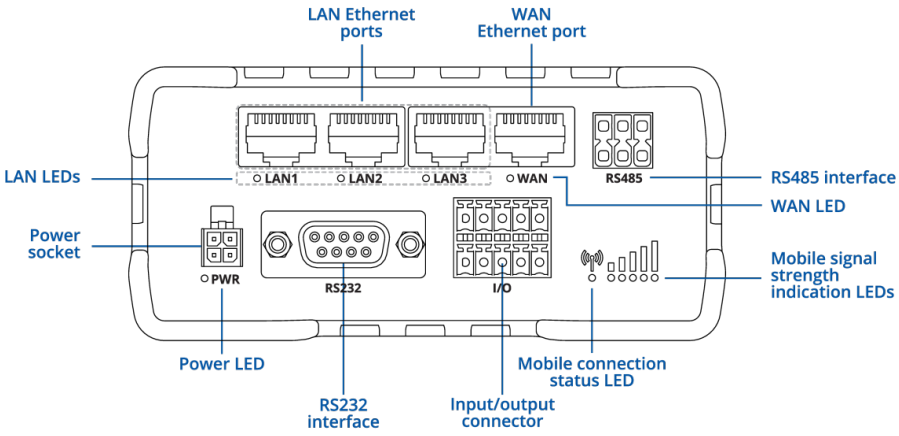
RUT956

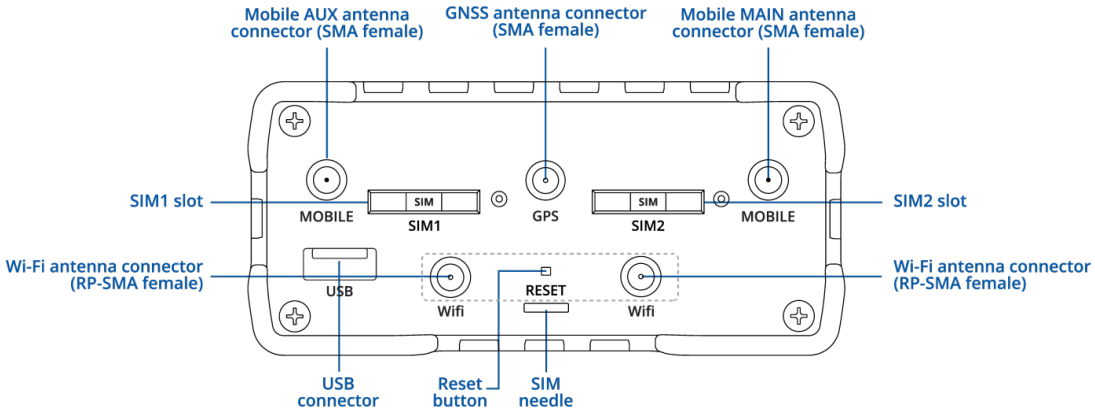
v1.21

HARDWARE

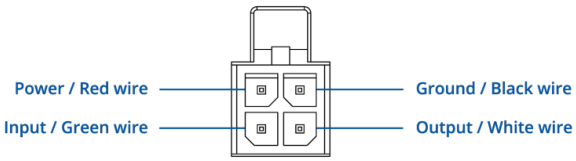
FRONT VIEW



BACK VIEW



POWER SOCKET PINOUT



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 11
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, 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
Block/Allow list	Operator block/allow list (by country or separate operators)
Multiple PDN	Possibility to use different PDNs for multiple network access and services
Band management	Band lock, Used band status display
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, 802.11w Protected Management Frames (PMF)
SSID/ESSID	SSID stealth mode and access control based on MAC address
Wi-Fi users	Up to 100 simultaneous connections
Wireless Connectivity Features	Wireless mesh (802.11s), fast roaming (802.11r), Relayd, BSS transition management (802.11v), radio resource measurement (802.11k)
Wireless MAC filter	Allowlist, blocklist
Wireless QR code generator	Once scanned, a user will automatically enter your network without needing to input login information
TravelMate	Forward Wi-Fi hotspot landing page to a subsequent connected device

Network

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
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), VXLAN
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, TTL target customisation
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
Traffic Management	Real-time monitoring, wireless signal charts, traffic usage history
Port Mirroring	Mirroring network traffic on Ethernet ports for monitoring and analysis

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

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	Preconfigured firewall rules can be enabled via WebUI, unlimited firewall configuration via CLI, DMZ, NAT, NAT-T, NAT64
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 and SCEP certificate generation methods

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, Phase 2 and Phase 3 and Dual Hub support
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 modes	Router
Supported connection types	RS485, TCP
Configuration options	Support for multiple BACnet/IP interfaces, Network number assignment, Preconfigured BDT entries for BBMD (BACnet Broadcast Management Device)

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

MQTT Gateway

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

DNP3

Supported modes	Station, Outstation
Supported connection types	RS232, RS485, TCP, USB

DLMS/COSEM

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

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
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
RMS	Teltonika Remote Management System (RMS)

IoT Platforms

ThingWorx	Allows monitoring of: WAN Type, WAN IP, Mobile Operator Name, Mobile Signal Strength, Mobile Network Type
Cumulocity - Cloud of Things	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
Azure IoT Hub	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
AWS IoT Core	Utility to interact with the AWS cloud platform. Jobs Support: Call the device's API using AWS Jobs functionality

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++
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
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)
RS485	RS485 Full Duplex (4 wires) and Half Duplex (2 wires). 300-115200 baud rate
Serial functions	Console, Serial over IP, Modem, MODBUS gateway, NTRIP Client

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; with 4-20 mA capability), 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 2 TB
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 (available from HW revision 1600)
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 - different hardware required; contact your sales manager)
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)	110 x 50 x 100 mm
Weight	287 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, ANRT, Kenya, CITC, ICASA, FCC, IC, PTCRB, Anatel, RCM, Giteki, IMDA, ECE R118, E-mark, UL/CSA Safety, CB, RoHS, REACH, NCC, C1D2
Operator	AT&T, Verizon, T-Mobile

EMC Emissions & Immunity

Standards	EN 55032:2015 + A11:2020 EN 55035:2017 + A11:2020 EN IEC 61000-3-2:2019 + A1:2021 EN 61000-3-3:2013 + A1:2019 EN 301 489-1 V2.2.3 EN 301 489-17 V3.2.4 EN 301 489-19 V2.1.1 EN 301 489-52 V1.2.1
ESD	EN 61000-4-2:2009
Radiated Immunity	EN 61000-4-3:2020
EFT	EN 61000-4-4:2012
Surge Immunity (AC Mains Power Port)	EN 61000-4-5:2014 + A1:2017
CS	EN 61000-4-6:2014
DIP	EN 61000-4-11:2020

RF

Standards	EN 300 328 V2.2.2 EN 301 511 V12.5.1 EN 301 908-1 V15.2.1 EN 301 908-2 V13.1.1 EN 301 908-13 V13.2.1 EN 303 413 V1.1.1

Safety (Ordinary Locations)

Standards	**CE**: EN IEC 62368-1:2020 + A11:2020, EN IEC 62311:2020, EN 50665:2017 **RCM**: AS/NZS 62368.1:2022 **CB**: IEC 62368-1:2018 **UL/CSA Safety**: UL 62368-1 (3rd Ed., Rev. December 13, 2019), C22.2 No. 62368-1:19 (3rd Ed., Rev. December 13, 2019)

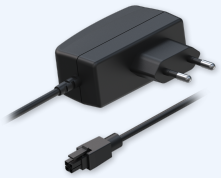
Safety (Hazardous Locations)

Standards	**UL/CSA Safety**: UL 121201, 9th Ed., Rev. April 1, 2021, CAN/CSA C22.2 No. 213, 3rd Ed. April 2021
Hazardous Environments	Class I, Division 2, Groups A, B, C, D Class I, Zone 2, Group IIC -40°C ≤ Ta ≤ 75°C, T4, IP30

ORDERING

STANDARD PACKAGE*

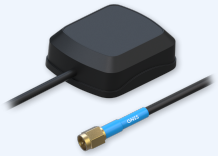
RUT956



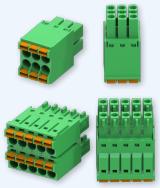
9W PSU

2 X MOBILE MAGNETIC SMA ANTENNAS

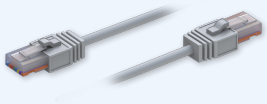
2 X WI-FI MAGNETIC SMA ANTENNAS



GNSS ADHESIVE SMA ANTENNA



CONNECTORS SET



ETHERNET CABLE (1.5M)

SIM ADAPTER KIT

QSG (QUICK START GUIDE)

- RUT956 router
- 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

*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

RUT956 **1***** Europe[1], The Middle East[1], Africa, Korea, Thailand	**4G (LTE-FDD)**: B1, B3, B5, B7, B8, B20 **4G (LTE-TDD)**: B40 **3G**: B1, B5, B8 **2G**: B3, B8	RUT956100000 / Standard package with EU PSU RUT956100100 / Standard package with UK PSU RUT956100300 / Standard package with Power cable with 4-way screw terminal RUT956100200 / Mass packing code
RUT956 **2***** Europe[1], The Middle East[1], Africa, Korea, Thailand	**4G (LTE-FDD)**: B1, B3, B7, B8, B20, B28A **4G (LTE-TDD)**: B38, B40, B41 **3G**: B1, B8 **2G**: B3, B8	RUT956200000 / Standard package with EU PSU RUT956200100 / Standard package with UK PSU RUT956200300 / Standard package with Power cable with 4-way screw terminal RUT956200500 / Standard package with Universal PSU RUT956200200 / Mass packing code
RUT956 **4***** Global[1]	**4G (LTE-FDD)**: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28 **4G (LTE-TDD)**: B38, B39, B40, B41 **3G**: B1, B2, B4, B5, B6, B8, B19 **2G**: B2, B3, B5, B8	RUT956400V00 / Standard package with EU PSU RUT956400500 / Standard package with Universal PSU RUT956400200 / Mass packing code
RUT956 **7***** South America, Australia, New Zealand, Taiwan	**4G (LTE-FDD)**: B1, B2, B3, B4, B5, B7, B8, B28 **4G (LTE-TDD)**: B40 **3G**: B1, B2, B4, B5, B8 **2G**: B2, B3, B5, B8	RUT956700700 / Standard package with AU PSU RUT956700000 / Standard package with EU PSU RUT956700500 / Standard package with Universal PSU RUT956700A00 / Standard package with US PSU RUT956700200 / Mass packing code
RUT956 **9***** Japan	**4G (LTE-FDD)**: B1, B3, B8, B18, B19, B26 **4G (LTE-TDD)**: B41 **3G**: B1, B6, B8, B19	RUT956900C00 / Standard package with JP PSU RUT956900200 / Mass packing code

RUT956 **A***** North America[2]	**4G (LTE-FDD)**: B2, B4, B5, B12, B13, B14, B66, B71 **3G**: B2, B4, B5	RUT956A00A00 / Standard package with US PSU RUT956A00200 / Mass packing code
RUT956 **200505** Thailand	**4G (LTE-FDD):** B1, B3, B7, B8, B20 **4G (LTE-TDD):** B38, B40 **3G:** B1, B8 **2G:** B3, B8	RUT956200505 / Standard package with Universal PSU

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

1 - Regional availability - excluding Russia, Belarus & Iran
2 - For more detailed information about certified carriers, visit our Wiki page

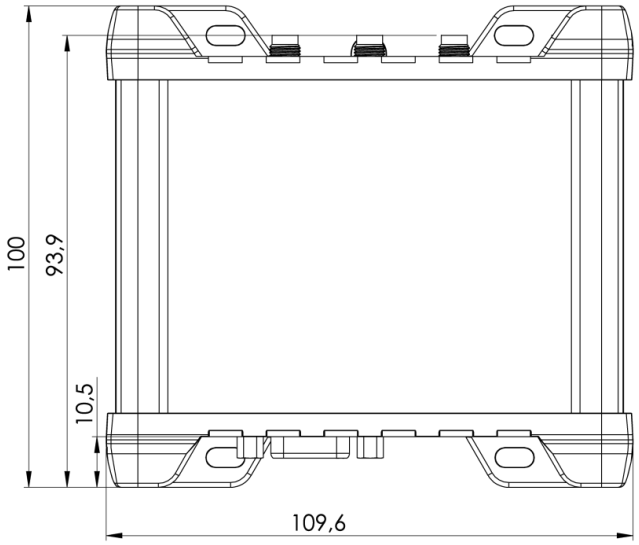
RUT956 SPATIAL MEASUREMENTS

PHYSICAL SPECIFICATION

Device housing (W x H x D)*:	110 x 50 x 100 mm
Box (W x H x D):	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.

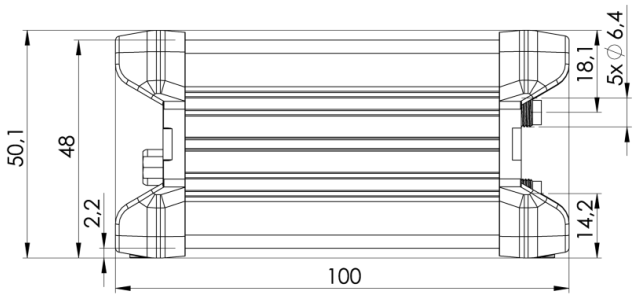
TOP VIEW

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



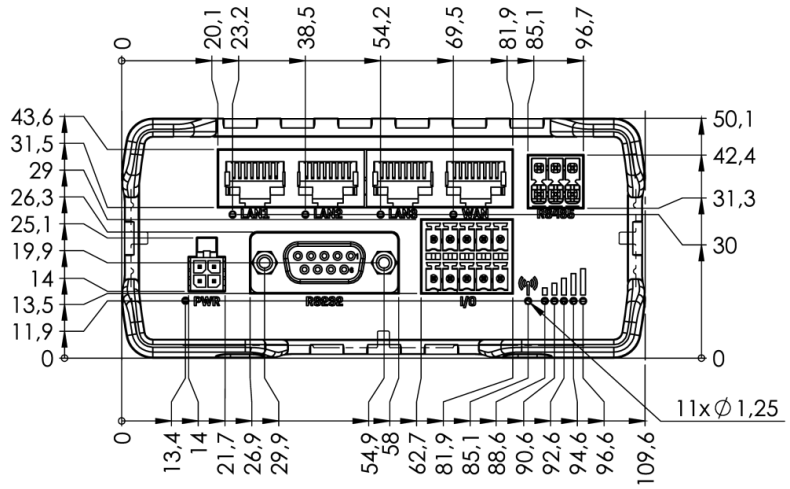
RIGHT VIEW

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



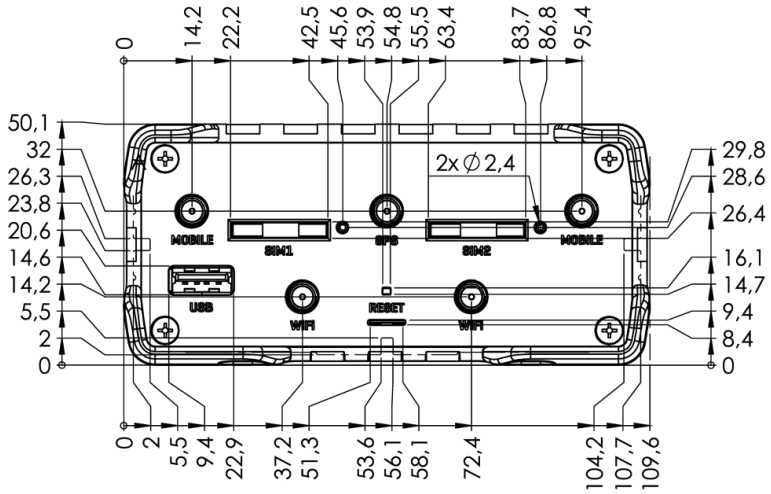
FRONT VIEW

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



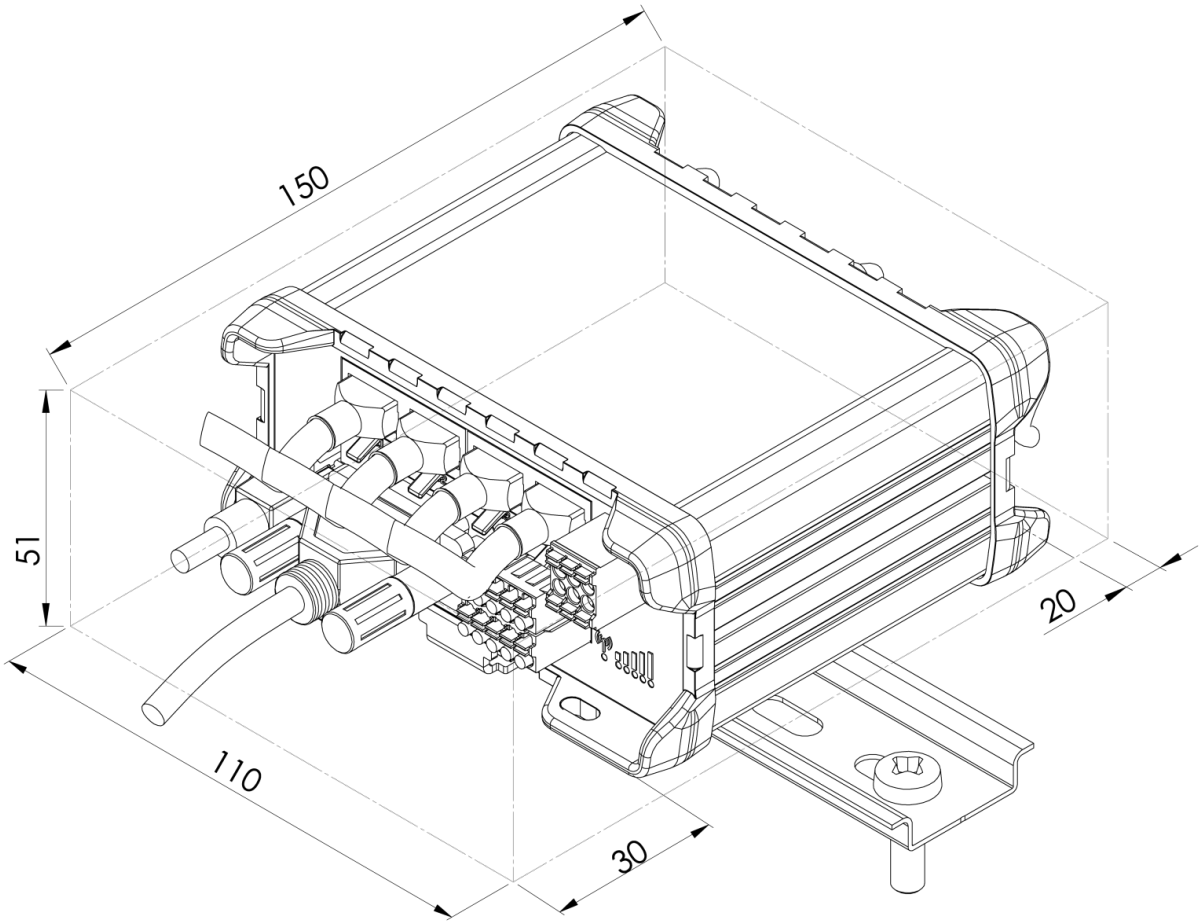
REAR VIEW

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:



DIN RAIL

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