TRB500

INDUSTRIAL 5G GATEWAY



Energy & utilities

Enterprise

Industrial & automation

Retail

Smart city

5G

Ultra-high cellular speeds of up to 1 Gbps

SA & NSA

Supports both architectures to leverage the 5G infrastructure

COMPACTNESS

One of the smallest 5G gateways available in the market

FUTURE-PROOFING

Backward compatible with 4G (LTE CAT 20) and 3G network technologies

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Physical Interfaces	
Ethernet	1 x RJ45 port, 10/100/1000 Mbps
I/O's	2 x Configurable digital I/O on 4-pin power connector
Status LEDs	3 x connection type status LEDs, 3 x connection strength LEDs, 2 x ETH status LEDs, 1 x Power LED
SIM	1 x SIM slot (Mini SIM – 2FF), 1.8 V/3 V
Power	1 x 4-pin power connector
Antennas	4 x SMA for Mobile
USB	1 x Virtual network interface via micro USB
Reset	Reboot/User default reset/Factory reset button
Other	1 x Grounding Srecw

Mobile	
Mobile module	5G Sub-6Ghz SA/NSA 2.1/3.3Gbps DL (4×4 MIMO), 900/600 Mbps UL (2×2); 4G LTE Cat 20 up to 2.0 Gbps DL/ 200M Mbps UL; 3G up to 42 DL/ 5.76 UL Mbps
3GPP Release	Release 15
Status	IMSI, ICCID, operator, operator state, data connection state, network type, CA indicator, 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)
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	Gateway assigns its mobile WAN IP address to another device on LAN
Framed routing	Framed routing: support an IP network behind 5G UE

Ethernet	
Ethernet	1 x ETH port, 10/100/1000 Mbps, supports auto MDI/MDIX crossover

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Network	
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
Firewall status page	View all your Firewall statistics, rules, and rule counters
Port 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
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
DHCP	Static and dynamic IP allocation, DHCP relay, DHCP server configuration, status, static leases: MAC with wildcards
DDNS	Supported >77 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	Mobile, VRRP, Wired options, each of which can be used as an automatic Failover
SSHFS	Possibility to mount remote file system via SSH protocol
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	Mobile data limit, customizable period, start time, warning limit, phone number
WEB filter	Block list for blocking out unwanted websites, allow list 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
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.
Tailscale	Tailscale offers speed, stability, and simplicity over traditional VPNs. Encrypted point-to-point connections using the open source WireGuard protocol
EoIP	Ethernet over IP (EoIP) tunnelling is a 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

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OPC UA	
Supported modes	Client, Server
Supported connection types	TCP

MODBUS	
Supported modes	Server, Client
Supported connection types	TCP
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
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

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

DNP3	
Supported modes	Station, Outstation
Supported connection	TCP

DLMS/COSEM	
DLMS Support	DLMS - standard protocol for utility meter data exchange
Supported modes	Client
Supported connection types	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
Call	Reboot, Status, Mobile data on/off, Output on/off, answer/hang-up with a timer
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	ARM Cortex A7, 1.5 GHz
RAM	256 MB
FLASH storage	512 MB

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

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FIRMWARE CUSTOMISATION	
Operating system	RutOS (OpenWrt based Linux OS)
Supported languages	Busybox shell, Lua, C, C++, and Python, Java in Package manager
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

Input/Output	
Input	Up to 2 x Configurable digital Inputs (shared), 0 - 6 V detected as logic low, 8 - 30 V detected as logic high
Output	Up to 2 x Configurable digital Outputs (shared), Open collector output, max output 30 V, 300 mA
Events	Email, RMS, SMS
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 – 30 VDC, reverse polarity protection, surge protection +/-1 kV 50 µs max
Power consumption	Idle: < 3 W, Max < 6 W

Physical Specification	
Casing material	Aluminium housing
Dimensions	100 x 30 x 93,4 mm
Weight	241 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, RCM, CB, NBTC, RoHS, REACH

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EMC Emissions & Immunity	
Standards	EN 55032:2015 + A11:2020 + A1:2020 EN 55035:2017 + A11:2020 EN IEC 61000-3-2: 2019 + A1:2021 EN 61000-3-3: 2013 + A1:2019 + A2:2021 EN 301 489-1 V2.2.3 EN 301 489-52 V1.2.1
ESD	EN 61000-4-2:2009
Radiated Immunity	EN IEC 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

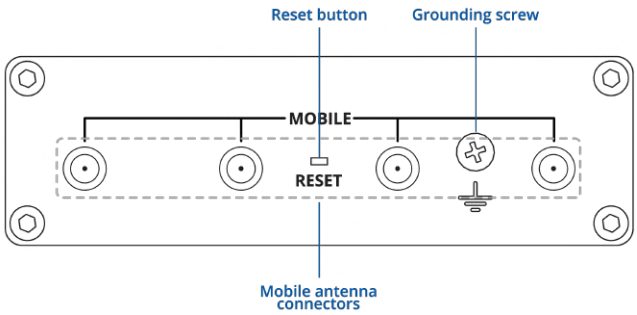
RF	
Standards	EN 301 908-1 V13.1.1 EN 301 908-2 V13.1.1 EN 301 908-13 V13.1.1 EN 301 908-25 V15.1.1_15.0.6

Safety	
Standards	**CE**: EN IEC 62368-1:2020 + A11:2020, EN 62311:2020 **RCM**: AS/NZS 62368.1:2022 **CB**: IEC 62368-1:2018

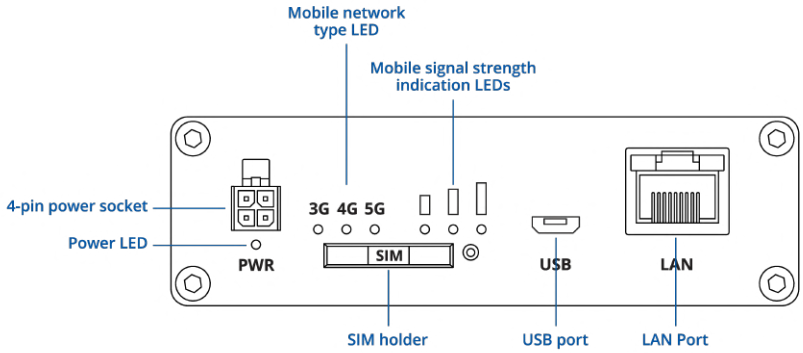
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Hardware

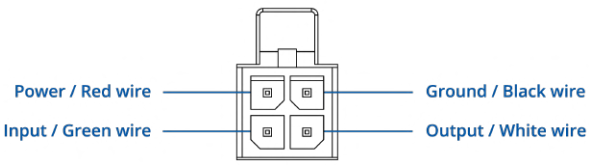
FRONT VIEW



BACK VIEW



POWER SOCKET PINOUT



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Ordering

Standard package*



TRB500



QUICK START GUIDE



4 x 5G MOBILE SMA ANTENNAS



9 W PSU



ETHERNET CABLE 1.5 M



MICRO-USB CABLE (0.8 M)



SIM ADAPTER KIT

*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

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

Available versions

Hardware version	Supported frequencies	Standard order code / Package Contains
TRB500 **0***** Europe[1], The Middle East[1], Africa, Oceania, Brazil	**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, B32 **4G (LTE-TDD)**: B38, B40, B41, B42, B43 **3G**: B1, B5, B8	TRB500000000 / Standard package with EU PSU TRB500000100 / Standard package with UK PSU TRB500000200 / Standard package with AU PSU TRB500000300 / Standard package with US PSU TRB500000600 / Standard package with Universal PSU TRB500000500 / Mass packing code
TRB500 **000601** Thailand	**5G NR NSA:** n7, n40, n77, n78 **5G NR SA:** n1, n3, n5, n7, n8, n20, n38, n40, n41, n77, n78 **4G (LTE-FDD):** B1, B3, B5, B7, B8, B20, B32 **4G (LTE-TDD):** B38, B40, B41, B42, B43 **3G:** B1, B8	TRB500000601 / 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

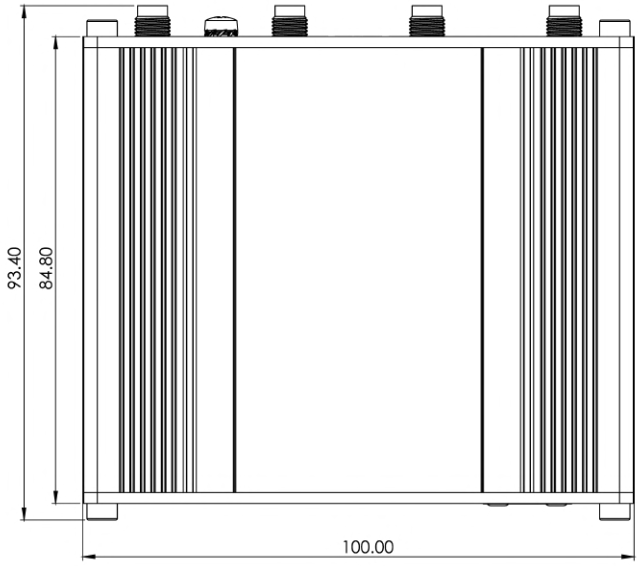
TRB500 spatial measurements

Available versions	
Device housing (W x H x D)	100 x 30 x 93.4 mm
Box (W x H x D):	355 x 60 x 175 mm

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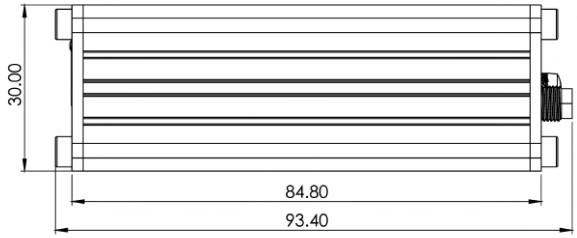
TOP VIEW

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



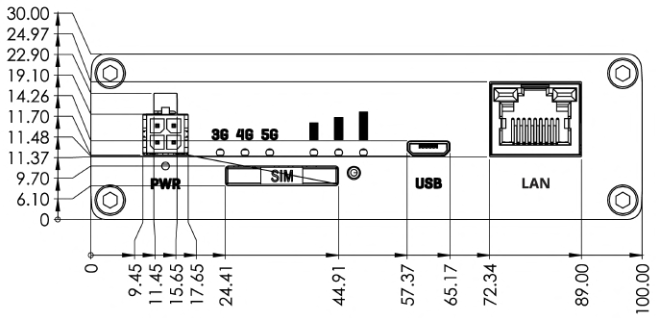
RIGHT VIEW

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



FRONT VIEW

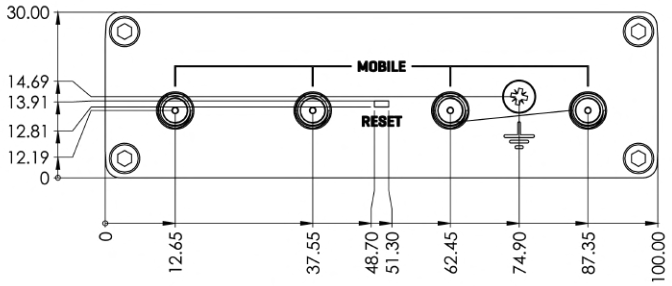
The figure below depicts the measurements of device and its components as seen from the front panel side:



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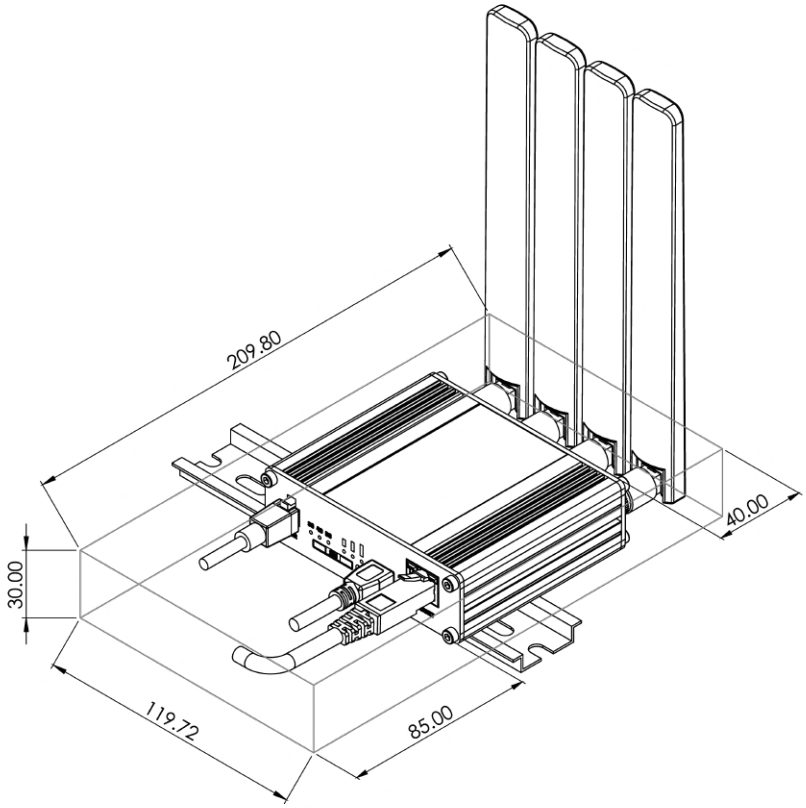
REAR VIEW

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



MOUNTING SPACE REQUIREMENTS

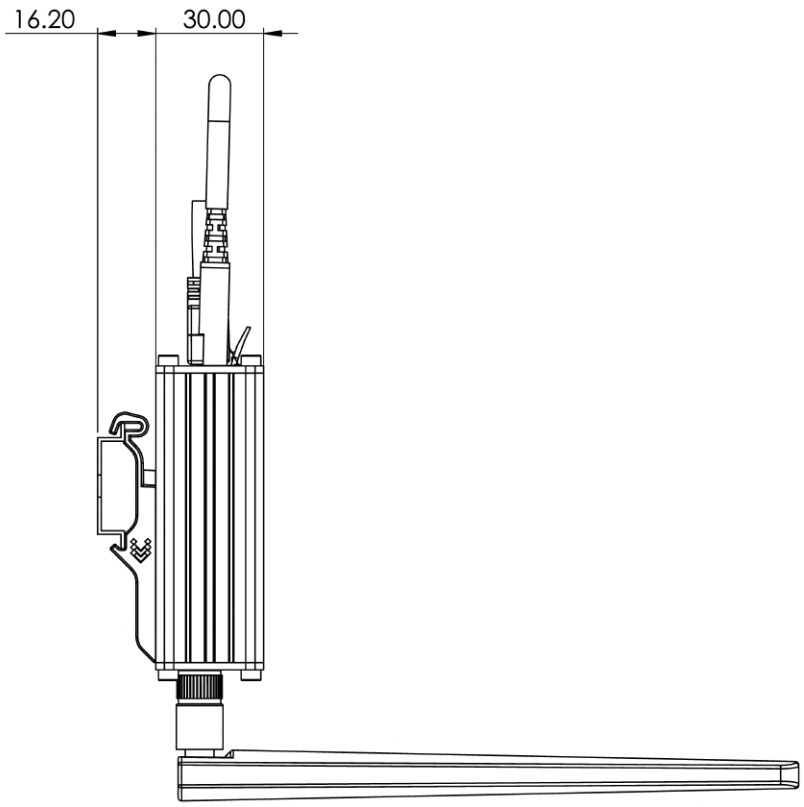
The figure below depicts an approximation of the device's dimensions when cables and antennas are attached:



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DIN RAIL

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



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