TELTONIKA

TRB245

Made in Lithuania
TELTONIKA NETWORKS UAB
K. Barsausko st. 66
LT-51436 Kaunas, Lithuania

TRB245

Default IP: 192.168.1.1
Power: 9-30 V

Contains FCC ID: XMR201808EC25AF
Contains IC: 10224A-2018EC25AF

ETHERNET

HARDWARE

FRONT VIEW

Input/output
connector

Ethernet port

+ D1 D2 D3 CTS RTS R+ D+

PWR

- ⏚ A ⏚ TX RX R- D-

RS232 RS485

ETHERNET

Power LED

BACK VIEW

Mobile network type
LEDs

Mobile signal strength
indication LEDs

REMOVE PANEL TO INSERT SIM

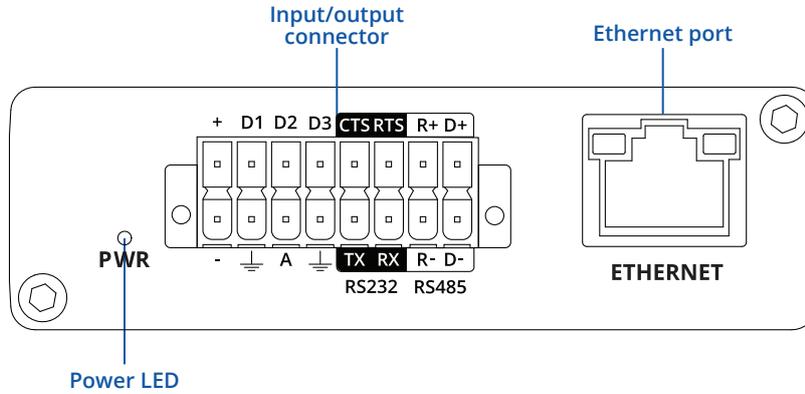2G 3G 4G
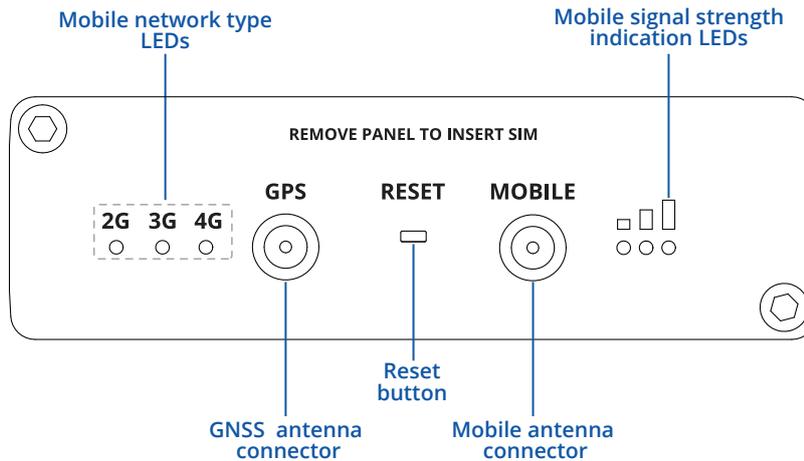
GPS

RESET

MOBILE

Reset
button

GNSS antenna
connector

Mobile antenna
connector

INPUT/OUTPUT 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.

+ D1 D2 D3 CTS RTS R+ D+

- ⏚ A ⏚ TX RX R- D-

RS232 RS485
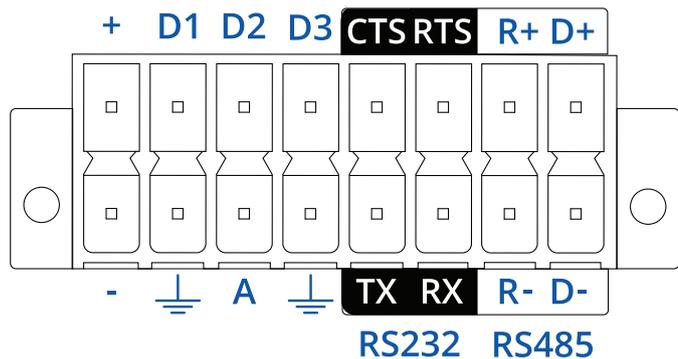
FEATURES

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 idle protection service	When working with devices with two SIM slots, the one not currently in use will remain idle until the device switches to it, meaning that no data is used on the card until then
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

ETHERNET

Ethernet	1 x ETH port, 10/100 Mbps, compliance with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX

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)
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
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
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
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
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

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

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
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
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	TCP Master, DNP3 Outstation, RTU Master

DLMS

DLMS Support	DLMS - standard protocol for utility meter data exchange

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
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

Cloud 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	Qualcomm, MIPS 24kc, 650 MHz
RAM	64 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

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
Tracking sensitivity	-157 dBm
Position Accuracy	2.5m CEP

SERIAL

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

INPUT / OUTPUT

Input	3x Configurable Digital Inputs, 0 - 6 V detected as logic low, 8 - 30 V detected as logic high, 1x Analog input (0 - 30 V)
Output	3x Configurable Digital Outputs, 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	2 pins in 16-pin industrial terminal block
Input voltage range	9 – 30 VDC, reverse polarity protection, surge protection +/-1 kV 50 µs max
Power consumption	Idle: < 1.2 W, Max: < 5 W

PHYSICAL INTERFACES

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

PHYSICAL SPECIFICATION

Casing material	Aluminium housing
Dimensions (W x H x D)	83 x 25 x 74.2 mm
Weight	165 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, EAC, UCRF, CITC, Kenya, ICASA, FCC, IC, Giteki, NTC

EMC EMISSIONS & IMMUNITY

Standards	EN 55032:2015/AC:2016 EN 55035:2017 EN IEC 61000-3-2:2019 EN 61000-3-3:2013 + A1:2019 EN 301 489-1 V2.2.3 EN 301 489-19 V2.1.1 Draft EN 301 489-52 V1.1.0
ESD	EN 61000-4-2:2009
Radiated Immunity	EN IEC 61000-4-3:2006 + A1:2008 + A2:2010
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 61000-4-11:2004 + A1:2017

RF

Standards	EN 303 413 V1.1.1 EN 301 511 V12.5.1 EN 301 908-1 V13.1.1 EN 301 908-2 V13.1.1 EN 301 908-13 V13.1.1

SAFETY

Standards	CE: EN 62368-1:2014 + A11:2017, EN IEC 62232:2017, EN 50385:2017 RCM: AS/NZS 62368.1:2018

STANDARD PACKAGE*

- Gateway TRB245
- 9 W PSU
- 1x Mobile antenna (swivel, SMA male)
- 1x GNSS antenna (adhesive, SMA male, 3 m cable)
- 16-pin terminal block
- 1x hex key
- Ethernet cable (1.5 m)
- QSG (Quick start guide)
- Packaging box

GATEWAY TRB245

9 W PSU

1X MOBILE ANTENNA (SWIVEL, SMA MALE)

1X GNSS ANTENNA (ADHESIVE, SMA MALE, 3 M CABLE)

16-PIN TERMINAL BLOCK

1X HEX KEY

ETHERNET CABLE (1.5 M)

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
TRB245 **0******* Europe[1], The Middle East, Africa, Thailand	**4G (LTE-FDD):** B1, B3, B7, B8, B20, B28A **4G (LTE-TDD):** B38, B40, B41 **3G:** B1, B8 **2G:** B3, B8	TRB245000000 / Standard package with EU PSU without connector TRB245000300 / Standard package with AU PSU without connector TRB245000200 / Standard package with UK PSU without connector TRB245000600 / Standard package with Power cable with 4-way screw terminal TRB245000700 / Mass packing code
TRB245 **1******* North America	**4G (LTE-FDD):** B2, B4, B5, B12, B13, B14, B66, B71 **3G:** B2, B4, B5	TRB245100100 / Standard package with US PSU without connector TRB245100700/ Mass packing code
TRB245 **2******* South America, Australia, New Zealan	**4G (LTE-FDD):** B1, B2[2], B3, B4, B5, B7, B8, B28 **4G (LTE-TDD):** B40 **3G:** B1, B2, B5, B8 **2G:** B2, B3, B5, B8	TRB245200300 / Standard package with AU PSU without connector TRB245200100 / Standard package with US PSU without connector TRB245200000 / Standard package with EU PSU without connector TRB245200600 / Standard package with Power cable with 4-way screw terminal TRB245200700 / Mass packing code
TRB245 **4******* Japan	**4G (LTE-FDD):** B1, B3, B8, B18, B19, B26 **4G (LTE-TDD):** B41 **3G:** B1, B6, B8, B19	TRB245400800 / Standard package with JP PSU without connector TRB245400700 / Mass packing code

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 - LTE-FDD B2 does not support Rx-diversity.

TRB245 SPATIAL MEASUREMENTS
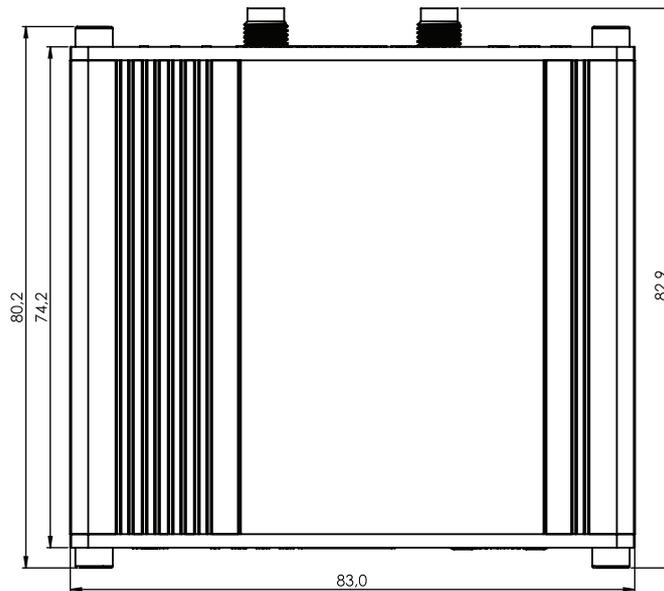
MAIN MEASUREMENTS

W x H x D dimensions for TRB245:

Device housing*:	83 x 25 x 74.2 mm
Box:	173 x 71 x 148 mm

*Housing measurements are presented without antenna connectors and screws; for measurements of other device elements look to the sections below.
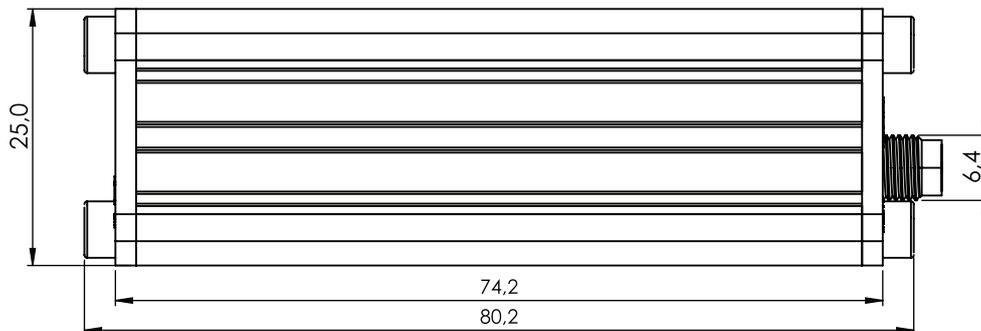
TOP VIEW

The figure below depicts the measurements of TRB245 and its components as seen from the top:
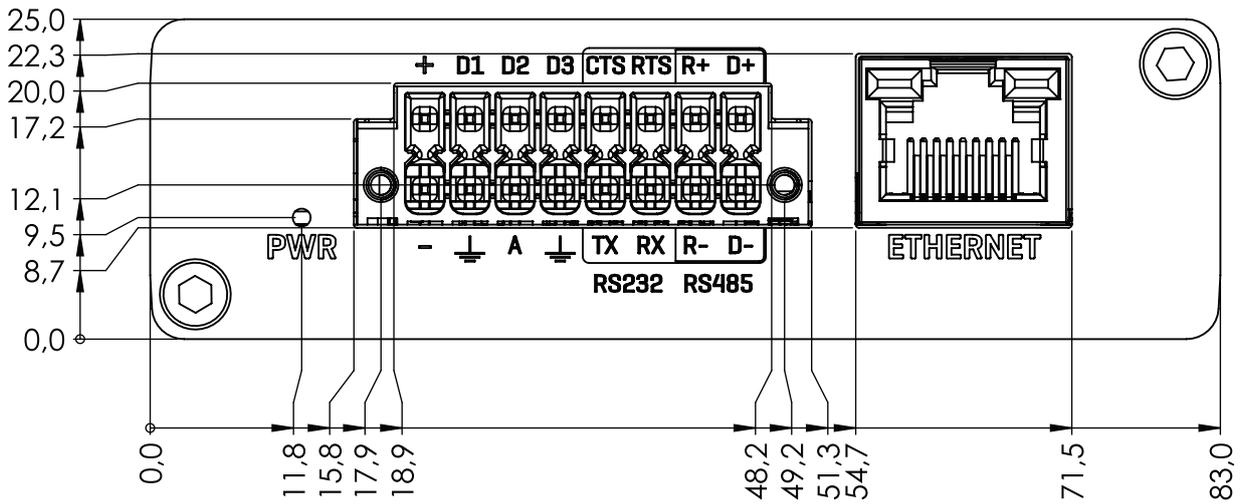
RIGHT VIEW

The figure below depicts the measurements of TRB245 and its components as seen from the right side:
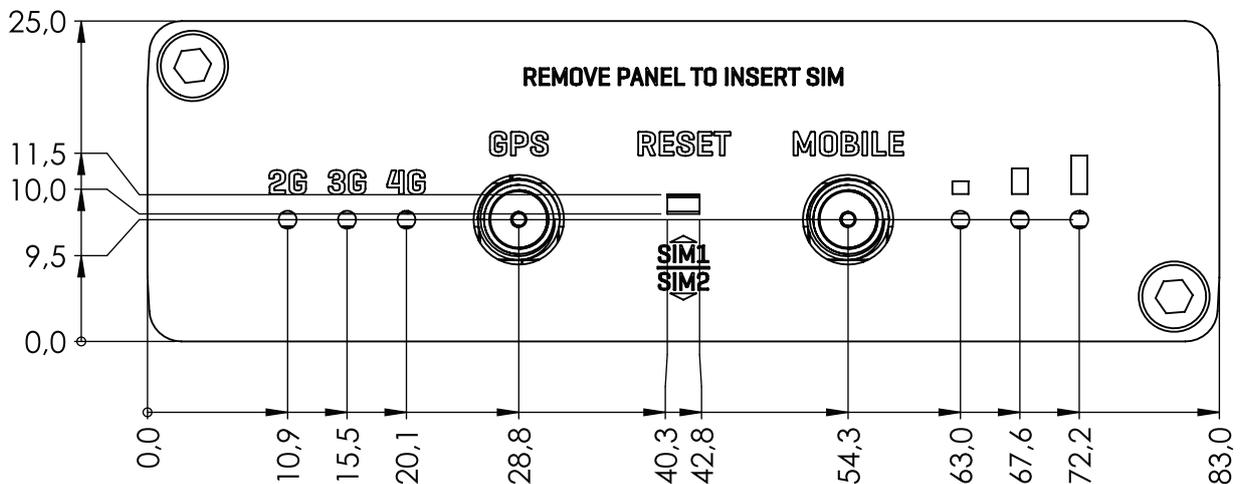
FRONT VIEW

The figure below depicts the measurements of TRB245 and its components as seen from the front panel side:
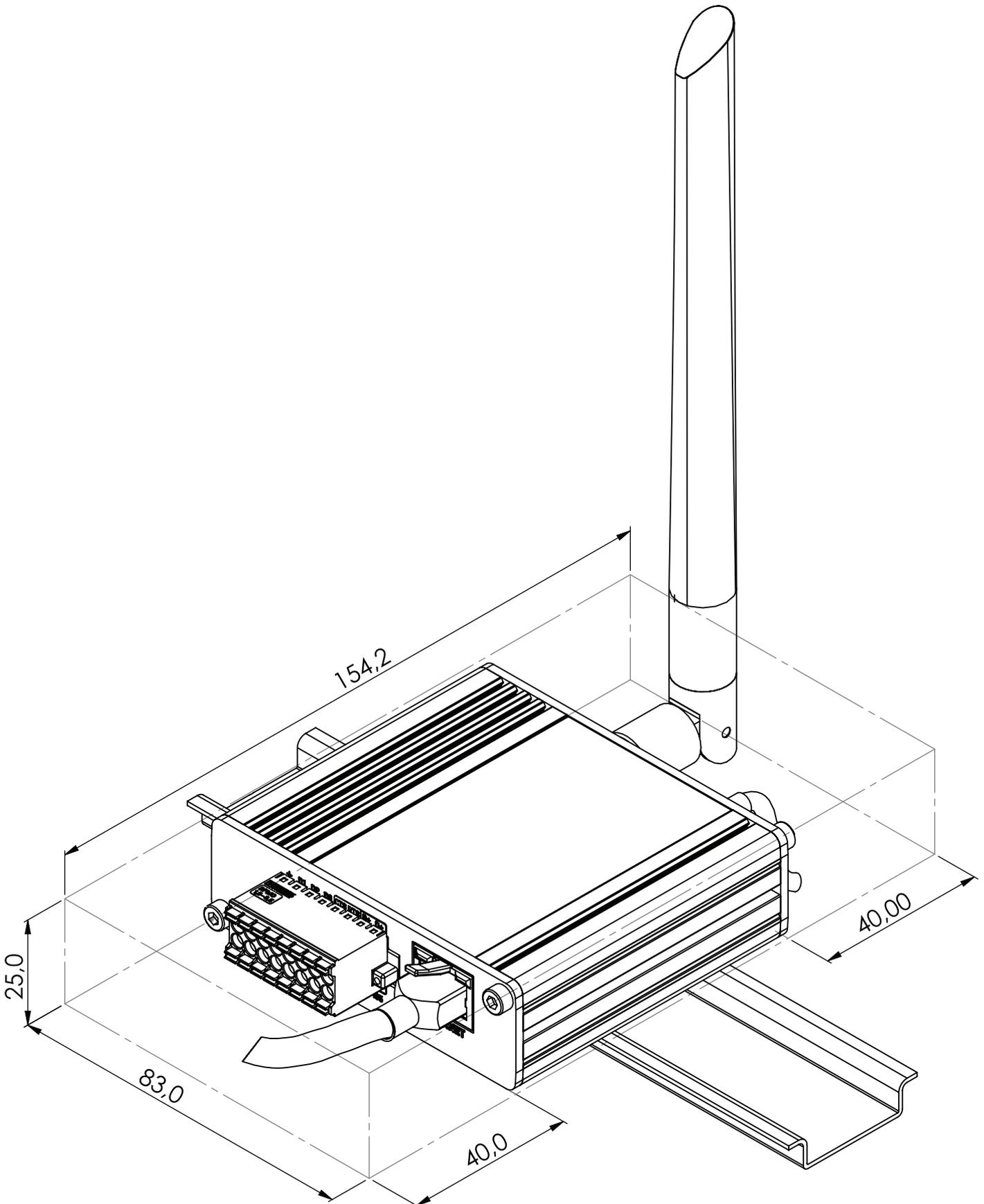

REAR VIEW

The figure below depicts the measurements of TRB245 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:

175,4

25,0

17,0