

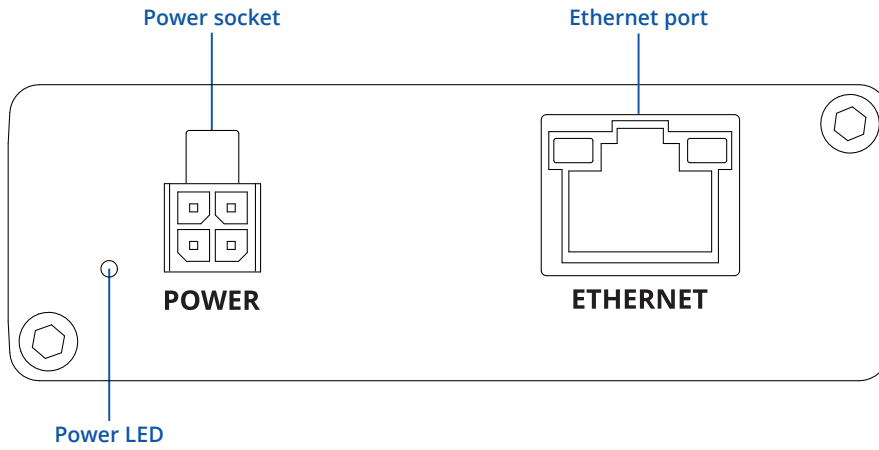


TRB140

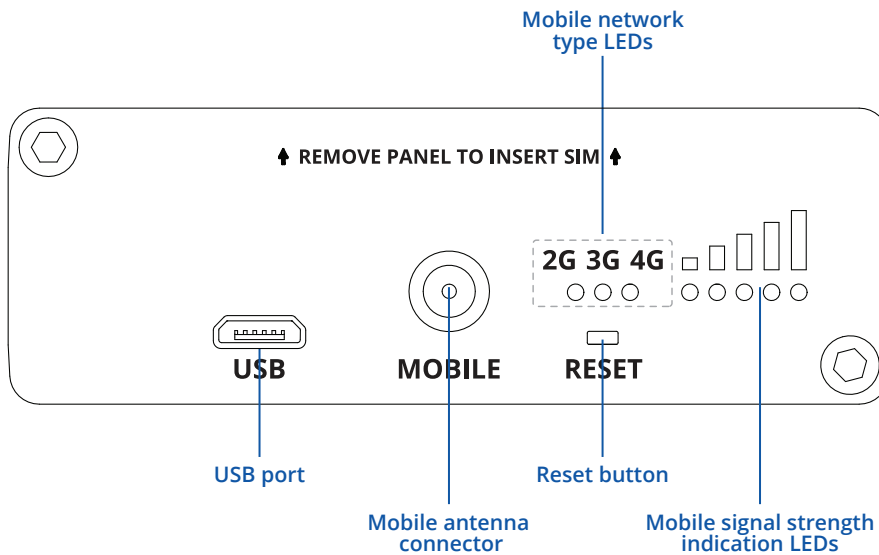


HARDWARE

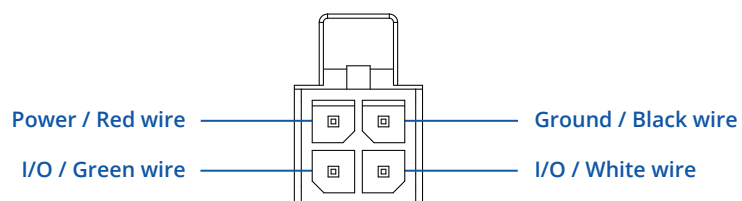
FRONT VIEW



BACK VIEW



POWER SOCKET PINOUT



FEATURES

MOBILE

| | |
|------------------|---|
| Mobile module | 4G (LTE) – Cat 4 up to 150 Mbps, 3G – Up to 42 Mbps, 2G – Up to 236.8 kbps |
| Status | Signal strength (RSSI), SINR, RSRP, RSRQ, EC/IO, RSCP, Bytes sent/received, connected band, IMSI, ICCID |
| 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 |
| Multiple PDN | Possibility to use different PDNs for multiple network access and services |
| Band management | Band lock, Used band status display |
| 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 |

NETWORK

| | |
|------------------------------------|--|
| Routing | Static 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, SMNP, 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 |
| 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 |
| Load balancing | Balance Internet traffic over multiple WAN connections |
| SSHFS | Possibility to mount remote file system via SSH protocol |

SECURITY

| | |
|----------------------|---|
| Authentication | Pre-shared key, digital certificates, X.509 certificates, TACACS+, Radius, IP & Login attempts block |
| 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 TCP, UDP, ICMP packets, MAC address filter |

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 | 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 |

MODBUS TCP SLAVE

| | |
|---------------------|---|
| ID range | Respond to one ID in range [1;255] or any |
| Allow Remote Access | Allow access through WAN |
| 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 Slave functionality |

MODBUS TCP MASTER

| | |
|------------------------|--|
| Supported functions | 01, 02, 03, 04, 05, 06, 15, 16 |
| 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) |

DATA TO SERVER

| | |
|----------|------------------------------------|
| Protocol | HTTP(S), MQTT, Azure MQTT, Kinesis |
|----------|------------------------------------|

MQTT GATEWAY

| | |
|--------------|---|
| MQTT Gateway | Allows sending commands and receiving data from MODBUS Master through MQTT broker |
|--------------|---|

DNP3

| | |
|-----------------|-----------------------------|
| Supported modes | TCP Master, DNP3 Outstation |
|-----------------|-----------------------------|

MONITORING & MANAGEMENT

| | |
|----------|--|
| WEB UI | HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, event log, system log, kernel log |
| 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 |
| JSON-RPC | Management API over HTTP/HTTPS |
| MODBUS | MODBUS TCP status/control |
| 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 send device IP, Number of bytes send/received, Temperature, PIN count to Azure IoT Hub server, Mobile connection state, Network link state, IMEI, ICCID, Model, Manufacturer, Serial, Revision, IMSI, SIM State, PIN state, GSM signal, WCDMA RSCP, WCDMA EC/IO, LTE RSRP, LTE SINR, LTE RSRQ, CELL ID, Operator, Operator number, Connection type |

SYSTEM CHARACTERISTICS

| | |
|---------------|-----------------------|
| CPU | ARM Cortex-A7 1.2 GHz |
| RAM | 128 MB, DDR2 |
| FLASH storage | 512 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 |

FIRMWARE CUSTOMIZATION

| | |
|---------------------|---|
| Operating system | RutOS (OpenWrt based Linux OS) |
| Supported languages | Busybox shell, Lua, C, C++ |
| Development tools | SDK package with build environment provided |

INPUT / OUTPUT

| | |
|-------------|---|
| Input | 1 x Digital Input, 0 - 6 V detected as logic low, 8 - 30 V detected as logic high |
| Output | 1 x Digital Output, 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 >31 VDC 10us max |
| PoE (passive) | 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 | < 5 W |

PHYSICAL INTERFACES

| | |
|-------------|--|
| Ethernet | 1 x RJ45 port, 10/100/1000 Mbps |
| I/O's | 1 x Digital Input, 1 x Digital Output on 4-pin power connector |
| Status LEDs | 3 x connection type status LEDs, 5 x connection strength LEDs, 2 x LAN status LEDs, 1x Power LED |
| SIM | 1 x SIM slot (Mini SIM - 2FF), 1.8 V/3 V |
| Power | 1 x 4-pin power connector |
| Antennas | 1 x SMA for LTE |
| USB | 1 x Virtual network interface via micro USB |
| Reset | Reboot/User default reset/Factory reset button |

PHYSICAL SPECIFICATION

| | |
|------------------------|--|
| Casing material | Aluminum housing |
| Dimensions (W x H x D) | 74.5 x 25 x 64.4 mm |
| Weight | 134 g |
| Mounting options | Bottom and sideways DIN rail, Flat surface |

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/RED, EAC, RoHS, WEEE |
|------------|-------------------------|

EMC EMISSIONS & IMMUNITY

| | |
|------------------|--|
| Standards | Draft EN 301 489-1 V2.2.0, Draft EN 301 489-17 V3.2.0, Draft EN 301 489-19 V2.1.0, Draft EN 301 489-52 V1.1.0 FCC 47 CFR Part 15B (2017), ANSI C63.4 (2014) |
| ESD | EN 61000-4-2:2009 |
| RS | EN 61000-4-3:2006 + A1:2008 + A2:2010 |
| EFT | EN 61000-4-4:2012 |
| Surge protection | EN 61000-4-5:2014 |
| CS | EN 61000-4-6:2014 |
| DIP | EN 61000-4-11:2004 |

RF

| | |
|-----------|--|
| Standards | EN 300 511 V12.5.1, ETSI EN 301 908-1 V11.1.1, ETSI EN 301 908-1 V11.1.2, EN 301 908-2 V11.1.2, ETSI EN 301 908-13 V11.1.2 |
|-----------|--|






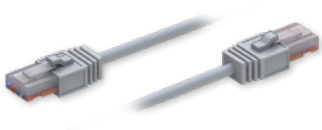

SAFETY

| | |
|-----------|--|
| Standards | IEC 62368-1:2014(Second Edition), EN 62368-1:2014+A11:2017 EN 50385:2017 EN 62232:2017 |
|-----------|--|

WHAT'S IN THE BOX?

STANDARD PACKAGE CONTAINS*

- TRB140 Gateway
- 9 W PSU
- 1x LTE antenna (magnetic mount, SMA male, 3 m cable)
- Micro-USB cable (0.8 m)
- 1x hex key
- LAN cable
- QSG (Quick Start Guide)
- Packaging box

| | | |
|--|---|---|
|  <p>TRB140 GATEWAY</p> |  <p>9 W PSU</p> |  <p>1X LTE ANTENNA (MAGNETIC MOUNT, SMA MALE, 3 M CABLE)</p> |
|  <p>MICRO-USB CABLE (0.8 M)</p> |  <p>1X HEX KEY</p> |  <p>LAN CABLE</p> |
|  <p>QSG</p> | | |

* For all standard order codes standard package contents are the same, except for PSU.

STANDARD ORDER CODES

| PRODUCT CODE | HS CODE | HTS CODE | PACKAGE CONTAINS |
|---------------|---------|------------|------------------------------|
| TRB140 003000 | 851762 | 8517.62.00 | Standard Package with EU PSU |
| TRB140 107000 | 851762 | 8517.62.00 | Standard Package with AU PSU |
| TRB140 40C400 | 851762 | 8517.62.00 | Standard Package with JP PSU |

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

AVAILABLE VERSIONS

| PRODUCT CODE | REGION (OPERATOR) | FREQUENCY |
|---------------|---|--|
| TRB140 0***** | Europe ¹ , The Middle East, Africa, Korea, Thailand, India, Malaysia | <ul style="list-style-type: none"> • 4G (LTE-FDD): B1, B3, B7, B8, B20, B28A • 4G (LTE-TDD): B38, B40, B41 • 3G: B1, B8 • 2G: B3, B8 |
| TRB140 1***** | South America, Australia, New Zealand, Taiwan, Malaysia | <ul style="list-style-type: none"> • 4G (LTE-FDD): B1, B2², B3, B4, B5, B7, B8, B28 • 4G (LTE-TDD): B40 • 3G: B1, B2, B5, B8 • 2G: B2, B3, B5, B8 |
| TRB140 4***** | Japan | <ul style="list-style-type: none"> • 4G (LTE-FDD): B1, B3, B8, B18, B19, B26 • 4G (LTE-TDD): B41 • 3G: B1, B6, B8, B19 |

The price and lead-times for region (operator) specific versions may vary. For more information please contact us.

* - Versions for other regions are under development.

** - For more detailed information, visit our Wiki.

1 - Regional availability - excluding Russia & Belarus.

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

TRB140 SPATIAL MEASUREMENTS & WEIGHT

MAIN MEASUREMENTS

W x H x D dimensions for TRB140

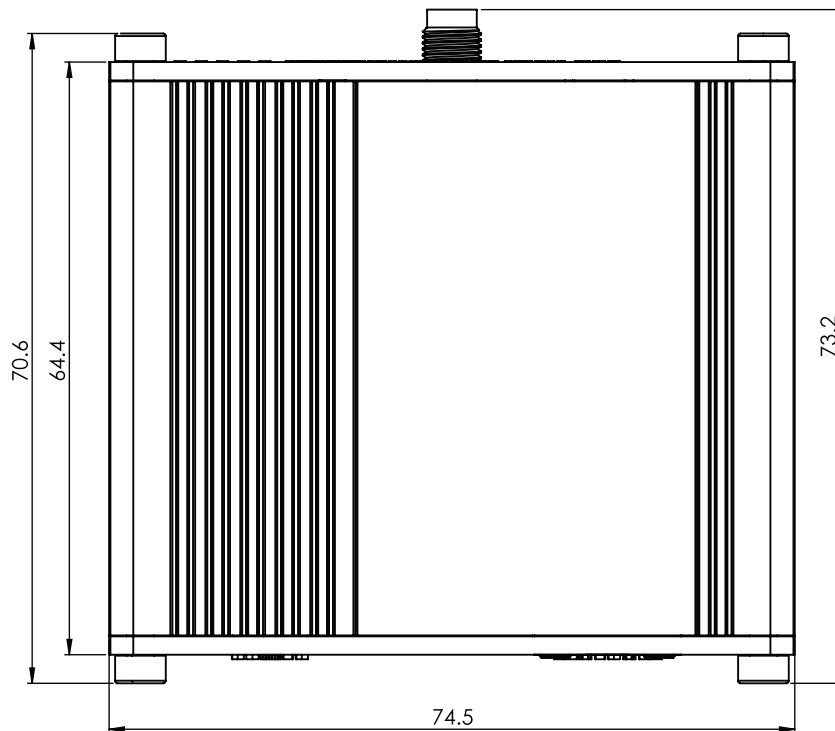
Device housing*: 74.5 x 25 x 64.4 mm

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.

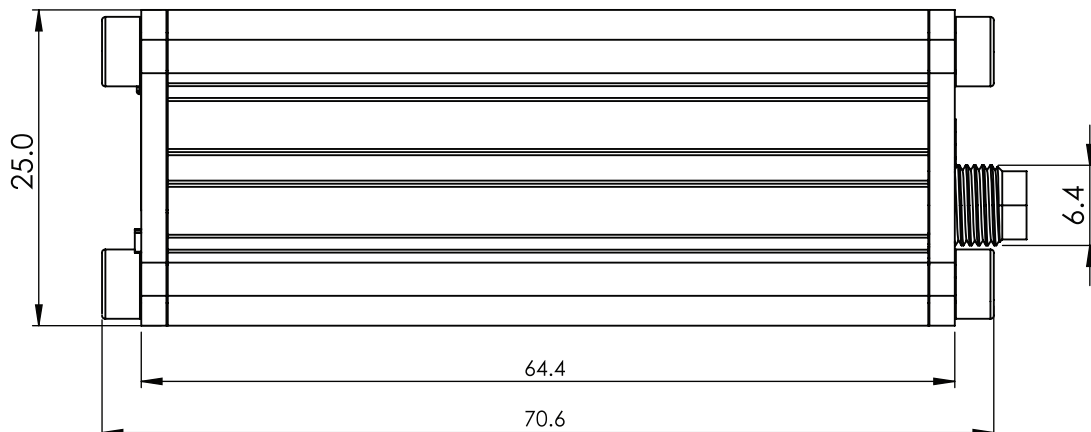
TOP VIEW

The figure below depicts the measurements of TRB140 and its components as seen from the top:



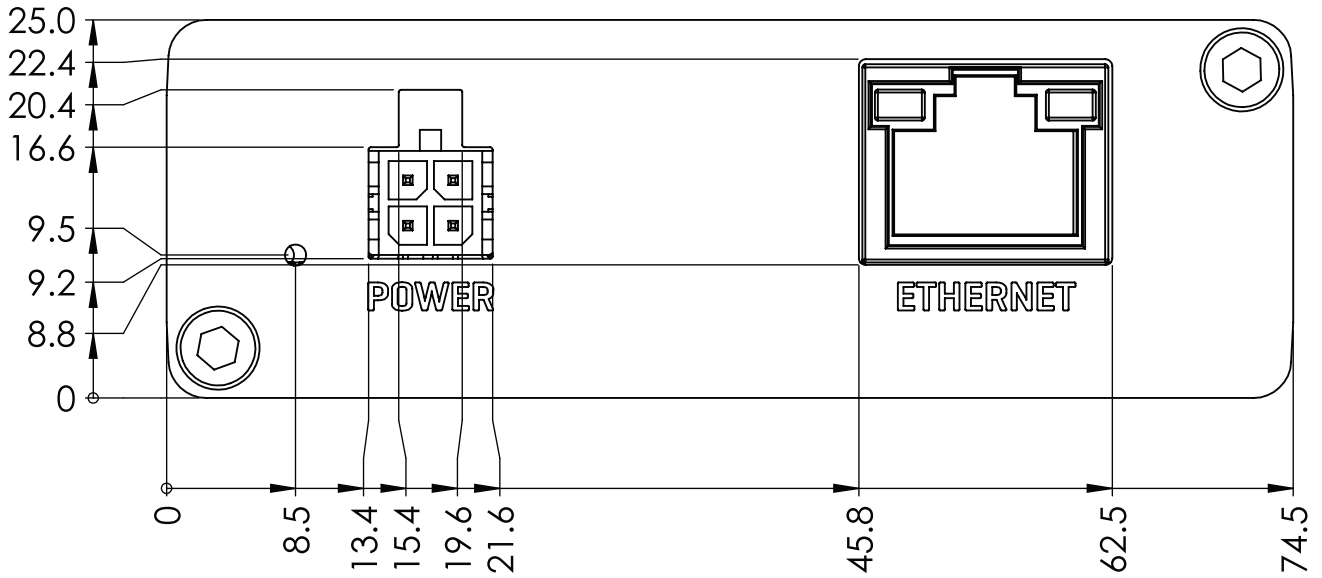
RIGHT VIEW

The figure below depicts the measurements of TRB140 and its components as seen from the right side:



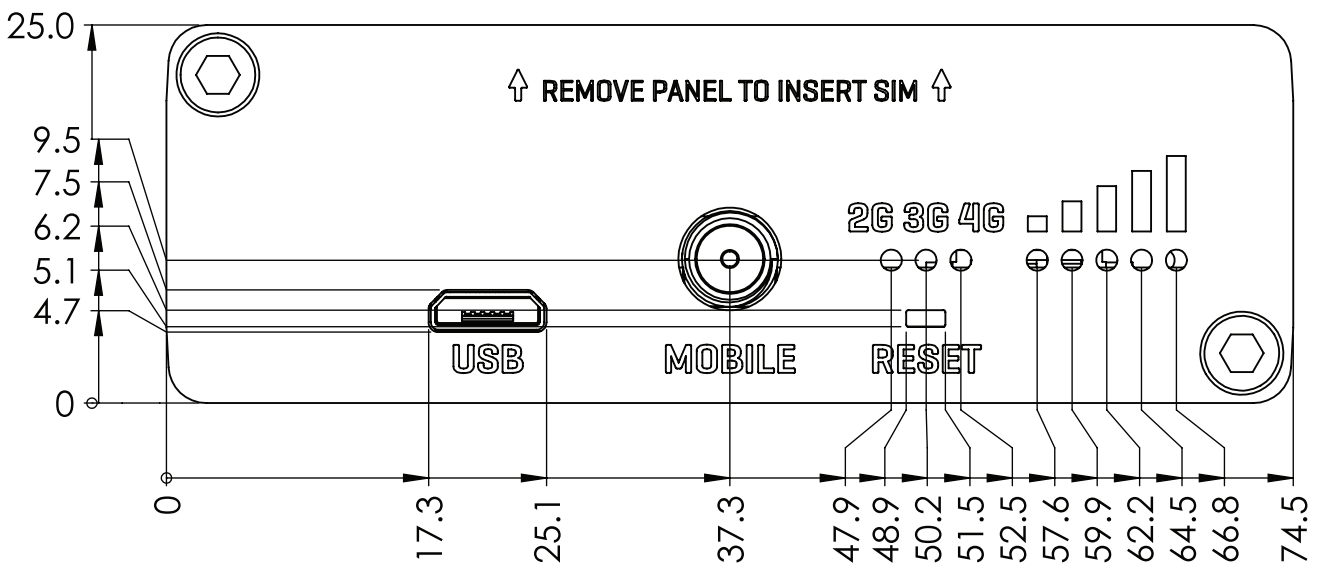
FRONT VIEW

The figure below depicts the measurements of TRB140 and its components as seen from the front:



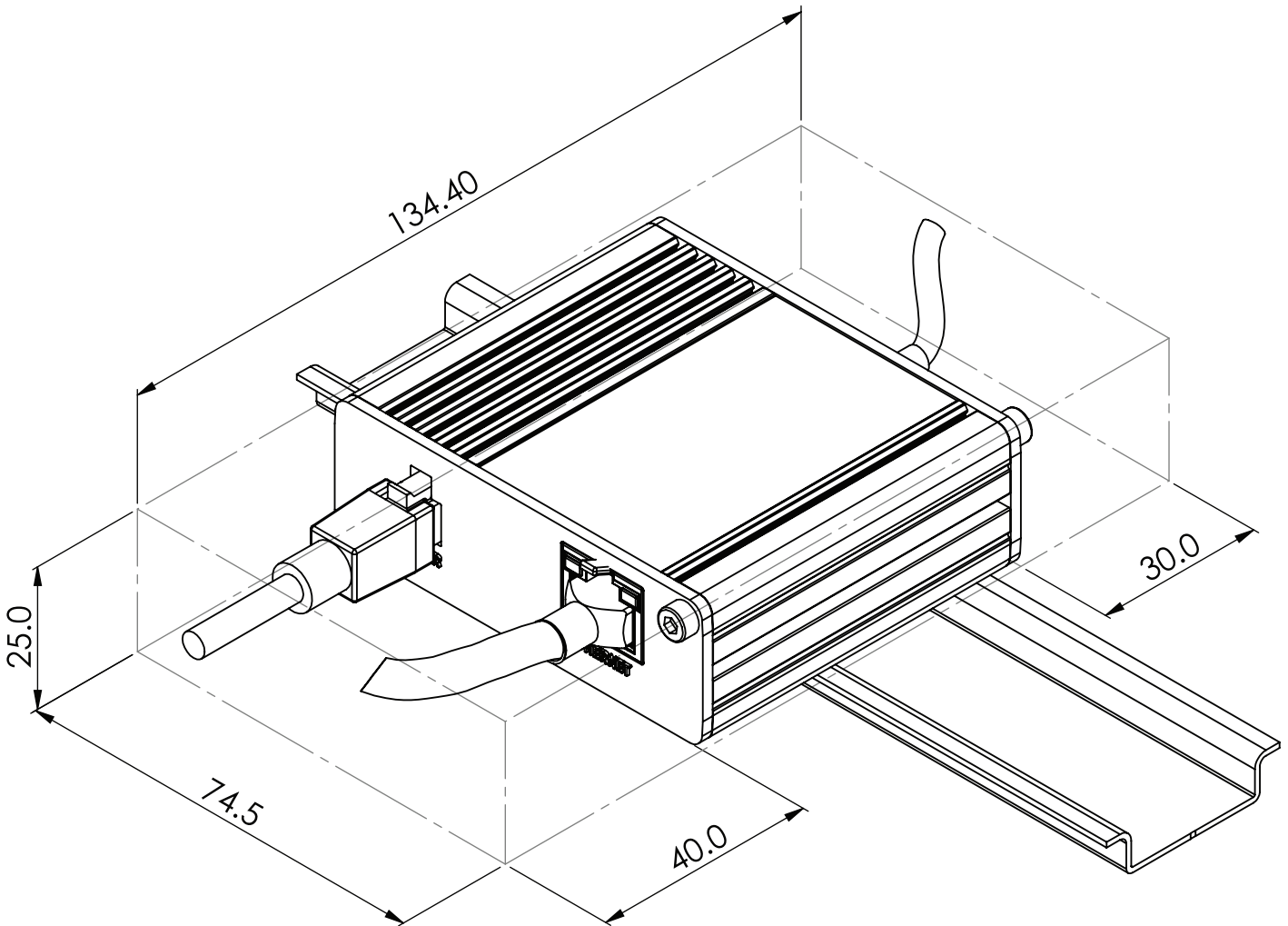
REAR VIEW

The figure below depicts the measurements of TRB140 and its components as seen from the back:



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:

