

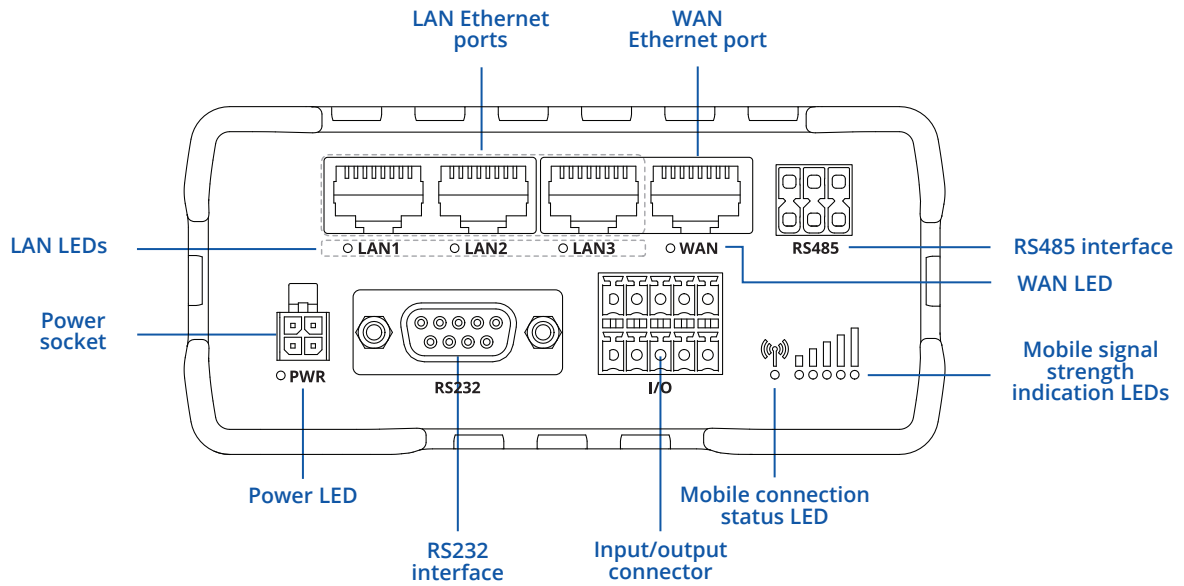


# RUT956

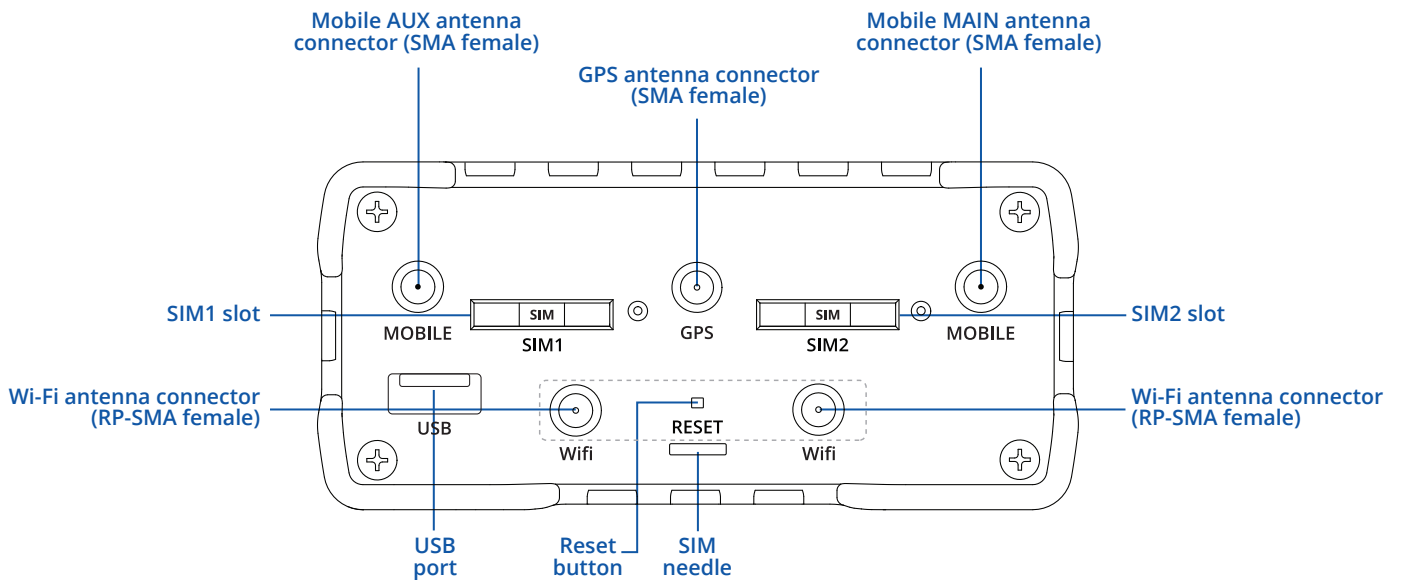


# HARDWARE

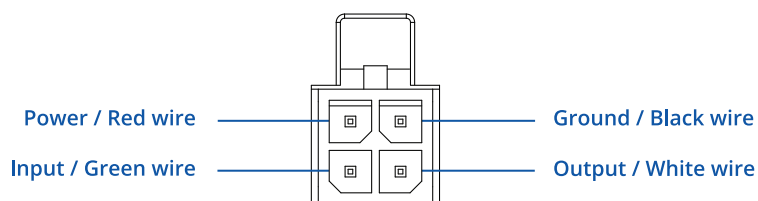
## FRONT VIEW



## 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
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, send/read SMS via HTTP POST/GET, 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
Black/White list	Operator black/white 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
SSID/ESSID	SSID stealth mode and access control based on MAC address
Wi-Fi users	Up to 100 simultaneous connections
Wireless Connectivity Features	Fast roaming (802.11r), Relayd, BSS transition management (802.11v), radio resource measurement (802.11k)
Wireless MAC filter	Whitelist, blacklist

### 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)
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
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

### 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	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	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 support

## 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
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

## 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, Kinesis
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## MQTT GATEWAY

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

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

## DLMS

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, send/read SMS via HTTP POST/GET
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
MODBUS	Teltonika Remote Management System (RMS)

**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, WAN Type and IP, Mobile Cell ID, ICCID, IMEI, Connection Type, Operator, Signal Strength
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

**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), 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 64 GB
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)
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
RS	EN 61000-4-3:2020
EFT	EN 61000-4-4:2012
Surge immunity (AC Power Line)	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
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**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)
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**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
ESD	Class I, Division 2, Groups A, B, C, D Class I, Zone 2, Group IIC -40°C ≤ Ta ≤ 75°C, T4, IP30

## STANDARD PACKAGE\*

- 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



ROUTER RUT956



9 W PSU



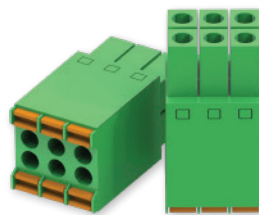
2 X LTE ANTENNAS (MAGNETIC MOUNT, SMA MALE, 3 M CABLE)



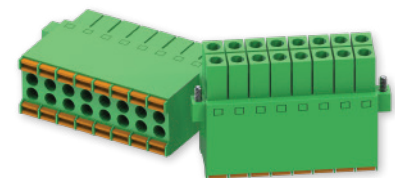
2 X WI-FI ANTENNAS (MAGNETIC MOUNT, RP-SMA MALE, 1.5 M CABLE)



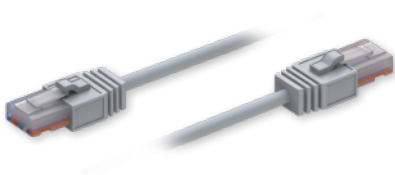
GNSS ANTENNA (ADHESIVE, SMA MALE, 3 M CABLE)



RS485 CONNECTOR BLOCK



I/O CONNECTOR BLOCK



ETHERNET CABLE (1.5 M)



SIM ADAPTER KIT



QSG

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



## CLASSIFICATION CODES

HS Code: 851762

HTS: 8517.62.00

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

## AVAILABLE VERSIONS

HARDWARE VERSION	SUPPORTED FREQUENCIES	STANDARD ORDER CODE / PACKAGE CONTAINS
RUT956 1***** Europe <sup>1</sup> , The Middle East, Africa, Korea, Thailand	<b>4G (LTE-FDD):</b> B1, B3, B5, B7, B8, B20 <b>4G (LTE-TDD):</b> B40 <b>3G:</b> B1, B5, B8 <b>2G:</b> 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 <sup>1</sup> , The Middle East, Africa, Korea, Thailand	<b>4G (LTE-FDD):</b> B1, B3, B7, B8, B20, B28A <b>4G (LTE-TDD):</b> B38, B40, B41 <b>3G:</b> B1, B8 <b>2G:</b> B3, B8	RUT956200000 / Standard package with EU PSU RUT956200100 / Standard package with UK PSU RUT956200500 / Standard package with Universal PSU RUT956200200 / Mass packing code
RUT956 4***** Global <sup>1</sup>	<b>4G (LTE-FDD):</b> B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28 <b>4G (LTE-TDD):</b> B38, B39, B40, B41 <b>3G:</b> B1, B2, B4, B5, B6, B8, B19 <b>2G:</b> B2, B3, B5, B8	RUT956400000 / Standard package with EU PSU RUT956400500 / Standard package with Universal PSU RUT956400200 / Mass packing code
RUT956 7***** South America, Australia, New Zealand, Taiwan	<b>4G (LTE-FDD):</b> B1, B2, B3, B4, B5, B7, B8, B28 <b>4G (LTE-TDD):</b> B40 <b>3G:</b> B1, B2, B4, B5, B8 <b>2G:</b> 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	<b>4G (LTE-FDD):</b> B1, B3, B8, B18, B19, B26 <b>4G (LTE-TDD):</b> B41 <b>3G:</b> B1, B6, B8, B19	RUT956900C00 / Standard package with JP PSU RUT956900200 / Mass packing code
RUT956 A***** North America <sup>2</sup>	<b>4G (LTE-FDD):</b> B2, B4, B5, B12, B13, B14, B66, B71 <b>3G:</b> B2, B4, B5	RUT956A00A00 / Standard package with US PSU RUT956A00200 / Mass packing code
RUT956 200505 Thailand	<b>4G (LTE-FDD):</b> B1, B3, B7, B8, B20 <b>4G (LTE-TDD):</b> B38, B40 <b>3G:</b> B1, B8 <b>2G:</b> 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

2 - For more detailed information about certified carriers, visit our Wiki page

# RUT956 SPATIAL MEASUREMENTS

## MAIN MEASUREMENTS

W x H x D dimensions for RUT956:

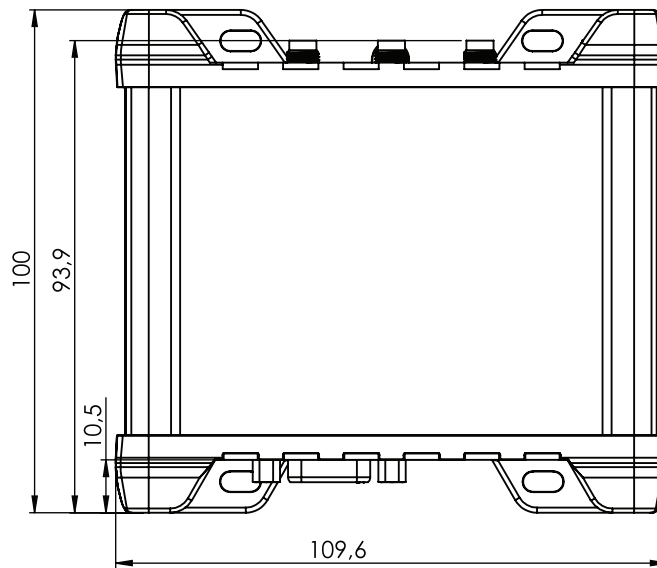
Device housing\*: 110 x 50 x 100 mm

Box: 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.

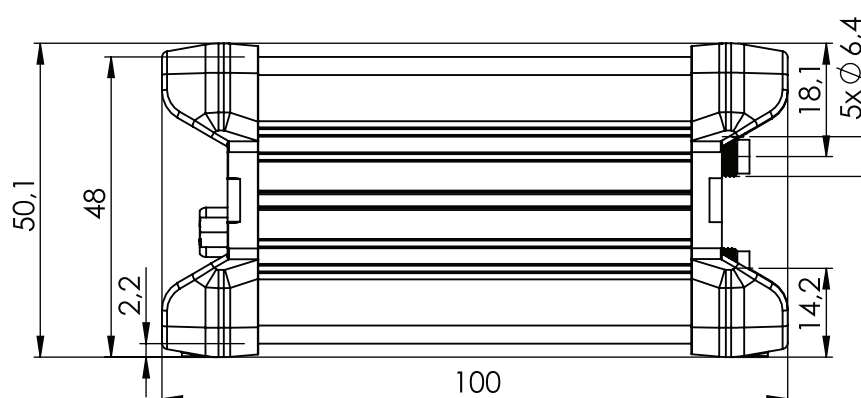
## TOP VIEW

The figure below depicts the measurements of RUT956 and its components as seen from the top:



## RIGHT VIEW

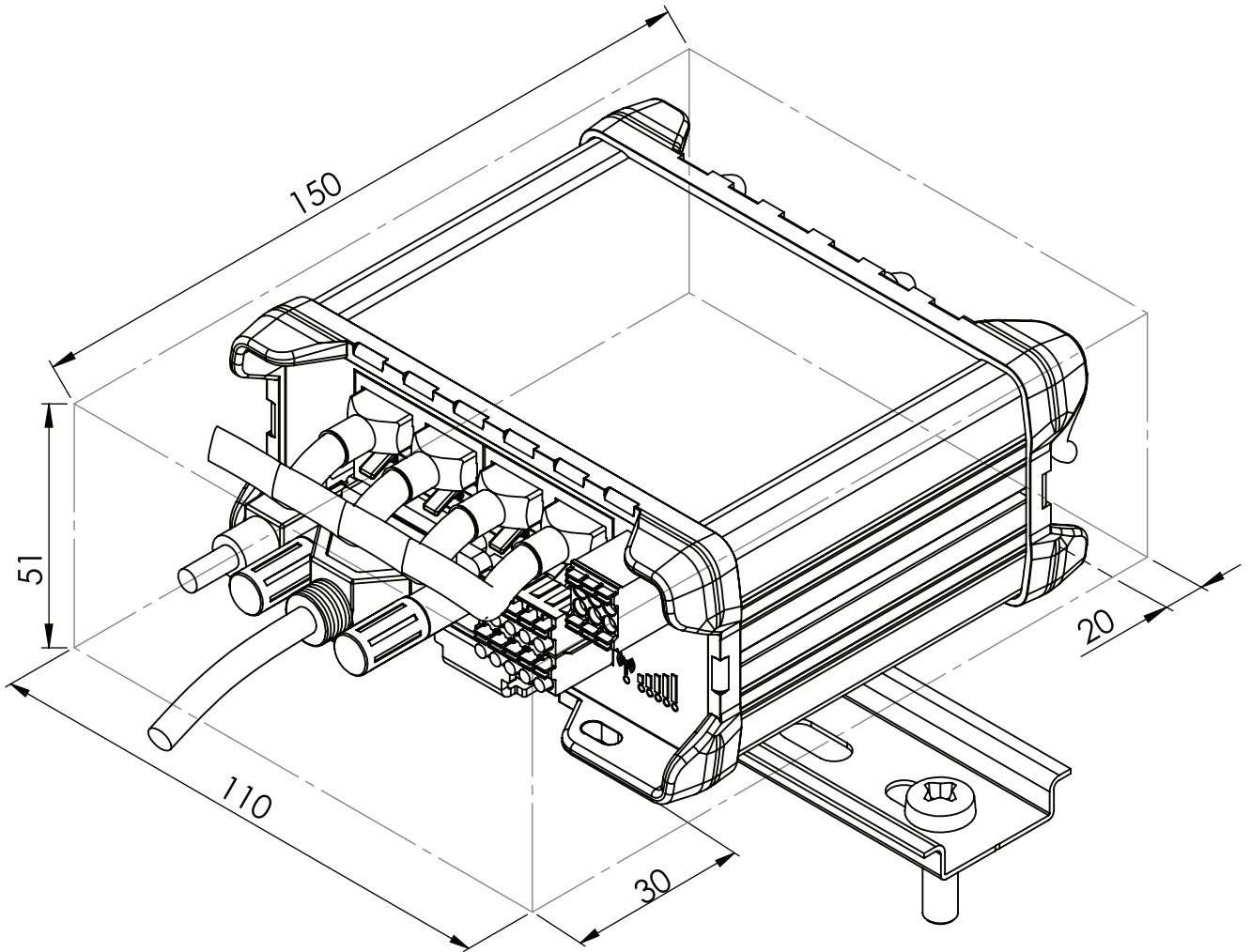
The figure below depicts the measurements of RUT956 and its components as seen from the right side:





**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:

