

Rail-ID Edge

Features

- Compact and rugged design suitable for harsh railway environments
- High precision and reliability in railway control operations
- Vibration and impact resistance for durability in heavy-duty conditions
- Compatibility with global railway infrastructure and standards
- Real-time diagnostics for predictive maintenance and reduced downtime
- Seamless integration with advanced signaling and communication systems
- Weatherproof and corrosion-resistant housing for outdoor reliability
- Low power consumption ensures energy efficiency
- Automatic self-adjustment to compensate for wear and misalignments
- Long service life with minimal maintenance requirements

Applications

- Train positioning
- Switch machine control
- Signaling integration
- Fault detection
- Harsh environment use
- Predictive maintenance)



Rail ID Edge is a robust and versatile device designed specifically for efficient train and wagon identification in high-speed rail environments. Engineered to withstand extreme operating conditions, its rugged and weatherproof design ensures reliable performance even in the harshest railway applications.

Rail ID Edge allows smooth integration into cutting-edge rail tracking systems when used with suitable transponders, enabling accurate and quick data collection for trains moving at high speeds.

The device's modular design and sophisticated connectivity options ensure long-term durability and operational efficiency, making it perfect for deployment in a variety of rail identification settings.

Rail-ID Edge

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

3GPP Release

Release 11

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 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

The router assigns its mobile WAN IP
address to another device on LAN

WIRELESS

Wireless mode

802.11b/g/n (Wi-Fi 4), Access Point (AP),
Station (STA)

Wi-Fi security

WPA2-Enterprise: PEAP, WPA2-PSK,
WPA-EAP, WPA-PSK, WPA3-SAE, WPA3-
EAP, OWE; AES-CCMP, TKIP, Auto-cipher
modes, client separation, EAP-TLS with
PKCS#12 certificates, disable auto-
reconnect, 802.11w Protected
Management Frames (PMF)

SSID/ESSID

SSID stealth mode and access control
based on MAC address

Wi-Fi users

Up to 100 simultaneous connections

Wireless Connectivity Features

Fast roaming (802.11r), Relayd, BSS
transition management (802.11v), radio
resource measurement (802.11k)

Wireless MAC filter

Allowlist, blocklist

Wireless QR code generator

Once scanned, a user will automatically
enter your network without needing to
input login information

TravelMate

Forward the Wi-Fi hotspot landing page
to a subsequently connected device

Network

Hotspot

Captive portal (hotspot), internal/external
Radius server, Radius MAC
authentication, SMS authorization, SSO
authentication, internal/external landing
page, walled garden, user scripts, URL
parameters, user groups, an individual
user or group limitations, user
management, 9 default customizable
themes and optionality to upload and
download customized hotspot themes

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 customization

Network backup

Wi-Fi WAN, 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

Traffic Management

Real-time monitoring, wireless signal
charts, traffic usage history

Port Mirroring

Mirroring network traffic on Ethernet
ports for monitoring and analysis

Ethernet

WAN

1 x WAN port 10/100 Mbps, compliance
IEEE 802.3, IEEE 802.3u, 802.3az
standards, supports auto MDI/MDIX

LAN

3 x LAN ports, 10/100 Mbps, compliance
IEEE 802.3, IEEE 802.3u standards,
supports auto MDI/MDIX

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

Blacklist for blocking out unwanted
websites, Whitelist for specifying allowed
sites only

Access control

Flexible access control of SSH, Web
interface, CLI, and Telnet

SSL certificate generation

Let's Encrypt and SCEP certificate
generation methods

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.

BACNET**Supported modes**

Router

Supported connection types

RS485, TCP

Configuration options

Support for multiple BACnet/IP interfaces,
Network number assignment,
Preconfigured BDT entries for BBMD (BACnet Broadcast Management Device)

OPC UA**Supported modes**

Client, Server

Supported connection types

TCP

MODBUS**Supported modes**

Server, Client

Supported connection types

RTU (RS232, RS485), TCP, USB

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

MQTT Gateway**Modbus MQTT Gateway**

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

DNP3**Supported modes**

Station, Outstation

Supported connection types

RS232, RS485, TCP, USB

DLMS**DLMS Support**

DLMS - standard protocol for utility meter data exchange

Supported modes

Client

Supported connection types

RS232, RS485, TCP

COSEM

Allows to scan meter COSEM objects for automatic detection and configuration

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, troubleshooting, 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, Wi-Fi on/off

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

Thing Worx

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, and 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

Mediatek, 580 MHz, MIPS 24KEc

RAM

128 MB, DDR2

FLASH storage

16 MB, SPI Flash

Firmware / Configuration

WEB UI

Update FW from the file, check FW on the server, configuration profiles, configuration backup

FOTA

Update FW

RMS

Update FW/configuration for multiple devices at once

Keep settings

Update FW without losing the 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

Package Manager

The Package Manager is a service used to install additional software on the device

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

Serial

RS232

DB9 connector, RS232 (with RTS, CTS flow control)

RS485

RS485 Full Duplex (4 wires) and Half Duplex (2 wires). 300-115200 baud rate

Serial functions

Console, Serial over IP, Modem, MODBUS gateway, NTRIP Client

USB

Data rate

USB 2.0

Applications

Samba share, USB-to-serial

External devices

Possibility to connect external HDD, flash drive, additional modem, printer, USB-serial adapter

Storage formats

FAT, FAT32, exFAT, NTFS (read-only), ext2, ext3, ext4

Input / Output

Input

1 x digital dry input (0 - 3 V), 1 x digital galvanically isolated input (0 - 30 V), 1 x analog input (0 - 24 V), 1 x Digital non-isolated input (on 4-pin power connector, 0 - 5 V detected as logic low, 8 - 30 V detected as logic high)

Output

1 x digital open collector output (30 V, 250 mA), 1 x SPST relay output (40 V, 4 A), 1 x Digital open collector output (30 V, 300 mA, on 4-pin power connector)

Events

Email, RMS, SMS

I/O juggler

Allows to set certain I/O conditions to initiate event

SD CARD

Physical size

Micro SD (internal)

Applications

Samba share, Storage Memory Expansion, DLNA

Capacity

Up to 64 GB

Storage Formats

FAT32, NTFS, ext2, ext3, ext4

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)

Passive PoE over spare pairs. 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

< 2 W idle, < 7 W Max

Physical Interfaces

Ethernet

4 x RJ45 ports, 10/100 Mbps

I/O's

2 x Inputs and 2 x Outputs on 10-pin industrial socket, 1 x Digital input and 1 x Digital output on 4-pin power connector (available from HW revision 1600)

Status LEDs

1 x Bi-color connection status, 5 x Mobile connection strength, 4 x ETH status, 1 x

Power

SIM

2 x SIM slots (Mini SIM - 2FF), 1.8 V/3 V, external SIM holders, eSIM (Optional - different hardware required; contact your sales manager)

Power

1 x 4-pin power connector

Input/output

1 x 10-pin industrial socket for inputs/outputs

Antennas

2 x SMA for LTE, 2 x RP-SMA for Wi-Fi, 1 x SMA for GNSS

USB

1 x USB A port for external devices

RS232

1 x DB9 socket

RS485

1 x 6-pin industrial socket

Reset

Reboot/User default reset/Factory reset button

Physical Specification

Casing material

Aluminium housing, plastic panels

Dimensions (W x H x D)

110 x 50 x 100 mm

Weight

287 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, ANRT, Kenya, CITC, ICASA, FCC, IC, PTCRB, Anatel, RCM, Giteki, IMDA, ECE R118, E-mark, UL/CSA Safety, CB, RoHS, REACH, NCC, C1D2

Operator

AT&T, Verizon, T-Mobile

EMC Emissions & Immunity

Standards

EN 55032:2015 + A11:2020
EN 55035:2017 + A11:2020
EN IEC 61000-3-2:2019 + A1:2021
EN 61000-3-3:2013 + A1:2019
EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4
EN 301 489-19 V2.1.1
EN 301 489-52 V1.2.1

ESD

EN 61000-4-2:2009

Radiated Immunity

EN 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 300 328 V2.2.2
EN 301 511 V12.5.1
EN 301 908-1 V15.2.1
EN 301 908-2 V13.1.1
EN 301 908-13 V13.2.1
EN 303 413 V1.1.1

Safety (Ordinary Locations)

Standards

CE: EN IEC 62368-1:2020 + A11:2020, EN IEC 62311:2020, EN 50665:2017
RCM: AS/NZS 62368.1:2022
CB: IEC 62368-1:2018
UL/CSA Safety: UL 62368-1 (3rd Ed., Rev. December 13, 2019), C22.2 No. 62368-1:19 (3rd Ed., Rev. December 13, 2019)
Safety (Hazardous Locations)
Standards
UL/CSA Safety: UL 121201, 9th Ed., Rev. April 1, 2021, CAN/CSA C22.2 No. 213, 3rd Ed. April 2021

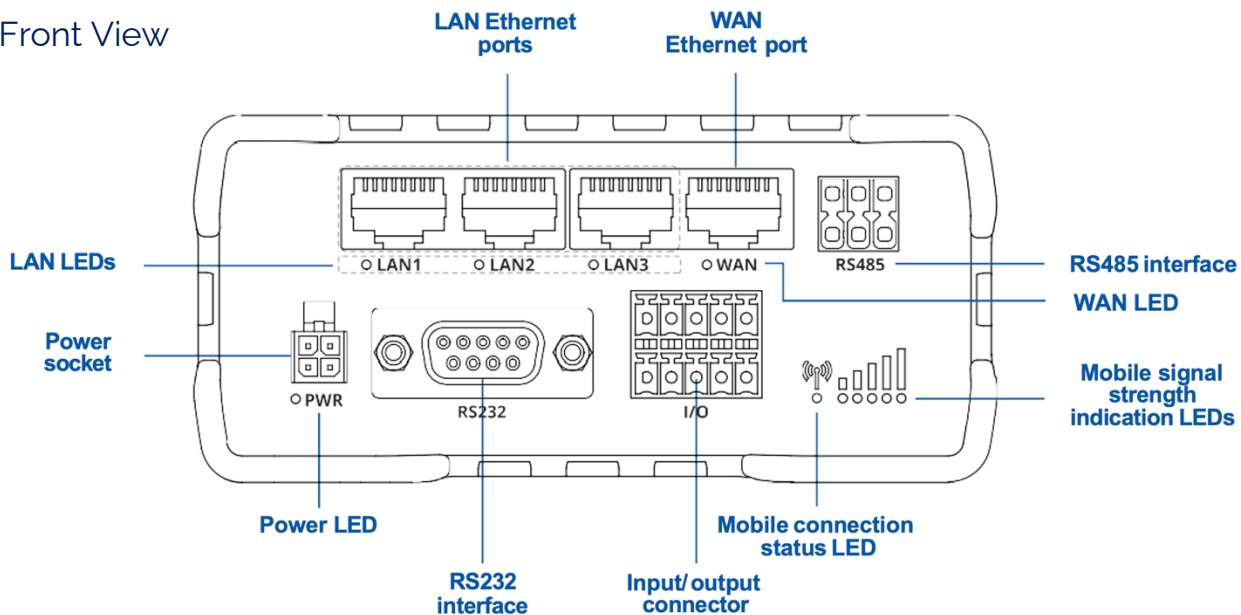
Hazardous Environments

Class I, Division 2, Groups A, B, C, D
Class I, Zone 2, Group IIC
-40°C ≤ Ta ≤ 75°C, T4, IP30

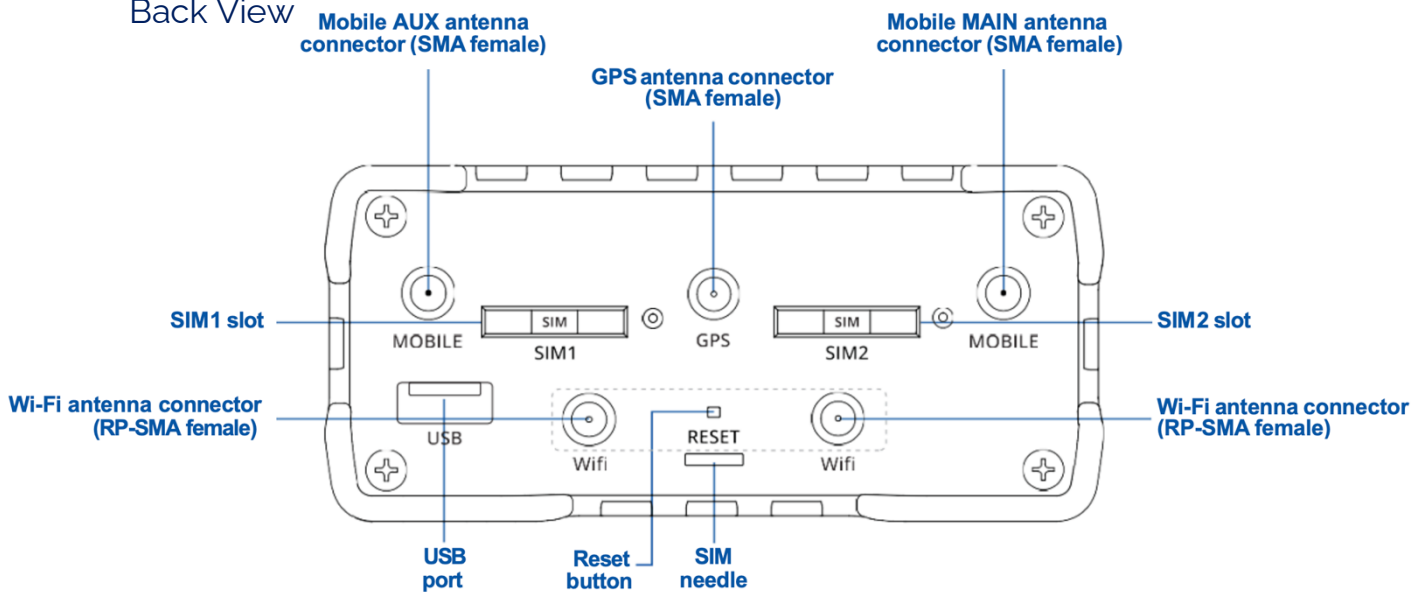


HARDWARE

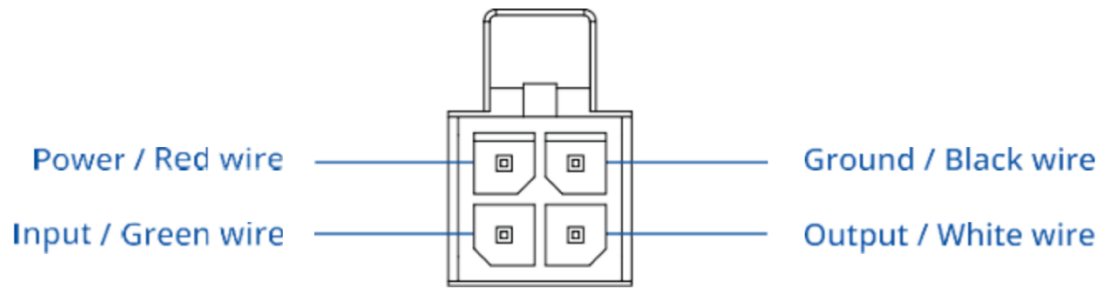
Front View



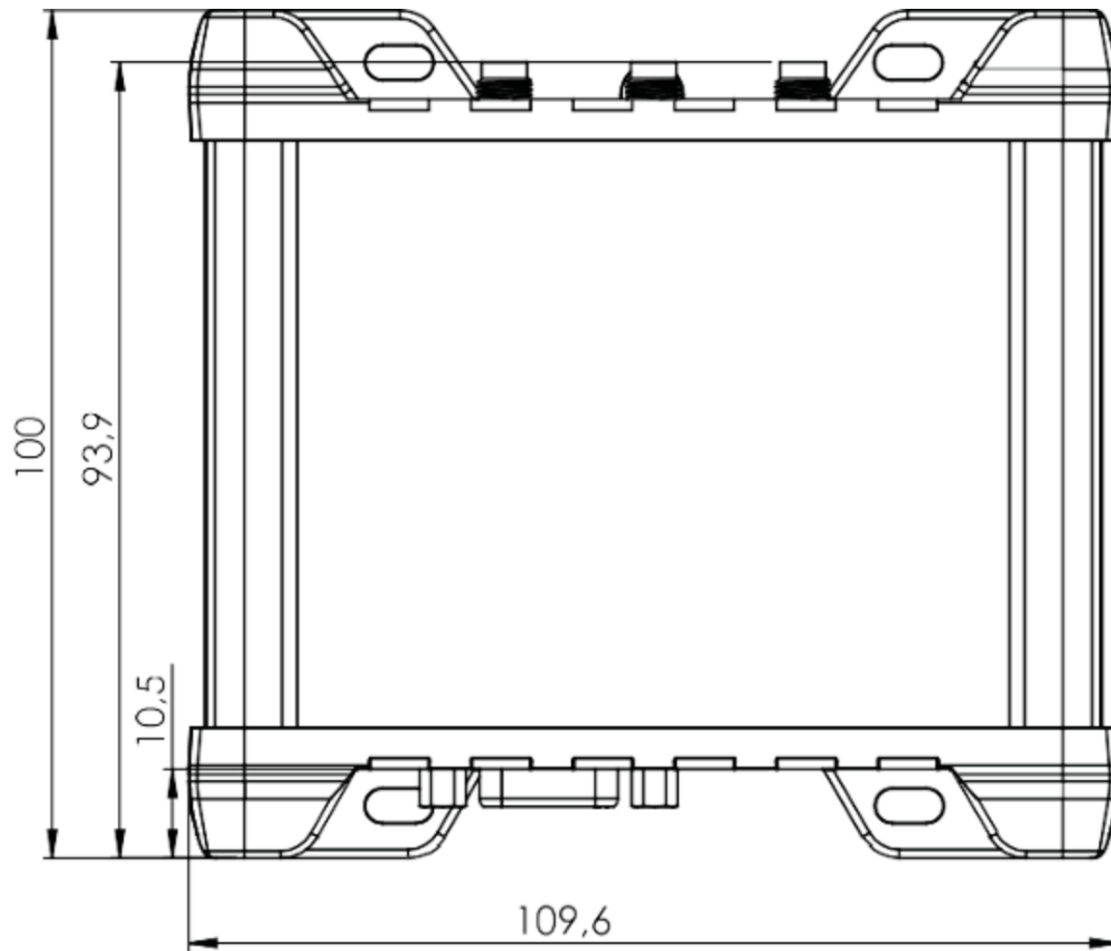
Back View



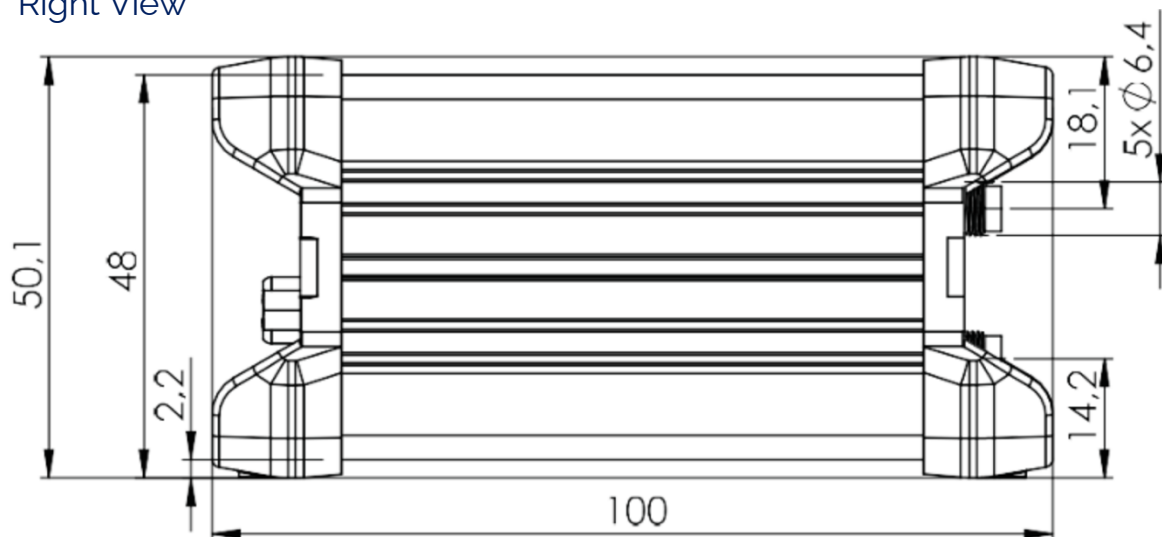
Power Socket – pinout



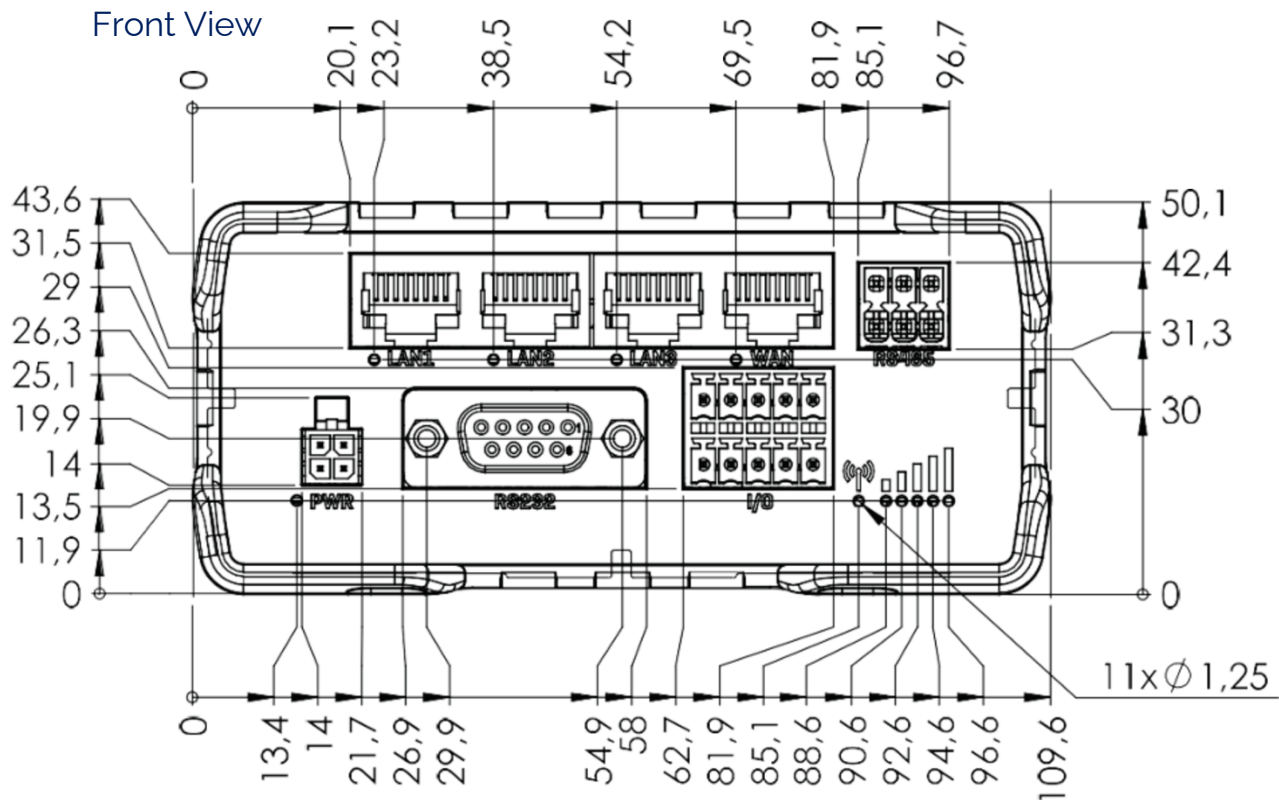
Top View



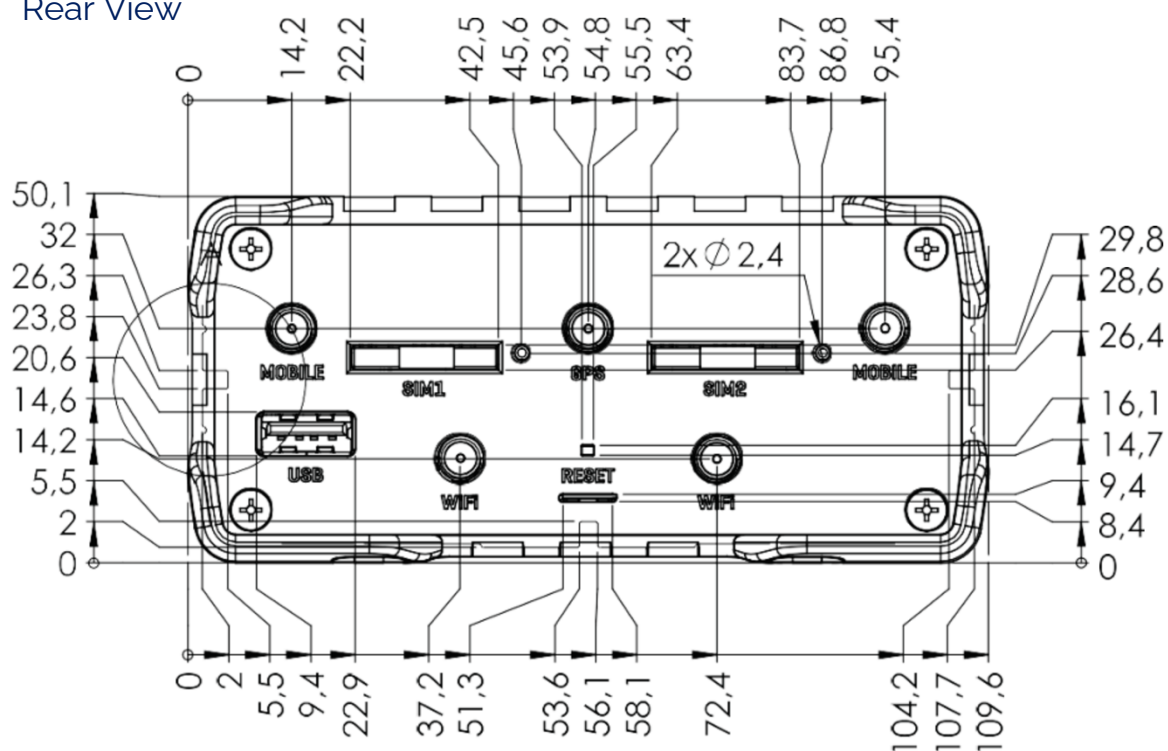
Right View



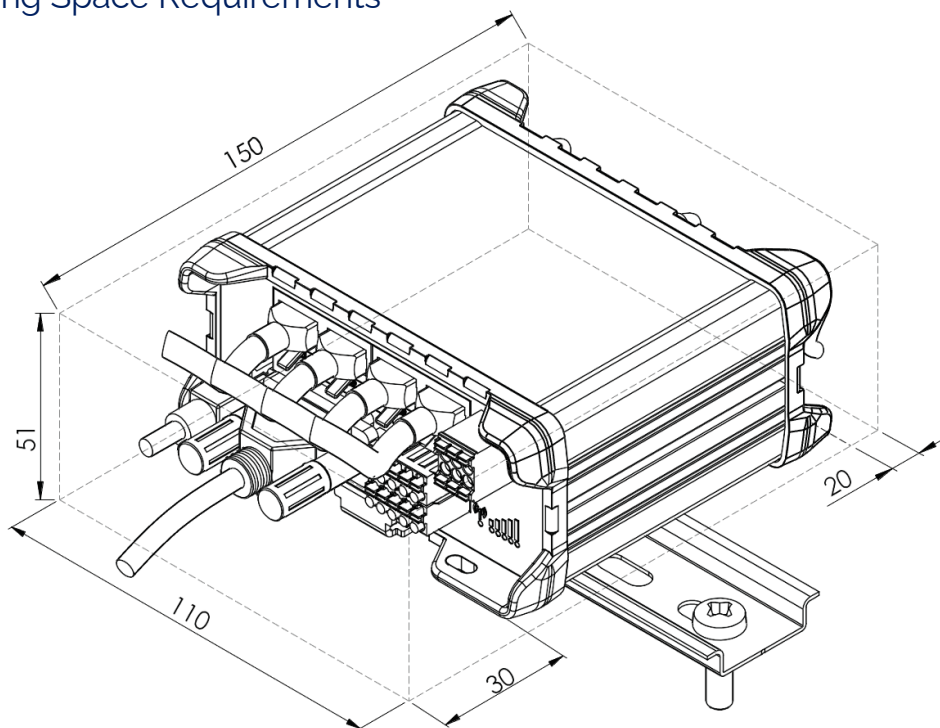
Front View



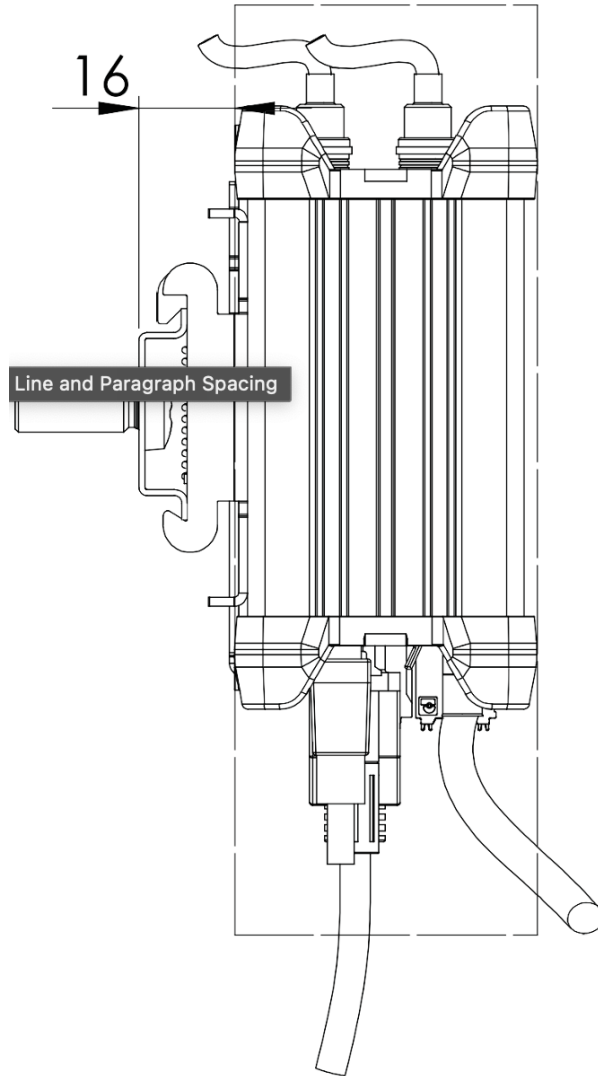
Rear View



Mounting Space Requirements



Din Rail



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Trusted Tracks Ahead

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