



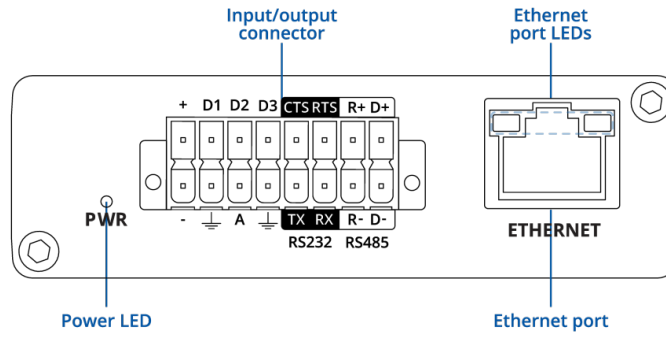
# TRB247

v1.0

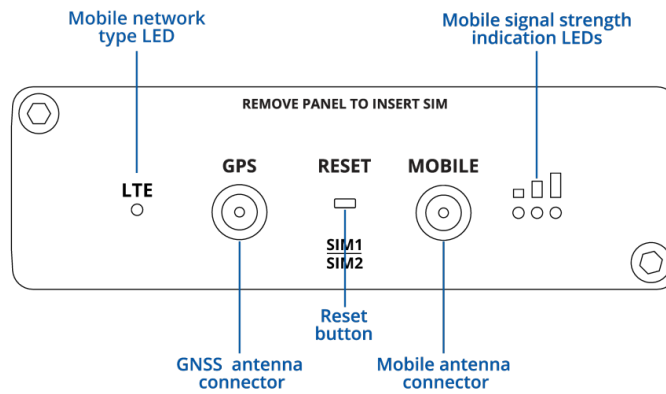


## HARDWARE

### FRONT VIEW



### BACK VIEW



**16-PIN CONNECTOR PINOUT**

**D1, D2, D3** - Configurable digital Input/Output pins.  
Open collector output, max output 30 V, 300 mA or  
Digital input where 0-6 V detected as logic low and  
8-30 V – logic high.

**+** - 9-30 VDC positive power pin

**CTS** - RS232 clear data to send pin (output).

**RTS** - RS232 request data to send pin (input).

**R+** - RS485 receiver positive signal pin.

**D+** - RS485 driver positive signal pin.

**-** - Negative/ground power pin.

**⊥** - Ground pins for D1, D2, D3, A, RS232 and RS485.

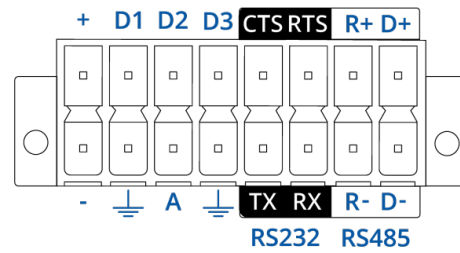
**A** - Analog input pin. Analog voltage range 0-30 V.

**TX** - RS232 transmitted data (input).

**RX** - RS232 received data (output).

**R-** - RS485 receiver negative signal.

**D-** - RS485 driver negative signal.



## FEATURES

### Mobile

<b>Mobile module</b>	4G LTE Cat 1 bis up to 10 Mbps DL / 5 Mbps UL
<b>3GPP Release</b>	Release 14
<b>SIM switch</b>	2 SIM cards, auto-switch cases: weak signal, data limit, SMS limit, on roaming, no network, network denied, data connection fail
<b>Status</b>	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
<b>SMS</b>	SMS status, SMS configuration, EMAIL to SMS, SMS to EMAIL, SMS to HTTP, SMS to SMS, scheduled SMS, SMS autoreply, SMPP
<b>Block/Allow list</b>	Operator block/allow list (by country or separate operators)
<b>Band management</b>	Band lock, Used band status display
<b>SIM idle protection service</b>	Provides the possibility to configure the router to periodically switch to the unused SIM card and establish a data connection in order to prevent the SIM card from being blocked
<b>SIM PIN code management</b>	SIM PIN code management enables setting, changing, or disabling the SIM card's PIN
<b>APN</b>	Auto APN
<b>Bridge</b>	Direct connection (bridge) between mobile ISP and device on LAN
<b>Passthrough</b>	Gateway assigns its mobile WAN IP address to another device on LAN

### Ethernet

<b>Ethernet</b>	1 x ETH port, 10/100 Mbps, compliance with IEEE 802.3, IEEE 802.3u, 802.3az standards, supports auto MDI/MDIX crossover
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<b>Network</b>	
<b>Routing</b>	Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2, EIGRP, NHRP), Policy based routing
<b>Network protocols</b>	TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, SFTP, FTP, SMTP(S), SSL/TLS, ARP, VRRP, PPP, PPPoE, UPNP, SSH, DHCP, Telnet, SMPP, SNMP, MQTT, Wake On Lan (WOL), VXLAN
<b>VoIP passthrough support</b>	H.323 and SIP-alg protocol NAT helpers, allowing proper routing of VoIP packets
<b>Connection monitoring</b>	Ping Reboot, Wget Reboot, Periodic Reboot, LCP and ICMP for link inspection
<b>Firewall</b>	Port forward, traffic rules, custom rules, TTL target customisation
<b>Firewall status page</b>	View all your Firewall statistics, rules, and rule counters
<b>Port management</b>	View device ports, enable and disable each of them, turn auto-configuration on or off, change their transmission speed, and so on
<b>Network topology</b>	Visual representation of your network, showing which devices are connected to which other devices
<b>DHCP</b>	Static and dynamic IP allocation, DHCP relay, DHCP server configuration, status, static leases: MAC with wildcards
<b>QoS / Smart Queue Management (SQM)</b>	Traffic priority queuing by source/destination, service, protocol or port, WMM, 802.11e
<b>DDNS</b>	Supported >77 service providers, others can be configured manually
<b>DNS over HTTPS</b>	DNS over HTTPS proxy enables secure DNS resolution by routing DNS queries over HTTPS
<b>Network backup</b>	Mobile, VRRP, Wired options, each of which can be used as an automatic Failover
<b>Load balancing</b>	Balance Internet traffic over multiple WAN connections
<b>Hotspot</b>	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
<b>SSHFS</b>	Possibility to mount remote file system via SSH protocol
<b>VRF support</b>	Initial virtual routing and forwarding (VRF) support
<b>IGMP Proxy</b>	Possibility to relay multicast membership messages between hosts and a router, enabling multicast traffic to flow across different network segments
<b>Traffic Management</b>	Real-time monitoring, wireless signal charts, traffic usage history
<b>Port Mirroring</b>	Mirroring network traffic on Ethernet ports for monitoring and analysis

## Security

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<b>Authentication</b>	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
<b>Firewall</b>	Preconfigured firewall rules can be enabled via WebUI, unlimited firewall configuration via CLI, DMZ, NAT, NAT-T, NAT64
<b>Attack prevention</b>	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)
<b>VLAN</b>	Port and tag-based VLAN separation
<b>Mobile quota control</b>	Mobile data limit, customizable period, start time, warning limit, phone number
<b>WEB filter</b>	Blacklist for blocking out unwanted websites, Whitelist for specifying allowed sites only
<b>Access control</b>	Flexible access control of SSH, Web interface, CLI and Telnet
<b>SSL certificate generation</b>	Let's Encrypt and SCEP certificate generation methods
<b>802.1x</b>	Port-based network access control client

**VPN**

<b>OpenVPN</b>	Multiple clients and a server can run simultaneously, 27 encryption methods
<b>OpenVPN Encryption</b>	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
<b>IPsec</b>	XFRM, IKEv1, IKEv2, with 14 encryption methods for IPsec (3DES, DES, AES128, AES192, AES256, AES128GCM8, AES192GCM8, AES256GCM8, AES128GCM12, AES192GCM12, AES256GCM12, AES128GCM16, AES192GCM16, AES256GCM16)
<b>GRE</b>	GRE tunnel, GRE tunnel over IPsec support
<b>PPTP, L2TP</b>	Client/Server instances can run simultaneously, L2TPv3, L2TP over IPsec support
<b>Stunnel</b>	Proxy designed to add TLS encryption functionality to existing clients and servers without any changes in the program's code
<b>DMVPN</b>	Method of building scalable IPsec VPNs, Phase 2 and Phase 3 and Dual Hub support
<b>SSTP</b>	SSTP client instance support
<b>ZeroTier</b>	ZeroTier VPN client support
<b>WireGuard</b>	WireGuard VPN client and server support
<b>Tinc</b>	Tinc offers encryption, authentication and compression in it's tunnels. Client and server support.
<b>Tailscale</b>	Tailscale offers speed, stability, and simplicity over traditional VPNs. Encrypted point-to-point connections using the open source WireGuard protocol

**BACNET**

<b>Supported modes</b>	Router
<b>Supported connection types</b>	RS485, TCP

**OPC UA**

<b>Supported modes</b>	Client, Server
<b>Supported connection types</b>	TCP

## MODBUS

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<b>Supported modes</b>	Server, Client
<b>Supported connection types</b>	RTU (RS232, RS485), TCP
<b>Custom registers</b>	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
<b>Supported data formats</b>	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

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<b>Protocol</b>	HTTP(S), MQTT, Azure MQTT
<b>Data to server</b>	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

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

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<b>Supported modes</b>	Station, Outstation
<b>Supported connection types</b>	RTU (RS232, RS485), TCP

## DLMS/COSEM

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<b>DLMS Support</b>	DLMS - standard protocol for utility meter data exchange
<b>Supported modes</b>	Client
<b>Supported connection types</b>	RTU (RS232, RS485), TCP

## API

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<b>Teltonika Networks Web API (beta) support</b>	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: <a href="https://developers.teltonika-networks.com">https://developers.teltonika-networks.com</a>
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**Monitoring & Management**


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<b>WEB UI</b>	HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, multiple event log servers, firmware update availability notifications, event log, system log, kernel log, Internet status
<b>FOTA</b>	Firmware update from server, automatic notification
<b>SSH</b>	SSH (v1, v2)
<b>SMS</b>	SMS status, SMS configuration
<b>Call</b>	Reboot, Status, Mobile data on/off, Output on/off, answer/hang-up with a timer
<b>Email</b>	Receive email message status alerts of various services
<b>TR-069</b>	OpenACS, EasyCwmp, ACSLite, tGem, LibreACS, GenieACS, FreeACS, LibCWMP, Friendly tech, AVSystem
<b>MQTT</b>	MQTT Broker, MQTT publisher
<b>SNMP</b>	SNMP (v1, v2, v3), SNMP Trap, Brute force protection
<b>JSON-RPC</b>	Management API over HTTP/HTTPS
<b>RMS</b>	Teltonika Remote Management System (RMS)

**IoT Platforms**


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

**System Characteristics**


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<b>CPU</b>	Mediatek, 580 MHz, MIPS 24KEc
<b>RAM</b>	128 MB, DDR2
<b>FLASH storage</b>	16 MB, SPI Flash

**Firmware / Configuration**

<b>WEB UI</b>	Update FW from file, check FW on server, configuration profiles, configuration backup
<b>FOTA</b>	Update FW
<b>RMS</b>	Update FW/configuration for multiple devices at once
<b>Keep settings</b>	Update FW without losing current configuration
<b>Factory settings reset</b>	A full factory reset restores all system settings, including the IP address, PIN, and user data to the default manufacturer's configuration

**FIRMWARE CUSTOMISATION**

<b>Operating system</b>	RutOS (OpenWrt based Linux OS)
<b>Supported languages</b>	Busybox shell, Lua, C, C++
<b>Development tools</b>	SDK package with build environment provided
<b>GPL customization</b>	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
<b>Package Manager</b>	The Package Manager is a service used to install additional software on the device

**Location Tracking**

<b>GNSS</b>	GPS, GLONASS, BeiDou, Galileo and QZSS
<b>Coordinates</b>	GNSS coordinates via WebUI, SMS, TAVL, RMS
<b>NMEA</b>	NMEA 0183
<b>NTRIP</b>	NTRIP protocol (Networked Transport of RTCM via Internet Protocol)
<b>Server software</b>	Supported server software TAVL, RMS
<b>Geofencing</b>	Configurable multiple geofence zones

**Serial**

<b>RS232</b>	Terminal block connector: TX, RX, RTS, CTS
<b>RS485</b>	Terminal block connector: D+, D-, R+, R- (2 or 4 wire interface)
<b>Serial functions</b>	Console, Serial over IP, Modem, MODBUS gateway, NTRIP Client

**Input / Output**

<b>Input</b>	3 x Digital Input, 0 - 6 V detected as logic low, 8 - 30 V detected as logic high
<b>Output</b>	3 x Digital Output, Open collector output, max output 30 V, 300 mA
<b>Events</b>	Email, RMS, SMS
<b>I/O juggler</b>	Allows to set certain I/O conditions to initiate event

**Power**

<b>Connector</b>	2-pin in 16-pin industrial terminal block
<b>Input voltage range</b>	9 - 30 VDC, Reverse polarity protection, Surge protection
<b>Power consumption</b>	Idle: < 1.7 W, Max: < 2.6 W

**Physical Interfaces**

<b>Ethernet</b>	1 x RJ45 port, 10/100 Mbps
<b>I/O's</b>	3 x Configurable digital I/O in 16-pin terminal block
<b>Status LEDs</b>	1 x connection status LED, 3 x connection strength LEDs, 1 x power LED, 1 x Eth port status LED
<b>SIM</b>	2 x SIM slots (Mini SIM – 2FF), 1.8 V/3 V, double stacked SIM tray
<b>Power</b>	1 x 16-pin terminal block
<b>Antennas</b>	1 x SMA connector for LTE, 1 x SMA connector for GNSS
<b>RS232</b>	4-pin in 16-pin terminal block (TX, RX, RTS, CTS)
<b>RS485</b>	4-pin in 16-pin terminal block (D+, D-, R+, R-)
<b>Reset</b>	Reboot/User default reset/Factory reset button

**Physical Specification**

<b>Casing material</b>	Anodized aluminum housing and panels
<b>Dimensions (W x H x D)</b>	83 x 25 x 82.6 mm
<b>Weight</b>	181 g
<b>Mounting options</b>	DIN rail, wall mount, flat surface (all require additional kit)

**Operating Environment**

<b>Operating temperature</b>	-40 °C to 75 °C
<b>Operating humidity</b>	10% to 90% non-condensing
<b>Ingress Protection Rating</b>	IP30

**Regulatory & Type Approvals**

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**Regulatory** FCC, ISED, WEEE, FCC/IC**RF**

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**Standards** 47 CFR Part 15 Subpart B  
ICES-003: Issue 7 (October 2020)**RF Exposure**

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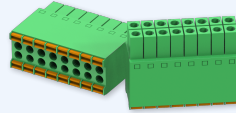
**Standards** 47 CFR - § 2.1091

## ORDERING

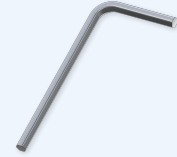
### STANDARD PACKAGE\*



TRB247



2X8PIN CONNECTOR



HEX KEY



QSG (QUICK START GUIDE)

- TRB247 Gateway
- [2X8PIN Connector](#)
- 1 x hex key
- 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

TRB247 01\*\*\*\*  
North America

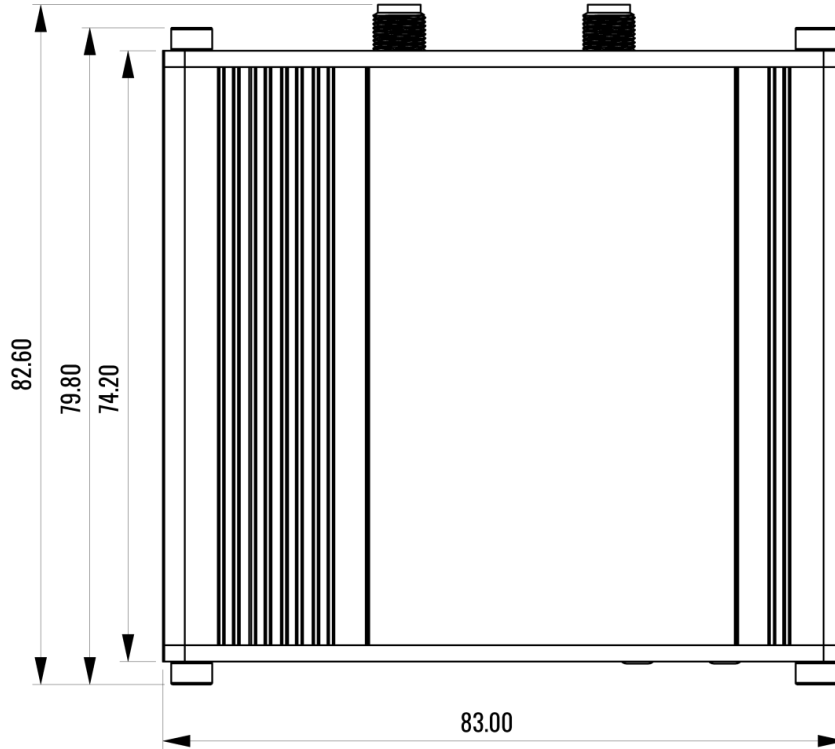
**4G (LTE-FDD):** B2, B4, B5, B12, B13, B14,  
B66, B71

TRB247010000 / Standard package  
without PSU  
TRB247010200 / Mass packing code

## TRB247 SPATIAL MEASUREMENTS

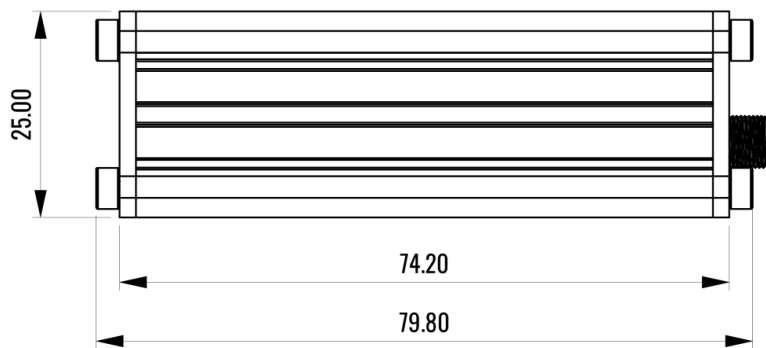
**TOP VIEW**

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



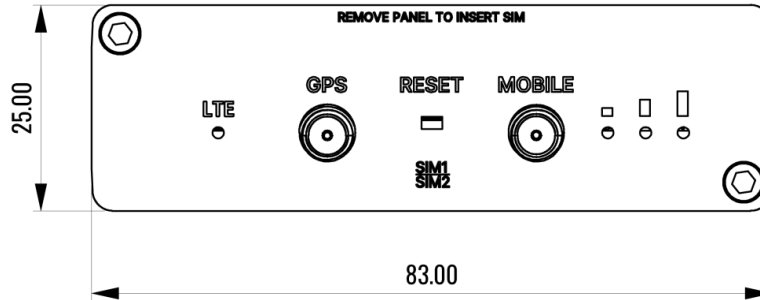
**RIGHT VIEW**

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



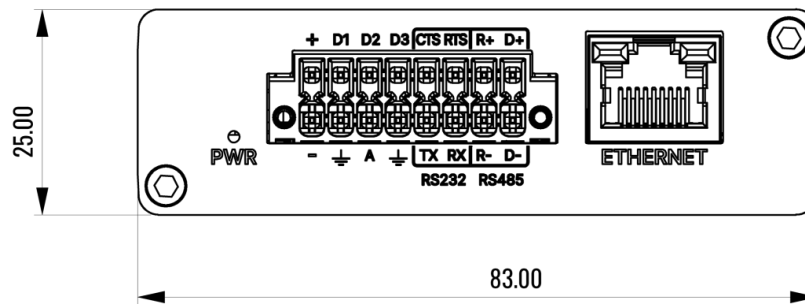
**REAR VIEW**

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



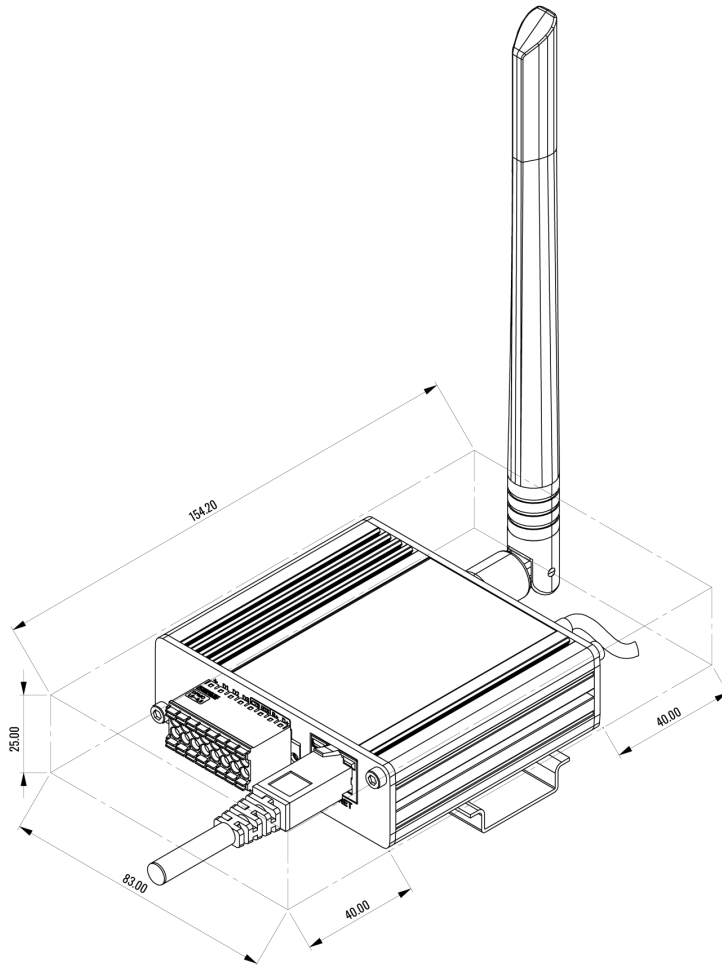
**FRONT VIEW**

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



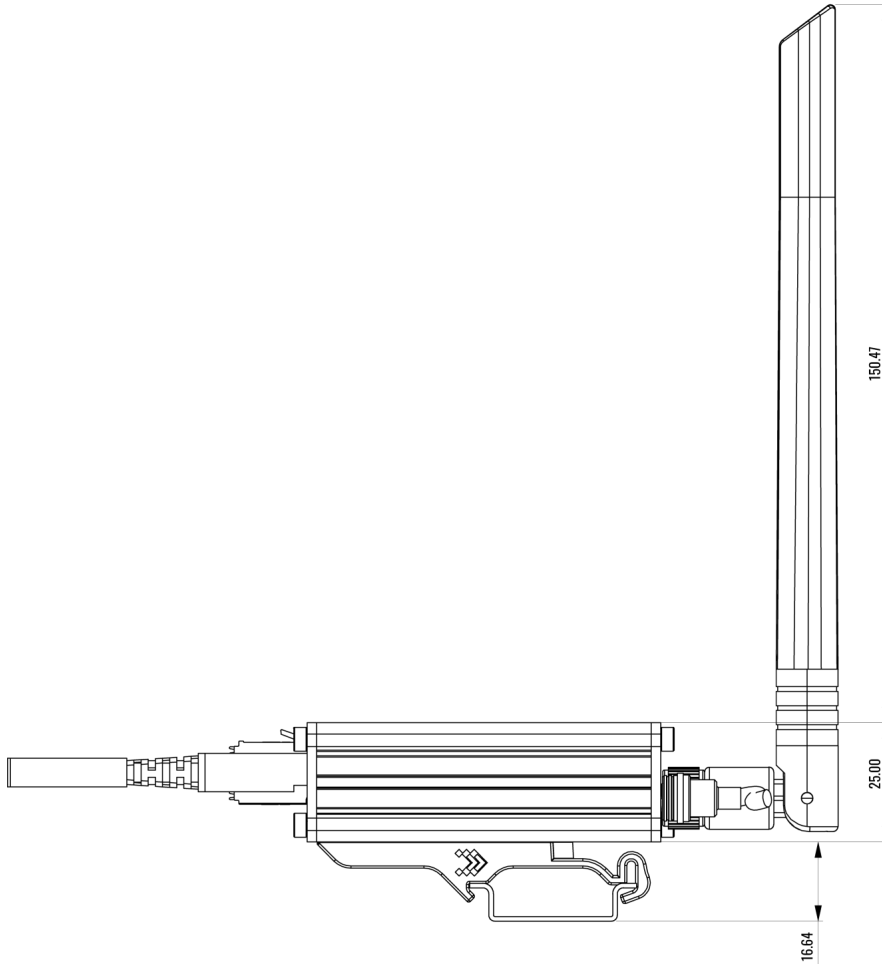
### MOUNTING SPACE REQUIREMENTS

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:





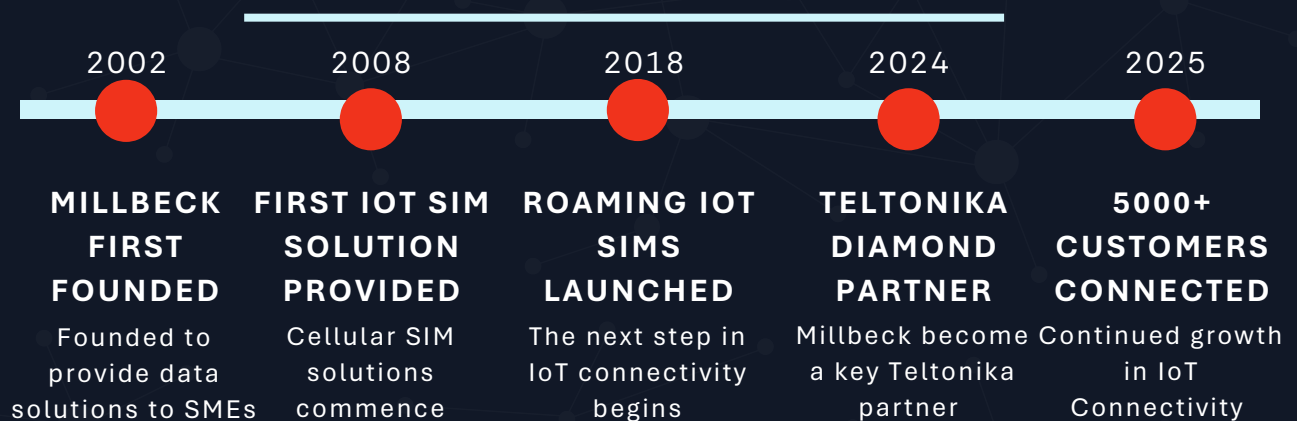
# Millbeck.

## ABOUT

Millbeck brings over 20 years of connectivity expertise, delivering smart, secure IoT solutions that scale seamlessly, from UK based projects to global deployments.

As a Teltonika Diamond Partner, we combine global IoT SIM coverage, industrial-grade hardware, and expert support to deliver scalable, future-ready systems tailored to your exact needs.

## TIMELINE



## EXPERTISE



## SIM TECHNOLOGIES

- 2G/3G, 4G LTE, 5G, CAT-M1, LTE-M, VoLTE & NB-IoT
- eUICC
- eSIM
- Fixed Public IP
- Fixed Private IP
- IPsec VPN
- SSL VPN



# Millbeck.

## Industry sectors we connect



Agriculture



Construction



BMS & Smart Cities



Energy & Utilities



Healthcare



EV Charging



Industrial IoT



Retail & Point of Sale



Security



Automotive & Logistics



# Millbeck.

## SIM & Hardware vendors



POYNTING

*DrayTek*





# Millbeck.

