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

NPS5431A

4-Port Din-Rail RS485 Serial Device Server

The NPS5431A is an advanced RS485 device server and IoT gateway specifically designed for industrial environments. It integrates multiple functions, including serial device server, Modbus gateway, MQTT gateway, RS485-to-JSON gateway, and virtual COM port device tool. The device features 4 RS485 ports and an RJ45 Ethernet port, offering reliable connectivity. Its compact design supports Din-rail installation, ensuring ease of deployment, while the terminal power supply allows for a wide power voltage input range of 10~30VDC. The NPS5431A presents a cost-effective and space-efficient solution compared to standard products.

-25~70°C **Windows 10** **Windows 11** **Modbus** **MQTT**

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

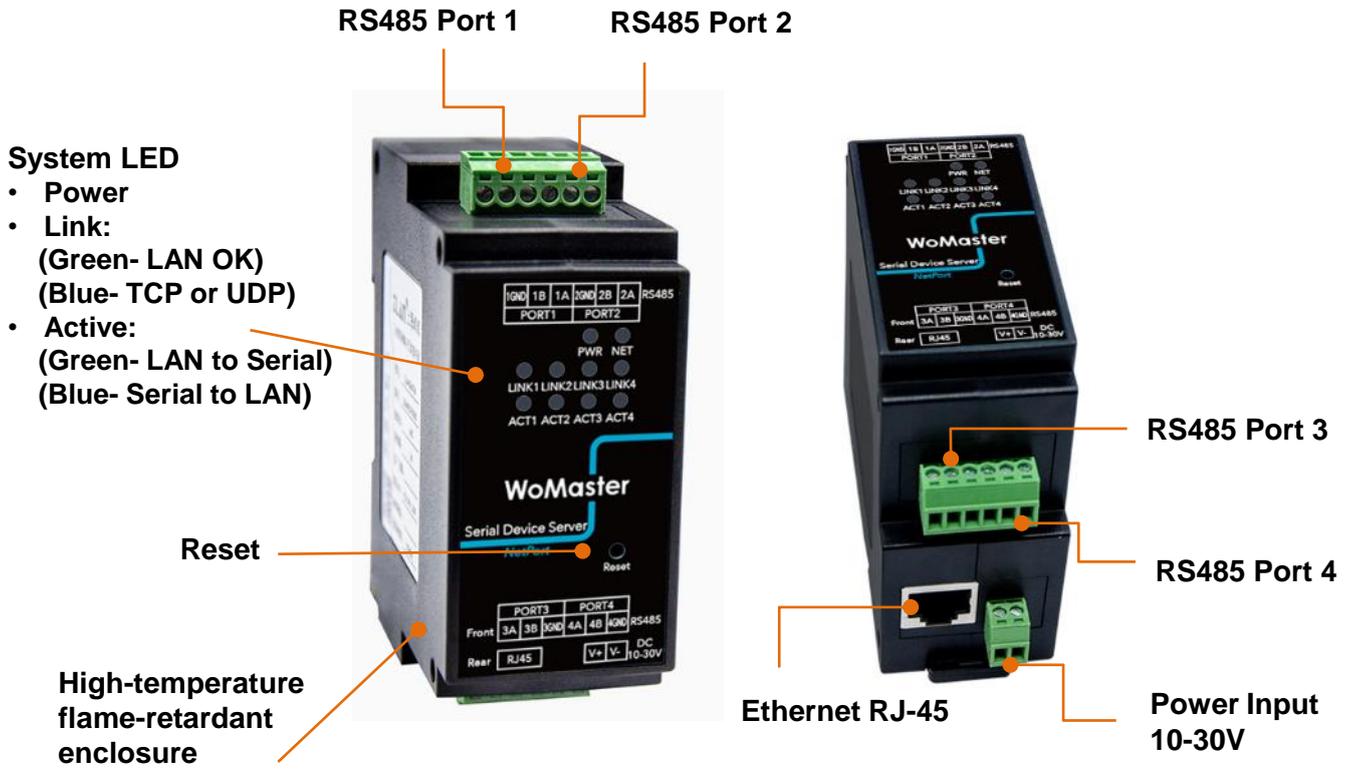• Support Virtual COM Software tool

Serial Interface

• One RS485 terminal with RS485-A, RS485-B, 2-Wires, up to 32 devices

• Baud Rate Support – 300bps ~115200bps, 5-9bits

• Parity Check – None, Odd, Even, Mark, Space

Industrial Application

• DC 10~30V Power Input, Terminal Connector

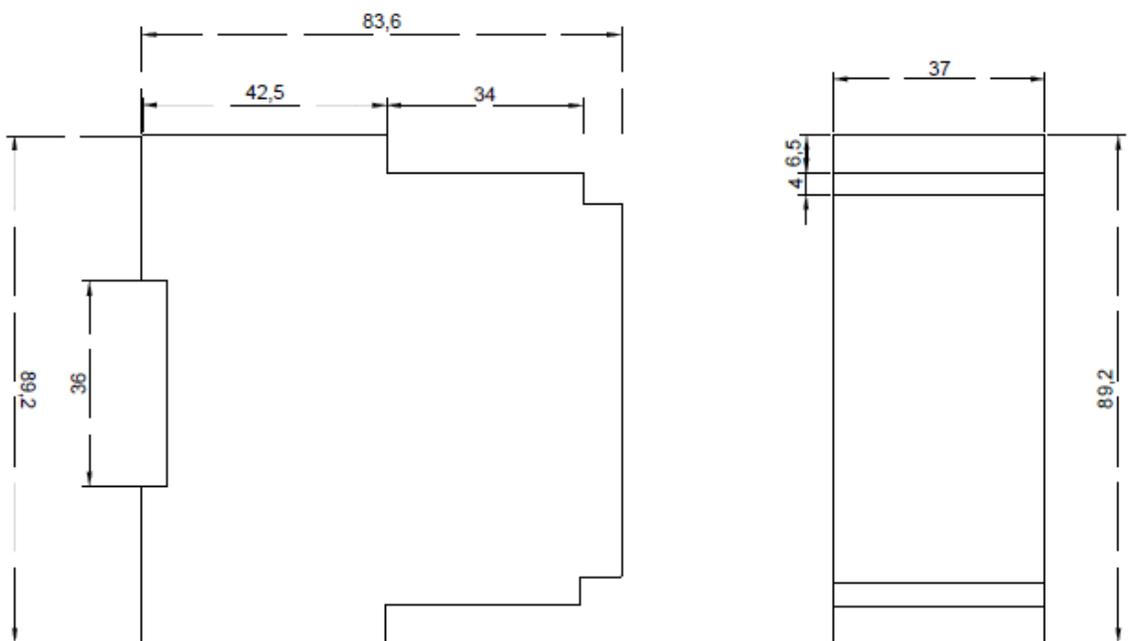• -25~75°C / 5~95% RH Environment Operating Temperature

Interfaces

RS485 Port 1   **RS485 Port 2**

System LED
- Power
- Link:
  (Green- LAN OK)
  (Blue- TCP or UDP)
- Active:
  (Green- LAN to Serial)
  (Blue- Serial to LAN)

Reset

High-temperature flame-retardant enclosure

RS485 Port 3

RS485 Port 4

Ethernet RJ-45

Power Input 10-30V

Dimensions

37 (w) x 89.2 (H) x 83.6 (D) (mm)

Features & Benefits

✓ Virtual COM Device Discovery and Management

Virtual Serial & Device Management - VirCom

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

Start | Stop | Device | Serial | About

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

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:
- Dev Name: DEV0001
- Dev ID: 2878A1282BD3 [...]
- MAC Addr: 04EEE8182BEB P
- 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

Network
- IP Mode: Static (Static / DHCP)
- IP Address:
- 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)
- Reconnet Time: 12 (s)
- Http Port: 80
- UDP Group IP: 230 . 90 . 76 . 1
- ☐ Register Pkt: ☐ 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)

Get Default | Save As Defaul | Load Default | Modify Key | Firmware/Config | Restar Dev | Modify Setting | Cancel

Save Setting

✓ 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

DevID: 2875FC662A2F   Bind ID

Flash size: 256   KB

Please close any other configuration window before downloading.

Download

Advanced Settings
- DNS Server IP: 8 . 8 . 4 . 4
- Dest. Mode: Dynamic
- Transfer Protocol: Modbus_TCP Protocol (None / Modbus_TCP Protocol / REAL_COM Protocol / TELNET Protocol)
- Keep Alive Time:
- Reconnet Time:
- Http Port: 80
- UDP Group IP: 230 . 90 . 76 . 1
- ☐ Register Pkt: ☐ 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 (Auto query storage type / Multi-host non-storage type / Device Client & Slave mode / Simple Modbus TCP to RTU / Pre-configable Modbus GW)

Modbus RTU or ASCII:

☑ Enable RS485 Multi-Hos
Maximum wait time of R
for 196   ms(0~8191)

☑ Enable RS485 bus conflict detection
Send data only when RS485 bus is idle for 20   ms

✓ Web Configuration

Device Information
- Device Name: DEV0001
- Device MAC: 04-CE-C6-16-2B-CB
- Firmware Version: V1.535

Serial Settings
- Baudrate: 9600
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

Multi-Master Settings
- Protocol: None
- Response Timeout: 0   32~5000ms
- Multi-Master: Disable
- transmit Delay: 20   0~20ms

NOTE:When the multi master is disabled, the response timeout will always be 0. This 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   9~1270 s
- Re-connect Time: 12   1~255 s

Modify Web Password
- New Password:
- Confirm Password:

Submit

www.womaster.eu   3.

⚙ Specifications

Network Interface

Ethernet	10/100M Ethernet 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: 300~921600bps, 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 *read* and *write*.

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	IP40
Dimension	87x36x59mm (LxWxH), Packing Box160x123x79mm, 52pcs per Carton

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

🛒 Ordering Information

Model	Description
NPS5431A	4 Port Din-Rail RS485 Device Server, Modbus, MQTT Gateway, 10~30Vdc