

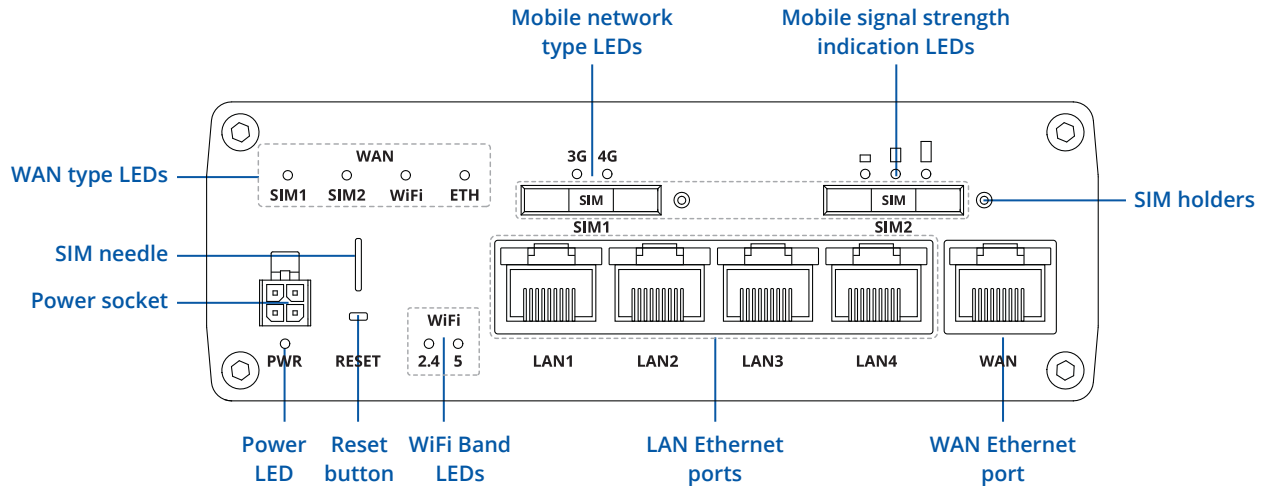


RUTX14

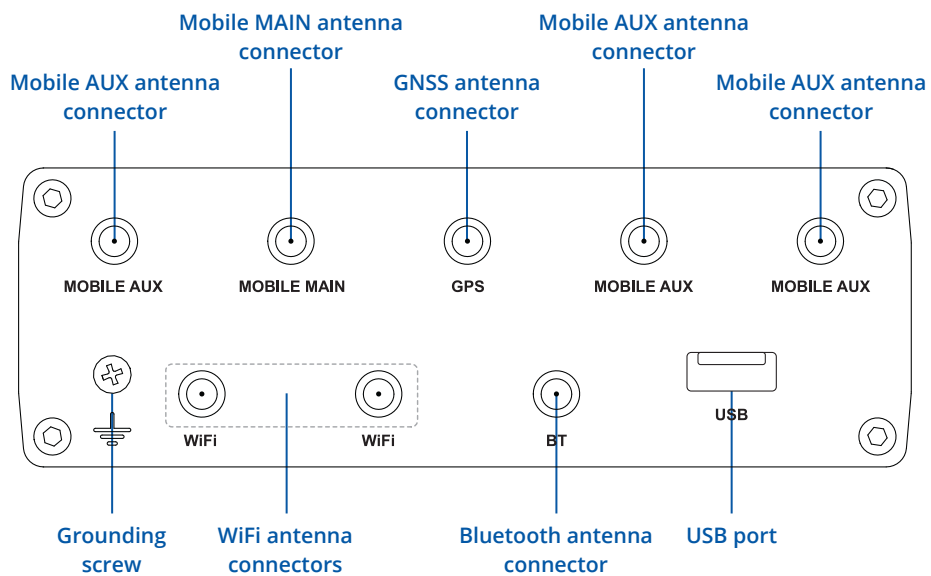


HARDWARE

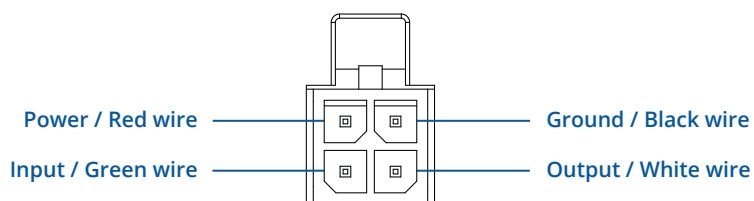
FRONT VIEW



BACK VIEW



POWER SOCKET PINOUT



FEATURES

MOBILE

| | |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Mobile module | 4G (LTE) – Cat 12 up to 600 Mbps, 3G – up to 42 Mbps |
| SIM/mobile module switch | 2 SIM cards, auto switch cases: weak signal, data limit, SMS limit, roaming, no network, network denied, data connection fail |
| Status | Signal strength, SINR, RSRP, RSRQ, Bytes sent/received, connected band, carrier aggregation, IMSI, ICCID, |
| SMS | SMS status, SMS configuration, send/read SMS via HTTP POST/GET, Email to SMS, SMS to Email, SMS to HTTP, SMS to SMS, SMS auto replay |
| Black/White list (planned) | Operator black/white list |
| Multiple PDN | Possibility to use different PDNs for multiple network access and services |
| Band management | Band lock, Used band status display |
| APN | Auto APN |
| Bridge mode | Direct connection (bridge) between mobile ISP and device on LAN |

WIRELESS

| | |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wireless mode | 802.11b/g/n/ac Wave 2 (WiFi 5) with data transmission rates 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 |

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 LAN ports, 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u, 802.3az standards, supports auto MDI/MDIX |

BLUETOOTH

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

NETWORK

| | |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Routing | Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2, EIGRP, NHRP) |
| Network protocols | 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 |
| 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 forwards, traffic rules, custom rules |
| DHCP | Static and dynamic IP allocation, DHCP Relay, Relayd |
| 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 |
| Network backup | VRRP, Mobile, Wired and WiFi WAN 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 |

SECURITY

| | |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Authentication | Pre-shared key, digital certificates, X.509 certificates |
| 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 | Custom data limits for both SIM cards |
| 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, with 5 encryption methods for IPsec (DES, 3DES, AES128, AES192, AES256) |
| GRE | GRE tunnel |
| PPTP, L2TP | Client/Server instances can run simultaneously, L2TPv3 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 |

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 MQTT broker |
|---------|-----------------------------------------------------------------------------------|

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/ 3G 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, DDR3 |
| FLASH storage | 256 MB, SPI Flash |

FIRMWARE / CONFIGURATION

| | |
|---------------|---------------------------------------------------------------------------------------|
| WEB UI | Update FW from file, check FW on server, configuration profiles, configuration backup |
| FOTA | Update FW/configuration from server |
| 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 and QZSS |
| Coordinates | GNSS coordinates via WebUI, SMS, TAVL, RMS |
| NMEA | NMEA 0183 |
| Server software | Supported server software: TAVL, RMS |
| Geofencing | Configurable multiple geofence zones |

USB

| | |
|------------------|-----------------------------------------------------------------------------|
| Data rate | USB 2.0 |
| Applications | Samba share, USB-to-serial |
| 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 to set certain I/O conditions to initiate event |

POWER

| | |
|---------------------|------------------------------------------------------------------------------------------------------------------------|
| Connector | 4 pin industrial DC power socket |
| Input voltage range | 9 – 50 VDC, reverse polarity protection, voltage surge/transient protection |
| 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: <22 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 | 2 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 slots (Mini SIM - 2FF), 1.8 V/3 V, external SIM holders |
| Power | 1 x 4 pin DC connector |
| Antennas | 4 x SMA for LTE, 2 x RP-SMA for WiFi, 1 x RP-SMA for Bluetooth, 1 x SMA for GNSS |
| USB | 1 x USB A port for external devices |
| Reset | Reboot/User default reset/Factory reset button |
| Other | 1 x Grounding screw |

PHYSICAL SPECIFICATION

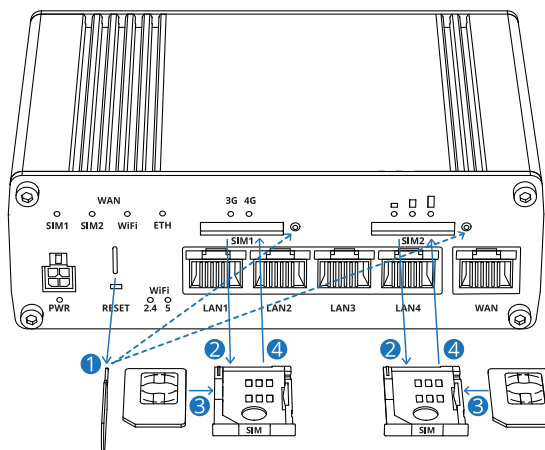
| | |
|------------------------|----------------------------------------------------------------|
| Casing material | Full aluminium housing |
| Dimensions (W x H x D) | 132 x 44 x 95 mm |
| Weight | 515 g |
| Mounting options | DIN rail (can be mounted on two sides), flat surface placement |

OPERATING ENVIRONMENT

| | |
|-----------------------|-----------------------------|
| Operating temperature | -40 C to 75 C |
| Operating humidity | 10 % to 90 % non-condensing |

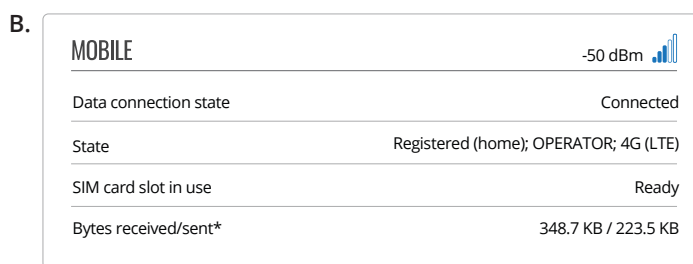
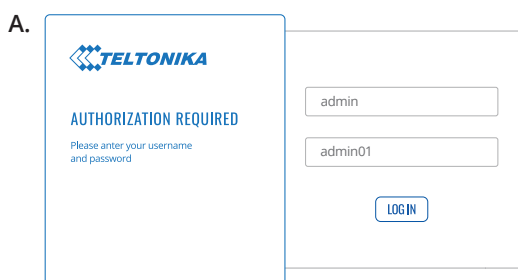
HARDWARE INSTALLATION

1. Pull out the SIM needle from the front panel of the router and push the SIM holder button with the SIM needle.
2. Pull out the SIM holder.
3. Insert your SIM card into the SIM holder.
4. Slide the SIM holder back into the router.
5. Attach all antennas.
6. 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.
7. 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.
5. Go to the **Overview** page and pay attention to the **Signal Strength** indication (image B). To maximize the cellular performance try adjusting the antennas or changing the location of your device to achieve the best signal conditions.



TECHNICAL INFORMATION

| Radio specifications | |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| RF technologies | 3G, 4G, GNSS, WiFi, BLE |
| Max RF power | 24 dBm@WCDMA, 23 dBm@LTE, 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 |
| Mobile antenna | 698-960 / 1710-2690 MHz, 50 Ω, VSWR<3, gain** 3 dBi, omnidirectional, SMA male connector |
| GNSS antenna | 1575.42-1602 MHz, 2.2-5 VDC, VSWR<1.5, active total gain** 28 dB (typ.), RHCP polarization, SMA male connector |
| WiFi antenna | 400-2483.5 MHz/5150-5905 MHz, 50 Ω, VSWR<2.0, gain** 3.0 dBi, omnidirectional, RP-SMA male connector |
| BLE antenna | 2400-2500 MHz, 50 Ω, VSWR<2.5, gain** 2.5 dBi, omnidirectional, RP-SMA male connector |

*Order code dependent.









**Higher gain antenna can be connected to compensate for cable attenuation when a cable is used. The user is responsible for the compliance with the legal regulations.

WHAT'S IN THE BOX?

STANDARD PACKAGE CONTAINS*

- Router RUTX14
- 24 W PSU
- 4 x LTE 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)
- 1 x Bluetooth antenna (magnetic mount, RP-SMA male, 1.5 m cable)
- Ethernet cable (1.5 m)
- SIM Adapter kit
- QSG (Quick Start Guide)
- RMS Flyer
- Packaging box



| | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>ROUTER RUTX14</p> |  <p>24 W PSU</p> |  <p>4 X LTE ANTENNAS (SWIVEL, SMA MALE)</p> |
|  <p>2 X WIFI ANTENNAS (MAGNETIC MOUNT, RP-SMA MALE, 1.5 M CABLE)</p> |  <p>1 X GNSS ANTENNA (ADHESIVE, SMA MALE, 3 M CABLE)</p> |  <p>1 X BLUETOOTH ANTENNA (MAGNETIC MOUNT, RP-SMA MALE, 1.5 M CABLE)</p> |
|  <p>ETHERNET CABLE (1.5 M)</p> |  <p>SIM ADAPTER KIT</p> | |

* 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 |
|--------------|---------|------------|------------------|
| RUTX14000000 | 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 |
|---------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RUTX14 0***** | Europe, the Middle East, Africa, APAC ² , Brasil | <ul style="list-style-type: none"> ● 4G (LTE-FDD): B1, B3, B5, B7, B8, B20, B28, B32¹ ● 4G (LTE-TDD): B38, B40, B41 ● 3G: B1, B3, B5, B8 |

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

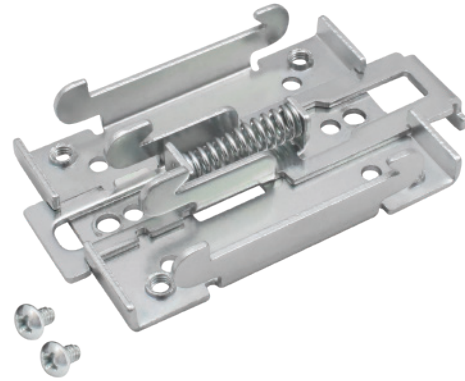
1 - LTE-FDD and B32 Support Rx Only, and in 2×CA it is Only for Secondary Component Carrier.

2 - Excluding Japan and CMCC

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.

RUTX14 SPATIAL MEASUREMENTS & WEIGHT

MAIN MEASUREMENTS

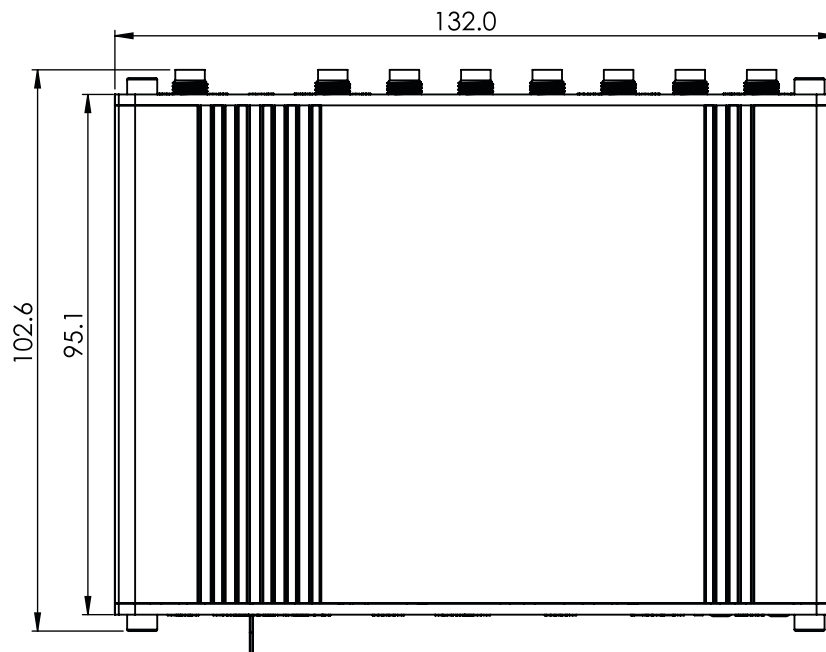
W x H x D dimensions for RUTX14:

| | |
|------------------|----------------|
| Device housing*: | 132 x 44 x 95 |
| 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.

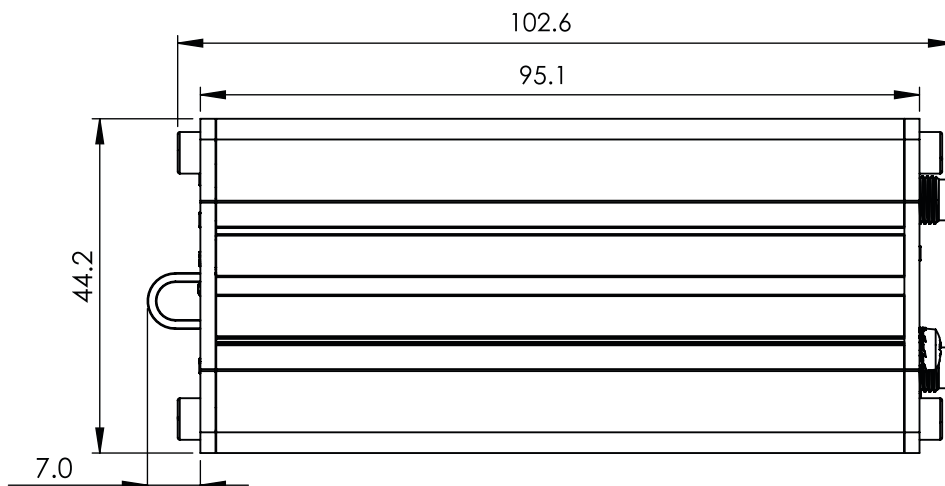
TOP VIEW

The figure below depicts the measurements of RUTX14 and its components as seen from the top:



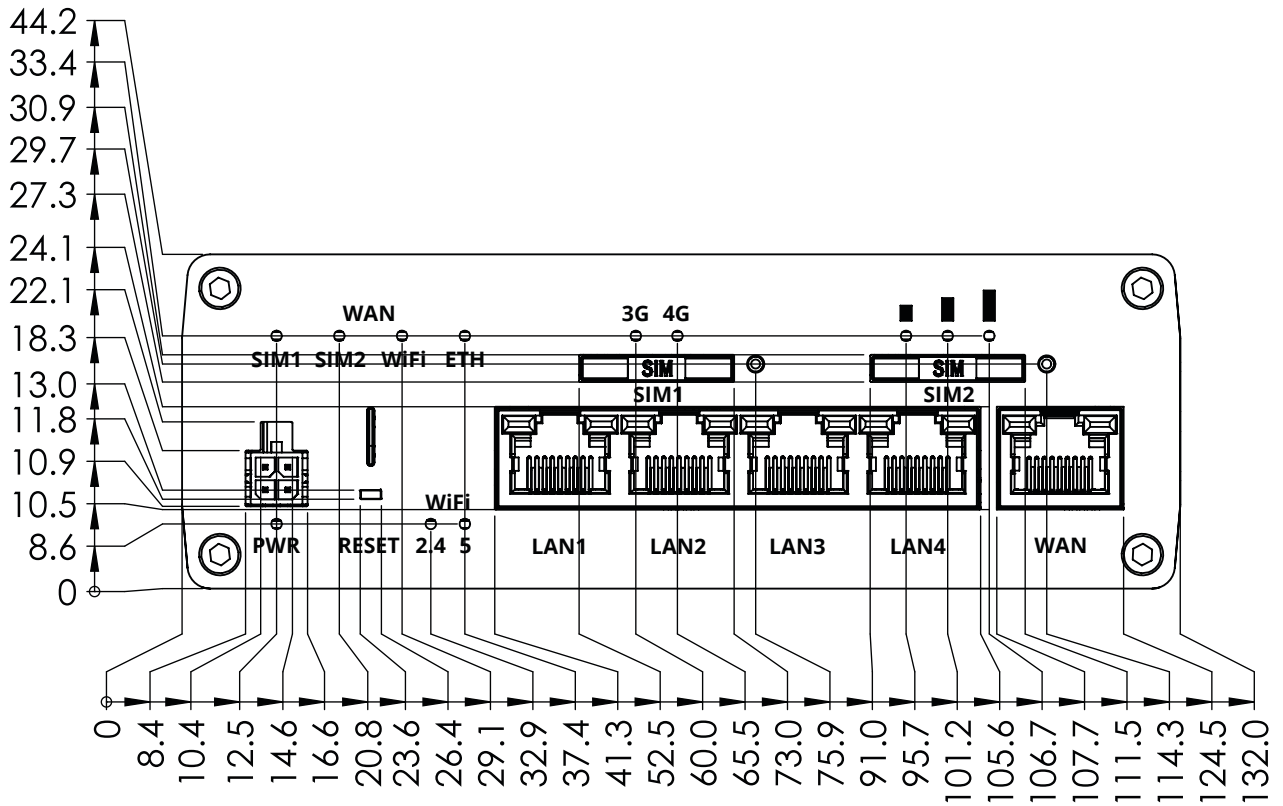
RIGHT VIEW

The figure below depicts the measurements of RUTX14 and its components as seen from the right side:



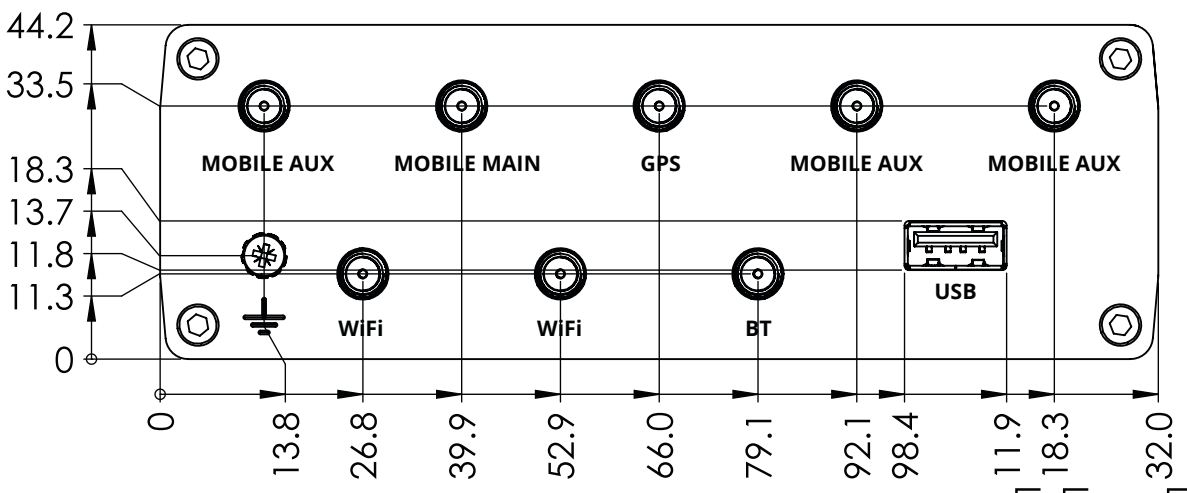
FRONT VIEW

The figure below depicts the measurements of RUTX14 and its components as seen from the front panel side:



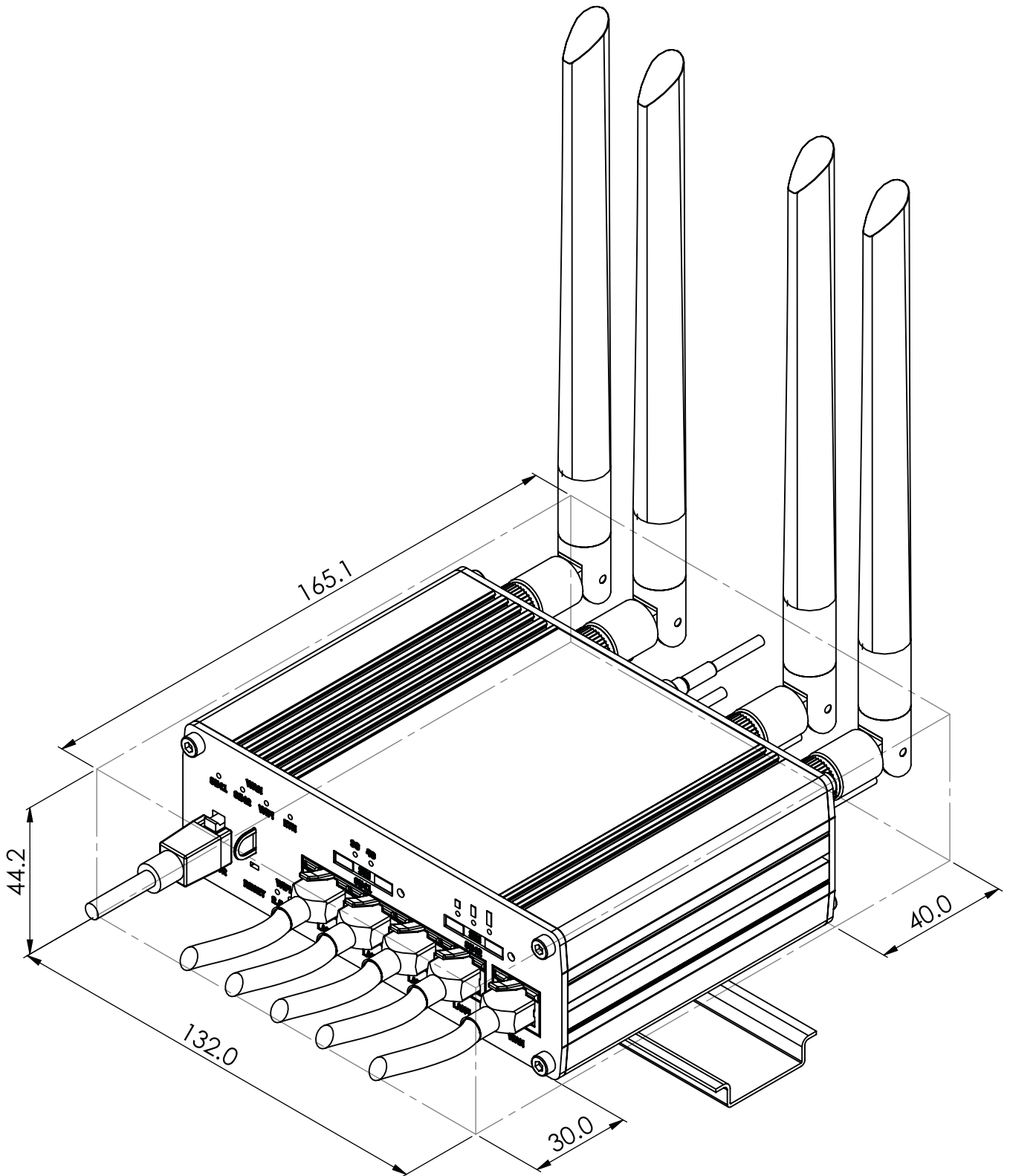
REAR VIEW

The figure below depicts the measurements of RUTX14 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:

