

NetPortServer Compact Din-Rail 4-Port RS485 Device Server with Modbus and MQTT Support

NPS5431S

4-Port Din-Rail RS485 Isolated Serial Device Server

The NPS5431S is a din-rail design serial server/Modbus gateway with four RS485 ports featuring 1500V optocoupler isolation. It effectively isolates interference on the RS485 bus, ensuring stable device operation and reliability, making it suitable for environments with RS485 bus interference. It integrates multiple functions, including serial device server, Modbus gateway, MQTT gateway, RS485-to-JSON gateway, and virtual COM port device tool. It has built-in surge protection for the power supply, supports a wide voltage range of 10–30V, and uses a terminal-type power connection with a grounding wire on the casing. The two mounting ears on the top can be installed either horizontally or vertically, allowing for flexible installation on a backplane or desktop. It comes with two 10M/100M Ethernet ports, allowing connection to either one of them. The other Ethernet port can be used for cascading multiple NPS5431S via a network cable, enabling expansion to 8, 12, or 16 serial ports.



-25~70°C



Windows 10



Windows 11

Modbus



Features & Benefits

Modbus RTU /Ethernet Gateway

- Integrated Serial Port Server (Serial Device Server)
- Modbus RTU Server/ Client
- Modbus RTU to MQTT Gateway
- Cloud JSON data to Modbus RTU
- TCP Server/ Client, UDP, UDP Multicast
- TCP Server
- Auto-Polling Storage Multi Modbus/TCP Client to Single Modbus RTU Server
- Cloud Modbus/TCP to Modbus RTU Client Access

Modbus Gateway

- Modbus RTU protocol to Modbus/TCP
- RTU/Register Auto Polling and Storage
- Allows Multiple points access same serial device
- Scheduling Polling Modbus RTU register

JSON to Modbus RTU

- CSV JSON Table
- Scheduling Polling Modbus RTU register
- Scheduling Publish in JSON format
- Subscribe support request and Setting Modbus Register

Modbus RTU to MQTT

- Publish RTU data in JSON format
- Subscribe JSON to Modbus RTU by HTTP Post, HTTP Get
- NTP support for Network Time Synchronize

Serial Device Server

- TCP/UDP Transmission to virtual serial port
- Support Virtual COM Software tool

Serial Interface

- Four RS485 terminal with RS485-A, RS485-B, 2-Wires, up to 32 devices
- Baud Rate Support – 1200bps ~38400bps, 5-9bits
- Parity Check – None, Odd, Even, Mark, Space

Industrial Application

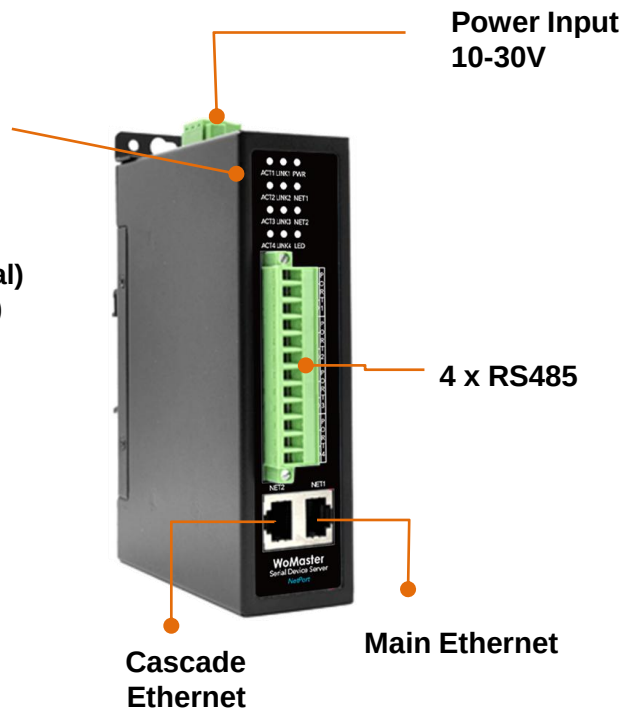
- DC 10~30V Power Input, Terminal Connector
- -25~70°C / 5~95% RH Environment Operating Temperature



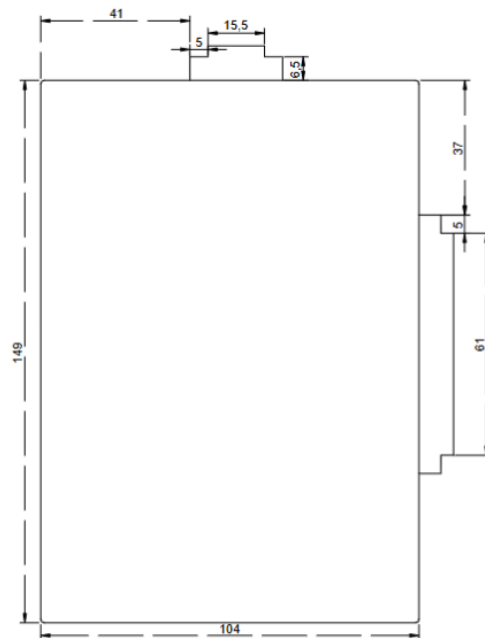
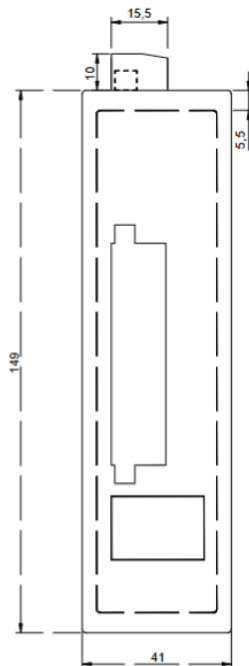
Interfaces

System LED

- Power
- Net 1 / 2
- Link 1 to 4:
(Green- LAN OK)
(Blue- TCP or UDP)
- Active:
(Green- LAN to Serial)
(Blue- Serial to LAN)



Dimensions





✓ Virtual COM Device Discovery and Management

vir.com Virtual Serial & Device Management - VirCom

Manage(M) Config(C) View(V) Help(H)

Start Stop Device Serial About

ID	Status	Com Na...	COM Name	Type	Device IP	Discription	Dev
1	Connected	COM5	Virtual COM	Bind ID	192.168.0.188	Name : DEV0001	A12

Device Settings

Device Info

Virtual Serial: COM5

Dev Type: [Empty]

Dev Name: DEV0001

Dev ID: 2878A1282BD3

MAC Addr: 04EEE8182BEB

Firmware Ver: V1.523

Function of the device

☐ Web Download

☒ DNS System

☒ REAL_COM Protocol

☒ Modbus TCP To RTU

☒ Serial Commnad

☒ DHCP Support

☐ Storage Extend

☒ Multi-TCP Connection

Get Default Save As Default Load Default

Modify Key Firmware/Config Restart Dev Modify Setting Cancel

Information

[2025-01-06,17:07:54] Connected to 192.168.0.188 ok.

[2025-01-06,17:07:54] Connecting... 192.168.0.188 .

[2025-01-06,17:07:54] COM5 Create ok!

[2025-01-06,17:07:54] Listen at port 4196 OK.

✓ Device Setting

Device Settings

Device Info

Virtual Serial: COM5

Dev Type: [Empty]

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Network

IP Mode: Static

IP Address: Static

Port: 4196

Work Mode: TCP Server

Net Mask: 255.255.255.0

Gateway: 192.168.0.1

Dest. IP/Domain: 192.168.0.84 Local IP

Dest. Port: 4196

UDP Dynamic

Serial

Baud Rate: 9600

Data Bits: 8

Parity: None

Stop Bits: 1

Flow Control: None

Advanced Settings

DNS Server IP: 8.8.4.4

Dest. Mode: Dynamic

Transfer Protocol: None

Keep Alive Time: 60 (s)

Reconnect Time: 12 (s)

Http Port: 80

UDP Group IP: 230.90.76.1

Register Pkt: [Empty] ASCII

Restart If No Data every 300 Sec.

Enable Parameter Send every 5 Min.

More Advanced Settings...

Framing Rule

Max Frame Length: 1300 (Byte)

Max Interval(smaller is Better) 3 (Ms)

✓ Cloud MQTT Configuration

Webpage&code download tool

Direct download mode

Configuration save location

G:\MQTT Config

Special configs:

Config file source: Read from local directory

Modbus cfg. MQTT cfg. JSON cfg. Reg packet Cmd change HTTP cfg. Param file

Clear local dir.

Code file download mode

Select code file:

C:\zlsn2003.bin

Download through the network

Device IP address or domain: 192.168.0.200

Download port (Don't modify): 1092

Download through serial port

Serial port: COM1

Baud Rate: 115200

Flash size: 256 KB

DevID: 2875FC662A2F Bind ID

Please close any other configuration window before downloading.

Download

Save Setting

Advanced Settings

DNS Server IP: 8.8.4.4

Dest. Mode: Dynamic

Transfer Protocol: Modbus_TCP Protocol

Keep Alive Time: None

Reconnect Time: Modbus_TCP Protocol

Http Port: REAL_COM Protocol

UDP Group IP: TELNET Protocol

Register Pkt: [Empty] ASCII

Restart If No Data every 300 Sec.

Enable Parameter Send every 5 Min.

More Advanced Settings...

Multi Modbus Host

Modbus Multi-Host Support Settings

Modbus Gateway Type: Auto query storage type

Modbus RTU or ASCII: Auto query storage type

Multi-host non-storage type

Device Client & Slave mode

Simple Modbus TCP to RTU

Pre-configurable Modbus GW

Maximum wait time of R: 196 ms(0~8191)

Enable RS485 Multi-Host

Enable RS485 bus conflict detection

Send data only when RS485 bus is idle for 20 ms

✓ Web Configuration

Web Configuration

Device Information

Device Name: DEV0001

Device MAC: 04EEE8182BEB

Firmware Version: V1.523

Serial Settings

Baudrate: 9600

Data Bits: 8

Parity: None

Stop Bits: 1

Flow Control: None

Multi-Master Settings

Protocol: None

Response Timeout: 2 32~65535ms

Multi-Master: Disable

Transfer Delay: 20 0~255ms

NOTE: When the multi-master is disabled, the response timeout will always be 0. The timeout must be a multiple of 32.

Network Settings

IP Addressing: Static

IP Address: 192.168.0.200

Local Port: 4196

Mode: TCP Server

Subnet Mask: 255.255.255.0

Gateway: 192.168.0.1

Destination IP/DNS: 192.168.0.84

Destination Port: 4196

Web Port: 80

Advanced Settings

Watchdog Reset: Disable

Watchdog Reset Time: 300 0~1270s

Reconnect Time: 12 1~255s

Modify Web Password

New Password: [Empty]

Confirm Password: [Empty]

Submit

Network Interface	
Ethernet	Two 10/100M Ethernet with 2KV Surge Protection
Serial Interface	
Connector	4 x RS485 Screw Terminal Connector, 2-wire RS-485-A / -B, GND Max 32 x RS-485 Nodes, Max 1200 Meter Distance, 120 Ohm Terminal Resistor for > 300Meters
Serial Parameters	Baud Rate: 1200~38400bps, Data Bit: 5~9 Parity Check: None, Odd, Even, Space, Mark Flow Control: None Flow Control
Service Mode	
Virtual COM Driver	Windows XP / Windows 7 / Windows 10/ Windows 11
TCP	TCP Server for up to 30 TCP clients, or TCP client to up to 7 destination IP
UDP / UDP Multicasting	UDP Polling & Response by UDP packet between stations UDP Multicast to all station by UDP packet
Modbus	Modbus RTU to Modbus TCP Modbus TCP to Modbus RTU
Cloud	MQTT, JSON to Modbus RTU, HTTP Post, HPPT Get
Network Feature	
Protocol	Ethernet, IP, TCP, UDP, HTTP, ARP, ICMP, DHCP, DNS, Modbus
Security	TCP with authentication key
DHCP	DHCP Client for IP and DNS information from DHCP server
NTP	Network Time Precision (NTP)
Management	
System Management	Windows Utility, Virtual COM, WEB Management
Windows DLL Library	Device management function library (Windows DLL dynamic link library) by VC, VB, Delphi, or C++ Builder with functions such as <i>read</i> and <i>write</i> .
Power Input & Interface Connector	
Power Input	10~30VDC Input, Terminal Block, 30mA@12Vdc
Mechanical & Installation	
Installation	Din-Rail
Enclosure	Durable, flame-retardant enclosure that withstands up to 100°C without deformation and self-extinguishes when removed from a fire source
IP Protection	IP30
Dimension	150mm×105mm×41mm (LxWxH)
Environmental	
Operation Temperature	-25°C~70°C, 0% ~ 90%, Non-Condensing
Storage Temperature	-40°C~80°C, 0% ~ 90%, Non-Condensing
Reliability & Warranty	
MTBF	> 200,000 Hours
Warranty	3 Year

Model	Description
NPS5431S	4 Port Din-Rail RS485 Isolation Device Server, Modbus, MQTT Gateway, 10~30Vdc