RUT276

COMPACT REDCAP 5G ROUTER



Industrial & automation

Energy & utilities

Smart city

REDCAP 5G

Low latency, high capacity, competitive pricing

SERIAL INTEGRATION

Built-in RS232/RS485 to seamlessly connect with industrial equipment

PROTOCOL-READY

Native support of Modbus, OPC UA & BACnet for industrial systems

INDUSTRIAL DESIGN

Rugged aluminum build, wide temperature support, and flexible mounting

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Mobile

Mobile module	5G Sub-6Ghz SA 223 Mbps DL , 123 Mbps UL; 4G LTE Cat 4 – LTE 195 Mbps DL, 105 Mbps UL
3GPP Release	Release 17
Status	IMSI, ICCID, operator, operator state, data connection state, network type, bandwidth, connected band, signal strength (RSSI), SINR, RSRP, RSRQ, EC/IO, RSCP, mobile signal graphs, 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
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
Framed routing	Framed routing: support an IP network behind 5G UE

Wireless

Wireless mode	IEEE 802.11b/g/n (Wi-Fi 4) Access Point (AP), Client (STA), Mesh (802.11s), Multi-AP
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 50 simultaneous connections
Wireless Connectivity Features	Fast roaming (802.11r), Radio Resource Measurement (802.11k), BSS Transition Management (802.11v), Client isolation, Hide SSID, WMM
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

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Network

Routing	Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2, EIGRP, NHRP), Policy based routing
Network protocols	IPv4, IPv6, PPP, ARP, IPsec, IP NAT, TCP, UDP, ICMP, GRE, ESP, RIP, OSPF, BGP, Ipsec, RIP, OSPF, EIGRP, BGP, NHRP
Connection monitoring	Ping Reboot, Wget Reboot, Periodic Reboot, LCP and ICMP for link inspection
Firewall	IPv4, IPv6, connection tracking, statefull firewall, logging, zone based firewall, custom rules, DMZ, firewall statistics, rules list, tables list,
Firewall status page	View all your Firewall statistics, rules, and rule counters
Ports management	View device ports, enable and disable each of them, turn auto-configuration on or off, change their transmission speed, and so on
Network topology	Visual representation of your network, showing which devices are connected to which other devices
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
DNS over HTTPS	DNS over HTTPS proxy enables secure DNS resolution by routing DNS queries over HTTPS
DDNS	Supported >77 service providers, others can be configured manually
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
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
Hotspot 2.0	Hotspot 2.0 is a Wi-Fi standard that enables seamless, secure, and automatic connection to trusted wireless networks
SSHFS	Possibility to mount remote file system via SSH protocol
VRF support	Initial virtual routing and forwarding (VRF) support
Traffic Management	Real-time monitoring, wireless signal charts, traffic usage history

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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	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 SSH, Web interface, CLI and Telnet
Certificate Manager	Certificate creation tool allows to create CA, server, client, let's encrypt, SCEP certificates
802.1x	Port-based network access control client and server support

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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, IPv6 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.
EoIP	Ethernet over IP (EoIP) Tunneling is a MikroTik RouterOS protocol based on GRE RFC 1701 that creates an Ethernet tunnel between two routers on top of an IP connection
OpenConnect	Cross-platform multi-protocol SSL VPN client which supports a number of VPN protocols

BacNET

Supported modes	Router
Supported connection types	RTU(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

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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
Data to server	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

Modbus 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	RTU(RS232), RTU(RS485), TCP

DLMS/COSEM	
DLMS Support	DLMS - standard protocol for utility meter data exchange
Supported modes	Client
Supported connection types	RTU(RS232), RTU(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

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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
Email	Receive email message status alerts of various services
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	32 MB, SPI Flash

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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

Serial	
RS232	RS232 interface without flow control signals
RS485	Half duplex (2-wire) RS485 interface
Serial functions	Console, Serial over IP, Modem, MODBUS gateway, NTRIP Client

Input/Output	
Events	Email, RMS, SMS

SD CARD	
Physical size	Micro SD
Applications	Samba share, Storage Memory Expansion, DLNA
Capacity	Up to 2 TB
Storage formats	FAT32, NTFS, ext2, ext3, ext4

POE IN	
PoE OUT ports	1 x PoE In
PoE standards	Active PoE input 802.3af Class 0 (12.94 W) on LAN port

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Power	
Connector	2-pin industrial DC power socket
Input voltage range	9 - 57 VDC, reverse polarity protection, surge protection >58V @10us min
Active PoE	Active PoE input 802.3af Class 0 (12.94 W) on LAN port.
PoE (passive)	Passive PoE over spare pairs 4,5 (+) / 7,8 (-). Possibility to power up through LAN port. Passive PoE voltage: 16 - 57 VDC.
Power consumption	Idle: < 2 W, Max: < 3.5 W

Physical Interfaces	
Ethernet	2 x RJ45 ports, 10/100 Mbps
Status LEDs	2 x Connection type status LEDs, 3 x Connection strength LEDs, 2 x LAN status LEDs, 1 x Power LED
SIM	2 x SIM slots Mini SIM – 2FF , 1.8 V/3 V, double stacked SIM tray
Power	1 x 2-pin power connector
Antennas	2 x SMA for Mobile, 1 x RP SMA for Wi-Fi
RS232, RS485	1 x 6-pin terminal block
Reset	Reboot/User default reset/Factory reset button

Physical Specification	
Casing material	Aluminum housing
Dimensions (W x H x D)	83 x 25 x 83 mm
Weight	132 g
Mounting options	DIN rail, wall mount, flat surface (all require additional kit)

Regulatory & Type Approvals	
Regulatory	CE, UKCA, EAC, UCRF, RCM, CB

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EMC Emissions & Immunity

Standards	CE/UKCA: EN 55032: 2015+A11: 2020+A1: 2020 EN 55035: 2017+A11: 2020 EN 61000-3-3: 2013+ A1: 2019+A2: 2021 EN IEC 61000-3-2: 2019+A1: 2021+A2: 2024 EN 301 489-1 V2.2.3 EN 301 489-17 V3.3.1 EN 301 489-19 V2.2.1 EN 301 489-52 V1.2.1 RCM: AS/NZS CISPR 32: 2015+A1: 2020
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-a4-5: 2014 + A1: 2017
CS	EN 61000-4-6:2014
DIP	EN 61000-4-11:2020

RF

Standards	CE/UKCA: Draft EN 301 908-25 V15.1.1_0.0.21 EN 300 328 V2.2.2 EN 301 908-1 V15.2.1 EN 301 908-13 V13.2.1 RCM: AS/NZS 4268: 2017+A1: 2021 AS/NZS 2772.2: 2016+A1: 2018 ARPANSA RPS S-1 Radiation Protection Series S-1 (Rev. 1)

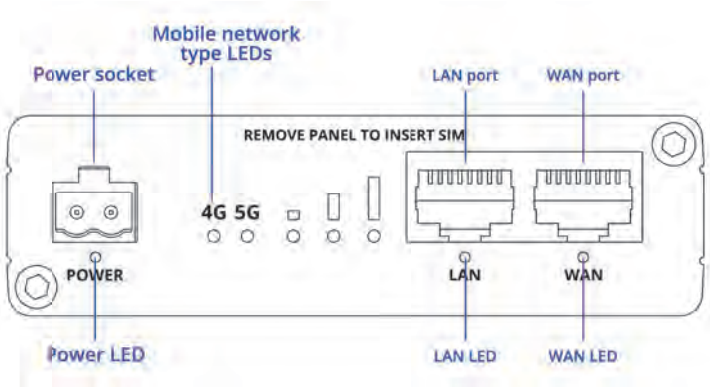
Safety

Standards	CE: EN IEC 62311: 2020 RCM: AS/NZS 62368.1: 2022 CB: EN IEC 62368-1: 2020+A11: 2020

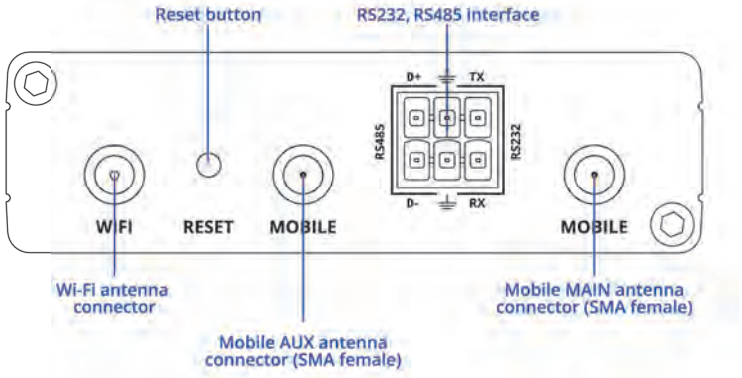
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Hardware

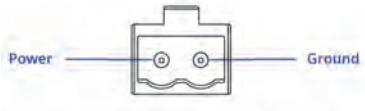
FRONT VIEW



BACK VIEW

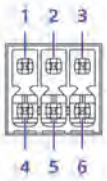


1 x 2-PIN POWER CONNECTOR



1 x 6-PIN TERMINAL BLOCK

1. RS485 half-duplex positive signal **(D+)**
2. Device ground **(GND)**
3. RS232 driver signal **(TX)**
4. RS485 half-duplex negative signal **(D-)**
5. Device ground **(GND)**
6. RS232 receiver signal **(RX)**



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Ordering

Standard package*



RUT276



QUICK START GUIDE



2X3PIN CONNECTOR



HEX KEY



SIM adapter KIT



2PIN TERMINAL BLOCK

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

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

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Classification codes

HS Code: 851762

HTS: 8517.62.00

Available versions

RUT276 **0******* Global1	**5G NR SA:** n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n30, n38, n40, n41, n48, n66, n70, n71, n77, n78, n79 **4G (LTE FDD):** B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B30, B66, B70, B71 **4G (LTE TDD):** B34, B38, B39, B40, B41, B42, B43, B48	RUT276000000 / Standard Package without PSU RUT276000020 / Mass packing code

RUT276 spatial measurements

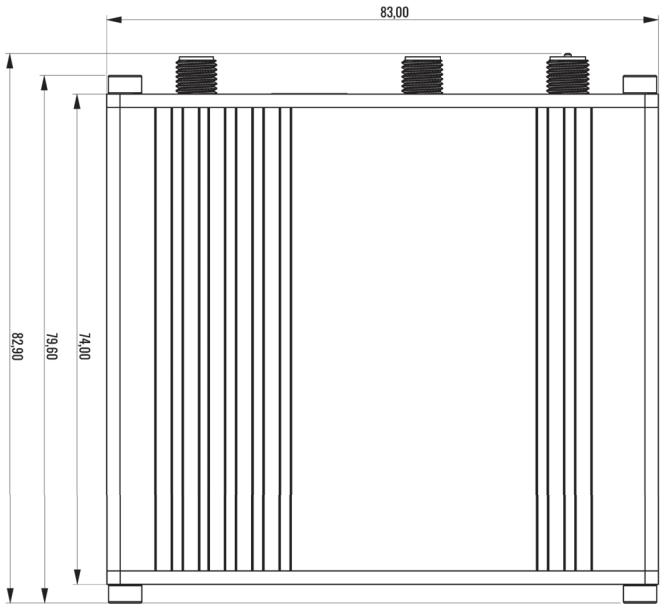
Available versions

Device housing (W x H x D)*	83 x 25 x 83 mm
Box (W x H x D):	100×32×108
	*Housing measurements are presented without antenna connectors and screws; for measurements of other device elements look to the sections below

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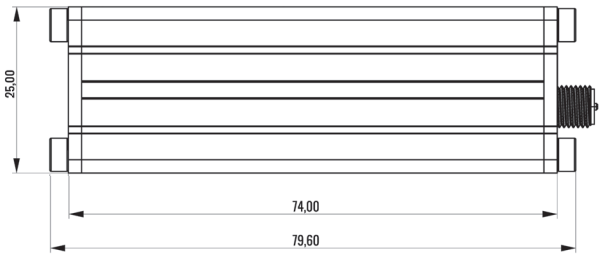
TOP VIEW

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



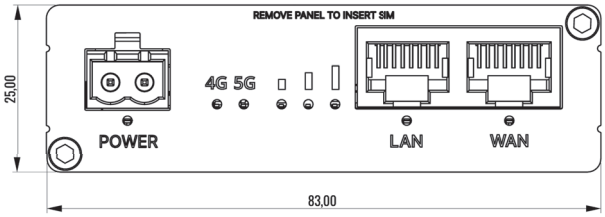
RIGHT VIEW

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



FRONT VIEW

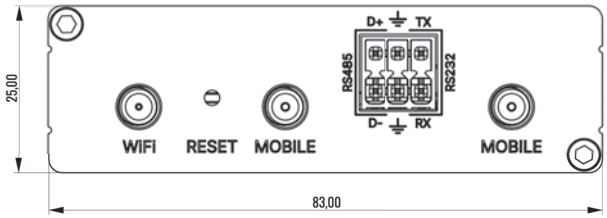
The figure below depicts the measurements of device and its components as seen from the front panel side:



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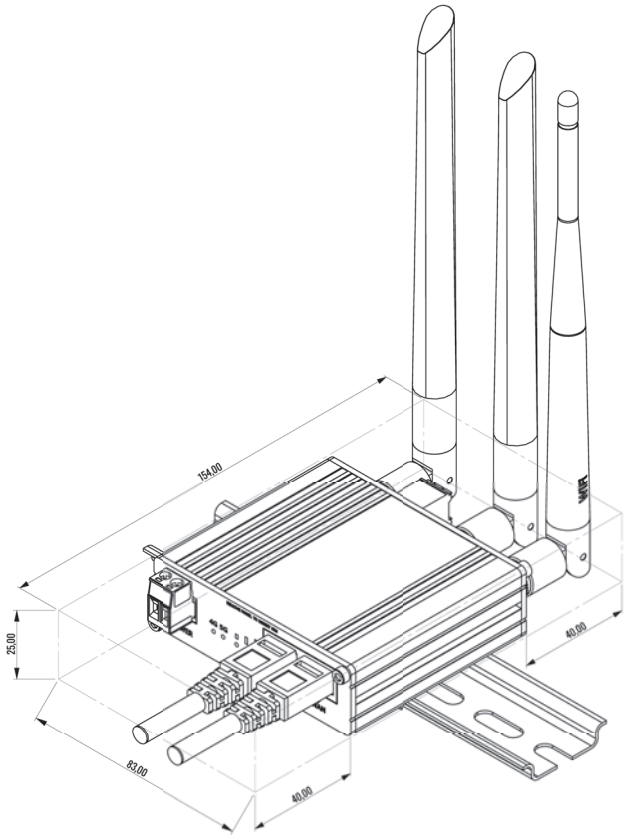
REAR VIEW

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



MOUNTING SPACE REQUIREMENTS

The figure below depicts an approximation of the device's dimensions when cables and antennas are attached:



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