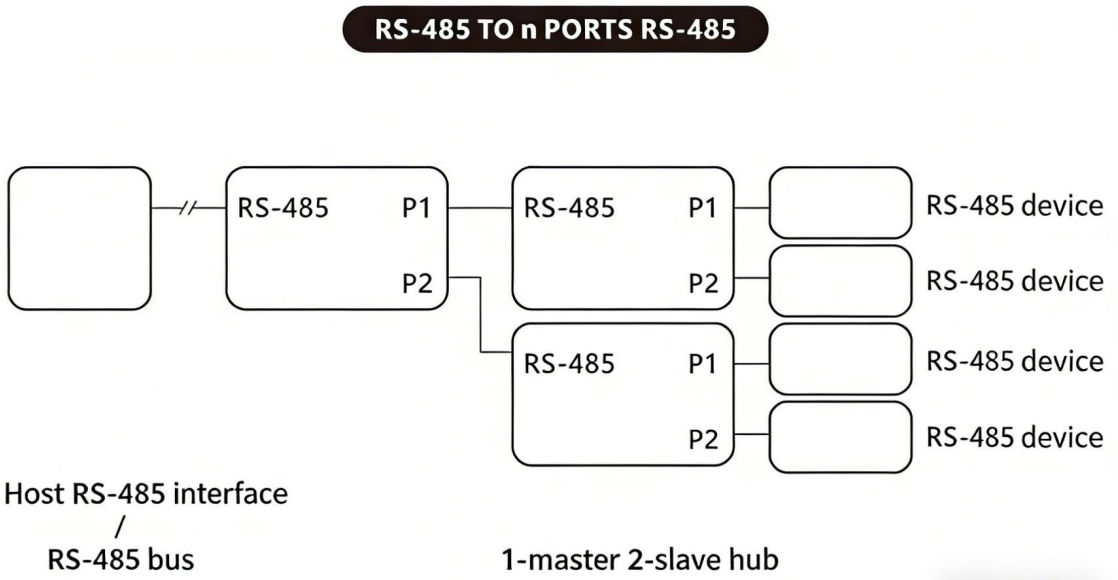
2.4. mode of connection

1）Application of Expanding 1 RS-485 Port/RS-485 Bus or RS-232 Port to 2 High-Reliability RS-485 Interfaces

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2）Application of Cascading Multiple Devices: Cascading Multiple RS-485 Hubs Simultaneously on an Existing RS-485 Bus to Expand to More High-Reliability RS-485 Interfaces



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3. Product Introduction-1 Master and 4 Slave

The USR-HUB104S is an industrial-grade lightning and surge protection optical-isolated 1-port RS485/232-to-4-port RS485 hub.

The product features RS232/RS485 bidirectional conversion, with one RS232/RS485 input converted to four RS485 outputs (1 input to 4 outputs), along with RS485 signal relay functionality.

3.1. Product Parameter

specifications	explain
product model	USR-HUB104S
Interface properties	Compatible with RS232, RS485, TIA/EIA standards
Electrical interface	The power interface is a DC socket or two-pin terminal block.
	The RS232C interface features a three-pin terminal block.
	The RS485 interface features twelve-pin terminal blocks.
signal input	1 RS232/RS485 port or 4 RS485 ports (each port supports isolated communication)
signal output	4 RS485 channels (each with isolated communication) or 1 RS232/RS485 channel
Network configuration method	RS485 Star Bus Structure
GPRS support node	Each RS485 channel supports 128 nodes
transmission medium	Twisted pair or shielded cable
operate mode	Asynchronous half-duplex (two-way communication)
working power supply	DC 9-40V 500mA (recommended 24V 1A)
signal indication	Seven indicator lights: Power (PWR), Transmit (TXD), Receive (RXD),
	4 channel states (P1 ~ P4)
Isolation level	Isolation voltage: 2500Vrms, 500V continuous DC/DC module
Protection level	RS232C interface with ±15KV ESD protection
	600W surge protection per line for RS485 interface
Applicable	All serial communication software used is plug-and-play.

