

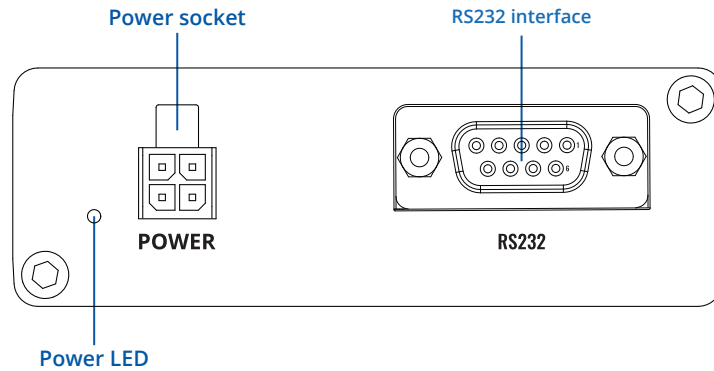


TRB142

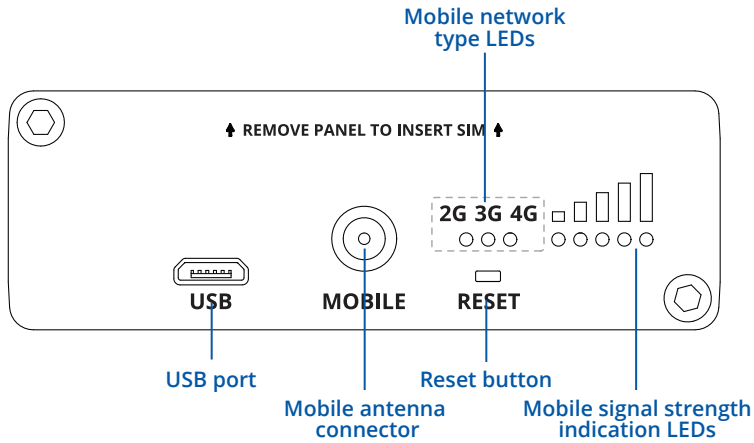


HARDWARE

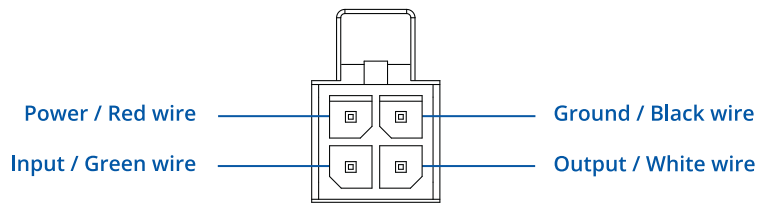
FRONT VIEW



BACK VIEW

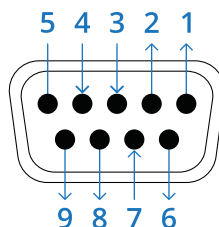


POWER SOCKET PINOUT



DB9 CONNECTOR PINOUT

1. Not used.
2. Received Data (RX) – output.
3. Transmitted data (TX) – input.
4. Not used.
5. Ground (GND).
6. Not used.
7. Request data to send (RTS) – input.
8. Clear data to send (CTS) – output.
9. Not used.



FEATURES

MOBILE

| | |
|---------------|---|
| Mobile module | 4G (LTE) – Cat 1 up to 10 Mbps, 3G – Up to 42 Mbps, 2G – Up to 236.8 kbps |
| Bridge | Direct connection (bridge) between mobile ISP and device on LAN |
| Status | Signal strength (RSSI), SINR, RSRP, RSRQ, EC/IO, RSCP Bytes sent/received |
| SMS/Call | SMS status, SMS configuration, Call utilities |

NETWORK

| | |
|--|--|
| Network protocols | TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, SSL v3, TLS, PPP, SSH, DHCP, SNMP, MQTT |
| Brige | Static routing |
| Connection monitoring | Ping Reboot, Periodic Reboot, LCP and ICMP for link inspection, Wget |
| Firewall | Port forwards, traffic rules, custom rules |
| DHCP | Static and dynamic IP allocation |
| QoS / Smart Queue Management (SQM) (planned) | Traffic priority queuing by source/destination, service, protocol or port |
| DHCP | Supported >25 service providers, others can be configured manually |

