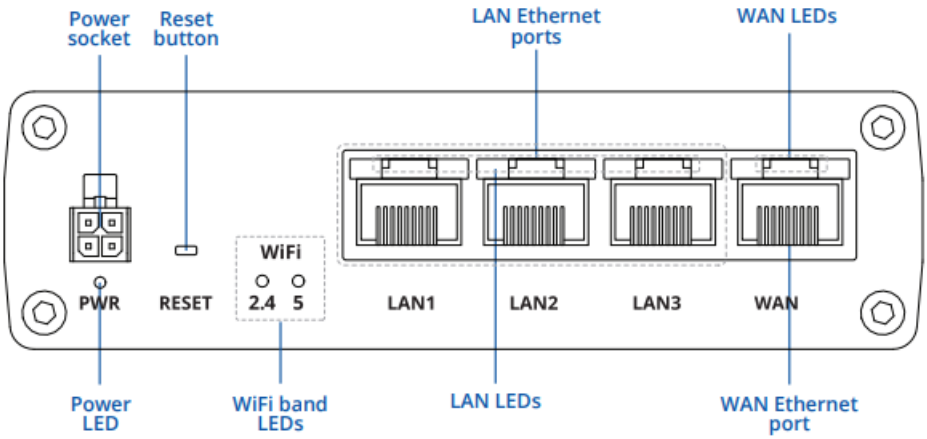
TELTONIKA Networks TRB145 4G/LTE RS485 Gateway User Guide

Contents

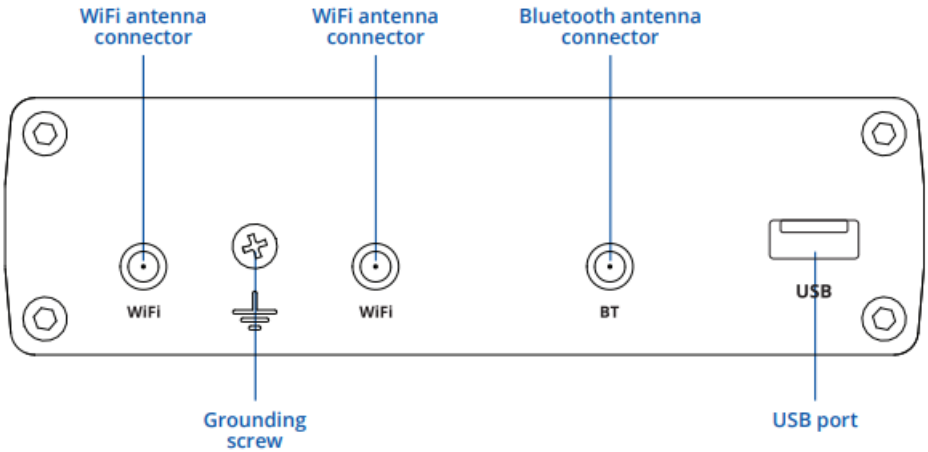
TELTONIKA Networks TRB145 4G/LTE RS485 Gateway

HARDWARE

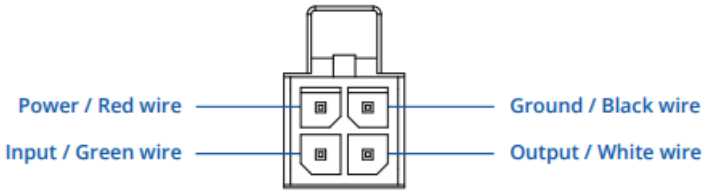
FRONT VIEW



BACK VIEW

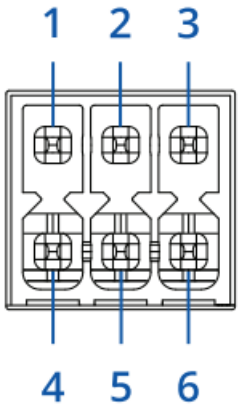


POWER SOCKET PINOUT



DB9 CONNECTOR PINOUT

1. Driver negative signal (D-).
2. Receiver negative signal (R-).
3. Ground (GND).
4. Driver positive (D+).
5. Receiver positive signal (R+).
6. Power input 9-30 VDC (Vin).



FEATURES

ETHERNET

- WAN
- LAN

WIRELESS

- Wireless mode
- WiFi security
- ESSID
- WiFi users
- Wireless Hotspot
- 1 x WAN port (can be configured as LAN) 10/100/1000 Mbps,
- compliance with IEEE 802.3,
- IEEE 802.3u, 802.3az standards,
- supports auto MDI/MDIX crossover

- 3 x LAN ports,
- 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u,
- 802.3az standards, supports auto MDI/MDIX crossover

BLUETOOTH

- Bluetooth 4.0
- Bluetooth low energy (LE) for short range communication

NETWORK

- Routing
- Network protocols
- VoIP passthrough support Connection monitoring Firewal
- DHCP
- QoS / Smart Queue Management (SQM)
- DDNS
- Network backup SSHFS
- Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2, EIGRP, NHRP)
- TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSL v3, TLS, ARP, VRRP, PPP, PPPoE, UPNP, SSH, DHCP, Telnet
- client, SNMP, MQTT, Wake on LAN (WOL), DLNA
- H.323 and SIP-alg protocol NAT helpers, allowing proper routing of VoIP packets Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection Port forwards, traffic rules,
- custom rules
- Static and dynamic IP allocation, DHCP Relay, Relayd
- Traffic priority queuing by source/destination, service, protocol or port, WMM, 802.11e Supported >25 service providers, others can be configured manually
- VRRP, Wired and WiFi WAN options, each of which can be used as an automatic Failover Possibility to mount remote file system via SSH protocol

SECURITY

- Authentication Firewall
- Attack prevention
- VLAN
- WEB filter Access control
- Pre-shared key, digital certificates, X.509 certificates
- Pre-configured firewall rules can be enabled via WebUI, unlimited firewall configuration via CLI; DMZ; NAT; NAT-T
- 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)
- Port and tag based VLAN separation
- Blacklist for blocking out unwanted websites, whitelist for specifying allowed sites only Flexible access control

of TCP, UDP, ICMP packets, MAC address filter

VPN

- OpenVPN
- OpenVPN Encryption IPsec
- GRE
- PPTP, L2TP
- Stunnel DMVPN SSTP
- ZeroTier WireGuard
- Multiple clients and a server can run simultaneously, 12 encryption methods
- DES-CBC, RC2-CBC, DES-EDE-CBC, DES-EDE3-CBC, DESX-CBC, BF-CBC, RC2-40-CBC, CAST5-CBC, RC2-64-CBC, AES-128-CBC, AES-192-CBC, AES-256-CBC
- IKEv1, IKEv2, with 5 encryption methods for IPsec (DES, 3DES, AES128, AES192, AES256) GRE tunnel
- Client/Server instances can run simultaneously, L2TPv3 support
- Proxy designed to add TLS encryption functionality to existing clients and servers without any changes in the program’s code Method of building scalable IPsec VPNs
- SSTP client instance support ZeroTier VPN client support
- WireGuard VPN client and server support

MODBUS TCP SLAVE

- ID filtering
- Allow remote access Custom registers
- Respond to one ID in range [1;255] or any Allow access through WAN
- Modbus TCP custom register block, which allows to read/write to a file inside the router, and can be used to extend Modbus
- TCP slave functionality

MODBUS TCP MASTER

- Supported functions Supported data formats
- 01, 02, 03, 04, 05, 06, 15, 16
- 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

MQTT GATEWAY

- Gateway
- Allows sending commands and receiving data from Modbus Master trough MQTT broker

DATA TO SERVER

- Protocols

- HTTP(S), MQTT, Azure MQTT, Kinesis

MONITORING & MANAGEMENT

- WEB UI FOTA SSH SMS
- Call
- TR-069 MQTT SNMP JSON-RPC MODBUS RMS
- HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, event log, system log, kernel log Firmware update from server, automatic notification
- SSH (v1, v2)
- SMS status, SMS configuration, send/read SMS via HTTP POST/GET Reboot, Status, Mobile data on/off, Output on/off
- OpenACS, EasyCwmp, ACSLite, tGem, LibreACS, GenieACS, FreeACS, LibCWMP, Friendly tech, AVSystem MQTT Broker, MQTT publisher
- SNMP (v1, v2, v3), SNMP trap Management API over HTTP/HTTPS MODBUS TCP status/control
- Teltonika Remote Management System (RMS)

SYSTEM CHARACTERISTICS

- CPU RAM
- FLASH storage
- Quad-core ARM Cortex A7, 717 MHz 256 MB, DDR3
- 256 MB, SPI Flash

FIRMWARE / CONFIGURATION

- WEB UI FOTA RMS
- Keep settings
- Update FW from file, check FW on server, configuration profiles, configuration backup Update FW/configuration from server
- Update FW/configuration for multiple devices at once Update FW without losing current configuration

FIRMWARE CUSTOMIZATION

- Operating system Supported languages Development tools
- RutOS (OpenWrt based Linux OS) Busybox shell, Lua, C, C++
- SDK package with build environment provided

USB

- Data rate Applications External devices Storage formats
- USB 2.0
- Samba share, USB-to-serial
- Possibility to connect external HDD, flash drive, additional modem, printer FAT, FAT32, NTFS

INPUT/OUTPUT

- Input Output Events
- I/O juggler
- 1 x Digital Input, 0 – 6 V detected as logic low, 8 – 30 V detected as logic high 1 x Digital Output, Open collector output, max output 30 V, 300 mA
- Email, RMS
- Allows to set certain I/O conditions to initiate event

POWER

- Connector
- Input voltage range PoE (passive)
- Power consumption
- 4 pin industrial DC power socket
- 9 – 50 VDC, reverse polarity protection, voltage surge/transient protection
- Passive PoE. Possibility to power up through LAN port, not compatible with IEEE802.3af, 802.3at and 802.3bt standards 9 W Max

PHYSICAL INTERFACES (PORTS, LEDS, BUTTONS)

- Ethernet I/Os
- Status LEDs Power Antennas USB
- Reset
- Other
- 4 x RJ45 ports, 10/100/1000 Mbps
- x Digital Input, 1 x Digital Output on 4 pin power connector 8 x LAN status LEDs, 1 x Power LED, 2 x 4G and 5G WiFi LEDs 1 x 4 pin DC connector
- x RP-SMA for WiFi, 1 x RP-SMA for Bluetooth 1 x USB A port for external devices Reboot/User default reset/Factory reset button 1 x Grounding screw

PHYSICAL SPECIFICATION

- Casing material Dimensions (W x H x D) Weight
- Mounting options
- Aluminium housing with DIN rail mounting option 115 x 32.2 x 95.2 mm
- 355 g
- DIN rail, flat surface placement

OPERATING ENVIRONMENT

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

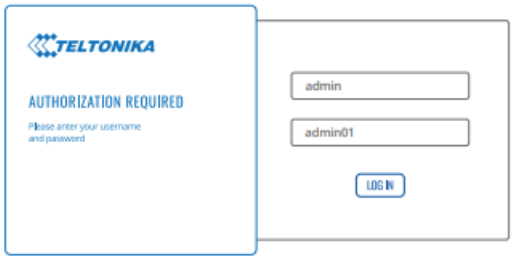
HARDWARE INSTALLATION

1. Attach all antennas.
2. Connect the power adapter to the socket on the front of the device. Then plug the other end of the power adapter into a power outlet.
3. Connect to the device wirelessly using SSID and password provided on the device information label or use an Ethernet cable connected to LAN port.

LOGIN TO DEVICE

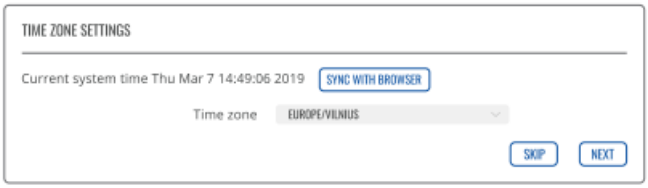
1. To enter the router's Web interface (WebUI), type http://192.168.1.1 into the URL field of your Internet browser.
2. Use login information shown in image A when prompted for authentication.
3. After you log in, you will be prompted to change your password for security reasons. The new password must contain at least 8 characters, including at least one uppercase letter, one lowercase letter, and one digit. This step is mandatory, and you will not be able to interact with the router's WebUI before you change the password.
4. When you change the router's password, the Configuration Wizard will start. The Configuration Wizard is a tool used to set up some of the router's main operating parameters.

A.

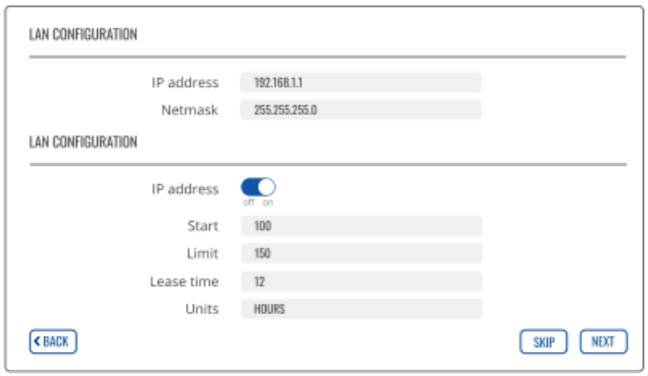


SETUP WIZARD

1. After logging in to the router's WebUI, you will be prompted to change the default password and the Setup Wizard will start: 1. Choose your time zone and sync the router's time with the browser if needed.



2. Default LAN settings are recommended unless you have specific requirements for your LAN network.



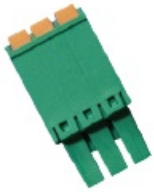
TECHNICAL INFORMATION

Radio specifications	
RF technologies	WiFi, BLE
Max RF power	23 dBm@WiFi, 10 dBm@BLE
Bundled accessories specifications*	
Power adapter	Input: 0.6 A@100-240 VAC, Output: 12 VDC, 1.5 A, 4-pin plug
WiFi antenna	2400~2483.5 MHz/5150~5905 MHz, 50 Ω, VSWR<2, gain** 5 dBi, omnidirectional, RP-SMA male connector
BLE antenna	2400~2483.5 MHz, 50 Ω, VSWR<2, gain** 2 dBi, omnidirectional, RP-SMA male connector

WHAT'S IN THE BOX?

STANDARD PACKAGE CONTAINS*

- Router RUTX10
- 18 W PSU
- 2 x WiFi antennas (swivel, RP-SMA male)
- 1 x Bluetooth antenna (magnetic mount, RP-SMA male, 1.5 m cable)
- Ethernet cable (1.5 m)
- QSG (Quick Start Guide)
- RMS Flyer
- Packaging box

 TRB145	 4.5 W PSU	 1 X LTE ANTENNA (MAGNETIC MOUNT, SMA MALE, 3 M CABLE)
 MICRO-USB CABLE (0.8 M)	 1 X HEX KEY	 RS485 CONNECTOR

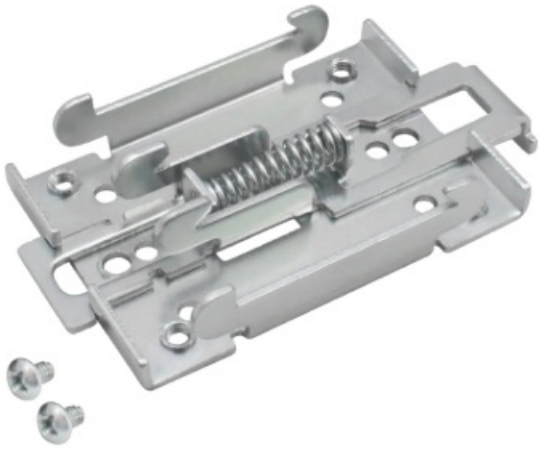
PRODUCT CODE

- **HS CODE** **HTS CODE**
- **PACKAGE CONTAINS**
- RUTX10000200 851762 8517.62.00
  Standard package with US PSU
- RUTX10000000 851762 8517.62.00
  Standard package with Euro PSU

MOUNTING OPTIONS

DIN RAIL KIT

Parameter	Value
Mounting standard	35mm DIN Rail
Material	Low carbon steel
Weight	57g
Screws included	Philips Pan Head screw #6-32×3/16, 2pcs
Dimensions	82 mm x 46 mm x 20 mm
RoHS Compliant	V



DIN RAIL KIT

- DIN Rail adapter
- Philips Pan Head screw #6-32×3/16, 2pcs for RUT2xx/RUT9xx
- Compact plastic DIN Rail adapter (70x25x14,5mm) Philips Pan Head screw #6-32×3/16, 2pcs DIN RAIL KIT

COMPACT DIN RAIL KIT

- Parameter Mounting standard Material
- Weight
- Screws included Dimensions RoHS Compliant
- Value
- 35mm DIN Rail ABS + PC plastic
- 6.5 g
- Philips Pan Head screw #6-32×3/16, 2pcs 70 mm x 25 mm x 14,5 mm

ORDER CODE

- HS CODE

- HTS CODE
- PR5MEC11
- 73269098
- 7326.90.98

SURFACE MOUNTING KIT

- Parameter Mounting
- standard Material
- Weight
- Screws included
- Dimensions RoHS Compliant

DIN RAIL KIT
Surface mounting kit
Philips Pan Head screw #6-32×3/16, 2pcs

ORDER CODE

- **HS CODE**
- **HTS CODE**
- PR5MEC12
- 73269098
- 7326.90.98

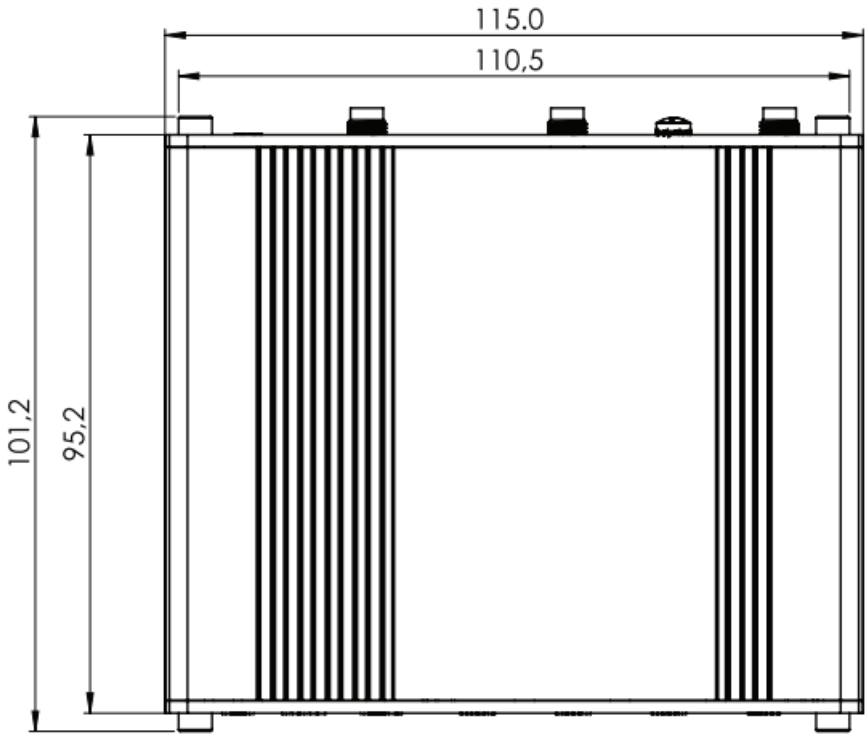
RUTX10 SPATIAL MEASUREMENTS & WEIGHT

MAIN MEASUREMENTS

- W x H x D dimensions for RUTX10:
- Device housing*: Box:
- 115 x 32.2 x 95.2
- 173 x 71 x 148

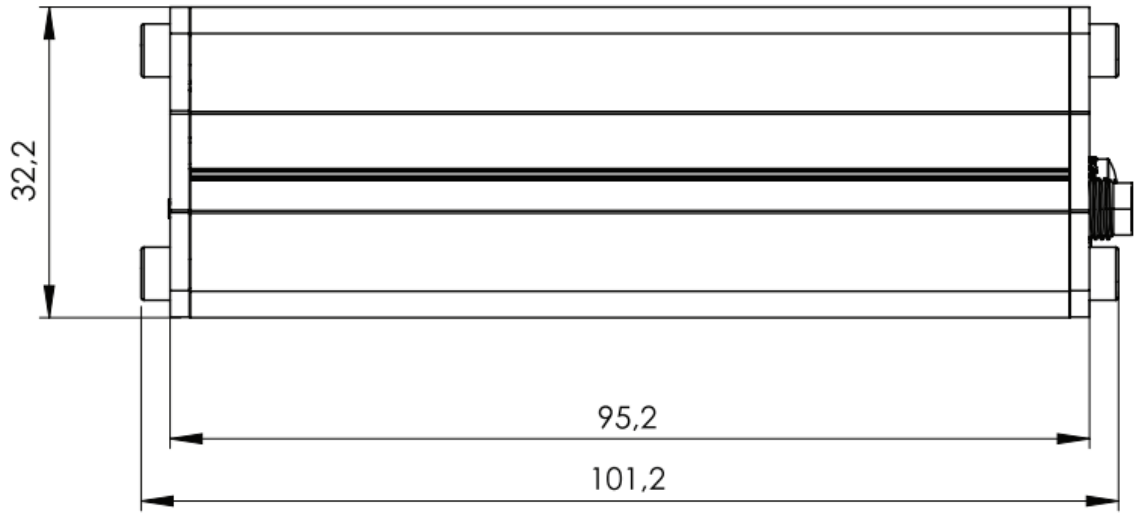
TOP VIEW

The figure below depicts the measurements of RUTX10 and its components as seen from the top:



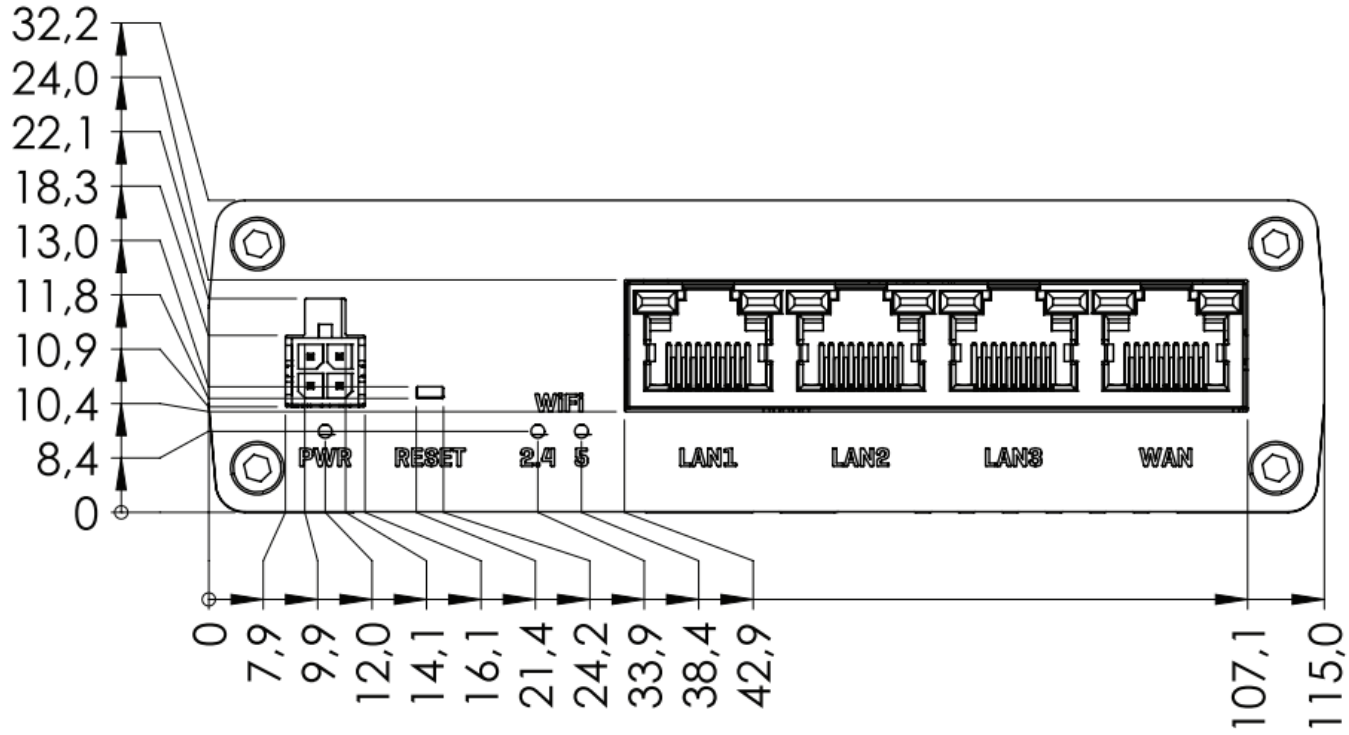
RIGHT VIEW

The figure below depicts the measurements of RUTX10 and its components as seen from the right side:



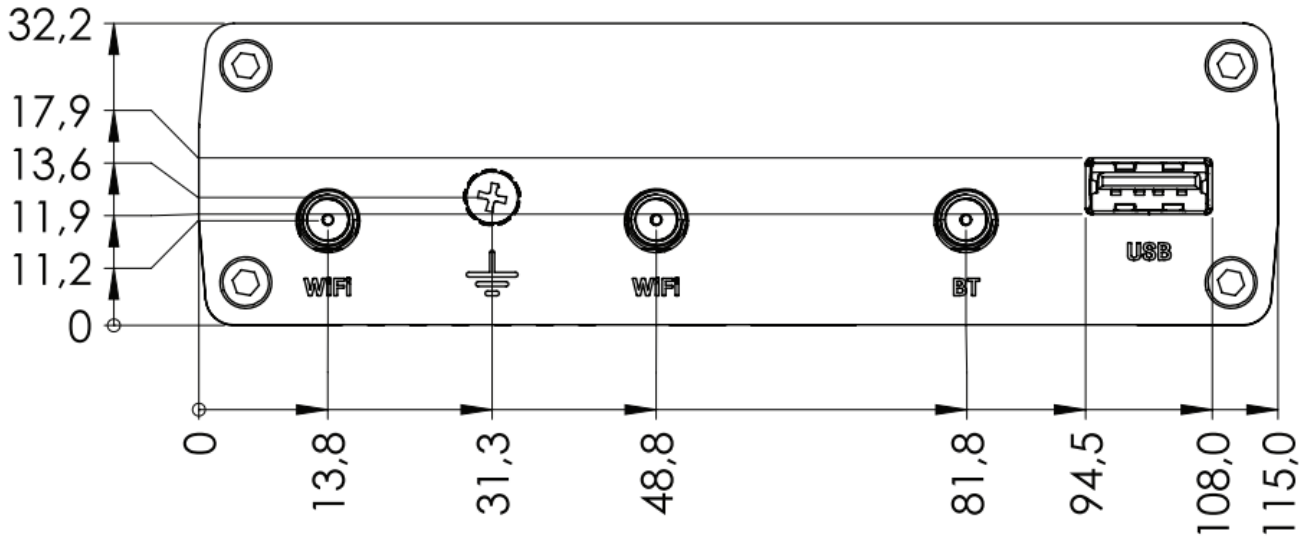
FRONT VIEW

The figure below depicts the measurements of RUTX10 and its components as seen from the front panel side:



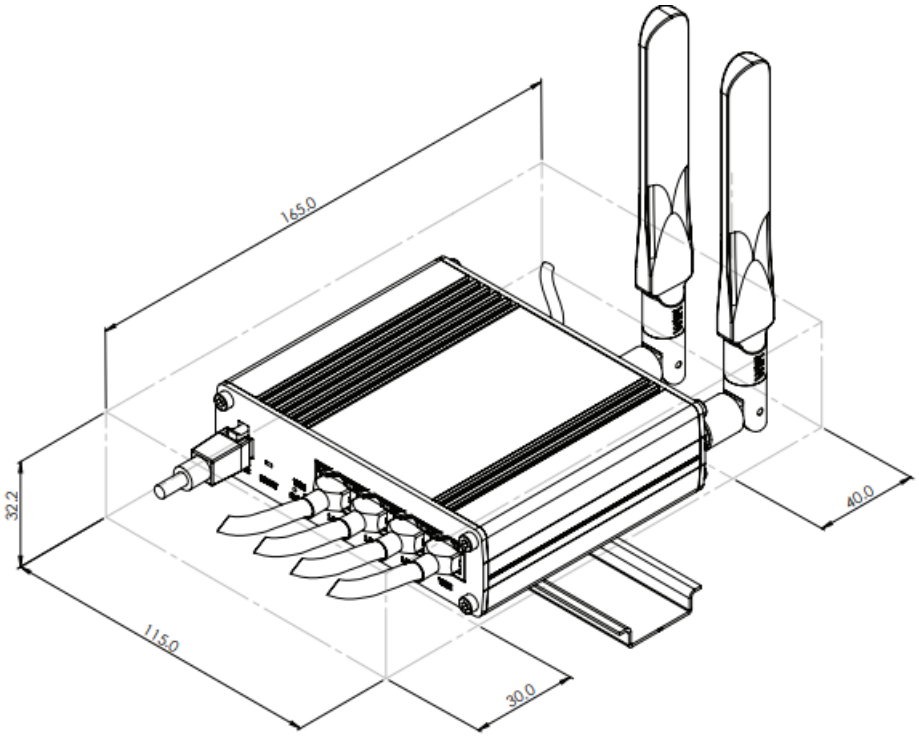
REAR VIEW

The figure below depicts the measurements of RUTX10 and its components as seen from the back panel side:



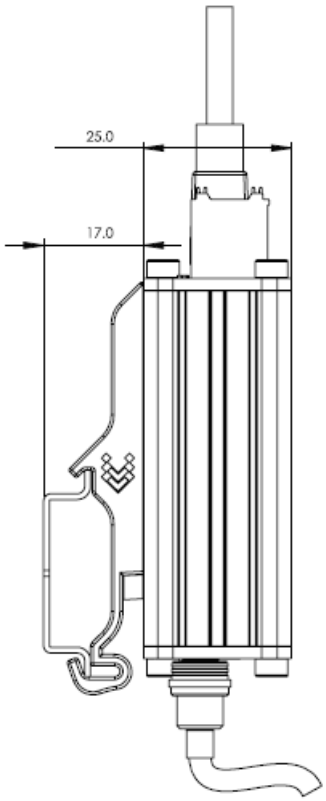
MOUNTING SPACE REQUIREMENTS

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



DIN RAIL

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



Documents / Resources

	**TELTONIKA Networks TRB145 4G/LTE RS485 Gateway** [pdf] User Guide TRB145, 4G LTE RS485 Gateway, TRB145 4G LTE RS485 Gateway