# NTP001

NTP SERVER




Energy & utilities

Enterprise

Industrial & automation

Retail

Smart city

## NETWORK TIME SYNCHRONIZATION

Accurate & low-cost NTP server

## MULTIPLE INTERFACES

Featuring RJ45, RS232, RS485 & I/Os

## SECURITY

Authentication, access control & more

## PLUG-AND-PLAY

Simple installation & configuration at minimum effort

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| Ethernet | |
|---|---|
| LAN | 1 x LAN port, 10/100 Mbps, compliance with IEEE 802.3, IEEE 802.3u, 802.3az standards, supports auto MDI/MDIX crossover |

| Network | |
|---|---|
| Network protocols | TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, SSL/TLS, ARP, SSH, DHCP, SNMP, MQTT |
| Connection monitoring | Ping Reboot, Wget Reboot, Periodic Reboot |
| Network topology | Visual representation of your network, showing which devices are connected to which other devices |
| DDNS | Supported >77 service providers, others can be configured manually |

| Security | |
|---|---|
| Authentication | Pre-shared key, digital certificates, X.509 certificates, TACACS+, Internal & External RADIUS users authentication, IP & login attempts block, time-based login blocking, built-in random password generator |
| WEB filter | Block list for blocking out unwanted websites, allow list for specifying allowed sites only |
| Access control | Flexible access control of SSH, Web interface, CLI and Telnet |
| 802.1x | Port-based network access control client |

| MQTT Gateway | |
|---|---|
| Modbus MQTT Gateway | Allows sending commands and receiving data from MODBUS Server through MQTT broker |

| MODBUS | |
|---|---|
| Supported modes | Server, Client |
| Supported connection types | RTU (RS232, RS485), TCP |
| Custom registers | MODBUS TCP custom register block requests, which read/write to a file inside the router, and can be used to extend MODBUS TCP Client functionality |
| Supported data formats | 8-bit: INT, UINT; 16-bit: INT, UINT (MSB or LSB first); 32-bit: float, INT, UINT (ABCD (big-endian), DCBA (little-endian), CDAB, BADC), HEX, ASCII |

| TIME SYNCHRONIZATION | |
|---|---|
| Acquisition Sensitivity | Acquisition Sensitivity -146 dBm, Reacquisition Sensitivity -157 dBm, Tracking Sensitivity -157 dBm |
| Time Source | GPS 1575.42 ±1.023 MHz, GLONASS 1597.5–1605.8 MHz, Galileo 1575.42 ±2.046 MHz, BDS 1561.098 ±2.046 MHz |
| Startup | Cold GPS acquisition in <120 seconds |

| API | |
|---|---|
| Teltonika Networks Web API (beta) support | Expand your device's possibilities by using a set of configurable API endpoints to retrieve or change data. For more information, please refer to this documentation: https://developers.teltonika-networks.com |

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| Monitoring & Management | |
|---|---|
| WEB UI | HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, multiple event log servers, firmware update availability notifications, event log, system log, kernel log, Internet status |
| SSH | SSH (v1, v2) |
| SNMP | SNMP (v1, v2, v3), SNMP Trap, Brute force protection |
| JSON-RPC | Management API over HTTP/HTTPS |
| MODBUS | MODBUS TCP status/control |

| System Characteristics | |
|---|---|
| CPU | Mediatek, 580 MHz, MIPS 24KEc |
| RAM | 128 MB, DDR2 |
| FLASH storage | 16 MB, NOR Flash |

| Firmware/Configuration | |
|---|---|
| WEB UI | Update FW from file, check FW on server, configuration profiles, configuration backup |
| Keep settings | Update FW without losing current configuration |
| Factory settings reset | A full factory reset restores all system settings, including the IP address, PIN, and user data to the default manufacturer's configuration |

| FIRMWARE CUSTOMISATION | |
|---|---|
| Operating system | RutOS (OpenWrt based Linux OS) |
| Supported languages | Busybox shell (ash), Lua 5.1, C, C++ |
| Development tools | SDK package with build environment provided |
| GPL customization | You can create your own custom, branded firmware and web page application by changing colours, logos, and other elements in our firmware to fit your or your clients' needs |

| Serial | |
|---|---|
| RS232 | Terminal block connector: TX, RX, RTS, CTS |
| RS485 | Terminal block connector: D+, D-, R+, R- (2 or 4 wire interface) |

| Input/Output | |
|---|---|
| Input | 3 x Digital Input, 0 - 6 V detected as logic low, 1 x Analog input, 8 - 30 V detected as logic high |
| Output | 3 x Digital Output, Open collector output, max output 30 V, 300 mA |

| Power | |
|---|---|
| Connector | 2-pin in 16-pin industrial terminal block |
| Input voltage range | 9 - 30 VDC, Overvoltage protection, Reverse polarity protection, Surge protection +/- 1kV 50 uS Max |
| Power consumption | Idle: < 2 W, Max: < 3.5 W |

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**Physical Interfaces**

| | |
|---|---|
| Ethernet | 1 x RJ45 ports, 10/100 Mbps |
| I/O's | 3 x Configurable I/O, 1 x Analog input in 16-pin terminal block |
| Status LEDs | 1 x Power, 2x GNSS status LEDs, 1x NTP Server status LED, 3 x IO status LEDs |
| Power | 1 x 16-pin terminal block |
| Antennas | 1 x SMA for GNSS |
| RS232 | 4-pin in 16-pin terminal block (TX, RX, RTS, CTS) |
| RS485 | 4-pin in 16-pin terminal block (D+, D-, R+, R-) |
| Reset | Reboot/User default reset/Factory reset button |

**Physical Specification**

| | |
|---|---|
| Casing material | Anodised aluminium housing and panels |
| Dimensions (W x H x D) | 83 x 25 x 82.6 mm |
| Weight | 180 g |
| Mounting options | DIN rail, wall mount, flat surface (all require additional kit) |

**Operating Environment**

| | |
|---|---|
| Operating temperature | -40 °C to 75 °C |
| Operating humidity | 10% to 90% non-condensing |
| Ingress Protection Rating | IP30 |

**NTP**

| | |
|---|---|
| Supported modes | Server - Receive time from GPS and act as a NTP server to broadcast time for other devices (Stratum 1). Broadcast time through UDP or over Serial (RS232, RS485) |
| Daytime Protocol | TCP/UDP |
| Date over Serial | RS232/RS485 |
| NTP | NTPv4, NTP authentication (MD5/SHA1), Unicast/Multicast/Broadcast mode |
| Protocol | NTP Stratum 1 Time Server (NTPv4) |
| NTP Accuracy | Ethernet NTP ±1ms overall |
| NTP Performance | >300 NTP requests per second (wire speed) |
| Synchronization Accuracy | LAN synchronization typically 1–10ms |

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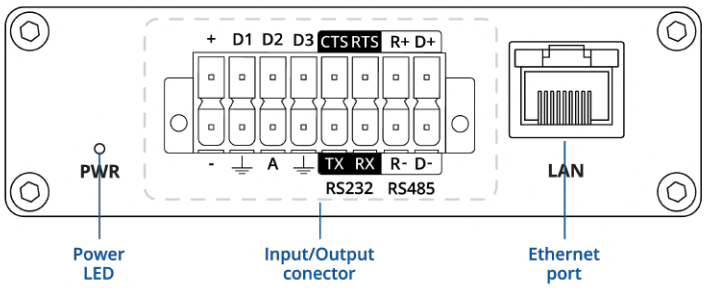
## Certification

| | |
|---|---|
| EMEA | NTP001 CE/RED<br>NTP001 UKCA<br>NTP001 RoHS<br>NTP001 REACH<br>NTP001 Kenya<br>NTP001 ICASA<br>NTP001 ANRT |
| APAC | NTP001 RCM |
| MISCELLANEOUS | NTP001 CB Scheme |
| SAFETY & ENVIROINMENTAL | NTP001 WEEE |

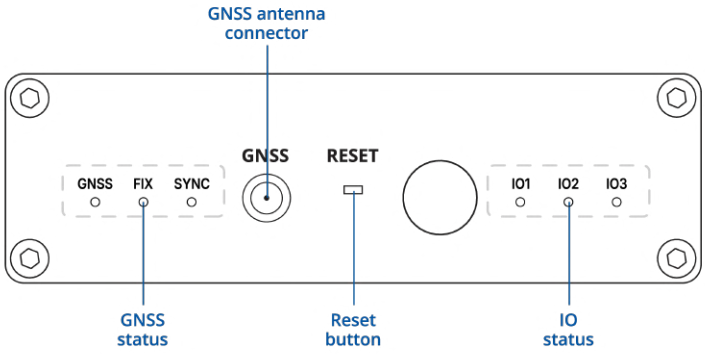
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# Hardware

### FRONT VIEW

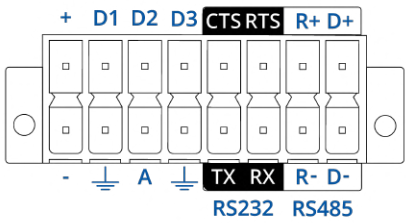



### BACK VIEW




### INPUT/OUTPUT CONNECTOR PINOUT

**D1, D2, D3** - Configurable digital Input/Output pins. Open collector output, max output 30 V, 300 mA or Digital input where 0-6 V detected as logic low and 8-30 V – logic high.
**+** - 9-30 VDC positive power pin
**CTS** - RS232 clear data to send pin (output).
**RTS** - RS232 request data to send pin (input).
**R+** - RS485 receiver positive signal pin.
**D+** - RS485 driver positive signal pin.
**-** - Negative/ground power pin.
⏚ - Ground pins for D1, D2, D3, A, RS232 and RS485.
**A** - Analog input pin. Analog voltage range 0-30 V.
**TX** - RS232 transmitted data (input).
**RX** - RS232 received data (output).
**R-** - RS485 receiver negative signal.
**D-** - RS485 driver negative signal.




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## Ordering

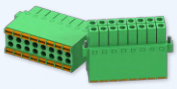
**Standard package***



NTP001



QUICK START GUIDE



2X8PIN CONNECTOR

*Standard package contents may differ based on standard order codes.

For more information on all available packaging options – please contact us directly.

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## Classification codes

**HS Code:** 851762
**HTS:** 8517.62.00

For more information on all available packaging options – please contact us directly.

## Available versions

| Hardware version | Supported frequencies | Standard order code / Package Contains |
|---|---|---|
| NTP001 **0******* | N/A | NTP001000000 / Standard package<br>NTP001000200 / Mass packing code |

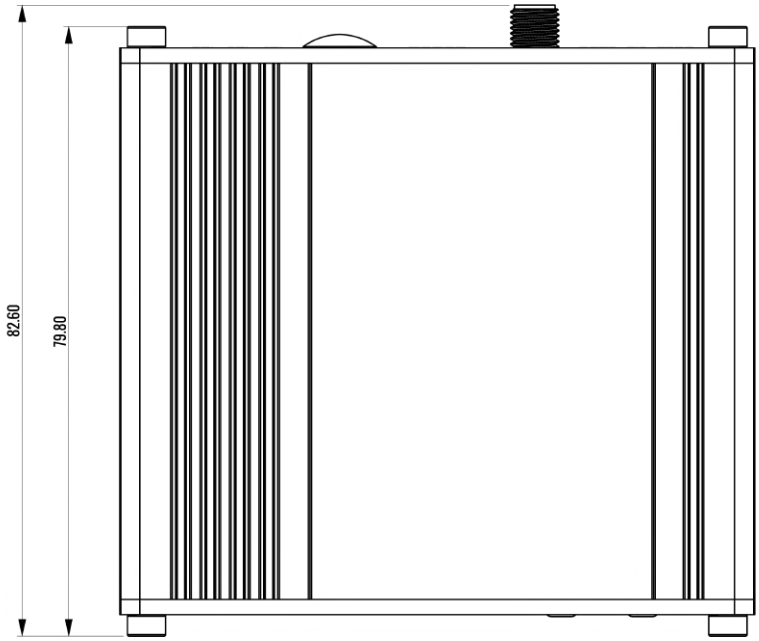
## NTP001 spatial measurements

| Available versions | |
|---|---|
| Box (W x H x D): | 111 x 31 x 89 mm |
| Device housing (W x H x D) | 83 x 25 x 82.6 mm |

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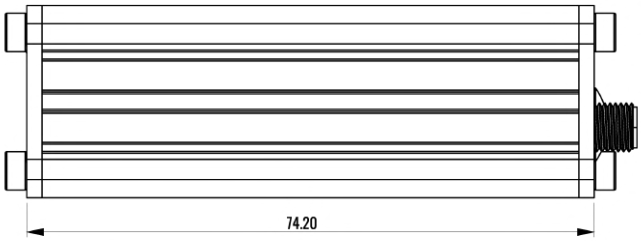
### TOP VIEW

The figure below depicts the measurements of device and its components as seen from the top:



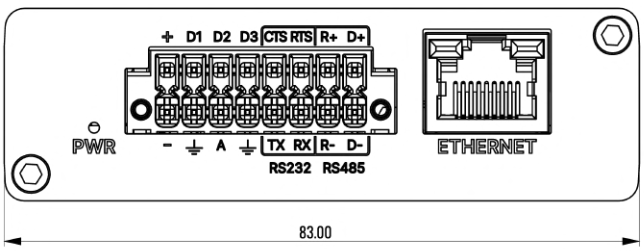

### RIGHT VIEW

The figure below depicts the measurements of device and its components as seen from the right:




### FRONT VIEW

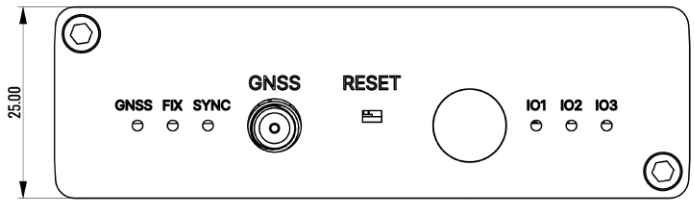
The figure below depicts the measurements of device and its components as seen from the front panel side:




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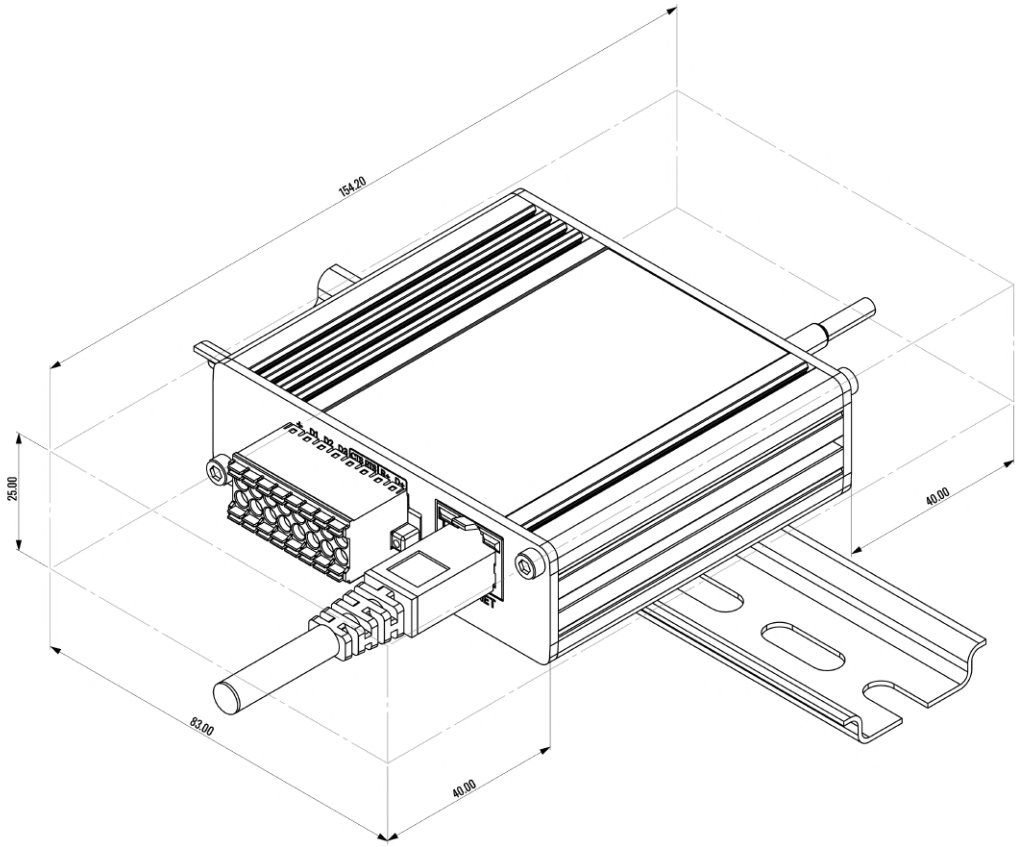
## REAR VIEW

The figure below depicts the measurements of device and its components as seen from the back panel side:




## MOUNTING SPACE REQUIREMENTS

The figure below depicts an approximation of the device's dimensions when cables and antennas are attached:




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