USR IOT

Communication
Expert of Industrial IOT



USR-N510 Datasheet

1-Port Serial to Ethernet Converter

Build a Smarter IOT world, Your Trustworthy Partner

USR-N510 is 1-port serial to Ethernet converter. It adopts Cortex-M7 solution,which has a main frequency up to 400MHz, powerful performance, fast transmission speed, and high reliability. Equipped with a deeply optimized TCP/IP stack, built in hardware and software watchdog and a variety of keepalive mechanisms,USR-N510 keeps online all the time. It supports TCP Client, TCP Server, UDP Client, UDP Server and HTTPD Client working modes, achieves data transparent transmission via simple configuration.

The USR-N510 supports Modbus RTU Master for retrieving field site data from serial meters. After collecting data, users can convert serial data to MQTT json format data, allowing users to get field site data. This two-in-one design reduces system complexity and the amount of space required in the network topology, as well as overall installation time.

✧ New Solution

New ARM core, Cortex-M7 solution, equipped with deeply optimized TCP/IP protocol stack. It has low latency and strong scalability, stable and reliable.

✧ Modbus Gateway

It supports Modbus TCP and Modbus RTU protocol mutual conversion, multi-host polling function.

✧ Industrial Grade Design

The device conforms to industrial design standards. Reliable EMC protection and -40~85℃ operating temperature make it endure various complex industrial scenarios.

✧ Dual Sockets

Each serial port supports connecting to two different servers at the same time. Two sockets are mutually backed up, providing higher reliability and better flexibility.

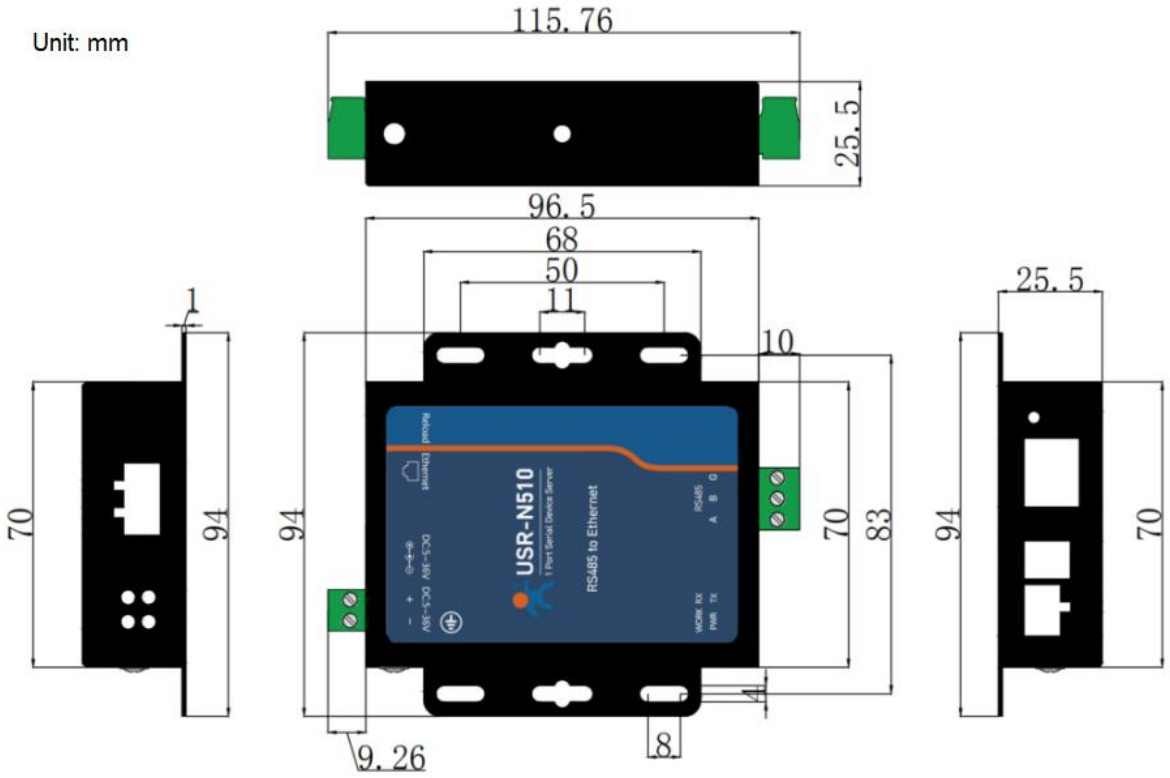
Features

- High-performance CPU processing ability,using 32-bit Arm Cortex-M7 core CPU, up to 400MHz frequency
- Supports 5-36V wide voltage input, with reverse polarity protection.
- Supports Modbus RTU to Modbus TCP protocol conversion.
- Supports keepalive mechanism to quickly detect the dead connections and reconnect.
- Supports hardware watchdog, automatically restarts when the device goes down.
- Provides remote serial access over the Internet for industrial serial devices
- 10/100Mbps Ethernet port and support Auto MDI/MDIX
- Software selectable RS-232/422/485 3-in-1 serial port(N5X0 models)
- Rugged metal housing with IP30 protection for wall or optional DIN-Rail mount
- Built-in 15KV ESD serial port protection
- Supports a wide industrial operating temperature,-40℃~85℃

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- Flexible serial port data framing setting, which can satisfy user's various demands for data packets segmentation
- Versatile operation modes: TCP Server, TCP Client, UDP, HTTP client, Websocket server
- Support virtual COM ,COM Port Redirector USR-VCOM(windows)
- Firmware upgrading via Web Browser and Windows configuration tool
- Easy-to-use Windows configuration tool for auto discovery, multiple device setting and monitoring
- Choice of power input: AC-DC adapter(DC Jack) or DC direct(Terminal Block)
- High security via certificate verification SSL/TLS encryption for secure data transmission,HTTPS,TCPS,MQTTS
- Support modbus RTU master,edge computing, modbus gateway,MQTT gateway
- Cloud support: MQTT via AWS IOT, Thingsboard, Alibaba Cloud, EMQX, Tuya,Cumulocity IoT and so on

Dimensions



- Metal shell, panel mounting.
- Dimensions: 115.7*94.0*25.5mm (L*W*H, including terminals and mounting ears)

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Specifications

Item	Parameter	Description
Hardware Parameters	Input Voltage	DC 5.0~36.0V
	Input Current	Mean: 95mA@5V 66.7mA@12V
	Dimensions	115.7*94.0*25.5mm (L*W*H, including terminals and mounting ears)
	Installation	Panel mounting
	Ground Screw	1
	Operating Temperature	-40~85℃
	Storage Temperature	-40~105℃
	Operating Humidity	5%～95% RH(non-condensing)
	Storage Humidity	5%～95% RH(non-condensing)
	Certifications	CE/FCC/ROHS
Interface Parameters	Ethernet Port Spec.	RJ45, 10/100Mbps, auto MDI/MDIX
	Ethernet Port No.	1
	Serial signals	RS-232: TxD, RxD, RTS, CTS, GND RS-422: Tx+, Tx-, Rx+, Rx-, GND RS-485-2w: A+, B-, GND
	Serial Port No.	1
	Serial Baud Rate	600~921.6k(bps)
	Data Bit	7, 8
	Parity	None, Even, Odd, Mark,Space
	Flow Control	None, RTS/CTS (RS-232 only), XON/XOFF
	RS-485 Pull-up and Pull-down Resistor	2.2KΩ
Hardware Protection	ESD-IEC61000-4-2 Level 4	Air±15KV, contact±8KV
	Surge-IEC61000-4-5 level 3	±2KV
	EFT-IEC61000-4-4 Level 3	±2KV
Software	Network protocols	TCP,UDP,IPV4,ARP,ICMP,DHCP,NTP,HTTP,TLS/SSL V3,DNS,IGMP,SNMP V1/V2C,MQTT
	IP Mode	Static IP, DHCP
	Modbus Gateway	Support
	Websocket	Support
	HTTP Client	Support
	UDP	Support

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Parameters	Broadcast/Mulitcast	
	User Configuring	Windows Utility, web console(HTTP), AT commands
	Serial Packets Cache	Dynamic packet cache. For example: When the packet length is 10 byte, the serial port can cache 450 packets(4.5KB). When the packet length is 1460 bytes, the serial port can cache 10 packets(14.6KB).
	Ethernet Packets Cache	48Kbyte

Ordering Guide

Model	Serial standards	Connector	Serial signals
USR-N510-H7	RS232/RS485/RS422	Standard DB9 male	RS232/485/422×1: RXD, TXD, GND, RTS, CTS,T+(A+), T-(B-), R+, R-
USR-N510-H7-4	RS485	3Pin industrial terminal	RS485-2W: A(+), B(-), GND

Purchase & Support

For more information please visit our websites:

- Official website：https://pusr.com
- Official shop：https://shop.usriot.com
- Technical support： http://h.usriot.com/

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