SECURITY

| | |
|----------------|--|
| Authentication | Pre-shared key, digital certificates, X.509 certificates |
| Firewall | Pre-configured firewall rules can be enabled via the WebUI, unlimited firewall configuration via CLI; NAT; NAT-T |
| Access control | Flexible access control of TCP, UDP, ICMP packets, MAC address filter |

VPN

| | |
|--------------------|---|
| OpenVPN | Multiple clients and a server can run simultaneously, 12 encryption methods |
| OpenVPN Encryption | DES-CBC, RC2-CBC, DES-EDE-CBC, DES-EDE3-CBC, DESX-CBC, BF-CBC, RC2-40-CBC, CAST5-CBC, RC2-64-CBC, AES-128-CBC, AES-192-CBC, AES-256-CBC |
| IPsec | IKEv1, IKEv2, supports up to 5 x VPN IPsec tunnels (instances), with 5 encryption methods (DES, 3DES, AES128, AES192, AES256) |
| GRE | GRE tunnel |
| PPTP, L2TP | Client/Server services can run simultaneously |

MONITORING & MANAGEMENT

| | |
|----------|---|
| WEB UI | HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, system log, kernel log |
| FOTA | Firmware update from sever, automatic notification |
| SSH | SSH (v1, v2) |
| SMS | SMS status, SMS configuration |
| MQTT | MQTT Broker, MQTT publisher |
| JSON-RPC | Management API over HTTP/HTTPS |
| Modbus | Modbus TCP status/control |
| RMS | Teltonika Remote Management System (RMS) |

SYSTEM CHARACTERISTICS

| | |
|--------------|---|
| CPU | ARM Cortex-A7 1.2 GHz CPU |
| RAM | 128 MB (50 MB available for userspace) |
| FLASH memory | 512 MB (200 MB available for userspace) |

SERIAL COMMUNICATION MODES

| | |
|-------|---|
| Modes | Console, OverIP, Modem (Full or Partial control), Modbus RTU master, Modbus gateway, NTRIP client |
|-------|---|

MODBUS TCP SLAVE

| | |
|---------------------|--|
| ID filtering | Respond to one ID in range [1;255] or any |
| Allow remote access | Allow access through WAN |
| Custom registers | Modbus TCP custom register block, which allows to read/write to a file inside the router, and can be used to extend Modbus TCP slave functionality |

MODBUS TCP SLAVE

| | |
|------------------------|--|
| 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) |

MODBUS RTU MASTER

| | |
|------------------------|--|
| Supported baud rates | From 300 to 115200 |
| 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) |
| Number of data bits | From 5 to 8 |
| Number of stop bits | 1 or 2 |
| Parity | None, Even, Odd |
| Flow control | None, RTS/CTS, Xon/Xoff |

MODBUS DATA TO SERVER

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

FIRMWARE / CONFIGURATION

| | |
|---------------|--|
| WEB UI | Update FW from file, check FW on server, configuration profiles, configuration backup, restore point |
| FOTA | Update FW/configuration from server |
| RMS | Update FW/configuration for multiple devices |
| 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

| | |
|------------------|----------------------------|
| Configurable I/O | 2 x Digital Inputs/Outputs |
| Events | SMS status |

POWER

| | |
|---------------------|---|
| Connector | 4 pin industrial DC power socket |
| Input voltage range | 9 - 30 VDC (4 pin industrial socket), reverse polarity protection, surge protection >33 VDC 10μ max |
| Power consumption | < 5 W |

PHYSICAL SPECIFICATIONS

| | |
|------------------|--|
| Casing material | Aluminum housing |
| Dimensions | 64.4 x 74.5 x 25 mm (L x W x H) |
| Weight | 135 g |
| Mounting options | Bottom and sideways DIN rail, Flat surface and direct PCB on DIN-Rail mounting options |

PHYSICAL INTERFACES (PORTS, LEDS, ANNTENAS, BUTTONS, SIM)

| | |
|-------------|---|
| RS232 | RS232 interface, DB9 socket, 5 pin configuration with flow control |
| I/Os | 2 Inputs/Outputs pin on 4 pin power connector |
| USB | Virtual network interface via USB |
| Status LEDs | 3 x connection type status LEDs, 5 x connection strength LEDs, 1x Power LED |
| SIM | 1 x SIM slot (Mini SIM – 2FF), 1.8 V/3 V |
| Power | 4 pin power connector with 2 x configurable Digital Inputs/Outputs |
| Anntenas | 1 x SMA for LTE |
| Reset | Restore factory settings button |

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 |
|------------|-------------------------|

EMI

| | |
|------------------|---|
| Standards | Draft ETSI EN 301 489-1 V2.2.0, Draft EN 301 489-19 V2.1.0, Draft ETSI EN 301 489-52 V1.1.0 |
| 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

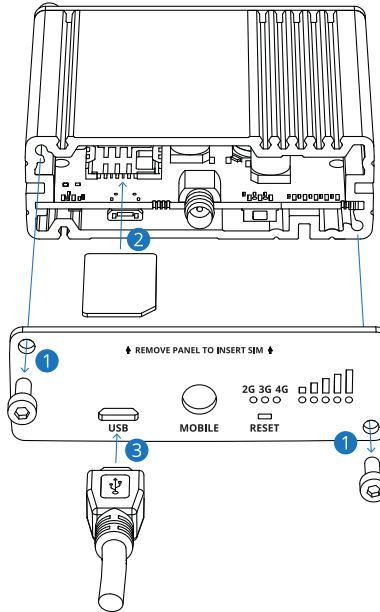
| | |
|-----------|--|
| Standards | EN 300 511 V12.5.1, ETSI EN 301 908-1 V11.1.1, ETSI EN 301 908-2 V11.1.2, ETSI EN 301 908-13 V11.1.2 |
|-----------|--|

SAFETY

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

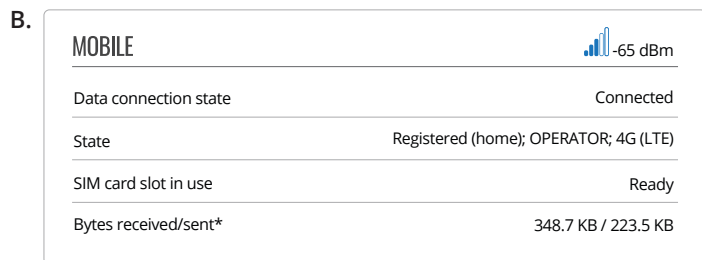
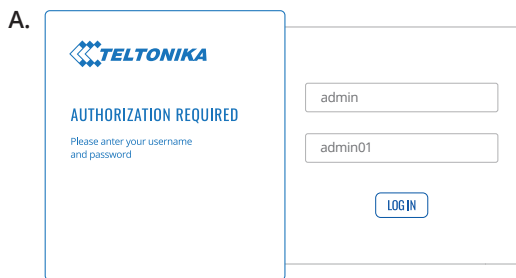
HARDWARE INSTALLATION

1. Unscrew two back panel hex bolts and remove the back panel.
2. Remove the back panel.
3. Insert your SIM card into the SIM socket.
4. Attach the panel and tighten the hex bolts.
5. Attach the mobile antenna (max torque 0.4 N·m / 3.5 lbf·in) and connect the USB cable.



LOGIN TO DEVICE

1. Power on the device and connect the USB cable to your computer.
2. Allow the gateway to boot up. This might take up to 30 seconds.
3. Your computer's OS should detect the USB device and install the driver.
4. To enter the gateway's Web interface (WebUI), type <http://192.168.2.1> into the URL field of your Internet browser.
5. Use login information shown in image A when prompted for authentication.
6. After logging in pay attention to the Signal Strength indication displayed in the Mobile widget (image B). To maximize the cellular performance try adjusting the antennas or changing the location of your device to achieve the best signal conditions.



TECHNICAL INFORMATION

| Radio specifications | |
|-------------------------------------|--|
| RF technologies | 2G, 3G, 4G |
| Max RF power | 33 dBm@GSM, 24 dBm@WCDMA, 23 dBm@LTE |
| Bundled accessories specifications* | |
| Power adapter | Input: 0.4A@100-240VAC, Output: 9VDC, 0.5A, 4-pin plug |
| Mobile antenna | 698~960/1710~2690 MHz, 50 Ω, VSWR<2, gain** 2 dBi, omnidirectional, SMA male connector |

*Order code dependent.

**Higher gain antenna can be connected to compensate for cable attenuation when a cable is used. The user is responsible for the compliance with the legal regulations.

WHAT'S IN THE BOX?

STANDARD PACKAGE CONTAINS

- TRB142 board
- Euro PSU
- 1 x LTE antenna (magnetic mount, SMA male, 3 m cable)
- Micro-USB cable (0.8 m)
- 1 x hex key
- QSG (Quick Start Guide)
- Packaging box



| | | |
|--|--|--|
|  <p>TRB142</p> |  <p>1 X LTE ANTENNA (MAGNETIC MOUNT, SMA MALE, 3 M CABLE)</p> |  <p>MICRO-USB CABLE (0.8 M)</p> |
|  <p>EURO PSU</p> |  <p>1 X HEX KEY</p> | |

STANDARD ORDER CODES

| PRODUCT CODE | HS CODE | HTS CODE | PACKAGE CONTAINS |
|--------------|---------|------------|------------------------------|
| TRB142003000 | 851762 | 8517.62.00 | Standard Package |
| TRB142000000 | 851762 | 8517.62.00 | Standard Package, no housing |

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

AVAILABLE VERSIONS

| PRODUCT CODE | REGION (OPERATOR) | FREQUENCY |
|---------------|---|--|
| TRB142 0***** | Europe, the Middle East, Africa, Korea, Thailand, India, Malaysia | <ul style="list-style-type: none"> ● 4G (LTE-FDD): B1, B3, B7, B8, B20, B28A ● 3G: B1, B8 ● 2G: B3, B8 |
| TRB142 1***** | South America, Australia, New Zealand, Taiwan | <ul style="list-style-type: none"> ● 4G (LTE-FDD): B1, B2, B3, B4, B5, B7, B8, B28 ● 4G (LTE-TDD): B40 ● 3G: B1, B2, B5, B8 ● 2G: B2, B3, B5, B8 |

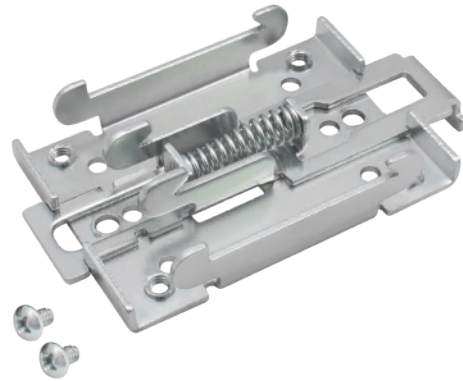
The price and lead-times for region (operator) specific versions may vary. For more information please contact us.

- 1 - Versions for other regions are under development.
- 2 - For more detailed information, visit our Wiki

MOUNTING OPTIONS

DIN RAIL KIT

| Parameter | Value |
|-------------------|---|
| Mounting standard | 35mm DIN Rail |
| Material | Low carbon steel |
| Weight | 57g |
| Screws included | Philips Pan Head screw #6-32×3/16, 2pcs |
| Dimensions | 82 mm x 46 mm x 20 mm |
| RoHS Compliant | V |



DIN RAIL KIT

- DIN Rail adapter
- Philips Pan Head screw #6-32×3/16, 2pcs for RUT2xx/RUT9xx

| ORDER CODE | PRODUCT CODE | HS CODE | HTS CODE |
|------------|--------------|----------|------------|
| 088-00267 | PR5MEC00 | 73269098 | 7326.90.98 |

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

COMPACT DIN RAIL KIT

| Parameter | Value |
|-------------------|---|
| Mounting standard | 35mm DIN Rail |
| Material | ABS + PC plastic |
| Weight | 6.5 g |
| Screws included | Philips Pan Head screw #6-32×3/16, 2pcs |
| Dimensions | 70 mm x 25 mm x 14,5 mm |
| RoHS Compliant | V |



DIN RAIL KIT

- Compact plastic DIN Rail adapter (70x25x14,5mm)
- Philips Pan Head screw #6-32×3/16, 2pcs

| ORDER CODE | PRODUCT CODE | HS CODE | HTS CODE |
|------------|--------------|----------|------------|
| 088-00270 | PR5MEC11 | 73269098 | 7326.90.98 |

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

SURFACE MOUNTING KIT

| Parameter | Value |
|-------------------|---|
| Mounting standard | Flat surface mount |
| Material | ABS + PC plastic |
| Weight | 2x5 g |
| Screws included | Philips Pan Head screw #6-32×3/16, 2pcs |
| Dimensions | 25 mm x 48 mm x 7.5 mm |
| RoHS Compliant | V |



DIN RAIL KIT

- Surface mounting kit
- Philips Pan Head screw #6-32×3/16, 2pcs

| ORDER CODE | PRODUCT CODE | HS CODE | HTS CODE |
|------------|--------------|----------|------------|
| 088-00281 | PR5MEC12 | 73269098 | 7326.90.98 |

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

TRB142 SPATIAL MEASUREMENTS & WEIGHT

MAIN MEASUREMENTS

H x W x D dimensions for TRB142

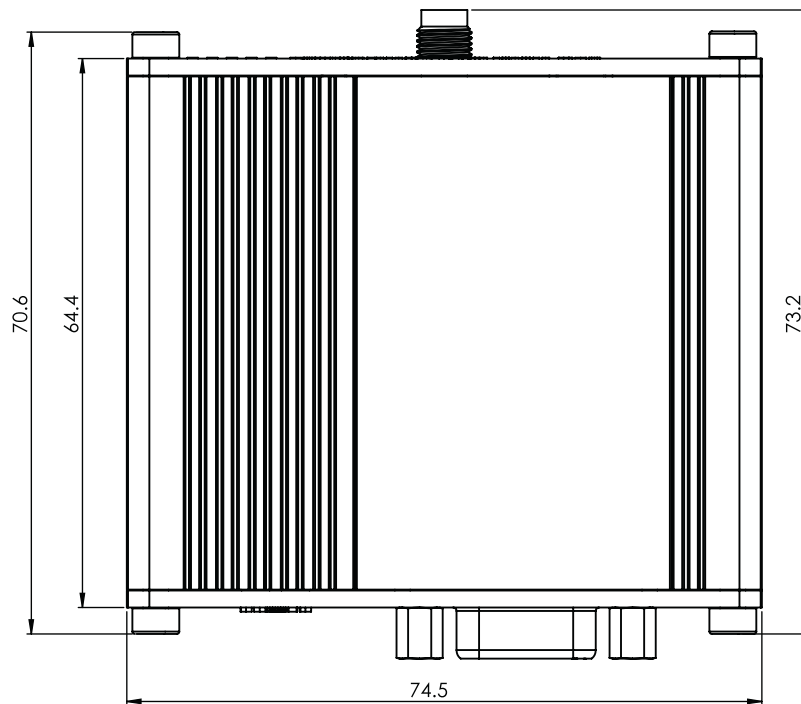
Device housing*: 64.4 x 74.5 x 25

Box: 173 x 148 x 71

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

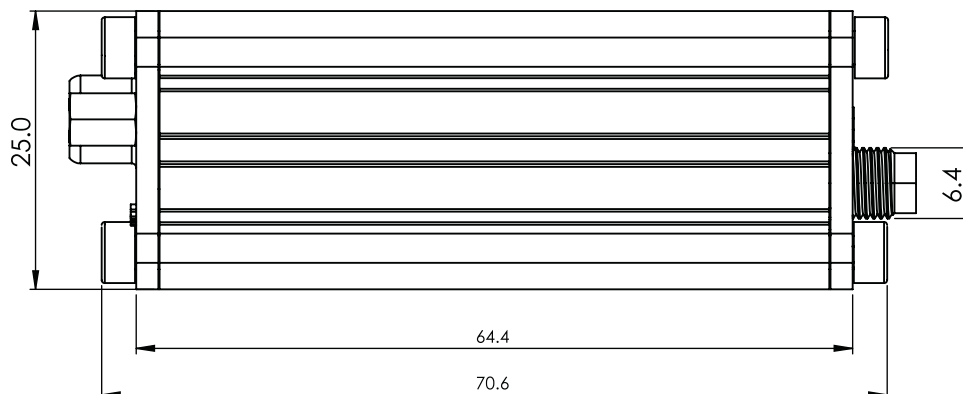
TOP VIEW

The figure below depicts the measurements of TRB142 and its components as seen from the top:



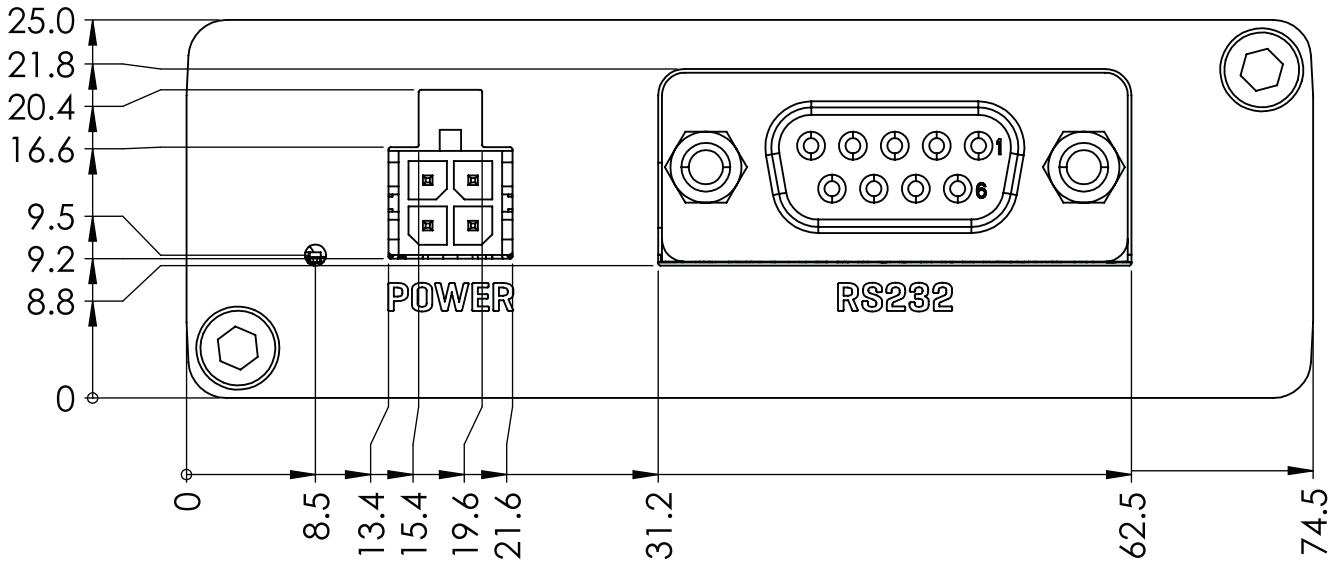
RIGHT VIEW

The figure below depicts the measurements of TRB142 and its components as seen from the right side:



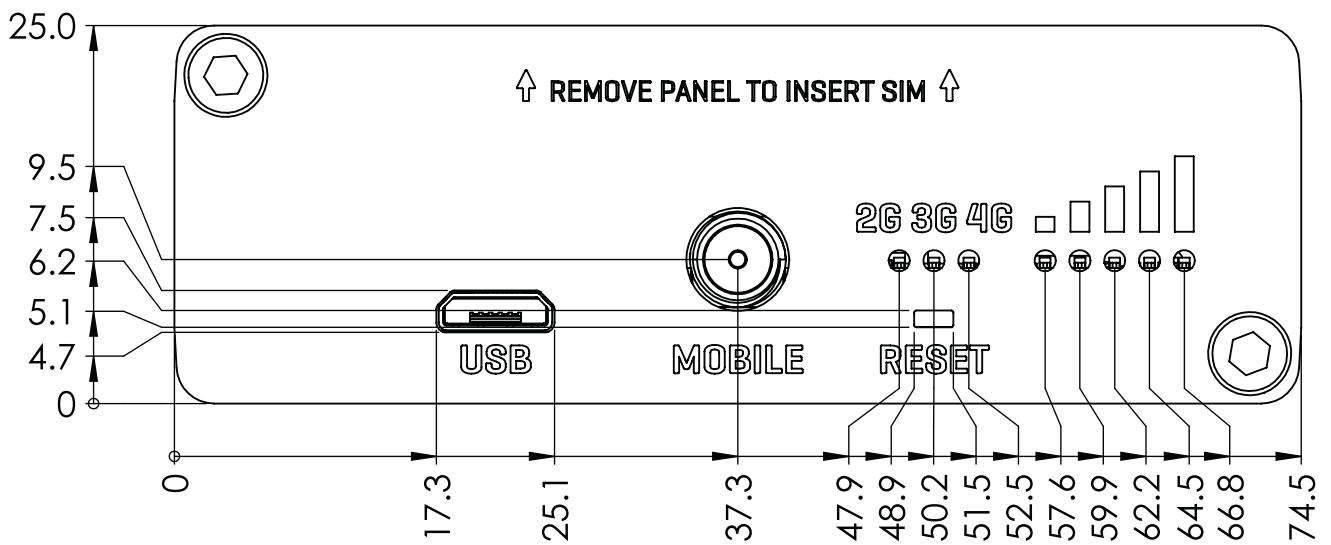
FRONT VIEW

The figure below depicts the measurements of TRB142 and its components as seen from the front:



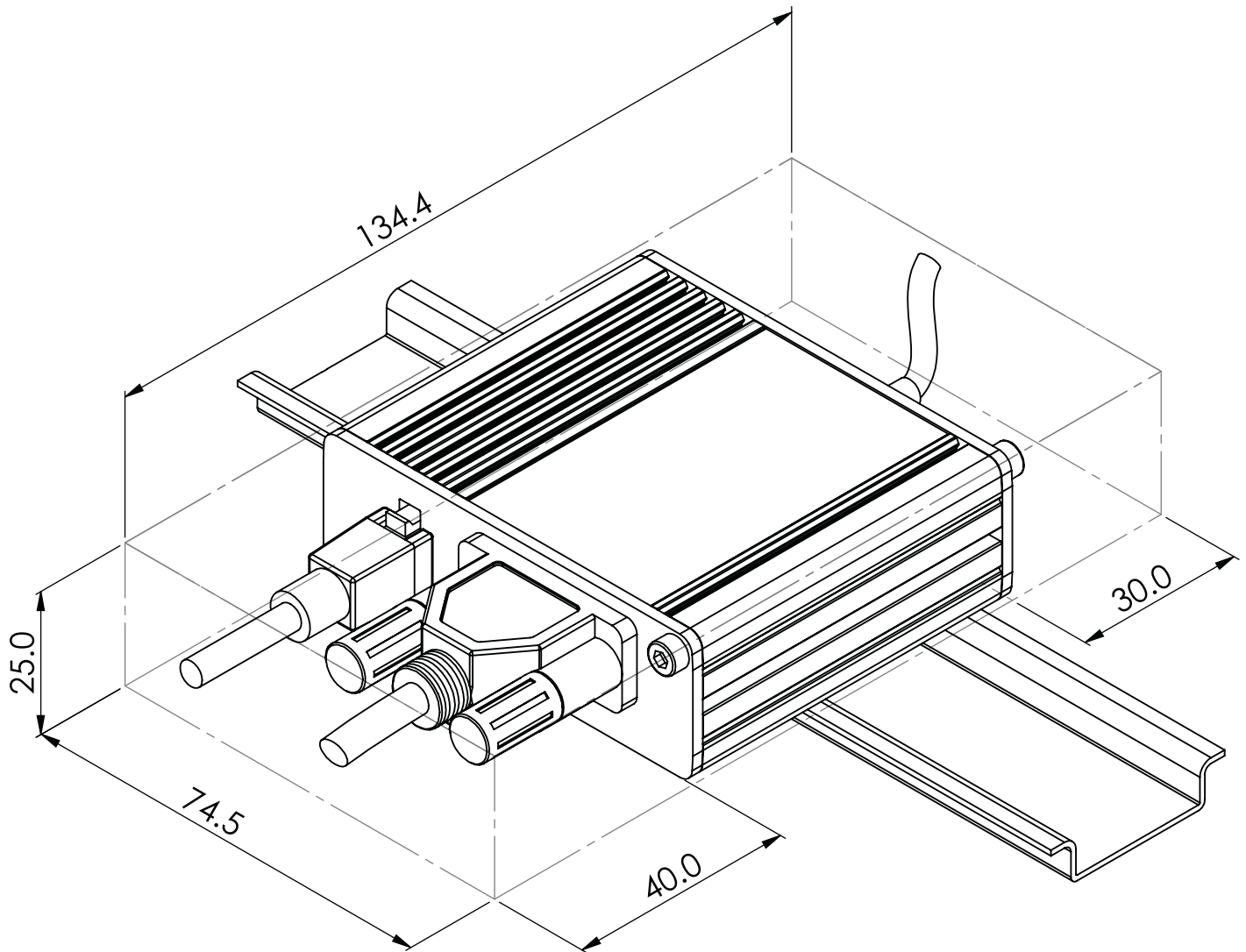
REAR VIEW

The figure below depicts the measurements of TRB142 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:

