



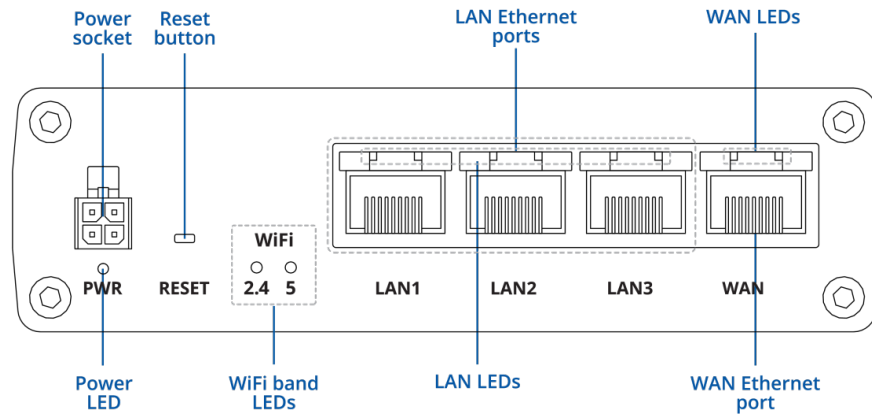
# RUTX10

v1.2

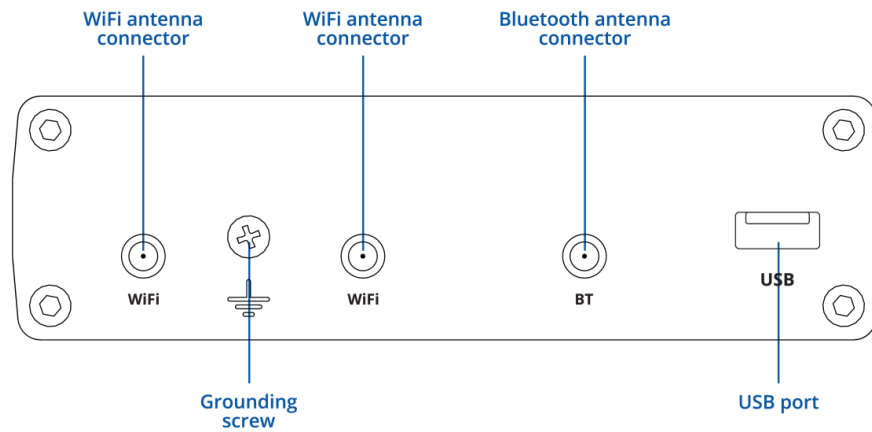


## HARDWARE

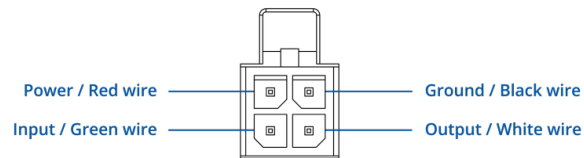
### FRONT VIEW



### BACK VIEW



### POWER SOCKET PINOUT



## FEATURES

### Ethernet

<b>WAN</b>	1 x WAN port 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u, 802.3az standards, supports auto MDI/MDIX crossover
<b>LAN</b>	3 x LAN ports, 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u, 802.3az standards, supports auto MDI/MDIX crossover

### Wireless

<b>Wireless mode</b>	802.11b/g/n/ac Wave 2 (Wi-Fi 5) with data transmission rates up to 867 Mbps (Dual Band, MU-MIMO), 802.11r fast transition, Access Point (AP), Station (STA)
<b>Wi-Fi security</b>	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, 802.11w Protected Management Frames (PMF)
<b>SSID/ESSID</b>	SSID stealth mode and access control based on MAC address
<b>Wi-Fi users</b>	Up to 150 simultaneous connections
<b>Wireless Connectivity Features</b>	Wireless mesh (802.11s), fast roaming (802.11r), Relayd, BSS transition management (802.11v), radio resource measurement (802.11k)
<b>Wireless MAC filter</b>	Allowlist, blocklist
<b>Wireless QR code generator</b>	Once scanned, a user will automatically enter your network without needing to input login information
<b>TravelMate</b>	Forward Wi-Fi hotspot landing page to a subsequent connected device