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Communication	
transmission speed	300bps to 115.2Kbps (adaptive baud rate, protocol-independent)
transmission distance	(RS485) 0-3 km (115200bps-300bps)
service environment	-40°C to 85°C, with relative humidity ranging from 5% to 95%
External dimensions	122*72*26mm (with a back clip thickness of 34 mm)

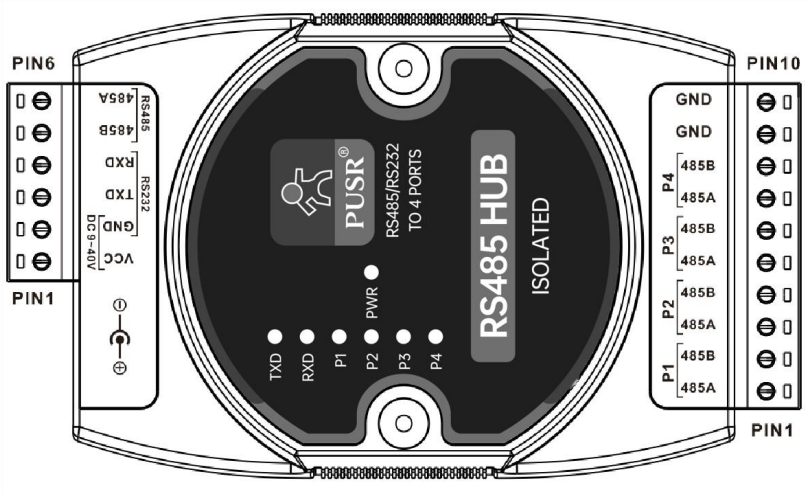
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3.2. product size

1 22* 72* 34mm (thickness with back clip)



3.3. Interface identifier



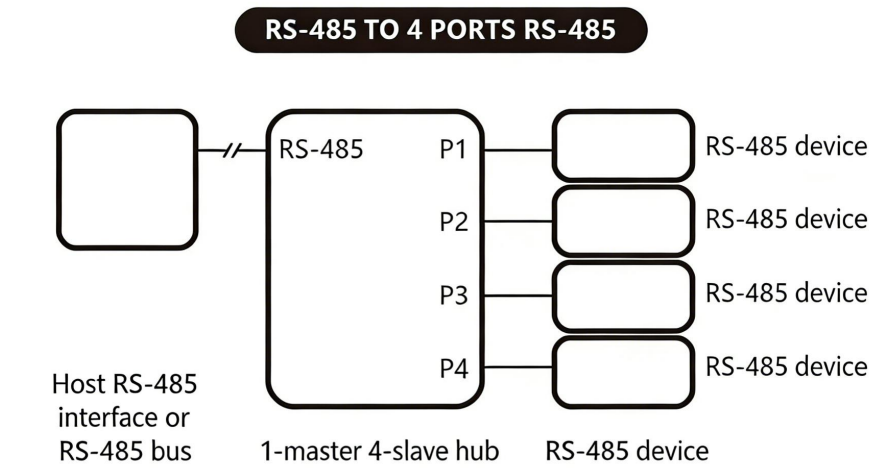
order number	characteristic	function definition		order number	characteristic		function definition
/	⊖—◎—⊕	DC power outlet		1	P1	485A	RS485+
1	DC9-40V	VCC		2		485B	RS485-
2		GND	RS232	3	P2	485A	RS485+
3	TXD			4		485B	RS485-
4	RXD			5	P3	485A	RS485+
5	RS485	485B		6		485B	RS485-
6		485A		7	P4	485A	RS485+

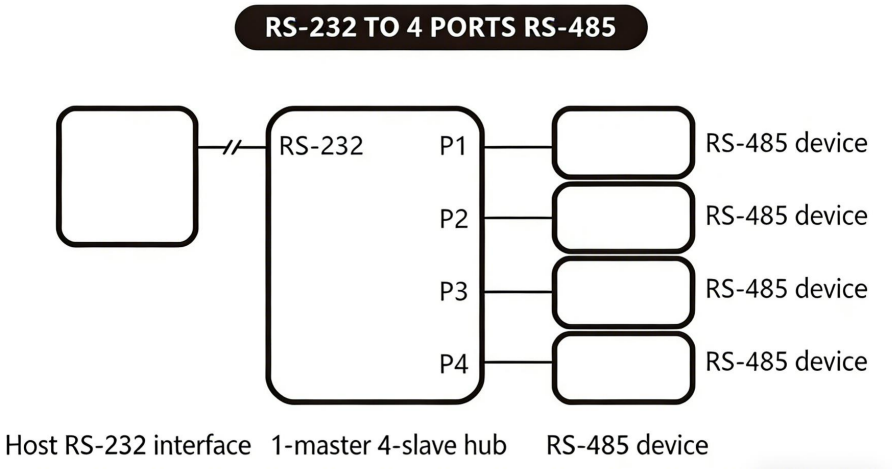
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				8		485B	RS485-
				9	GND	RS485 ground	
				10	GND	RS485 ground	

3.4. mode of connection

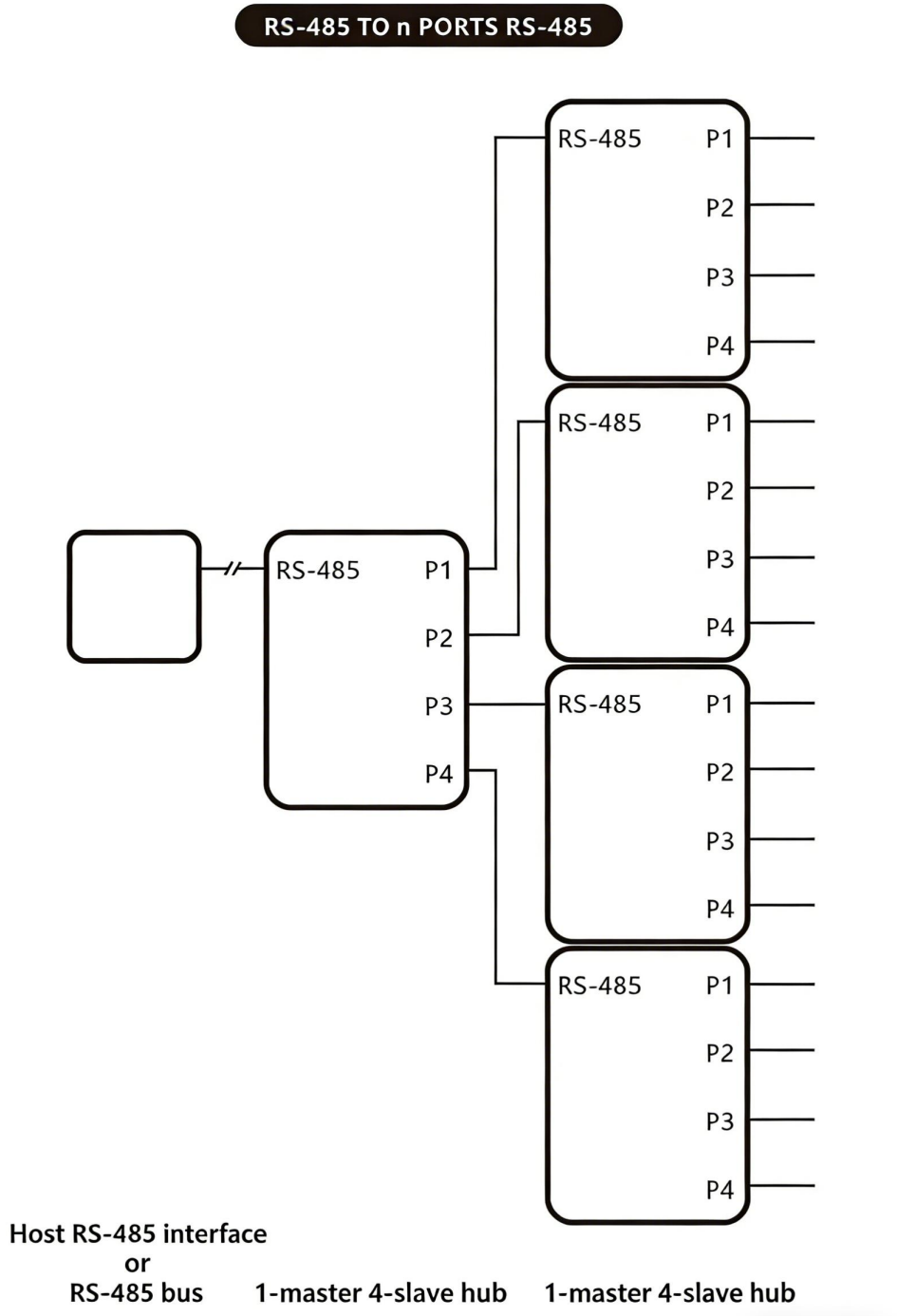
Application of expanding one RS485 port/RS485 bus or RS232 port to four high-reliability RS485 interfaces





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The application of expanding one RS485 port/RS485 bus to multiple high-reliability RS485 interfaces allows for the parallel connection of up to 128 RS485 hubs on the same bus.



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4. Product Introduction-1 Master 8 Slave

The USR-HUB108S is an industrial-grade lightning and surge protection optical-isolated 8-port RS485 hub.

The product features 1 RS485 input channel converted to 8 RS485 output channels (1 input to 8 outputs), along with RS485 signal relay functionality. It supports a maximum transmission rate of up to 115.2 Kbps.

4.1. Product Parameter

specifications	explain
product model	USR-HUB108S
Interface properties	Compatible with RS485 TIA/EIA standards
Electrical interface	The power interface features two-pin terminals
	The RS485 interface features an 18-pin terminal block.
signal input	RS485 Bus 1 (Isolated Communication)
signal output	8-channel RS485 (each channel supports isolated communication)
Network configuration method	RS485 Star Bus Structure
GPRS support node	Each RS485 channel supports 128 nodes
transmission medium	Twisted pair or shielded cable
operate mode	Asynchronous half-duplex (two-way communication)
working power supply	DC9-40V 500mA
signal indication	11 indicator lights: Power (PWR), Transmit (TXD), Receive (RXD),
	8 channel states (P1 ~ P8)
Isolation level	Isolation voltage: 2500Vrms, 500V DC, continuous DC/DC module
Protection level	±15KV ESD protection, RS485 interface with 600W surge protection per line
Applicable Communication	All serial communication software used is plug-and-play.
transmission speed ：	300bps to 115.2Kbps (adaptive baud rate, protocol-agnostic)
transmission distance	(RS485) 0-3 km (115200bps-300bps)
service environment	-40℃ to 85℃, with relative humidity ranging from 5% to 95%

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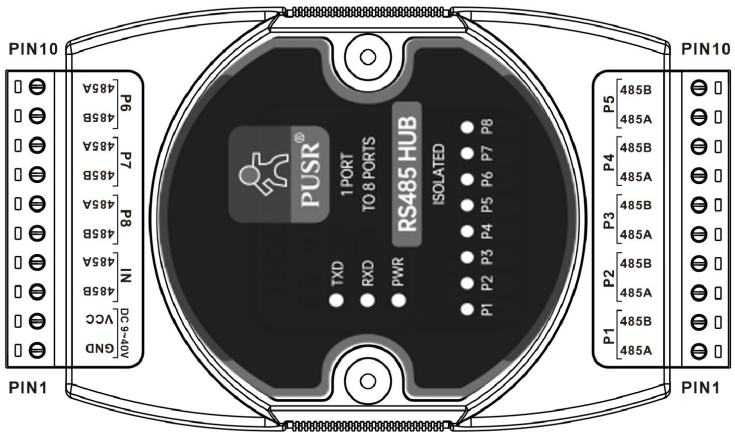
External dimensions	122*72*26mm (with a back clip thickness of 34 mm)

4.2. product size

122*72*26mm (with a back clip thickness of 34 mm)



4.3. Interface identifier



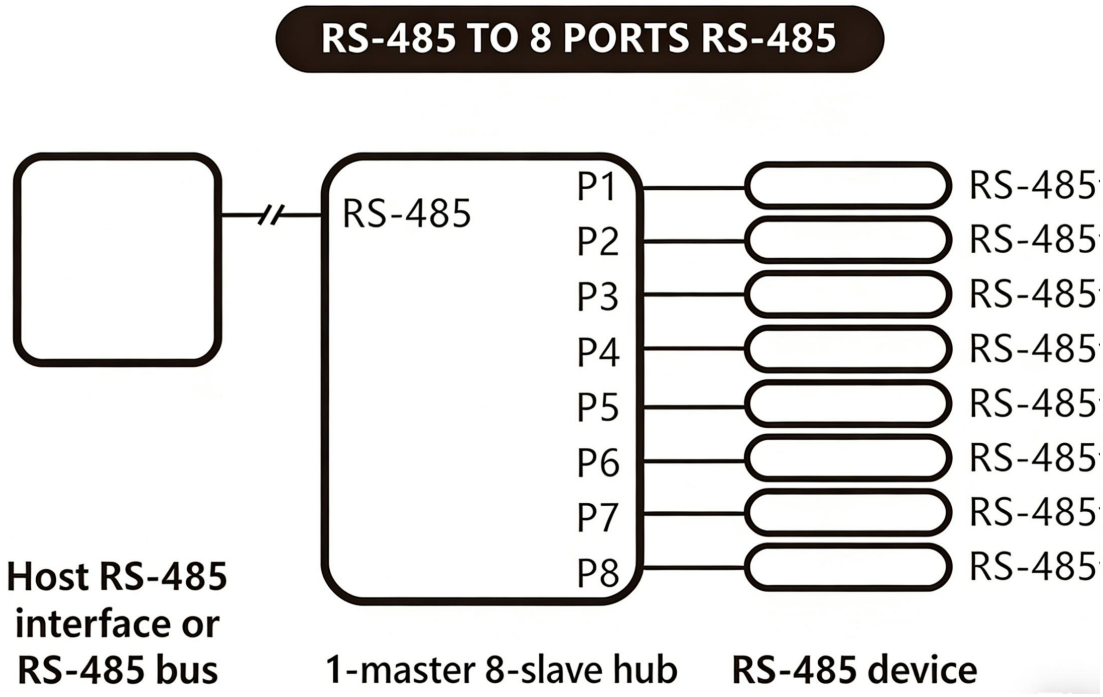
order number	characteristic	function definition		order number	characteristic	function definition
1	DC9-40V	GND		1	P1	485A
2		VCC		2		485B
3	IN	485B		3	P2	485A
4		485A		4		485B

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5	P6	485B		5	P3	485B
6		485A		6		485A
7	P7	485B		7	P4	485A
8		485A		8		485B
9	P8	485B		9	P5	485A
10		485A		10		485B

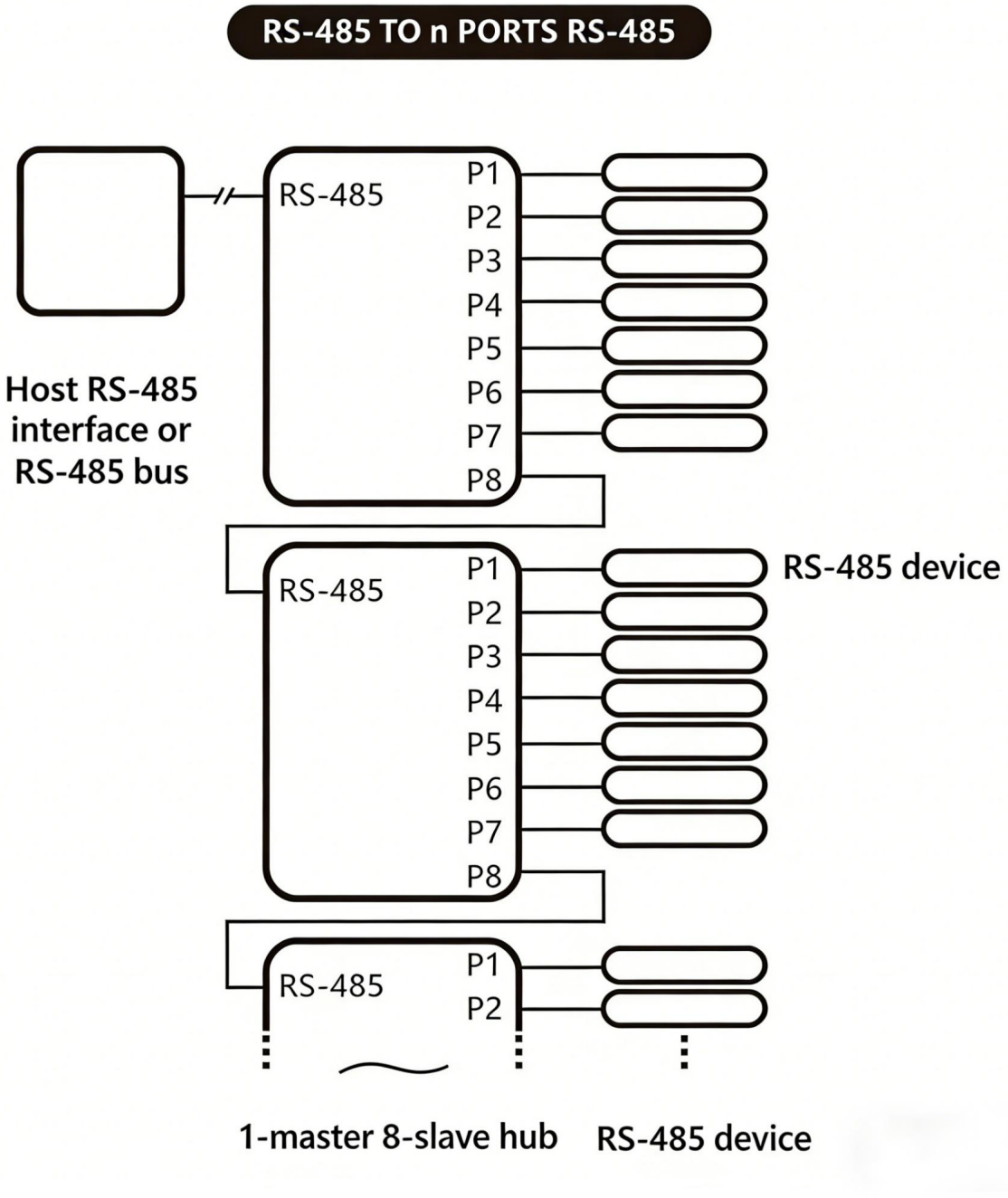
4.4. mode of connection

Application of extending one host computers RS485 port or RS485 bus to eight high-reliability RS485 interfaces



Multi-device cascading is supported, with existing RS485 bus extensions capable of connecting multiple high-reliability RS485 interfaces. Multiple RS485 hubs can be cascaded simultaneously on the RS485 bus.

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RS-485 TO n PORTS RS-485
RS-485
P1
P2
P3
P4
P5
P6
P7
P8
Host RS-485 interface or RS-485 bus
RS-485
P1
P2
P3
P4
P5
P6
P7
P8
RS-485 device
RS-485
P1
P2
1-master 8-slave hub
RS-485 device

5. contact way

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Positioning: Trusted Smart Industrial IoT Partner

Some people have a vision: to become an ecological enterprise in the field of industrial Internet of Things

Some people have a mission: to connect value and value connection

Values: Integrity, Diligence, Critical Thinking, Seriousness, Innovation, Trust, Responsibility, Customer Service, Respect for Heaven and Love for People

Product Philosophy: Reliable, User-Friendly, and Affordable

Corporate Culture:Someone is doing something seriously

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7. Update History

Documentation Edition	Update content	refresh time
V1.0	editio princeps	2025-12-01
V1.1	modify format	2026-01-13
V1.2	Modify the wiring diagram for 1 master and 8 slave products	2026-01-26
V1.3	Add the model and brief description of the data concentrator to the specifications	2026-02-09

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