

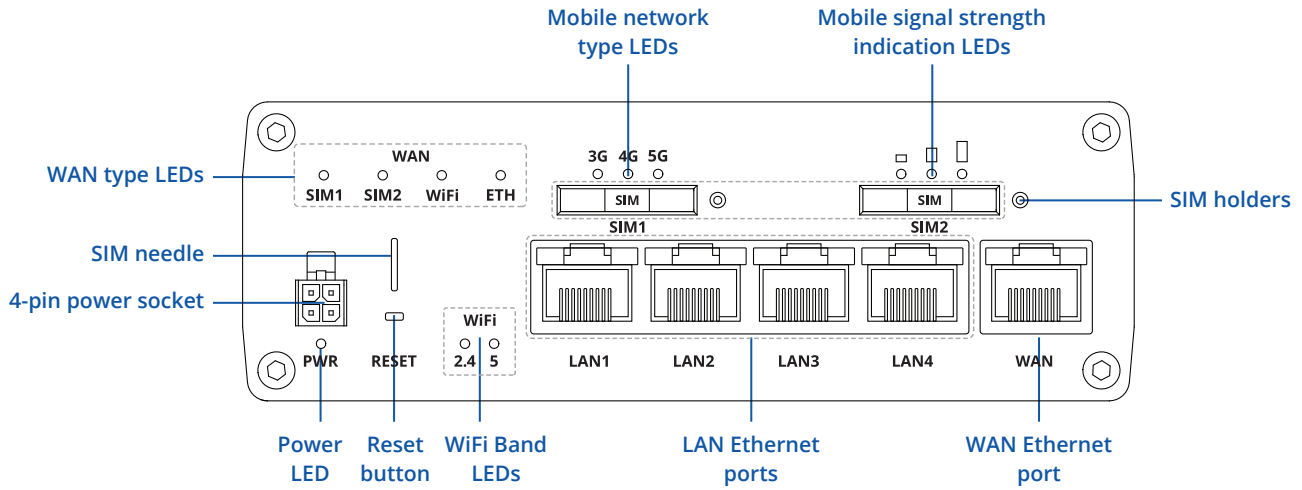
 **TELTONIKA** | Networks

RUTX50

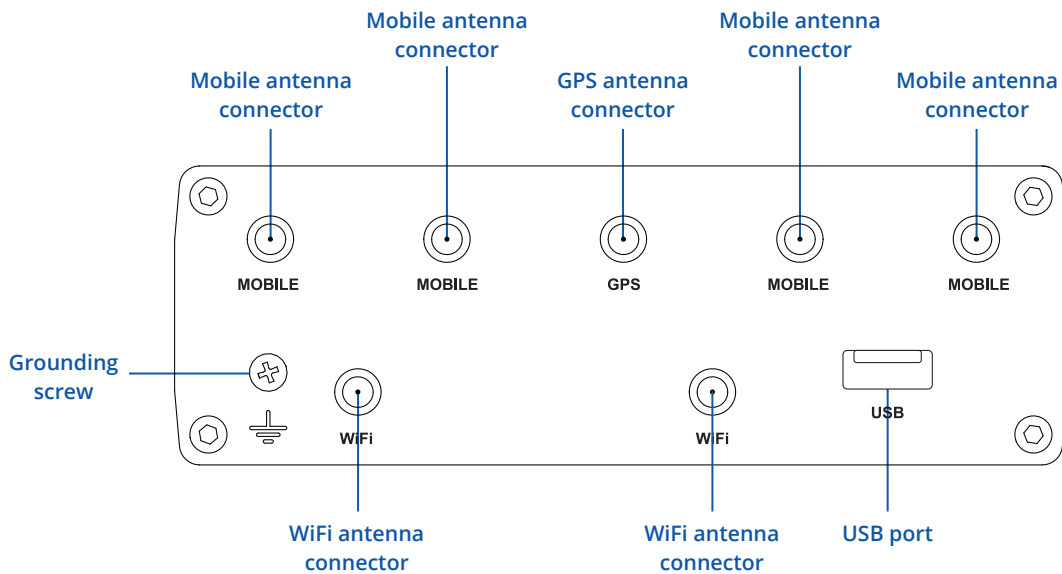


HARDWARE

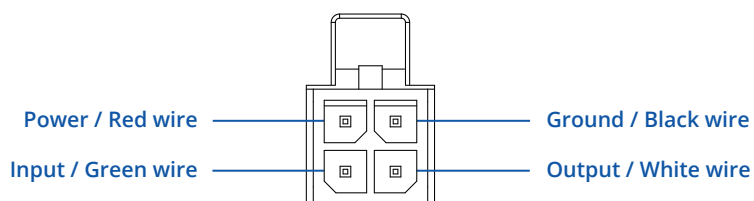
FRONT VIEW



BACK VIEW



POWER SOCKET PINOUT



FEATURES

MOBILE

| | |
|------------------|---|
| Mobile module | 5G Sub-6Ghz SA/NSA 2.1/3.3Gbps DL (4x4 MIMO), 900/600 Mbps UL (2x2); 4G (LTE) – LTE Cat 20 2.0Gbps DL, 200Mbps UL; 3G – 42 Mbps DL, 5.76Mbps UL |
| Status | Signal strength (RSSI), SINR, RSRP, RSRQ, EC/IO, RSCP Bytes sent/received, connected band, IMSI, ICCID. |
| SMS/Call | 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, Call utilities |
| USSD | Supports sending and reading Unstructured Supplementary Service Data messages |
| Black/White list | Operator black/white list |
| Band management | Band lock, Used band status display |
| APN | Auto APN |
| Bridge | Direct connection (bridge) between mobile ISP and device on LAN |
| Passthrough | Gateway assigns its mobile WAN IP address to another device on LAN |
| Multiple PDN | Possibility to use different PDNs for multiple network access and services |

WIRELESS

| | |
|------------------------|---|
| Wireless mode | 802.11b/g/n/ac Wave 2 (WiFi 5) with data transmission rates of up to 867 Mbps (Dual Band, MU-MIMO), 802.11r fast transition, Access Point (AP), Station (STA) |
| WiFi security | WPA3-EAP, WPA3-SAE, WPA2-Enterprise-PEAP, WPA2-PSK, WEP; AES-CCMP, TKIP, Auto Cipher modes, client separation |
| ESSID | ESSID stealth mode |
| WiFi users | Up to 150 simultaneous connections |
| Wireless Hotspot | Captive portal (Hotspot), internal/external Radius server, built in customizable landing page |
| Wireless mesh/ roaming | Wireless mesh (802.11s), fast roaming (802.11r) |

ETHERNET

| | |
|-----|--|
| WAN | 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 |
| LAN | 4 x RJ45 port, 10/100/1000 Mbps, supports auto MDI/MDIX crossover |

NETWORK

| | |
|-----------------------|--|
| Network protocols | TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, SMTP, SSL v3, TLS, PPP, PPPoE, SSH, DHCP, SNMP, MQTT, Wake on LAN (WOL) |
| Routing | Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2, EIGRP, NHRP) |
| Connection monitoring | Ping Reboot, Wget Reboot, Periodic Reboot, LCP and ICMP for link inspection |
| Firewall | Port forwards, traffic rules, custom rules |
| DHCP | Static and dynamic IP allocation |
| DDNS | Supported >25 service providers, others can be configured manually |
| SSHFS | Possibility to mount remote file system via SSH protocol |

SECURITY

| | |
|----------------------|---|
| Authentication | Pre-shared key, digital certificates, X.509 certificates |
| Firewall | Pre-configured firewall rules can be enabled via the WebUI, unlimited firewall configuration via CLI; 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 | Set up custom data limits for SIM card |
| WEB filter | Blacklist for blocking out unwanted websites, Whitelist for specifying allowed sites only |
| Access control | Flexible access control of TCP, UDP, ICMP packets, MAC address filter |

VPN

| | |
|--------------------|---|
| OpenVPN | Multiple clients and a server can run simultaneously, 12 encryption methods |
| OpenVPN Encryption | 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 |
| IPsec | IKEv1, IKEv2, supports up to 5 x VPN IPsec tunnels (instances), with 5 encryption methods (DES, 3DES, AES128, AES192, AES256) |
| GRE | GRE tunnel |
| PPTP, L2TP | Client/Server services can run simultaneously, L2TPv3 support |
| SSTP | SSTP client instance 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 |
| WireGuard | WireGuard VPN client and server support |
| ZeroTier | ZeroTier VPN |

MODBUS TCP SLAVE

| | |
|---------------------|--|
| ID filtering | Respond to one ID in range [1;255] or any |
| Allow remote access | Allow access through WAN |
| Custom registers | 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 | 01, 02, 03, 04, 05, 06, 15, 16 |
| 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 |

MQTT GATEWAY

| | |
|---------|---|
| Gateway | Allows sending commands and receiving data from MODBUS Master through the MQTT broker |
|---------|---|

DNP3

| | |
|-----------------|-----------------------------|
| Supported modes | TCP Master, DNP3 Outstation |
|-----------------|-----------------------------|

DATA TO SERVER

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

IoT PLATFORMS

| | |
|------------------|--|
| Clouds of things | Allows monitoring of: Device data, Mobile data, Network info, Availability |
| ThingWorx | Allows monitoring of: WAN Type, WAN IP, Mobile Operator Name, Mobile Signal Strength, Mobile Network Type |
| Cumulocity | Allows monitoring of: Device Model, Revision and Serial Number, Mobile Cell ID, ICCID, IMEI, Connection Type, Operator, Signal Strength, WAN Type and IP |
| Azure IoT Hub | Can send device IP, Number of bytes send/received, Mobile connection state, Network link state, IMEI, ICCID, Model, Manufacturer, Serial, Revision, IMSI, SIM State, PIN state, GSM signal, WCDMA RSCP, WCDMA EC/IO, LTE RSRP, LTE SINR, LTE RSRQ, CELL ID, Operator, Operator number, Connection type, Temperature, PIN count to Azure IoT Hub server |

MONITORING & MANAGEMENT

| | |
|----------|--|
| WEB UI | HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, event log, system log, kernel log |
| 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 |
| 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 |
| JSON-RPC | Management API over HTTP/HTTPS |
| Modbus | Modbus TCP status/control |
| RMS | Teltonika Remote Management System (RMS) |

SYSTEM CHARACTERISTICS

| | |
|---------------|---|
| CPU | Quad-core ARM Cortex A7, 717 MHz |
| RAM | 256 MB (100 MB available for userspace) |
| FLASH storage | 256 MB (80 MB available for userspace) |

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 |

FIRMWARE CUSTOMIZATION

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

LOCATION TRACKING

| | |
|-----------------|--|
| GNSS | GPS, GLONASS, BeiDou, Galileo |
| Coordinates | GNSS coordinates via WebUI, SMS, TAVL, RMS |
| NMEA | NMEA 0183 |
| Server software | Supports server software: TAVL, RMS |
| Geofencing | Multiple configurable geofence zones |

USB

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

INPUT/OUTPUT

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

POWER

| | |
|---------------------|---|
| Connector | 4-pin industrial DC power socket |
| Input voltage range | 9 – 50 VDC, reverse polarity protection, surge protection >51 VDC 10us max |
| PoE (passive) | Passive PoE. Possibility to power up through LAN1 port , not compatible with IEEE802.3af, 802.3at and 802.3bt standards |
| Power consumption | Idle: <4 W, Max: <18 W |

PHYSICAL INTERFACES (PORTS, LEDS, ANTENNAS, BUTTONS, SIM)

| | |
|-------------|--|
| Ethernet | 5 x RJ45 ports, 10/100/1000 Mbps |
| I/Os | 1 x Digital Input, 1 x Digital Output on 4-pin power connector |
| Status LEDs | 3 x connection status LEDs, 3 x connection strength LEDs, 10 x Ethernet port status LEDs, 4 x WAN status LEDs, 1x Power LED, 2 x 2.4G and 5G WiFi LEDs |
| SIM | 2 x SIM slot (Mini SIM – 2FF), 1.8 V/3 V |
| Power | 1 x 4-pin DC power connector |
| Antennas | 4 x SMA for Mobile, 2 x RP-SMA for WiFi, 1 x SMA for GNSS |
| USB | 1 x USB A port for external devices |
| Reset | Reboot/User default reset/Factory reset button |
| Grounding | 1 x Grounding screw |

PHYSICAL SPECIFICATION

| | |
|------------------------|--|
| Casing material | Aluminum housing |
| Dimensions (W x H x D) | 132 x 44.2 x 95.1 mm |
| Weight | 533 g |
| Mounting options | DIN rail (can be mounted on two sides), flat surface placement |

OPERATING ENVIRONMENT

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

WHAT'S IN THE BOX?

STANDARD PACKAGE CONTAINS*

- RUTX50 Router
- 18 W PSU
- 4 x Mobile antennas (swivel, SMA male)
- 2 x WiFi antennas (magnetic mount, RP-SMA male, 1.5 m cable)
- 1 x GNSS antenna (adhesive, SMA male, 3 m cable)
- Ethernet cable (1.5 m)
- SIM Adapter kit
- QSG (Quick Start Guide)
- Packaging box



RUTX50 ROUTER



18 W PSU



**4 X MOBILE ANTENNAS
(SWIVEL, SMA MALE)**



**2 X WIFI ANTENNAS (MAGNETIC
MOUNT, RP-SMA MALE, 1.5 M CABLE)**



**1 X GNSS ANTENNA (ADHESIVE, SMA
MALE, 3 M CABLE)**



ETHERNET CABLE (1.5 M)



SIM ADAPTER KIT

* For all standard order codes standard package contents are the same, except for PSU.

STANDARD ORDER CODES

| PRODUCT CODE | HS CODE | HTS CODE | PACKAGE CONTAINS |
|---------------|---------|------------|------------------|
| RUTX50 000000 | 851762 | 8517.62.00 | Standard package |

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

AVAILABLE VERSIONS

| PRODUCT CODE | REGION (OPERATOR) | FREQUENCY |
|---------------|--|--|
| RUTX50 0***** | Europe ¹ , the Middle East, Africa, Oceania, Brazil | <ul style="list-style-type: none"> ● 5G NR NSA: n1, n3, n5, n7, n8, n20, n28, n38, n40, n41, n77, n78 ● 5G NR SA: n1, n3, n5, n7, n8, n20, n28, n38, n40, n41, n77, n78 ● 4G (LTE-FDD): B1, B3, B5, B7, B8, B20, B28 ● 4G (LTE-TDD): B38, B40, B41, B42, B43 ● 3G: B1, B5, B8 |

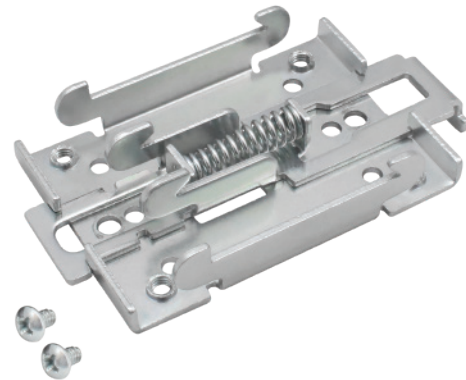
The price and lead-times for region (operator) specific versions may vary. For more information please contact us.

1 - Regional availability - excluding Russia & Belarus.

MOUNTING OPTIONS

DIN RAIL KIT

| Parameter | Value |
|-------------------|---|
| Mounting standard | 35mm DIN Rail |
| Material | Low carbon steel |
| Weight | 57g |
| Screws included | Philips Pan Head screw #6-32x3/16, 2pcs |
| Dimensions | 82 mm x 46 mm x 20 mm |
| RoHS Compliant | V |



DIN RAIL KIT

- DIN Rail adapter
- Philips Pan Head screw #6-32x3/16, 2pcs for RUT2xx/RUT9xx

ORDER CODE

PR5MEC00

HS CODE

73269098

HTS CODE

7326.90.98

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

COMPACT DIN RAIL KIT

| Parameter | Value |
|-------------------|---|
| Mounting standard | 35mm DIN Rail |
| Material | ABS + PC plastic |
| Weight | 6.5 g |
| Screws included | Philips Pan Head screw #6-32x3/16, 2pcs |
| Dimensions | 70 mm x 25 mm x 14,5 mm |
| RoHS Compliant | V |



DIN RAIL KIT

- Compact plastic DIN Rail adapter (70x25x14,5mm)
- Philips Pan Head screw #6-32x3/16, 2pcs

ORDER CODE

PR5MEC11

HS CODE

73269098

HTS CODE

7326.90.98

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

SURFACE MOUNTING KIT

| Parameter | Value |
|-------------------|---|
| Mounting standard | Flat surface mount |
| Material | ABS + PC plastic |
| Weight | 2x5 g |
| Screws included | Philips Pan Head screw #6-32x3/16, 2pcs |
| Dimensions | 25 mm x 48 mm x 7.5 mm |
| RoHS Compliant | V |



DIN RAIL KIT

- Surface mounting kit
- Philips Pan Head screw #6-32x3/16, 2pcs

ORDER CODE

PR5MEC12

HS CODE

73269098

HTS CODE

7326.90.98

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

RUTX50 SPATIAL MEASUREMENTS & WEIGHT

MAIN MEASUREMENTS

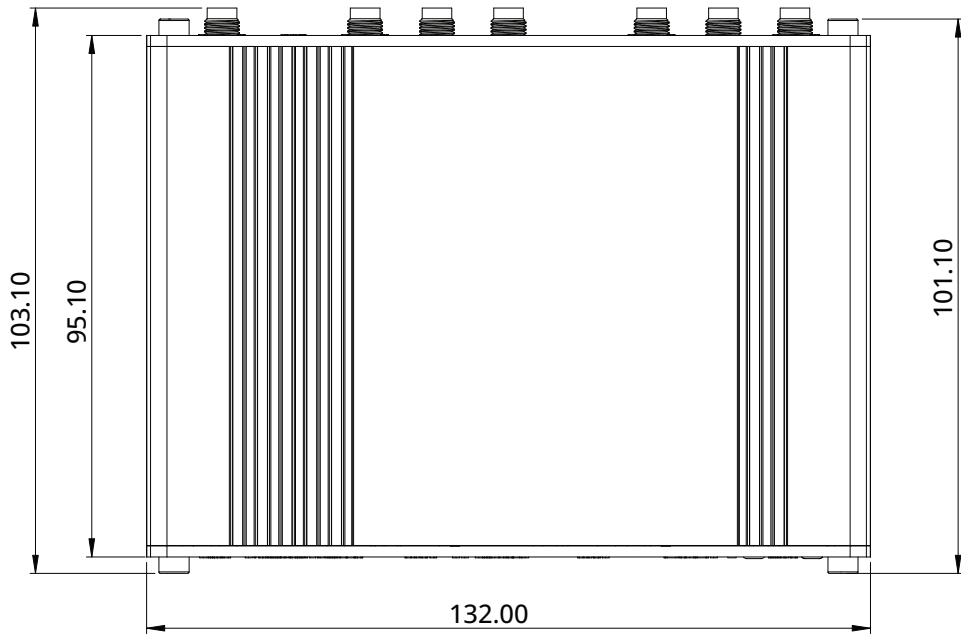
W x H x D dimensions for RUTX50:

| | |
|------------------|-------------------|
| Device housing*: | 132 x 44.2 x 95.1 |
| Box: | 355 x 60 x 175 |

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

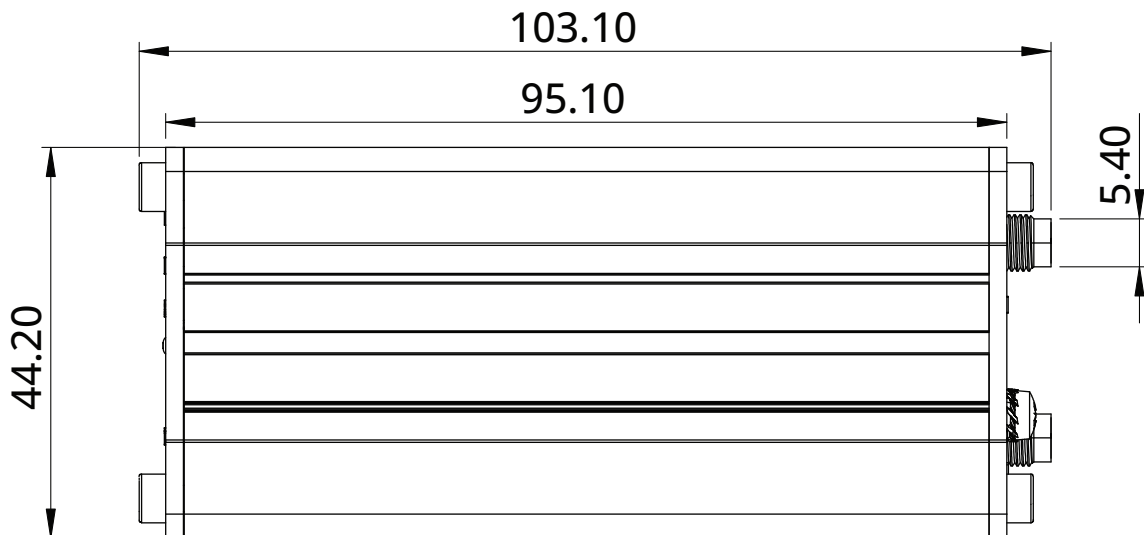
TOP VIEW

The figure below depicts the measurements of RUTX50 and its components as seen from the top:



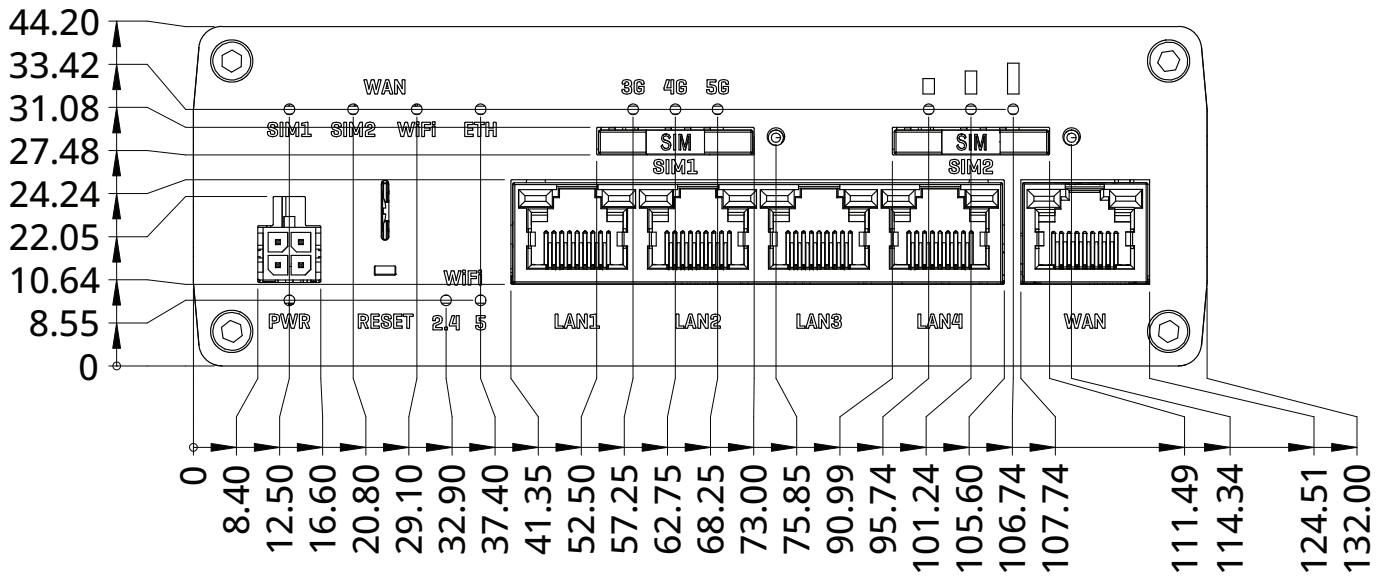
RIGHT VIEW

The figure below depicts the measurements of RUTX50 and its components as seen from the right side:



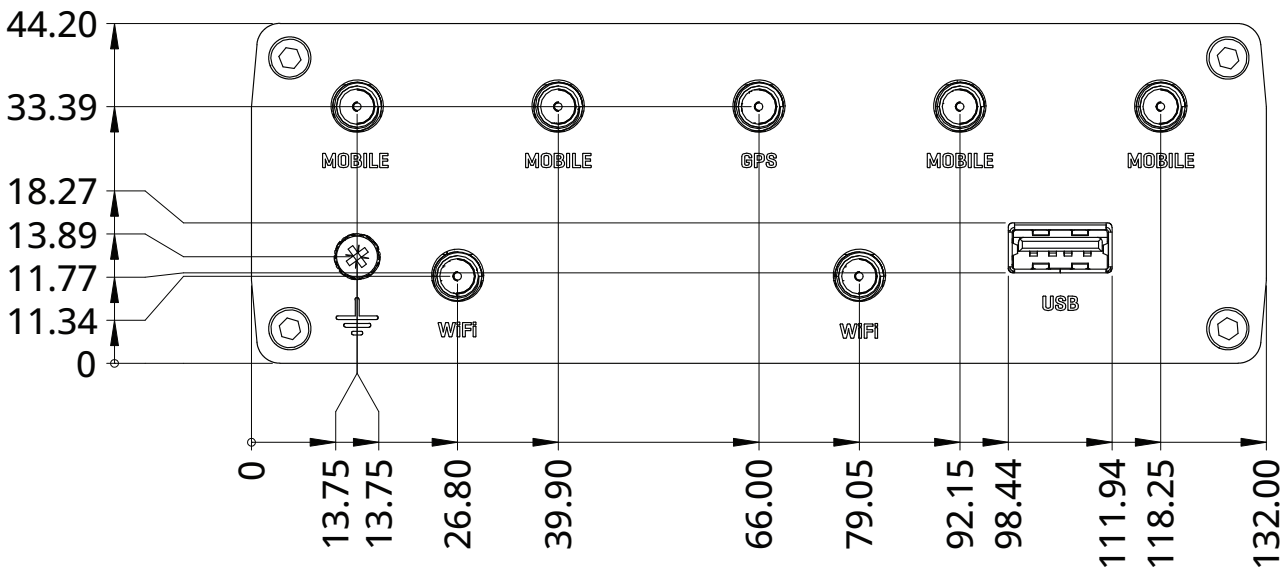
FRONT VIEW

The figure below depicts the measurements of RUTX50 and its components as seen from the front panel side:



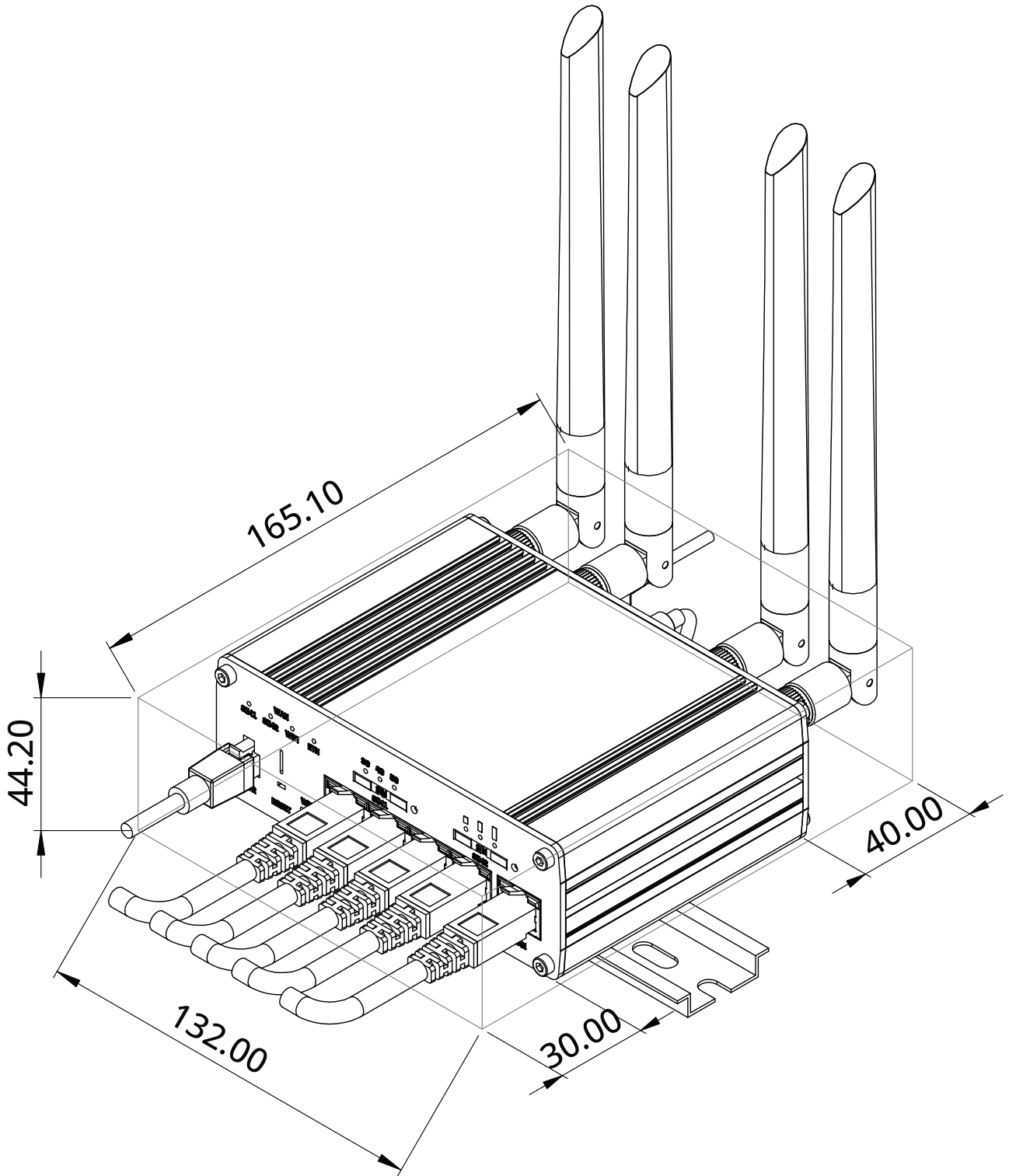
REAR VIEW

The figure below depicts the measurements of RUTX50 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:

