TELTONIKA

# RUT906

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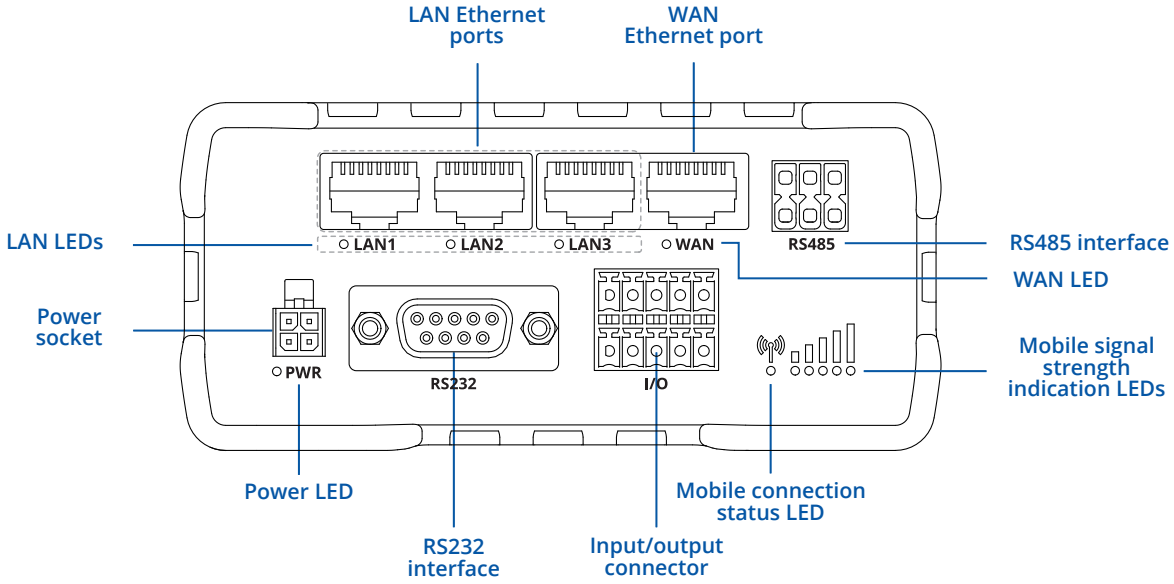
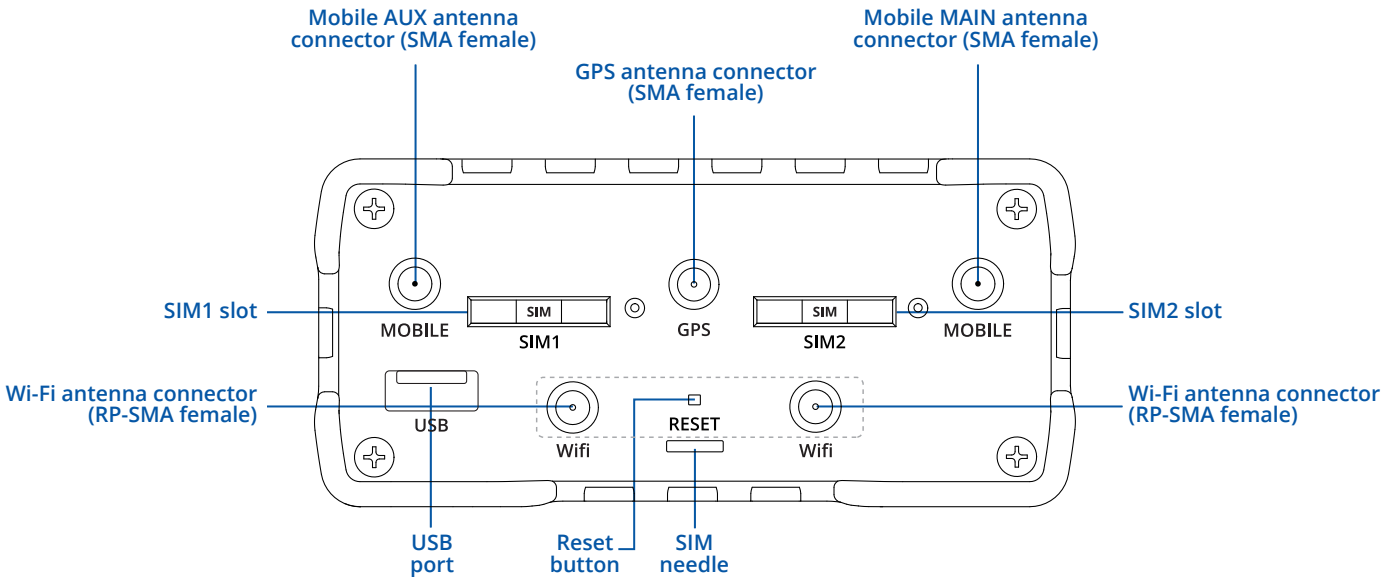
# HARDWARE

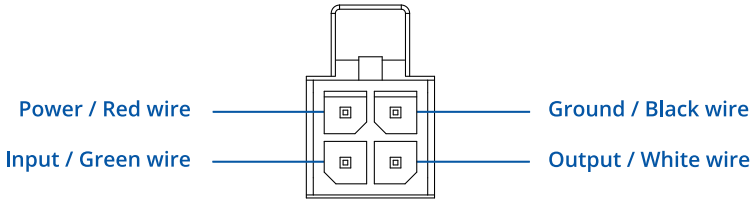
## FRONT VIEW




## BACK VIEW




## POWER SOCKET PINOUT

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# FEATURES

## MOBILE

| | |
|---|---|
| Mobile module | 4G LTE Cat 4 up to 150 DL/50 UL Mbps; 3G up to 21 DL/5.76 UL Mbps; 2G up to 236.8 DL/236.8 UL kbps |
| 3GPP Release | Release 9 |
| 3GPP Release | Release 10/11 depending on the hardware version |
| SIM switch | 2 SIM cards, auto-switch cases: weak signal, data limit, SMS limit, roaming, no network, network denied, data connection fail, SIM idle protection |
| Status | IMSI, ICCID, operator, operator state, data connection state, network type, bandwidth, connected band, signal strength (RSSI), SINR, RSRP, RSRQ, EC/IO, RSCP, data sent/received, LAC, TAC, cell ID, ARFCN, UARFCN, EARFCN, MCC, and MNC |
| SMS | SMS status, SMS configuration, send/read SMS via HTTP POST/GET, EMAIL to SMS, SMS to EMAIL, SMS to HTTP, SMS to SMS, scheduled SMS, SMS autoreply, SMPP |
| USSD | Supports sending and reading Unstructured Supplementary Service Data messages |
| Black/White list | Operator black/white list (by country or separate operators) |
| Band management | Band lock, Used band status display |
| SIM idle protection service | When working with devices with two SIM slots, the one not currently in use will remain idle until the device switches to it, meaning that no data is used on the card until then |
| SIM PIN code management | SIM PIN code management enables setting, changing, or disabling the SIM card's PIN |
| APN | Auto APN |
| Bridge | Direct connection (bridge) between mobile ISP and device on LAN |
| Passthrough | Router assigns its mobile WAN IP address to another device on LAN |

## WIRELESS

| | |
|---|---|
| Wireless mode | 802.11b/g/n (Wi-Fi 4), Access Point (AP), Station (STA) |
| Wi-Fi security | WPA2-Enterprise - PEAP, WPA2-PSK, WPA-EAP, WPA-PSK, WPA3-SAE, WPA3-EAP, OWE; AES-CCMP, TKIP, Auto-cipher modes, client separation, EAP-TLS with PKCS#12 certificates, disable auto-reconnect |
| SSID/ESSID | ESSID stealth mode |
| Wi-Fi users | Up to 100 simultaneous connections |
| Wireless Connectivity Features | Fast roaming (802.11r), Relayd, BSS transition management (802.11v), radio resource measurement (802.11k) |
| Wireless MAC filter | Whitelist, blacklist |
| Wireless QR code generator | Once scanned, a user will automatically enter your network without needing to input login information |

## ETHERNET

| | |
|---|---|
| WAN | 1 x WAN port 10/100 Mbps, compliance IEEE 802.3, IEEE 802.3u, 802.3az standards, supports auto MDI/MDIX |
| LAN | 3 x LAN ports, 10/100 Mbps, compliance IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX |

## NETWORK

| | |
|---|---|
| Routing | Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2, EIGRP, NHRP), Policy based routing |
| Network protocols | TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, SFTP, FTP, SMTP, SSL/TLS, ARP, VRRP, PPP, PPPoE, UPNP, SSH, DHCP, Telnet, SMPP, SNMP, MQTT, Wake On Lan (WOL) |
| VoIP passthrough support | H.323 and SIP-alg protocol NAT helpers, allowing proper routing of VoIP packets |
| Connection monitoring | Ping Reboot, Wget Reboot, Periodic Reboot, LCP and ICMP for link inspection |
| Firewall | Port forward, traffic rules, custom rules |
| Firewall status page | View all your Firewall statistics, rules, and rule counters |
| Ports management | View device ports, enable and disable each of them, turn auto-configuration on or off, change their transmission speed, and so on |
| Network topology | Visual representation of your network, showing which devices are connected to which other devices |
| Hotspot | Captive portal (hotspot), internal/external Radius server, Radius MAC authentication, SMS authorisation, SSO authentication, internal/external landing page, walled garden, user scripts, URL parameters, user groups, individual user or group limitations, user management, 9 default customisable themes and optionality to upload and download customised hotspot themes |
| DHCP | Static and dynamic IP allocation, DHCP relay, DHCP server configuration, status, static leases: MAC with wildcards |
| QoS / Smart Queue Management (SQM) | Traffic priority queuing by source/destination, service, protocol or port, WMM, 802.11e |
| DDNS | Supported >25 service providers, others can be configured manually |
| DNS over HTTPS | DNS over HTTPS proxy enables secure DNS resolution by routing DNS queries over HTTPS |
| Network backup | Wi-Fi WAN, Mobile, VRRP, Wired options, each of which can be used as an automatic Failover |
| Load balancing | Balance Internet traffic over multiple WAN connections |
| SSHFS | Possibility to mount remote file system via SSH protocol |

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## 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 |
| Firewall | Pre-configured firewall rules can be enabled via WebUI, unlimited firewall configuration via CLI; DMZ; NAT; NAT-T |
| Attack prevention | DDOS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPS attack prevention), port scan prevention (SYN-FIN, SYN-RST, X-mas, NULL flags, FIN scan attacks) |
| VLAN | Port and tag-based VLAN separation |
| Mobile quota control | Mobile data limit, customizable period, start time, warning limit, phone number |
| WEB filter | Blacklist for blocking out unwanted websites, Whitelist for specifying allowed sites only |
| Access control | Flexible access control of SSH, Web interface, CLI and Telnet |
| SSL certificate generation | Let's encrypt support |

## VPN

| | |
|---|---|
| OpenVPN | Multiple clients and a server can run simultaneously, 27 encryption methods |
| OpenVPN Encryption | DES-CBC 64, RC2-CBC 128, DES-EDE-CBC 128, DES-EDE3-CBC 192, DESX-CBC 192, BF-CBC 128, RC2-40-CBC 40, CAST5-CBC 128, RC2-64-CBC 64, AES-128-CBC 128, AES-128-CFB 128, AES-128-CFB1 128, AES-128-CFB8 128, AES-128-OFB 128, AES-128-GCM 128, AES-192-CFB 192, AES-192-CFB1 192, AES-192-CFB8 192, AES-192-OFB 192, AES-192-CBC 192, AES-192-GCM 192, AES-256-GCM 256, AES-256-CFB 256, AES-256-CFB1 256, AES-256-CFB8 256, AES-256-OFB 256, AES-256-CBC 256 |
| IPsec | XFRM, IKEv1, IKEv2, with 14 encryption methods for IPsec (3DES, DES, AES128, AES192, AES256, AES128GCM8, AES192GCM8, AES256GCM8, AES128GCM12, AES192GCM12, AES256GCM12, AES128GCM16, AES192GCM16, AES256GCM16) |
| GRE | GRE tunnel, GRE tunnel over IPsec support |
| PPTP, L2TP | Client/Server instances can run simultaneously, L2TPv3, L2TP over IPsec support |
| Stunnel | Proxy designed to add TLS encryption functionality to existing clients and servers without any changes in the program's code |
| DMVPN | Method of building scalable IPsec VPNs |
| SSTP | SSTP client instance support |
| ZeroTier | ZeroTier VPN client support |
| WireGuard | WireGuard VPN client and server support |
| Tinc | Tinc offers encryption, authentication and compression in it's tunnels. Client and server support |

## BACNET

| | |
|---|---|
| Supported connection types | RS485, TCP |
| Supported modes | Router |

## OPC UA

| | |
|---|---|
| Supported modes | Client, Server |
| Supported connection types | TCP |

## MODBUS

| | |
|---|---|
| Supported modes | Server, Client |
| Supported connection types | RTU (RS232, RS485), TCP, USB |
| 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 |

## DATA TO SERVER

| | |
|---|---|
| Protocol | HTTP(S), MQTT, Azure MQTT, Kinesis |
| Data to server | Extract parameters from multiple sources and different protocols, and send them all to a single server; Custom LUA scripting, allowing scripts to utilize the router's Data to server feature |

## MQTT GATEWAY

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

## DLMS

| | |
|---|---|
| DLMS Support | DLMS - standard protocol for utility meter data exchange |
| Supported modes | Client |
| Supported connection types | RS232, RS485, TCP |

## 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 |
| FOTA | Firmware update from server, automatic notification |
| SSH | SSH (v1, v2) |
| SMS | SMS status, SMS configuration, send/read SMS via HTTP POST/GET |
| Call | Reboot, Status, Mobile data on/off, Output on/off, answer/hang-up with a timer, Wi-Fi on/off |
| TR-069 | OpenACS, EasyCwmp, ACSLite, tGem, LibreACS, GenieACS, FreeACS, LibCWMP, Friendly tech, AVSystem |
| MQTT | MQTT Broker, MQTT publisher |
| SNMP | SNMP (v1, v2, v3), SNMP Trap, Brute force protection |
| JSON-RPC | Management API over HTTP/HTTPS |
| MODBUS | Teltonika Remote Management System (RMS) |

## IoT PLATFORMS

| | |
|---|---|
| Clouds of things | Allows monitoring of: WAN Type, WAN IP, Mobile Operator Name, Mobile Signal Strength, Mobile Network Type |
| ThingWorx | Allows monitoring of: Device Model, Revision and Serial Number, WAN Type and IP, Mobile Cell ID, ICCID, IMEI, Connection Type, Operator, Signal Strength. Has reboot and firmware upgrade actions |
| Cumulocity | Can be configured with Data to Server to send all the available parameters to the cloud. Has Direct method support which allows to execute RutOS API calls on the IoT Hub. Also has Plug and Play integration with Device Provisioning Service that allows zero-touch device provisioning to IoT Hubs |

## SYSTEM CHARACTERISTICS

| | |
|---|---|
| CPU | Mediatek, 580 MHz, MIPS 24KEc |
| RAM | 128 MB, DDR2 |
| FLASH storage | 16 MB, SPI Flash |

## FIRMWARE / CONFIGURATION

| | |
|---|---|
| WEB UI | Update FW from file, check FW on server, configuration profiles, configuration backup |
| FOTA | Update FW |
| RMS | Update FW/configuration for multiple devices at once |
| 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, Lua, C, C++, and Python, Java in Package manager |
| 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 |
| Package Manager | The Package Manager is a service used to install additional software on the device |

## LOCATION TRACKING

| | |
|---|---|
| GNSS | GPS. (GLONASS, BeiDou, Galileo and QZSS - under development) |
| Coordinates | GNSS coordinates via WebUI, SMS, TAVL, RMS |
| NMEA | NMEA 0183 |
| NTRIP | NTRIP protocol (Networked Transport of RTCM via Internet Protocol) |
| Server software | Supported server software TAVL, RMS |
| Geofencing | Configurable multiple geofence zones |

## SERIAL

| | |
|---|---|
| RS232 | DB9 connector, RS232 (with RTS, CTS flow control), 300 to 115200 baud rate |
| RS485 | RS485 Full Duplex (4 wires) and Half-Duplex (2 wires), 300-230400 baud rate |
| Serial functions | Console, Serial over IP, Modem |

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## USB

| | |
|---|---|
| Data rate | USB 2.0 |
| Applications | Samba share, USB-to-serial |
| External devices | Possibility to connect external HDD, flash drive, additional modem, printer, USB-serial adapter |
| Storage formats | FAT, FAT32, exFAT, NTFS (read-only), ext2, ext3, ext4 |

## INPUT / OUTPUT

| | |
|---|---|
| Input | 1 x digital dry input (0 - 3 V), 1 x digital galvanically isolated input (0 - 30 V), 1 x analog input (0 - 24 V), 1 x Digital non-isolated input (on 4-pin power connector, 0 - 5 V detected as logic low, 8 - 30 V detected as logic high) |
| Output | 1 x digital open collector output (30 V, 250 mA), 1 x SPST relay output (40 V, 4 A), 1 x Digital open collector output (30 V, 300 mA, on 4-pin power connector) |
| Events | Email, RMS, SMS |
| I/O juggler | Allows to set certain I/O conditions to initiate event |

## SD CARD

| | |
|---|---|
| Physical size | Micro SD (internal) |
| Applications | Samba share, Storage Memory Expansion, DLNA |
| Capacity | Up to 64 GB |
| Storage Formats | FAT32, NTFS, ext2, ext3, ext4 |

## POWER

| | |
|---|---|
| Connector | 4-pin industrial DC power socket |
| Input voltage range | 9 – 30 VDC, reverse polarity protection; surge protection >31 VDC 10us max |
| PoE (passive) | Passive PoE over spare pairs. Possibility to power up through LAN1 port, not compatible with IEEE802.3af, 802.3at and 802.3bt standards, Mode B, 9 - 30 VDC |
| Power consumption | < 2 W idle, < 7 W Max |

## PHYSICAL INTERFACES

| | |
|---|---|
| Ethernet | 4 x RJ45 ports, 10/100 Mbps |
| I/O's | 2 x Inputs and 2 x Outputs on 10-pin industrial socket, 1 x Digital input and 1 x Digital output on 4-pin power connector |
| Status LEDs | 1 x Bi-color connection status, 5 x Mobile connection strength, 4 x ETH status, 1 x Power |
| SIM | 2 x SIM slots (Mini SIM - 2FF), 1.8 V/3 V, external SIM holders, eSIM (Optional) |
| Power | 1 x 4-pin power connector |
| Input/output | 1 x 10-pin industrial socket for inputs/outputs |
| Antennas | 2 x SMA for LTE, 2 x RP-SMA for Wi-Fi, 1 x SMA for GNSS |
| USB | 1 x USB A port for external devices |
| RS232 | 1 x DB9 socket |
| RS485 | 1 x 6-pin industrial socket |
| Reset | Reboot/User default reset/Factory reset button |

## PHYSICAL SPECIFICATION

| | |
|---|---|
| Casing material | Aluminium housing, plastic panels |
| Dimensions (W x H x D) | 109.5 x 50 x 100 mm |
| Weight | 295 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 |

## REGULATORY & TYPE APPROVALS

| | |
|---|---|
| Regulatory | CE, UKCA, RCM, CB, E-mark |

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## EMC EMISSIONS & IMMUNITY

| | |
|---|---|
| Standards | EN 55032:2015+A11:2020<br>EN 55035:2017+A11:2020<br>EN 61000-3-3:2013+A1:2019+A2:2021<br>EN IEC 61000-3-2:2019+A1:2021<br>EN 301 489-1 V2.2.3<br>EN 301 489-17 V3.2.4<br>EN 301 489-19 V2.2.0<br>EN 301 489-52 V1.2.1 |
| ESD | EN 61000-4-2:2009 |
| Radiated Immunity | EN IEC 61000-4-3:2020 |
| EFT | EN 61000-4-4:2012 |
| CS | EN 61000-4-6:2014 |
| DIP | EN IEC 61000-4-11:2020 |
| Standards | **CE:** EN 62311 **CB:** IEC 62368-1:2018 |

## RF

| | |
|---|---|
| Standards | EN 301 908-1;<br>EN 301 908-2;<br>EN 301 908-13;<br>EN 300 328; |

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# STANDARD PACKAGE*

- Router RUT906
- 9 W PSU
- 2x Mobile antennas (magnetic mount, SMA male, 3 m cable)
- 2x Wi-Fi antennas (magnetic mount, RP-SMA male, 1.5 m cable)
- GNSS antenna (adhesive, SMA male, 3 m cable)
- RS485 connector block
- I/O connector block
- Ethernet cable (1.5 m)
- SIM Adapter kit
- QSG (Quick Start Guide)
- Packaging box

ROUTER RUT906

9 W PSU

2X MOBILE ANTENNAS (MAGNETIC MOUNT, SMA MALE, 3 M CABLE)

2X WI-FI ANTENNAS (MAGNETIC MOUNT, RP-SMA MALE, 1.5 M CABLE)

GNSS ANTENNA (ADHESIVE, SMA MALE, 3 M CABLE)

RS485 CONNECTOR BLOCK

I/O CONNECTOR BLOCK

ETHERNET CABLE (1.5 M)

SIM ADAPTER KIT

QSG

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

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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 |
|---|---|---|
| RUT906 0*****<br>Europe[1], The Middle East, Africa, Thailand, Australia, New Zealand | **4G (LTE-FDD):** B1, B3, B5, B7, B8, B20, B28<br>**4G (LTE-TDD):** B38, B40, B41<br>**3G:** B1, B8<br>**2G:** B2, B8 | RUT906000000 / Standard package with EU PSU<br>RUT906000200 / Standard package with UK PSU<br>RUT906000800 / Standard package with AU PSU<br>RUT906000300 / Standard package with Power cable with 4-way screw terminal<br>RUT906000400 / Standard package with Universal PSU<br>RUT906000100 / Mass packing code |

The price and lead-times for region (operator) specific versions may vary. For more information please contact us.
1 - Regional availability - excluding Russia & Belarus.

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# RUT906 SPATIAL MEASUREMENTS

## MAIN MEASUREMENTS

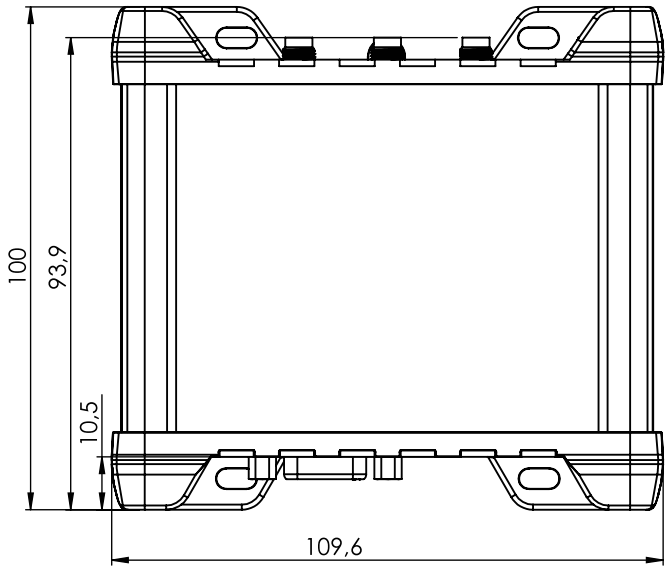
W x H x D dimensions for RUT906:

| | |
|---|---|
| Device housing*: | 110 x 50 x 100 mm |
| Box: | 355 x 60 x 175 mm |

*Housing measurements are presented without antenna connectors and screws; for measurements of other device elements look to the sections below.

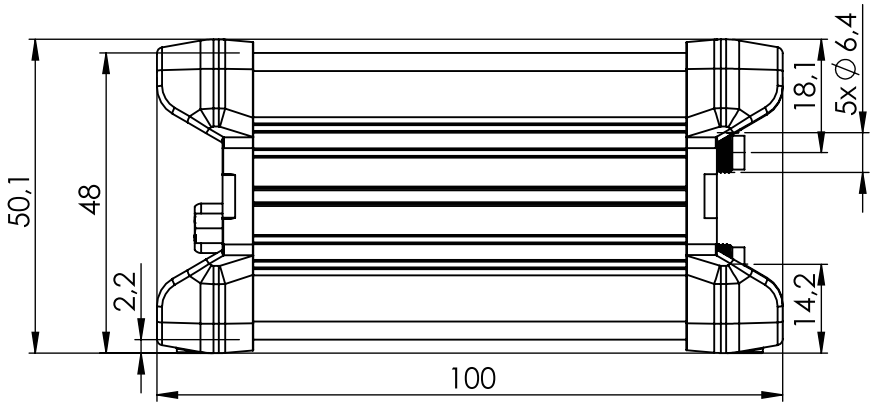
## TOP VIEW

The figure below depicts the measurements of RUT906 and its components as seen from the top:




## RIGHT VIEW

The figure below depicts the measurements of RUT906 and its components as seen from the right side:

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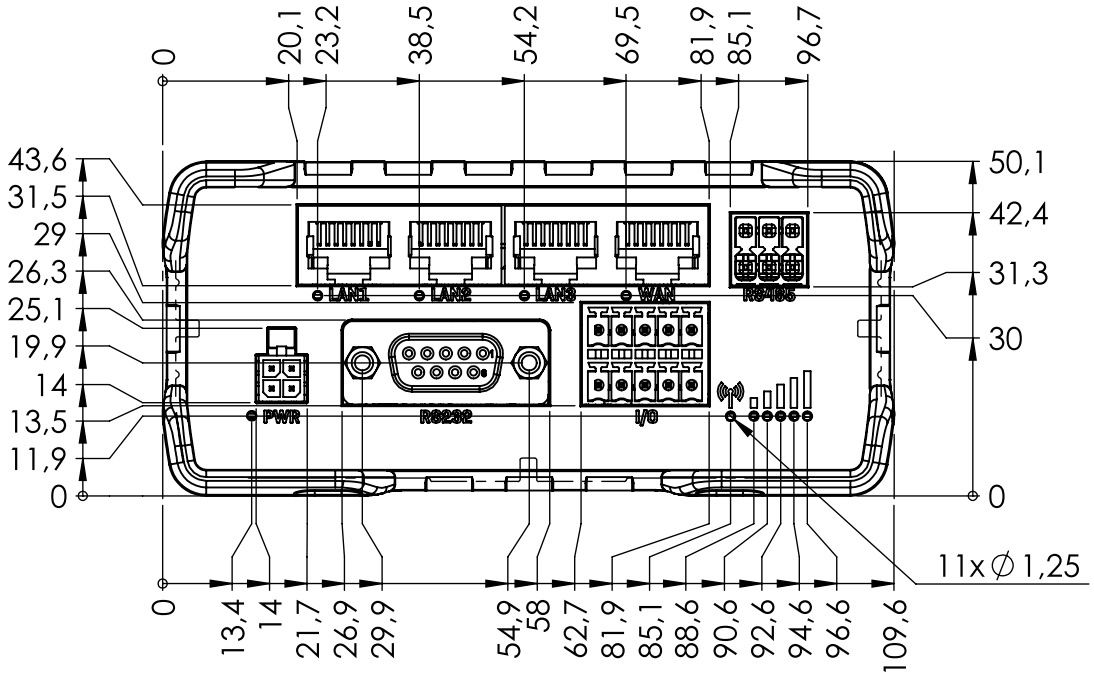
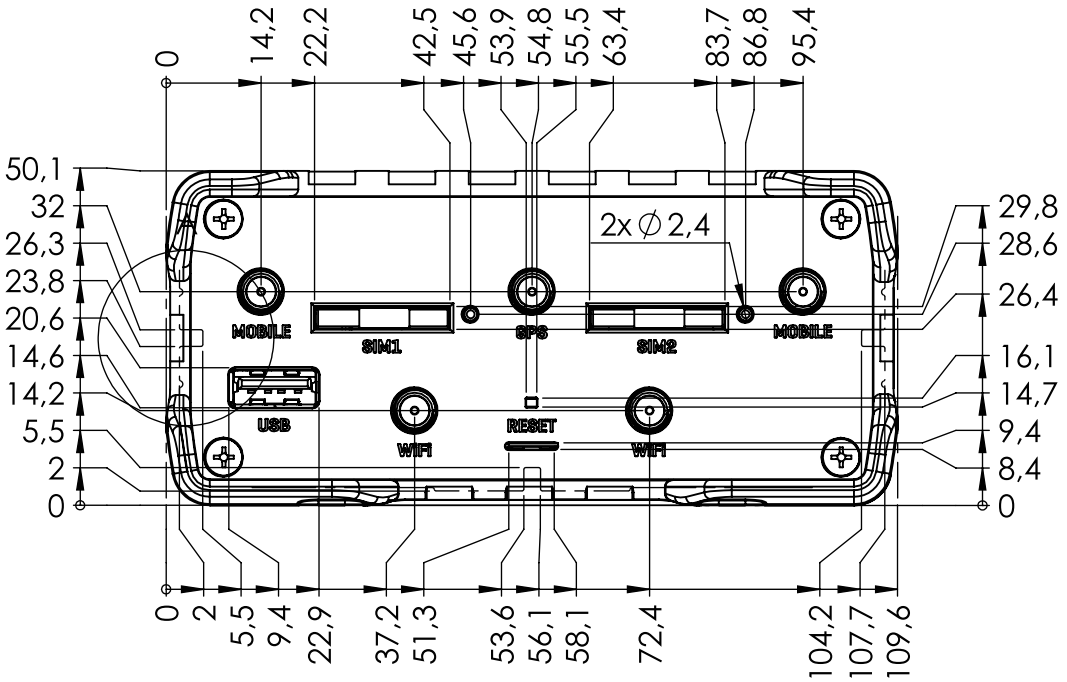
## FRONT VIEW

The figure below depicts the measurements of RUT906 and its components as seen from the front panel side:




## REAR VIEW

The figure below depicts the measurements of RUT906 and its components as seen from the back panel side:

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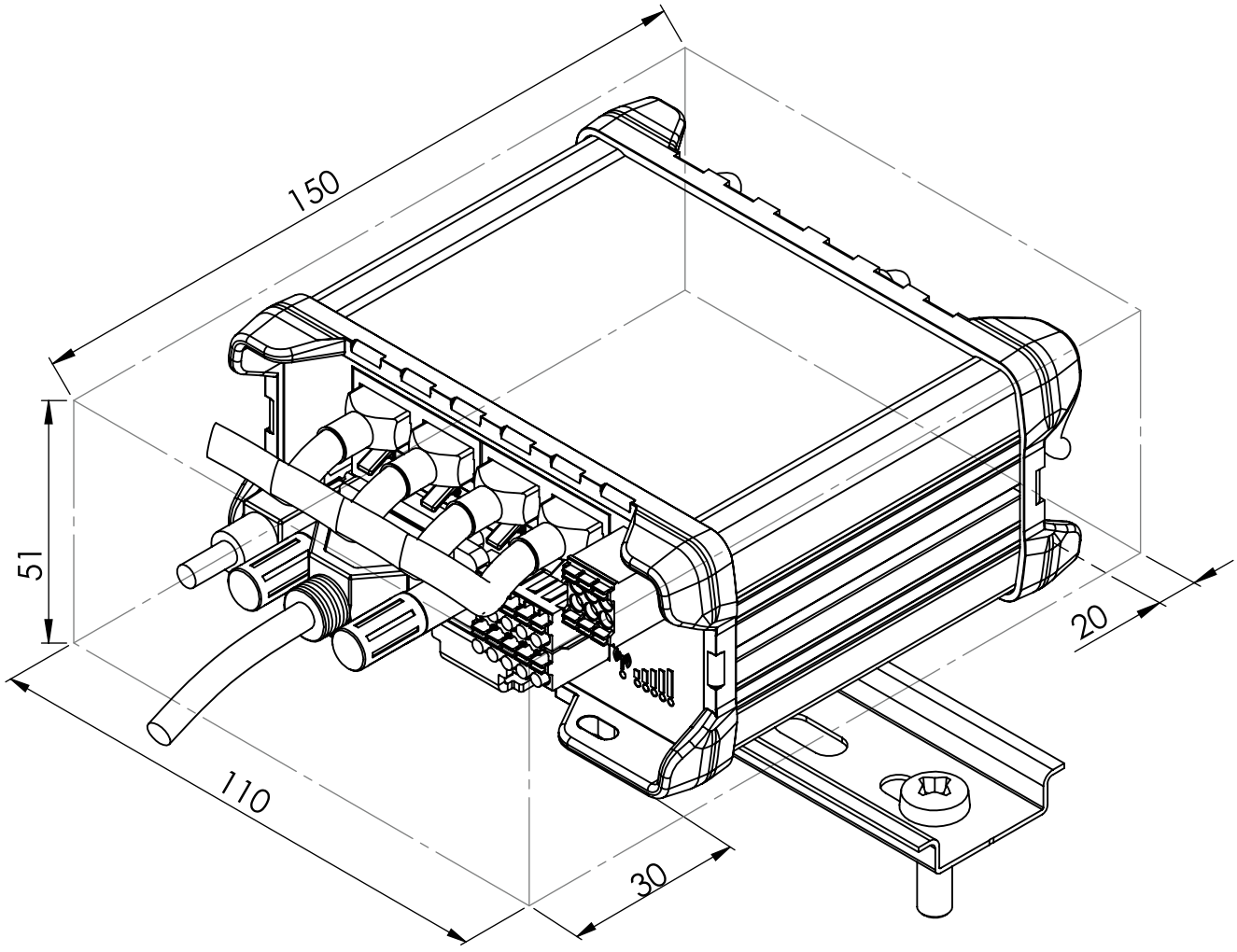
## MOUNTING SPACE REQUIREMENTS

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

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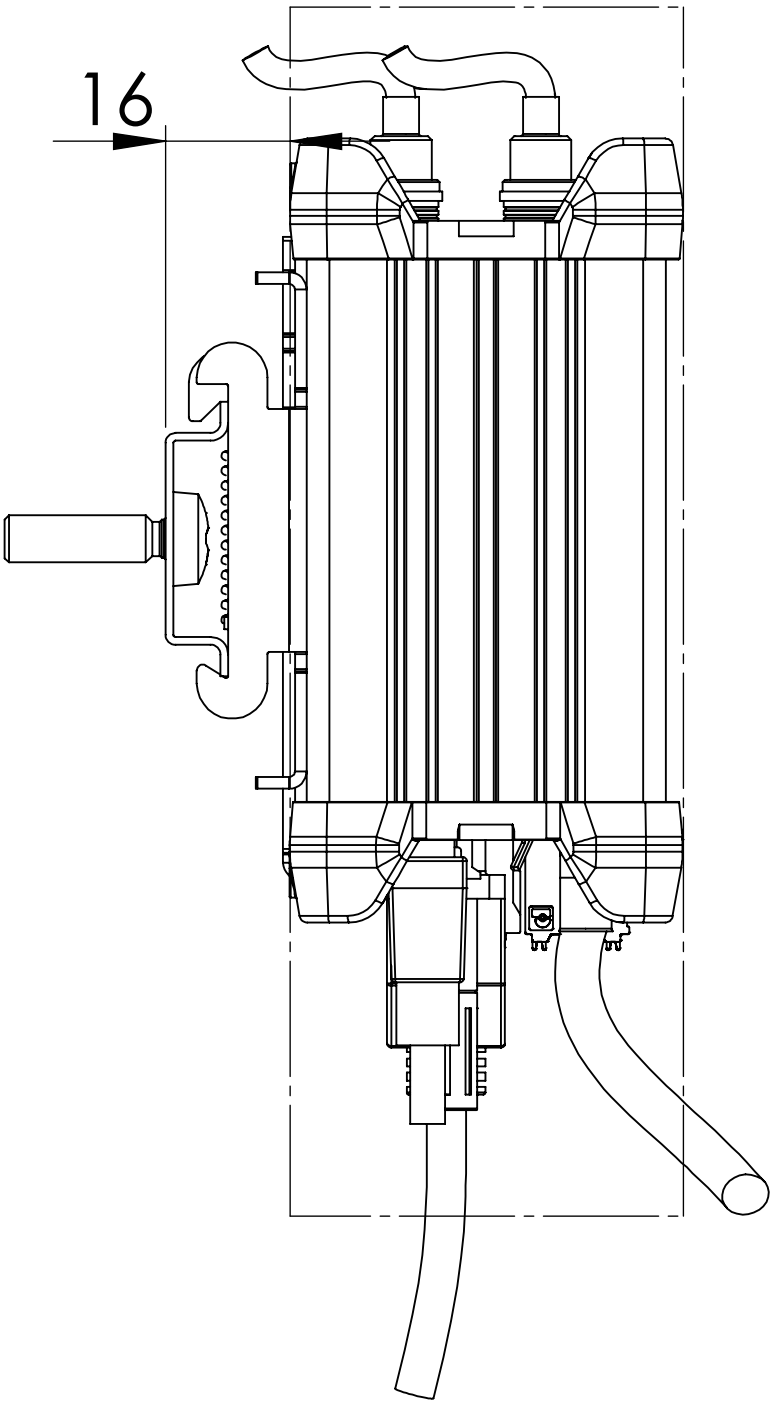
## DIN RAIL

The scheme below depicts protrusion measurements of an attached DIN Rail:

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