**Security**

<b>SSL certificate generation</b>	Let's Encrypt and SCEP certificate generation methods
<b>802.1x</b>	Port-based network access control client
<b>Authentication</b>	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
<b>Firewall</b>	Preconfigured firewall rules can be enabled via WebUI, unlimited firewall configuration via CLI, DMZ, NAT, NAT-T, NAT64
<b>Attack prevention</b>	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)
<b>VLAN</b>	Port and tag-based VLAN separation
<b>WEB filter</b>	Blacklist for blocking out unwanted websites, Whitelist for specifying allowed sites only
<b>Access control</b>	Flexible access control of SSH, Web interface, CLI and Telnet
<b>TPM</b>	Identification and authentication module, TPM 2.0 standard
	*Feature availability varies by order code

**Bluetooth**

<b>Bluetooth 4.0</b>	Bluetooth low energy (LE) for short range communication
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**Network**

<b>Routing</b>	Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2, EIGRP, NHRP), Policy based routing
<b>Network protocols</b>	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), VXLAN
<b>VoIP passthrough support</b>	H.323 and SIP-alg protocol NAT helpers, allowing proper routing of VoIP packets
<b>Connection monitoring</b>	Ping Reboot, Wget Reboot, Periodic Reboot, LCP and ICMP for link inspection
<b>Firewall</b>	Port forward, traffic rules, custom rules, TTL target customisation
<b>Firewall status page</b>	View all your Firewall statistics, rules, and rule counters
<b>Ports management</b>	View device ports, enable and disable each of them, turn auto-configuration on or off, change their transmission speed, and so on
<b>Network topology</b>	Visual representation of your network, showing which devices are connected to which other devices
<b>Hotspot</b>	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
<b>DHCP</b>	Static and dynamic IP allocation, DHCP relay, DHCP server configuration, status, static leases: MAC with wildcards
<b>QoS / Smart Queue Management (SQM)</b>	Traffic priority queuing by source/destination, service, protocol or port, WMM, 802.11e
<b>DDNS</b>	Supported >25 service providers, others can be configured manually
<b>DNS over HTTPS</b>	DNS over HTTPS proxy enables secure DNS resolution by routing DNS queries over HTTPS
<b>Network backup</b>	Wi-Fi WAN, VRRP, Wired options, each of which can be used as an automatic Failover
<b>Load balancing</b>	Balance Internet traffic over multiple WAN connections
<b>SSHFS</b>	Possibility to mount remote file system via SSH protocol
<b>VRF support</b>	Initial virtual routing and forwarding (VRF) support
<b>Traffic Management</b>	Real-time monitoring, wireless signal charts, traffic usage history

## VPN

<b>OpenVPN</b>	Multiple clients and a server can run simultaneously, 27 encryption methods
<b>OpenVPN Encryption</b>	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
<b>IPsec</b>	XFRM, IKEv1, IKEv2, with 14 encryption methods for IPsec (3DES, DES, AES128, AES192, AES256, AES128GCM8, AES192GCM8, AES256GCM8, AES128GCM12, AES192GCM12, AES256GCM12, AES128GCM16, AES192GCM16, AES256GCM16)
<b>GRE</b>	GRE tunnel, GRE tunnel over IPsec support
<b>PPTP, L2TP</b>	Client/Server instances can run simultaneously, L2TPv3, L2TP over IPsec support
<b>Stunnel</b>	Proxy designed to add TLS encryption functionality to existing clients and servers without any changes in the program's code
<b>DMVPN</b>	Method of building scalable IPsec VPNs, Phase 2 and Phase 3 and Dual Hub support
<b>SSTP</b>	SSTP client instance support
<b>ZeroTier</b>	ZeroTier VPN client support
<b>WireGuard</b>	WireGuard VPN client and server support
<b>Tinc</b>	Tinc offers encryption, authentication and compression in it's tunnels. Client and server support.
<b>Tailscale</b>	Tailscale offers speed, stability, and simplicity over traditional VPNs. Encrypted point-to-point connections using the open source WireGuard protocol

## OPC UA

<b>Supported modes</b>	Client, Server
<b>Supported connection types</b>	TCP

## MODBUS

<b>Supported modes</b>	Server, Client
<b>Supported connection types</b>	TCP, USB
<b>Custom registers</b>	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
<b>Supported data formats</b>	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

<b>Protocol</b>	HTTP(S), MQTT, Azure MQTT
<b>Data to server</b>	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

<b>Modbus MQTT Gateway</b>	Allows sending commands and receiving data from MODBUS Server through MQTT broker
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## DNP3

<b>Supported modes</b>	Station, Outstation
<b>Supported connection</b>	TCP, USB

## DLMS/COSEM

<b>DLMS Support</b>	DLMS - standard protocol for utility meter data exchange
<b>Supported modes</b>	Client
<b>Supported connection types</b>	TCP, USB

## API

<b>Teltonika Networks Web API (beta) support</b>	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: <a href="https://developers.teltonika-networks.com">https://developers.teltonika-networks.com</a>
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## Monitoring & Management

<b>WEB UI</b>	HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, multiple event log servers, firmware update availability notifications, event log, system log, kernel log, Internet status
<b>FOTA</b>	Firmware update from server, automatic notification
<b>SSH</b>	SSH (v1, v2)
<b>TR-069</b>	OpenACS, EasyCwmp, ACSLite, tGem, LibreACS, GenieACS, FreeACS, LibCWMP, Friendly tech, AVSystem
<b>MQTT</b>	MQTT Broker, MQTT publisher
<b>SNMP</b>	SNMP (v1, v2, v3), SNMP Trap, Brute force protection
<b>JSON-RPC</b>	Management API over HTTP/HTTPS
<b>RMS</b>	Teltonika Remote Management System (RMS)

## IoT Platforms

<b>ThingWorx</b>	Allows monitoring of: WAN Type, WAN IP
<b>Cumulocity - Cloud of Things</b>	Allows monitoring of: Device Model, Revision and Serial Number, WAN Type and IP. Has reboot and firmware upgrade actions
<b>Azure IoT Hub</b>	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

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

## Firmware / Configuration

<b>WEB UI</b>	Update FW from file, check FW on server, configuration profiles, configuration backup
<b>FOTA</b>	Update FW
<b>RMS</b>	Update FW/configuration for multiple devices at once
<b>Keep settings</b>	Update FW without losing current configuration
<b>Factory settings reset</b>	A full factory reset restores all system settings, including the IP address, PIN, and user data to the default manufacturer's configuration

## FIRMWARE CUSTOMISATION

<b>Operating system</b>	RutOS (OpenWrt based Linux OS)
<b>Supported languages</b>	Busybox shell, Lua, C, C++, and Python, Java in Package manager
<b>Development tools</b>	SDK package with build environment provided
<b>GPL customization</b>	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
<b>Package Manager</b>	The Package Manager is a service used to install additional software on the device

## Location Tracking

<b>NTRIP</b>	NTRIP protocol (Networked Transport of RTCM via Internet Protocol)
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## USB

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

## Input / Output

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

## Power

<b>Connector</b>	4-pin industrial DC power socket
<b>Input voltage range</b>	9 - 50 VDC, reverse polarity protection, voltage surge/transient protection
<b>PoE (passive)</b>	Possibility to power up through LAN1 port, not compatible with IEEE802.3af, 802.3at and 802.3bt standards, Mode B, 9 - 50 VDC
<b>Power consumption</b>	9 W Max

## Physical Interfaces

<b>Ethernet</b>	4 x RJ45 ports, 10/100/1000 Mbps
<b>I/O's</b>	1 x Digital Input, 1 x Digital Output on 4-pin power connector
<b>Status LEDs</b>	8 x LAN status LEDs, 1 x Power LED, 2 x 2.4G and 5G Wi-Fi LEDs
<b>Power</b>	1 x 4-pin power connector
<b>Antennas</b>	2 x RP-SMA for Wi-Fi, 1 x RP-SMA for Bluetooth
<b>USB</b>	1 x USB A port for external devices
<b>Reset</b>	Reboot/User default reset/Factory reset button
<b>Other</b>	1 x Grounding screw

**Physical Specification**

<b>Casing material</b>	Aluminium housing
<b>Dimensions (W x H x D)</b>	115 x 32.2 x 95.2 mm
<b>Weight</b>	355 g
<b>Mounting options</b>	DIN rail, wall mount, flat surface (all require additional kit)

**Operating Environment**

<b>Operating temperature</b>	-40 °C to 75 °C
<b>Operating humidity</b>	10% to 90% non-condensing
<b>Ingress Protection Rating</b>	IP30

**Regulatory & Type Approvals**

<b>Regulatory</b>	CE, UKCA, FCC, EAC, UCRF, CITC, ICASA, ANRT, FCC, IC, NOM, UL/CSA Safety, Anatel, Giteki, CB, IC (ISED), RCM
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**EMC Emissions & Immunity**

<b>ESD</b>	EN 61000-4-2:2009
<b>Standards</b>	CE/UKCA: EN 55032:2015 + A11:2020 + A1:2020 EN 55035:2017 + A11:2020 EN IEC 61000-3-2:2019 + A1:2021 + A2:2024 EN 61000-3-3:2013 + A1:2019 + A2:2021 EN 301 489-1 V2.2.3 EN 301 489-3 V2.3.2 EN 301 489-17 V3.3.1  FCC/ISED(IC): 47 CFR Part 15 Subpart B ICES-003: Issue 7 (October 2020)  RCM: AS/NZS CISPR 32:2015 + A1
<b>Radiated Immunity</b>	EN IEC 61000-4-3:2006 + A1:2008 + A2:2010 EN IEC 61000-4-3:2020
<b>EFT</b>	EN 61000-4-4: 2012
<b>Surge Immunity (AC Mains Power Port)</b>	EN 61000-4-5:2014 + A1:2017
<b>CS</b>	EN 61000-4-6:2014
<b>DIP</b>	EN 61000-4-11:2004 EN 61000-4-11:2020

**RF****Standards**

CE/UKCA:

EN 300 328 V2.2.2

EN 301 893 V2.1.1

EN 300 440 V2.2.1

RCM:

AS/NZS 4268:2017+A1:2021

**Standards (Wi-Fi 2.4 GHz, 5 GHz)**

FCC:

47 CFR Part 15 Subpart C - § 15.247, Subpart E - § 15.407

KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

KDB 905462 D04 Operational Modes for DFS Testing New Rules v01

IC (ISED):

RSS-247 Issue 3 (August 2023)

RSS-Gen Issue 5 (April 2018) Amendment 2 (February 2021)

**RF Exposure****Standards**

FCC:

47 CFR - § 2.1091

KDB 447498 D04 Interim General RF Exposure Guidance v01

IC (ISED):

RSS-102 Issue 6 (December 2023)

**Safety****Standards**

CE: EN IEC 62368-1:2020 + A11:2020, EN IEC 62311:2020

CB: IEC 62368-1:2018

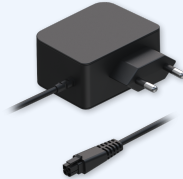
RCM: AS/NZS 62368.1:2022

## ORDERING

### STANDARD PACKAGE\*



**RUTX10**



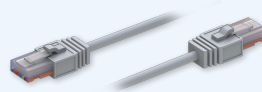
**18W PSU**



**2 X WI-FI DUAL-BAND SMA ANTENNAS**



**1 X BLUETOOTH MAGNETIC SMA ANTENNA**



**ETHERNET CABLE (1.5M)**



**QSG (QUICK START GUIDE)**

- Router RUTX10
- [18 W PSU](#)
- [2x Wi-Fi antennas \(swivel, RP-SMA male\)](#)
- [1x Bluetooth antenna \(magnetic mount, RP-SMA male, 1.5 m cable\)](#)
- [Ethernet cable \(1.5 m\)](#)
- QSG (Quick Start Guide)
- Packaging box

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

For more information on all available packaging options – please [contact us](#) directly.

### CLASSIFICATION CODES

**HS Code:** 851762

**HTS:** 8517.62.00

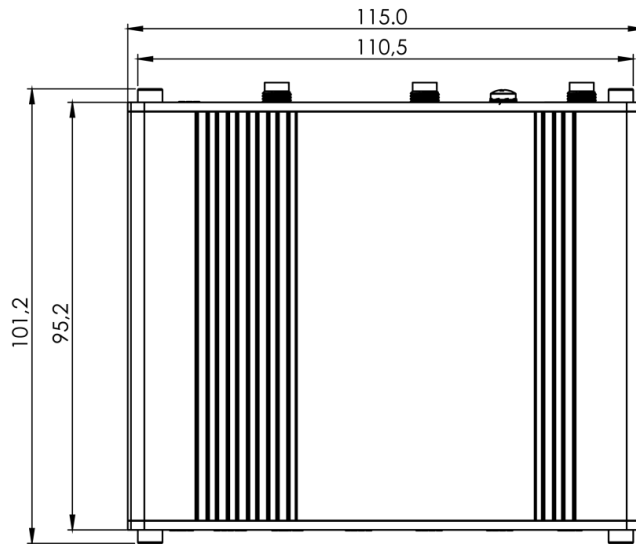
## AVAILABLE VERSIONS

RUTX10 *****	N/A	RUTX10000000 / Standard package with EU PSU
		RUTX10000200 / Standard package with US PSU
		RUTX10000300 / Standard package with UK PSU
		RUTX10000400 / Standard package with AU PSU
		RUTX10000B00 / Standard package with Power cable with 4-way screw terminal
		RUTX10000C00 / Mass packing code

## RUTX10 SPATIAL MEASUREMENTS

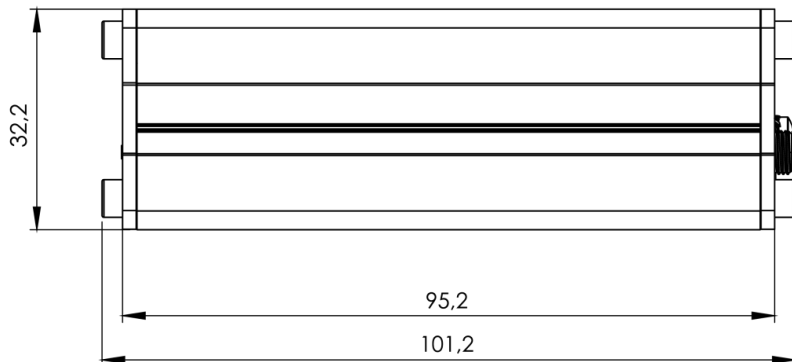
### TOP VIEW

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



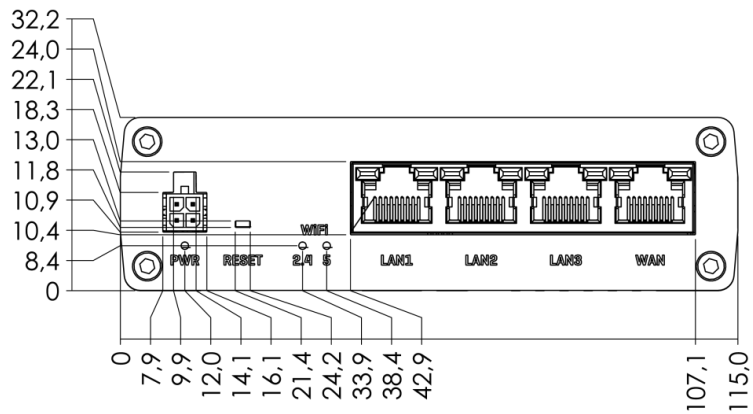
### RIGHT VIEW

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



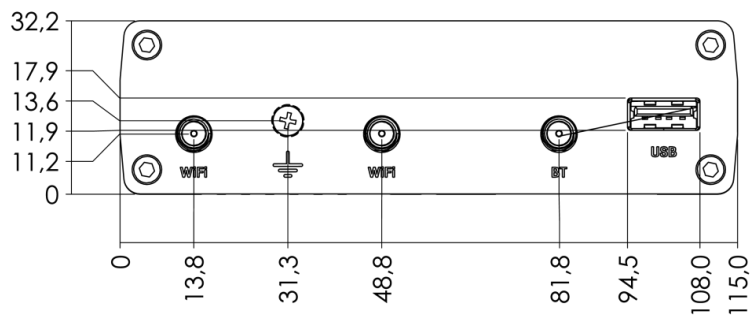
## FRONT VIEW

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



## 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:

