Teltonika Networks is a global provider of IoT & IIoT equipment based in Lithuania, Europe, with offices situated across four continents. During more than two decades of R&D, product development and manufacturing of IoT & M2M industrial networking devices, we have created a comprehensive product portfolio for the most challenging Industry 4.0 connectivity applications. Teltonika Networks controls all the stages of the product development life cycle, allowing it to be fast and flexible in reacting to market demands and changes while offering devices that are secure, reliable, and easy to use.
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V1.3
TRM240 is an Industrial grade USB LTE Cat 1 Modem with rugged housing and external antenna for better signal coverage. This product is perfect for upgrading existing industrial equipment with cost-efficient LTE connectivity.

**HARDWARE**

- **Mobile**: 4G/LTE (Cat 1), 3G, 2G
- **Powering option**: microUSB, 5 VDC
- **SIM**: 1 x Internal SIM holder (2FF)
- **Antenna connectors**: 1 x SMA for mobile
- **USB**: 1 x Micro USB slave
- **Status LEDs**: 1 x LTE, 1 x Network, 1 x Power
- **Ingress protection rating**: IP30
- **Operating humidity**: 10% to 90% non-condensing
- **Operating temperature**: -40 °C to 75 °C
- **Housing**: Aluminium housing with DIN rail mounting option
- **Dimensions (W x H x D)**: 75 x 25 x 65 mm
- **Weight**: 125 g

**SOFTWARE**

- **Network manager**: Windows 7/8/8.1/10, Linux distributions
- **USB serial driver**: Windows 7/8/8.1/10, Windows CE 5.0/6.0, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x
- **RIL driver**: Android 4.x/5.x/6.x/7.x/8.x/9.x
- **NDIS driver**: Windows 7/8/8.1/10
- **Gobinet driver**: Linux 2.6~5.4
- **QMI_WWAN driver**: Linux 3.4~5.4
- **Control via AT commands**: 3GPP TS27.007 and enhanced AT commands
TRM250

**INDUSTRIAL CELLULAR MODEM**

TRM250 is an industrial grade USB LTE Cat-M1/NB-IoT/GPRS Modem with rugged housing and external antenna for better signal coverage. This product is perfect for providing cost-efficient Internet connectivity in remote monitoring applications.

**CONNECTIVITY**
- 4G/LTE (Cat M1), NB-IoT, 2G

**EFFICIENT**
- Low power consumption

**DURABLE**
- Rugged aluminum housing

**COMPACT**
- Small size, easy installation

**USB**
- Interface for internet access

**EASY TO USE**
- Controlled using Network manager

**HARDWARE**
- Mobile: 4G/LTE (Cat M1), NB-IoT, 2G
- Powering option: microUSB, 5 VDC
- SIM: 1 x Internal SIM holder (2FF)
- Antenna connectors: 1 x SMA for mobile
- USB: 1 x Micro USB slave
- Status LEDs: 1 x Network, 1 x Power
- Ingress protection rating: IP30
- Operating humidity: 10 % to 90 % non-condensing
- Operating temperature: -40 °C to 75 °C
- Housing: Aluminium housing with DIN rail mounting option
- Dimensions (W x H x D): 75 x 25 x 65 mm
- Weight: 125 g

**SOFTWARE**
- Network manager: Windows 7/8/8.1/10, Linux distributions
- USB serial driver: Windows 7/8/8.1/10, Windows CE 5.0/6.0, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x
- RIL driver: Android 4.x/5.x/6.x/7.x/8.x/9.x
- NDIS driver: Windows 7/8/8.1/10
- Gobinet driver: Linux 2.6~5.4
- QMI_WWAN driver: Linux 3.4~5.4
- Control via AT commands: 3GPP TS27.007 and enhanced AT commands
Ultra-small, lightweight and energy efficient IoT device equipped with mission-critical LTE connectivity, Gigabit Ethernet interface and Linux environment offering a high degree of customization. TRB140 is perfect for projects and applications where a single device must be upgraded with reliable and secure Internet connectivity.

**HARDWARE**

- **Mobile**
  - 4G/LTE (Cat 4), 3G, 2G
- **CPU**
  - Qualcomm, ARM Cortex A7, 1.2 GHz
- **Memory**
  - 512 MBytes Flash (70 MBytes for userspace), 128 MBytes RAM (50 MBytes for userspace)
- **Powering option**
  - 4pin power socket, 9-30 VDC
- **SIM**
  - 1 x Internal SIM holder (2FF)
- **Antenna connectors**
  - 1 x SMA for mobile
- **Ethernet**
  - 1 x 10/100/1000 Ethernet port
- **Inputs/Outputs**
  - On 4pin socket: 2 x Digital input/Digital open collector output (configurable)
- **Other**
  - 1 x Micro USB slave
- **Status LEDs**
  - 3 x Connection type, 5 x Signal strength, 2 x Ethernet, 1 x Power
- **Operating temperature**
  - -40 °C to 75 °C
- **Housing**
  - Aluminium housing with DIN rail mounting option
- **Dimensions (W x H x D)**
  - 75 x 25 x 65 mm
- **Weight**
  - 134 g

**SOFTWARE**

- **Operating system**
  - RutOS
- **Mobile features**
  - Auto APN, Band lock, SIM switch, Operator black/white list, Data/SMS limits
- **Network protocols**
  - TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPTP, DHCP, Telnet
- **Firewall**
  - Port forward, Traffic rules, Custom rules, Pre-configured firewall rules, DMZ, NAT, NAT-T, NAT helpers, Unlimited firewall configuration via CLI
- **Security**
  - DDOS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPS attack prevention), Port scan prevention (SYN-FIN, SYN-RST, Xmas, NULL flags, FIN scan attacks)
  - VPN and tunneling
    - OpenVPN, IPsec, GRE, PPTP, L2TP
- **Monitoring and management**
  - WEB UI, CLI, SSH, TR-069, SNMP, JSON-RPC, MQTT, RMS
- **Connection monitoring**
  - Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection
- **Cloud solutions**
  - RMS, POTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx
- **Cloud features**
  - 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
- **Services**
  - DNS, VRRP, Wake On Lan (WOL), WEB filter, UPNP, Traffic Logging
TRB141

INDUSTRIAL RUGGED GPIO LTE GATEWAY
Industrial and small LTE Cat 1 Gateway equipped with multiple Inputs/Outputs and MicroUSB port. Compact design makes this Gateway perfect for applications where devices must be remotely managed using I/O’s.

CONNECTIVITY
4G/LTE (Cat 1), 3G, 2G

DURABLE
Rugged aluminum housing

COMPACT
Small size, easy installation

I/O
Wide range of multiple Inputs/Outputs for remote monitoring and control

RMS
Compatible with Teltonika Remote Management System

HARDWARE

Mobile
4G/LTE (Cat 1), 3G, 2G

CPU
Qualcomm, ARM Cortex A7, 1.2 GHz

Memory
512 MBytes Flash (70 MBytes for userspace), 128 MBytes RAM (50 MBytes for userspace)

Powering option
4pin power socket, 9-30 VDC

SIM
1 x Internal SIM holder (2FF)

Antenna connectors
1 x SMA for mobile

Inputs/Outputs
On 4pin socket: 2 x Digital input/Digital open collector output (configurable)
On 16pin socket: 1 x isolated input, 1 x Single wire input, 1 x Analog input (with 4-20mA capability),
1 x Latching relay output, 1 x Non-latching relay output, 2 x Dry/Wet input (configurable)

Other
1 x Micro USB slave

Status LEDs
3 x Connection type, 5 x Signal strength, 1 x Power

Operating temperature
-40 °C to 75 °C

Housing
Aluminium housing with DIN rail mounting option

Dimensions (W x H x D)
75 x 25 x 65 mm

Weight
136 g

SOFTWARE

Operating system
RutOS

Network protocols
TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, DHCP, Telnet

VPN and tunneling
OpenVPN, IPSec, GRE, PPTP, L2TP

Monitoring and Management
WEB UI, CLI, SSH, SMS, TR-069, SNOOP, JSON-RPC, MQTT, RMS

Connection monitoring
Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection

Cloud solutions
RMS, POTA, Telensor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx

Services
DDNS, VRRP, WEB filter, UPnP, Traffic Logging
## Connectivty

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply voltages</td>
<td>Wide range of supported power supply voltages</td>
</tr>
</tbody>
</table>

## Durability

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Small size, easy installation</td>
</tr>
</tbody>
</table>

## Compactness

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>Aluminium housing with DIN rail mounting option</td>
</tr>
</tbody>
</table>

## Connectivity

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply voltages</td>
<td>Wide range of supported power supply voltages</td>
</tr>
<tr>
<td>4G/LTE</td>
<td>4G/LTE (Cat 1), 3G, 2G</td>
</tr>
<tr>
<td>CPU</td>
<td>Qualcomm, ARM Cortex A7, 1.2 GHz</td>
</tr>
<tr>
<td>Memory</td>
<td>512 MBs Flash (70 MBs for userspace), 128 MBs RAM (50 MBs for userspace)</td>
</tr>
<tr>
<td>Powering option</td>
<td>4pin power socket, 9-30 VDC</td>
</tr>
<tr>
<td>SIM</td>
<td>1 x Internal SIM holder (2FF)</td>
</tr>
<tr>
<td>Antenna connectors</td>
<td>1 x SMA for mobile</td>
</tr>
<tr>
<td>Inputs/Outputs</td>
<td>On 4pin socket: 2 x Digital input/Digital open collector output (configurable)</td>
</tr>
<tr>
<td>Serial</td>
<td>1 x RS232</td>
</tr>
<tr>
<td>Other</td>
<td>1 x Micro USB slave</td>
</tr>
<tr>
<td>Status LEDs</td>
<td>3 x Connection type, 5 x Signal strength, 1 x Power</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40° C to 75° C</td>
</tr>
<tr>
<td>Housing</td>
<td>Aluminium housing with DIN rail mounting option</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>75 x 25 x 65 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>135 g</td>
</tr>
</tbody>
</table>

## Software

### Operating system

- RutOS

### Network protocols

- TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPTP, DHCP, Telnet

### Monitoring and Management

- WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS

### Connection monitoring

- Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection

### Cloud solutions

- RMS, POTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx

### Modbus

- TCP slave, TCP master, RTU master, RTU gateway, Modbus over MQTT

### Serial

- Console, Over IP, Modem, NTRIP, Modbus
TRB145

INDUSTRIAL RUGGED LTE RS485 GATEWAY

Ultra-small, lightweight and energy efficient IoT device equipped with mission-critical LTE connectivity. TRB145 comes with a widely used RS485 industrial interface for remote device management.

CONNECTIVITY

9-30V Wide range of supported power supply voltages

4G/LTE (Cat 1), 3G, 2G

DURABLE

Rugged aluminum housing

COMPACT

Small size, easy installation

SERIAL

Equipped with RS485 for serial communication

RMS

Compatible with Teltonika Remote Management System

HARDWARE

Mobile

4G/LTE (Cat 1), 3G, 2G

CPU

Qualcomm, ARM Cortex A7, 1.2 GHz

Memory

512 MBytes Flash (70 MBytes for userspace), 128 MBytes RAM (50 MBytes for userspace)

Powering option

4pin power socket, 9-30 VDC

SIM

1 x Internal SIM holder (2FF)

Antenna connectors

1 x SMA for mobile

Inputs/Outputs

On 4pin socket: 2 x Digital input/Digital open collector output (configurable)

Serial

1 x RS485

Other

1 x Micro USB slave

Status LEDs

3 x Connection type, 5 x Signal strength, 1 x Power

Operating temperature

-40° C to 75° C

Housing

Aluminium housing with DIN rail mounting option

Dimensions (W x H x D)

75 x 25 x 65 mm

Weight

130 g

SOFTWARE

Operating system

RutOS

Network protocols

TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, DHCP, Telnet

Monitoring and Management

WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS

Connection monitoring

Ping Reboot, Wget reboot, Periodic Reboot, LLCP and ICMP for link inspection

Cloud solutions

RMS, POTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx

Modbus

TCP slave, TCP master, RTU master, RTU gateway, Modbus over MQTT

Serial

Console, Over IP, Modem, NTRIP, Modbus
**CONNECTIVITY**

9-30V

Wide range of power supply voltages

**DUAL SIM**

4G/LTE (Cat 4), 3G, 2G

With auto failover, backup WAN and other switching scenarios

**SERIAL**

RS232/RS485 serial communication interfaces

**I/O**

Multiple Inputs and Outputs for remote monitoring and control

**GNSS**

Global Navigation Satellite System for location services with geofencing functionality

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**HARDWARE**

**Mobile**

4G/LTE (Cat 4), 3G, 2G

**CPU**

Qualcomm, MIPS 24Kc, 650 MHz

**Memory**

16 MBytes Flash, 64 MBytes RAM

**Powering option**

16pin terminal, 9-30 VDC

**SIM**

2 x Internal SIM holders (2FF)

**Antenna connectors**

1 x SMA for mobile, 1 x SMA for GPS

**Ethernet**

1 x 10/100 Ethernet port

**GNSS**

GPS, GLONASS, BeiDou, Galileo, QZSS

**Inputs/Outputs**

On 16pin socket: 3 x Digital input/Digital open collector output (configurable), 1 x Analog input

**Serial**

1 x RS232, 1 x RS485

**Status LEDs**

3 x Connection type, 3 x Signal strength, 2 x Ethernet, 1 x Power

**Operating temperature**

-40 °C to 75 °C

**Housing**

Aluminium housing with DIN rail mounting option

**Dimensions (W x H x D)**

83 x 25 x 74 mm

**Weight**

165 g

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**SOFTWARE**

**Operating system**

RutOS (OpenWrt based Linux OS)

**Mobile features**

Multiple PDN, Auto APN, Band lock, SIM switch, Operator black/white list, Data/SMS limits

**Network protocols**

TCP, UDP, IPv4, IPv6, ICMP, DTP, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, DHCP, Telnet

**Monitoring and Management**

WEB UI, CLI, SNMP, TR-069, SMS, JSON-RPC, MQTT, RMS

**Connection monitoring**

Ping, Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection

**Cloud solutions**

RMS, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumuladity, ThingWorx

**NTP**

NTP Server, NTP Client, Sync with: External NTP server, GNSS, Mobile operator

**GNSS**

NMEA forwarding, AVL, Geofencing

**Modbus**

TCP slave, TCP master, RTU master, RTU gateway, Modbus over MQTT

**Serial**

Console, Over IP, Modem, NTRIP, Modbus

**Administration**

Multi user, Configuration profiles, Diagnostics, logs, Configuration backup
## TRB255

**INDUSTRIAL M2M GATEWAY**

Industrial All-In-One M2M LTE Cat M1/NB-IoT/EGPRS Gateway equipped with multiple Inputs/Outputs, RS232, RS485 and Ethernet interfaces. All these features allow this device to be used universally in M2M applications.

**CONNECTIVITY**

- 4G/LTE (Cat M1), NB-IoT, 2G
- 9-30V Wide range of supported power supply voltages

**DUAL SIM**

- With auto failover, backup WAN and other switching scenarios

**SERIAL**

- RS232/RS485 serial communication interfaces

**I/O**

- Multiple Inputs and Outputs for remote monitoring and control

**GNSS**

- Global Navigation Satellite System for location services with geofencing functionality

## HARDWARE

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile</td>
<td>4G/LTE (Cat M1), NB-IoT, 2G</td>
</tr>
<tr>
<td>CPU</td>
<td>Qualcomm, MIPS 24Kc, 650 MHz</td>
</tr>
<tr>
<td>Memory</td>
<td>16 MBytes Flash, 64 MBytes RAM</td>
</tr>
<tr>
<td>Powering option</td>
<td>16pin terminal, 9-30 VDC</td>
</tr>
<tr>
<td>SIM</td>
<td>2 x internal SIM holders (2FF)</td>
</tr>
<tr>
<td>Antenna connectors</td>
<td>1 x SMA for mobile, 1 x SMA for GPS</td>
</tr>
<tr>
<td>Ethernet</td>
<td>1 x 10/100 Ethernet port</td>
</tr>
<tr>
<td>GNSS</td>
<td>GPS, GLONASS, BeiDou, Galileo, QZSS</td>
</tr>
<tr>
<td>Inputs/Outputs</td>
<td>On 16pin socket: 3 x Digital input/ Digital open collector output (configurable), 1 x Analog input</td>
</tr>
<tr>
<td>Serial</td>
<td>1 x RS232, 1 x RS485</td>
</tr>
<tr>
<td>Status LEDs</td>
<td>3 x Connection type, 3 x Signal strength, 2 x Ethernet, 1 x Power</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40 °C to 75 °C</td>
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<tr>
<td>Housing</td>
<td>Aluminium housing with DIN rail mounting option</td>
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<td>Dimensions (W x H x D)</td>
<td>83 x 25 x 74 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>165 g</td>
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</tbody>
</table>

## SOFTWARE

**Operating system**

- RutOS (OpenWrt based Linux OS)

**Mobile features**

- Multiple PDN, Auto APN, Band lock, SIM switch, Operator black/white list, Data/SMS limits

**Network protocols**

- TCP, UDP, IPv4, IPv6, ICMP, NAT, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, DHCP, Telnet

**Monitoring and management**

- WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS

**Connection monitoring**

- Ping Reboot, Wget reboot, Periodic Reboot, LCD and ICMP for link inspection

**Cloud solutions**

- RMS, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumuloity, ThingWorx

**NTP**

- NTP Server, NTP Client, Sync with: External NTP server, GNSS, Mobile operator

**GNSS**

- NMEA forwarding, AVL, Geofencing

**Modbus**

- TCP slave, TCP master, RTU master, RTU gateway, Modbus over MQTT

**Serial**

- Console, Over IP, Modem, NTRIP, Modbus

**Administration**

- Multi user, Configuration profiles, Diagnostics, logs, Configuration backup
RUT230

INDUSTRIAL CELLULAR ROUTER

Compact, robust and powerful device tailored for industrial M2M/IoT applications where no high data throughput is needed. RUT230 is equipped with 2 x Ethernet and Wireless interfaces. Device provides secure and stable internet connectivity for industrial applications using RutOS software and security features.

CONNECTIVITY
Worldwide 3G network coverage

WAN FAILOVER
Automatic switching to available Backup connection

COMPACT
Small size – easy integration

WIFI
Wireless Access Point with Hotspot functionality

I/O
Digital Input/Output for remote monitoring and control

RMS
Compatible with Teltonika Remote Management System

HARDWARE

Mobile
3G, 2G

CPU
Atheros, MIPS 24Kc, 400 MHz

Memory
16 MBytes Flash, 64 MBytes RAM

Powering option
4pin power socket, 9-30 VDC

SIM
1 x External SIM holder (2FF)

Antenna connectors
1 x SMA for mobile, 1 x RP-SMA for WIFI

Ethernet
2 x 10/100 Ethernet ports: 1 x WAN (configurable as LAN), 1 x LAN

WIFI
IEEE 802.11b/g/n, Access point (AP), Station (STA)

Inputs/Outputs
On 4pin socket: 1 x Digital Input, 1 x Digital open collector output

Status LEDs
2 x Connection type, 5 x Signal strength, 2 x Ethernet, 1 x Power

Operating temperature
-40 °C to 75 °C

Housing
Aluminium housing with DIN rail mounting option, plastic panels

Dimensions (W x H x D)
83 x 25 x 74 mm

Weight
130 g

SOFTWARE

Operating system
RutOS (OpenWrt based Linux OS)

Network protocols
TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPPOE, DHCP, Telnet

Network Failover
Failover (Network backup), VLAN, QoS, Load Balancing

Firewall
Port forward, Traffic rules, Custom rules, Pre-configured firewall rules, DMZ, NAT, NAT-T, NAT helpers, Unlimited firewall configuration via CLI

Security
DDoS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPS attack prevention), Port scan prevention (SYN-FIN, SYN-RST, R-SYN, NULL flags, FIN scan attacks)

VPN and tunneling
OpenVPN, IPsec, GRE, PPTP, L2TP, SSL, DMVPN, SSTP

Monitoring and management
WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS

Connection monitoring
Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection

Cloud solutions
RMS, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx

SMS features
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

Services
DDNS, VRRP, Wake On Lan (WOL), WEB filter, UPNP, Traffic Logging
Compact, robust and powerful device tailored for Industrial M2M/IoT applications. RUT240 is equipped with 2 x Ethernet and Wireless interfaces with Hotspot functionality. Device provides secure and stable Internet connectivity for Industrial applications using RutOS software and security features with RMS support.

**HARDWARE**

- **Mobile**: 4G/LTE (Cat 4), 3G, 2G
- **CPU**: Atheros, MIPS 24Kc, 400 MHz
- **Memory**: 16 Mbytes Flash, 64 Mbytes RAM
- **Powering option**: 4pin power socket, 9-30 VDC
- **SIM**: 1 x External SIM holder (2FF)
- **Antenna connectors**: 2 x SMA for mobile, 1 x RP-SMA for WIFI
- **Ethernet**: 2 x 10/100 Ethernet ports: 1 x WAN (configurable as LAN), 1 x LAN
- **WIFI**: IEEE 802.11b/g/n, Access point (AP), Station (STA)
- **Inputs/Outputs**: On 4pin socket: 1 x Digital input, 1 x Digital open collector output
- **Status LEDs**: 3 x Connection type, 5 x Signal strength, 2 x Ethernet, 1 x Power
- **Operating temperature**: -40 °C to 75 °C
- **Housing**: Aluminium housing with DIN rail mounting option, plastic panels
- **Dimensions (W x H x D)**: 83 x 25 x 74 mm
- **Weight**: 135 g

**SOFTWARE**

- **Operating system**: RutOS (OpenWrt based Linux OS)
- **Mobile features**: Auto APN, Band lock
- **Network protocols**: TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPPoE, DHCP, Telnet
- **Network Failover (Network backup)**, VLAN, QoS, Load Balancing
- **Security**: 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)
- **VPN and tunneling**: OpenVPN, IPsec, GRE, PPTP, L2TP, Sniffer, DMVPN, SSTP
- **Monitoring and management**: WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS
- **Connection monitoring**: Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection
- **Cloud solutions**: RMS, POTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx
- **SMS features**: 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 auto reply, SMPP
- **Services**: DDNS, VRRP, Wake On Lan (WOL), WEB filter, UPNP, Traffic Logging
E-mark certified, ultra-slim router equipped with ignition detection (sleep mode), Overvoltage Protection and Automotive FAKRA connectors. RUT850 comes with RutOS software and security features and custom GNSS tracking protocol that is compatible with main Global AVL tracking platforms.

**CONNECTIVITY**
- 4G/LTE (Cat 4), 3G, 2G
- GNSS: Global Navigation Satellite System for location services with geofencing functionality
- WiFi: Wireless Access Point with Hotspot functionality

**SLEEP MODE**
- With ignition detection and overvoltage protection

**DURABLE**
- Vibration resistant FAKRA connectors

**RMS**
- Compatible with Teltonika Remote Management System

**HARDWARE**
- Mobile: 4G/LTE (Cat 4), 3G, 2G
- CPU: Atheros, MIPS 74Kc, 550 MHz
- Memory: 16 MBbytes Flash, 64 MBbytes RAM
- Powering option: 4pin power socket, 9-30 VDC
- SIM: 1 x External SIM holder (2FF)
- Antenna connectors: 2 x FAKRA D for mobile, 1 x FAKRA C for GPS
- WiFi: IEEE 802.11b/g/n, Access point (AP), Station (STA)
- GNSS: GPS, GLONASS, Beidou, Galileo, QZSS
- Inputs/Outputs: On 4pin socket: 1 x Digital input
- Status LEDs: 3 x Connection type, 5 x Signal strength, 1 x WiFi, 1 x Power
- Operating temperature: -40 °C to 75 °C
- Housing: Plastic housing
- Dimensions (W x H x D): 131 x 18 x 79 mm
- Weight: 110 g

**SOFTWARE**
- Operating system: RutOS (OpenWrt based Linux OS)
- Network protocols: TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPPOE, DHCP, Telnet
- Network Failover: Network backup, QoS, Load Balancing
- Monitoring and management: WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS
- Connection monitoring: Ping Reboot, Wget Reboot, Periodic Reboot, LCP and ICMP for link inspection
- Cloud solutions: RMS, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx
- Hotspot: External/Internal Radius, SMS OTP, MAC authentication, Walled Garden
- Supported Hotspot platforms: IronWiFi, HotspotSystem, Cloud4Wi, SAI + WiFi, MugCloud, Purple.ai
- NTP: NTP Server, NTP Client, Sync with: External NTP server, GNSS, Mobile operator
- GNSS: NMEA forwarding, AVL, Geofencing
RUT900

INDUSTRIAL CELLULAR ROUTER

This router is equipped with Dual SIM, 4 x Ethernet interfaces and WiFi. RUT900 is a robust and powerful device tailored for Industrial M2M/IoT applications where no high data throughput is needed. RUT900 comes with core RutOS software and security features with RMS support.

CONNECTIVITY
Worldwide 3G network coverage

WAN FAILOVER
For additional connection reliability

DUAL SIM
With auto failover, backup WAN and other switching scenarios

ETHERNET
4x Ethernet ports with VLAN functionality

WIFI
Wireless Access Point with Hotspot functionality

RMS
Compatible with Teltonika Remote Management System

HARDWARE

Mobile
3G, 2G

CPU
Atheros, MIPS 74Kc, 550 MHz

Memory
16 MBytes Flash, 128 MBytes RAM

Powering option
4pin power socket, 9-30 VDC

SIM
2 x External SIM holders (2FF)

Antenna connectors
2 x SMA for mobile, 2 x RP-SMA for WiFi

Ethernet
4 x 10/100 Ethernet ports: 1 x WAN (configurable as LAN), 3 x LAN

WiFi
IEEE 802.11b/g/n, Access point (AP), Station (STA)

Inputs/Outputs
On 4pin socket: 1 x Digital input, 1 x Digital open collector output

Status LEDs
1 x Bi-Color connection type, 5 x Signal strength, 4 x Ethernet, 1 x Power

Operating temperature
-40 °C to 75 °C

Housing
Aluminium housing with DIN rail mounting option, plastic panels with flat mounting option

Dimensions (W x H x D)
109 x 50 x 103 mm

Weight
263 g

SOFTWARE

Operating system
RutOS (OpenWrt based Linux OS)

Mobile features
SIM switch, Data/SMS limits

Network protocols
TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPPoE, DHCP, Telnet

Network Failover (Network backup), VLAN, QoS, Load Balancing

Monitoring and management
WEB UI, CLI, SSH, TR-069, SNMP, JSON-RPC, MQTT, RMS

Connection monitoring
Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection

Cloud solutions
RMS, POT, Telesens, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx

SMS features
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

Services
DDNS, VRRP, Wake On Lan (WOL), WEB filter, UPNP, Traffic Logging
CONNECTIVITY

DUAL SIM
With auto failover, backup WAN and other switching scenarios

4G/LTE (Cat 4), 3G, 2G

RUT950
INDUSTRIAL CELLULAR ROUTER

This router is equipped with Dual SIM, 4 x Ethernet interfaces and WiFi. Device is designed as Main/Backup Internet source and can guarantee reliable internet connection with high data throughput and data redundancy. RUT950 comes with built-in software and security features with RMS support.

WIFI

Wireless Access Point with Hotspot functionality

WAN FAILOVER

Automatic switch to available backup connection

ETHERNET

4 x Ethernet interfaces with VLAN functionality

RMS
Compatible with Teltonika Remote Management System

HARDWARE

Mobile
4G/LTE (Cat 4), 3G, 2G

CPU
Atheros, MIPS 74Kc, 550 MHz

Memory
16 MBytes Flash, 128 MBytes RAM

Powering option
4pin power socket, 9-30 VDC

SIM
2 x External SIM holders (2FF)

Antenna connectors
2 x SMA for mobile, 2 x RP-SMA for WiFi

Ethernet
4 x 10/100 Ethernet ports: 1 x WAN (configurable as LAN), 3 x LAN

WIFI
IEEE 802.11b/g/n, Access point (AP), Station (STA)

Inputs/Outputs
On 4pin socket: 1 x Digital input, 1 x Digital open collector output

Status LEDs
1 x Bi-Color connection type, 5 x Signal strength, 4 x Ethernet, 1 x Power

Operating temperature
-40 °C to 75 °C

Housing
Aluminium housing with DIN rail mounting option, plastic panels with flat mounting option

Dimensions (W x H x D)
109 x 50 x 103 mm

Weight
263 g

SOFTWARE

Operating system
RutOS (OpenWrt based Linux OS)

Mobile features
Auto APN, Band lock, SIM switch, Operator black/white list, Data/SMS limits

Network
Failover (Network backup), VLAN, QoS, Load Balancing

Routing
Static routes, Dynamic routes (BGP, OSPFv2, RIP/v1/v2, NHRP), Routing rules

VPN and tunneling
OpenVPN, Iptsec, GRE, PPTP, L2TP, Stunnel, DMVPN, SSTP

Monitoring and management
WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS

Connection monitoring
Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection

Cloud solutions
RMS, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumuloity, ThingWorx

Hotspot
External/Internal Radius, SMS OTP, MAC authentication, Walled Garden

Supported Hotspot platforms
IronWiFi, HotspotSystem, Cloud4Wi, SAI + WiFi, MugiCloud, Purple.ai

SMS features
SMS status, SMS configuration, Send/Read SMS via HTTP POST/GET, EMAIL to SMS, SMS to EMAIL, SMS to HTTPS, SMS to SMS, scheduled SMS, SMS autoreply, SMPP

Services
DDNS, VRRP, Wake On Lan (WOL), WEB filter, UPNP, Traffic Logging
<table>
<thead>
<tr>
<th>CONNECTIVITY</th>
<th>DUAL SIM</th>
<th>GNSS</th>
<th>I/O</th>
<th>SERIAL</th>
<th>RMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4G/LTE (Cat 4), 3G, 2G</td>
<td>For additional connection reliability</td>
<td>Global Navigation Satellite System for location services and time synchronization</td>
<td>Multiple digital and analog inputs and outputs for equipment control and event notification</td>
<td>RS232/RS485 serial communication interfaces</td>
<td>Compatible with Teltonika Remote Management System</td>
</tr>
</tbody>
</table>

**HARDWARE**

- **Mobile**: 4G/LTE (Cat 4), 3G, 2G
- **CPU**: Atheros, MIPS 74Kc, 550 MHz
- **Memory**: 16 MBytes Flash, 128 MBytes RAM
- **Powering option**: 4pin power socket, 9-30 VDC
- **SIM**: 2 x External SIM holders (2FF)
- **Antenna connectors**: 2 x SMA for mobile, 2 x RP-SMA for WiFi, 1 x SMA for GPS
- **Ethernet**: 4 x 10/100 Ethernet ports: 1 x WAN (configurable as LAN), 3 x LAN
- **WiFi**: IEEE 802.11b/g/n, Access point (AP), Station (STA)
- **GNSS**: GPS, GLONASS, BeiDou, Galileo, QZSS
- **Inputs/Outputs**:
  - On 4pin socket: 1 x Digital input, 1 x Digital open collector output
  - On 10pin socket: 1 x Isolated digital input, 1 x Digital dry input, 1 x Analog input, 1 x Isolated open collector output (requires external voltage), 1 x Relay output (non-latching)
  - Serial: 1 x RS232, 1 x RS485
  - Other: 1 x USB host, 1 x MicroSD
- **Status LEDs**: 1 x Bi-Color connection type, 5 x Signal strength, 4 x Ethernet, 1 x Power
- **Operating temperature**: -40 °C to 75 °C
- **Housing**: Aluminium housing with DIN rail mounting option, plastic panels with flat mounting option
- **Dimensions (W x H x D)**: 109 x 50 x 103 mm
- **Weight**: 295 g
- **Operating system**: RutOS (OpenWrt based Linux OS)
- **Mobile features**: Band lock, SIM switch, Operator black/white list, Data/SMS limits
- **Network**: Failover (Network backup), VLAN, QoS, Load Balancing
- **Monitoring and management**: WEB UI, CLI, SSH, NMPP, TR-069, TR-086, SNMP, JSON-RPC, MQTT, RMS
- **Cloud solutions**: RMS, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx
- **NTP**: NTP Server, NTP Client, Sync with: External NTP server, GNSS, Mobile operator
- **GNSS**: NMEA forwarding, AVL, Geofencing
- **Modbus**: TCP slave, TCP master, RTU master, RTU gateway, Modbus over MQTT
- **Serial**: Console, Over IP, Modem, NTRIP, Modbus

**SOFTWARE**

- **Operating system**: RutOS (OpenWrt based Linux OS)
- **Mobile features**: Band lock, SIM switch, Operator black/white list, Data/SMS limits
- **Network**: Failover (Network backup), VLAN, QoS, Load Balancing
- **Monitoring and management**: WEB UI, CLI, SSH, NMPP, TR-069, TR-086, SNMP, JSON-RPC, MQTT, RMS
**RUTX08**

**INDUSTRIAL ETHERNET ROUTER**

This robust industrial router is equipped with 4 x Gigabit Ethernet ports, Quad-core CPU and 256 MB of RAM. These powerful specifications combined with core RUTOS software features, such as multiple VPN services, advanced firewall and RMS support, makes this device a superb Industrial performer.

**PROTOCOLS**

- Multiple protocols supported including MQTT, Modbus TCP, BGP, GRE

**SECURITY**

- Firewall and numerous VPN services including OpenVPN, IPSec, PPTP, L2TP & DMVPN

**RMS**

- Compatible with Teltonika Remote Management System

**GIGABIT ETH**

4 x Gigabit Ethernet ports with up to 128 port/tag-based VLANs supported

**I/O & USB**

- Digital Input / Output for remote monitoring and control and USB 2.0 interface

**9-50 V**

This router supports a wide range of power supply voltage for versatile integration

**HARDWARE**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Qualcomm, 4 x ARM Cortex A7, 717 MHz</td>
</tr>
<tr>
<td>Memory</td>
<td>256 MBytes Flash, 256 MBytes RAM</td>
</tr>
<tr>
<td>Powering option</td>
<td>4pin power socket, 9-50 VDC</td>
</tr>
<tr>
<td>Ethernet</td>
<td>4 x 10/100/1000 Ethernet ports: 1 x WAN (configurable as LAN), 3 x LAN</td>
</tr>
<tr>
<td>Inputs/Outputs</td>
<td>On 4pin socket: 1 x Digital input, 1 x Digital open collector output</td>
</tr>
<tr>
<td>Other</td>
<td>1 x USB Host</td>
</tr>
<tr>
<td>Status LEDs</td>
<td>8 x Ethernet, 1 x Power</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40 °C to 75 °C</td>
</tr>
<tr>
<td>Housing</td>
<td>Aluminium housing with DIN rail mounting option and grounding capability</td>
</tr>
<tr>
<td>Dimensions</td>
<td>(W x H x D) 115 x 32 x 95 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>345 g</td>
</tr>
</tbody>
</table>

**SOFTWARE**

- Operating system: RUTOS (OpenWrt based Linux OS)
- Network protocols: TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPTP, L2TP, DHCP, Telnet
- Routing: Static routes, Dynamic routes (BGP, OSPFv2, RIPv1/v2, EIGRP, NHRP), Routing rules
- Firewall: Port forward, Traffic rules, Custom rules, Pre-configured firewall rules, DMZ, NAT, NAT-T, NAT helpers, Unlimited firewall configuration via CLI
- DDOS prevention (SYN flood protection, SEH attack prevention, HTTP/HTTPS attack prevention), Port scan prevention (SYN-FIN, SYN-RST, x-miss, NULL flags, FIN scan attacks)
- OpenVPN, IPSec, GRE, PPTP, L2TP, SNNTP, DMVPN, SSTP, Wireguard, ZeroTier
- WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS
- RMS, POTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx
- DDNS, VRRP, Wake On Lan (WOL), WEB filter, UPNP, Network shares (Samba), Traffic Logging
- Multi user, Configuration profiles, Diagnostics, logs, Configuration backup

**PROTOCOLS**

- MQTT, Modbus TCP, BGP, GRE

**SECURITY**

- Firewall and numerous VPN services including OpenVPN, IPSec, PPTP, L2TP & DMVPN

**RMS**

- Compatible with Teltonika Remote Management System
This powerful LTE Cat 6 cellular industrial router is designed for professional and IoT applications where stable and fast connection and high data throughput is required.

**GNSS**
Global Navigation Satellite System for location services and time synchronization

**DUAL SIM**
With auto failover, backup WAN and other switching scenarios

**SECURITY**
Firewall and numerous VPN services including OpenVPN, IPsec, PPToP, L2TP & DMVPN

**RMS**
Compatible with Teltonika Remote Management System

**4G LTE CAT 6**
Cellular speeds up to 300Mbps with Carrier Aggregation

**GIGABIT ETH**
4 x Gigabit Ethernet ports with up to 128 port/Tag-based VLANs supported

**HARDWARE**
- **CPU**
  - Qualcomm, 4 x ARM Cortex A7, 717 MHz
- **Memory**
  - 256 MBytes Flash, 256 MBytes RAM
- **Powering option**
  - 4pin power socket, 9-50 VDC
- **SIM**
  - 2 x External SIM holders (2FF)
- **Antenna connectors**
  - 2 x SMA for mobile, 1 x SMA for GPS
- **Ethernet**
  - 4 x 10/100/1000 Ethernet ports: 1 x WAN (configurable as LAN), 3 x LAN
- **GNSS**
  - GPS, GLONASS, Beidou, Galileo, QZSS
- **Inputs/Outputs**
  - On 4pin socket: 1 x Digital Input, 1 x Digital open collector output
- **Other**
  - 1 x USB host
- **Status LEDs**
  - 3 x WAN type, 2 x Connection type, 5 x Signal strength, 8 x Ethernet, 1 x Power
- **Operating temperature**
  - -40 °C to 75 °C
- **Housing**
  - Aluminium housing with DIN rail mounting option and grounding capability
- **Dimensions (W x H x D)**
  - 115 x 44 x 95 mm
- **Weight**
  - 455 g

**SOFTWARE**
- **Operating system**
  - RutOS (OpenWrt based Linux OS)
- **Mobile features**
  - Multiple PDN, Auto APN, Band lock, SIM switch, Operator black/white list, Data/SMS limits
- **Network protocols**
  - TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPToP, DHCP, Telnet
- **Network Failover (Network backup)**
  - VLAN, QoS, Load Balancing
- **VPN and tunneling**
  - OpenVPN, IPsec, GRE, PPToP, L2TP, Stunnel, DMVPN, SSTP, WireGuard, ZeroTier
- **Monitoring and management**
  - WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS
- **Cloud solutions**
  - RMS, POTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx
- **NTP**
  - NTP Server, NTP Client, Sync with: External NTP server, GNSS, Mobile operator
- **GNSS**
  - NMEA forwarding, AVL, Geofencing
- **Services**
  - DDNS, VRoP, Wake On Lan (WOL), WEB filter, UPnP, Network shares (Samba), Traffic Logging
- **Administration**
  - Multi user, Configuration profiles, Diagnostics, logs, Configuration backup
This professional router combines the best of wired and wireless routing functionalities with Gigabit Ethernet, Bluetooth LE, and AC Wi-Fi. Advanced remote management capabilities along with numerous security & networking protocols supported make RUTX10 an ideal choice for professional applications.

### Hardware

**CPU**
Qualcomm, 4 x ARM Cortex A7, 717 MHz

**Memory**
256 MBytes Flash, 256 MBytes RAM

**Powering option**
4-pin power socket, 9-50 VDC

**Antenna connectors**
2 x RP-SMA for WiFi, 1 x RP-SMA for Bluetooth

**Ethernet**
4 x 1/10/100/1000 Ethernet ports: 1 x WAN (configurable as LAN), 3 x LAN

**WiFi**
IEEE 802.11b/g/n 2.4GHz, IEEE 802.11ac/n/a 5GHz, Access point (AP), Station (STA)

**Bluetooth**
4.0 (Low energy)

**Input/Outputs**
- On 4-pin socket: 1 x Digital input, 1 x Digital open collector output
- 1 x USB host

**Status LEDs**
- 2 x WiFi, 8 x Ethernet, 1 x Power

**Operating temperature**
-40 °C to 75 °C

**Housing**
Aluminium housing with DIN rail mounting option and grounding capability

**Dimensions**
115 x 32 x 95 mm

**Weight**
355 g

### Software

**Operating system**
RutOS (OpenWrt based Linux OS)

**Network protocols**
TCP, UDP, IPv4, IPv6, ICMP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPPoE, DHCP, Telnet

**Routing**
- Static routes, Dynamic routes (BGP, OSPFv2, RIP, EIGRP, NHRP), Routing rules
- OpenVPN, IPsec, GRE, PPpP, L2TP, SSTP, WireGuard, ZeroTier

**Monitoring and management**
- WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS
- Ping, Reboot, Wget reboot, Periodic Reboot, LLDP and ICMP for link inspection

**Cloud solutions**
- RMs, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulus, ThingWorx

**Hotspot**
- External/Internal Radius, MAC Authentication, Walled Garden

**Supported Hotspot platforms**
- IronWiFi, HotspotSystem, Cloud4Wi, SAI + WiFi, MugCloud, Purple.ai

**Services**
- DDNS, VRRP, Wake On Lan (WOL), WEB filter, UPNP, Network shares (Samba), Traffic Logging
RUTX11

INDUSTRIAL CELLULAR ROUTER

The powerful LTE Cat 6 cellular industrial router is designed for professional and IoT applications where steady and fast connection and high data throughput is required. It is equipped with 4 x Gigabit Ethernet, Bluetooth LE, and AC Wi-Fi with remote management capabilities.

DUAL SIM

With auto failover, backup WAN and other switching scenarios

GNSS

Global Navigation Satellite System for location services and time synchronization

WIFI & BT

Wave-2 802.11ac Dual Band Wi-Fi and Bluetooth LE

PROTOCOLS

Multiple protocols supported including MQTT, Modbus TCP, BGP, GRE

RMS

Compatible with Teltonika Remote Management System

HARDWARE

Mobile 4G/LTE (Cat 6), 3G
CPU Qualcomm, 4 x ARM Cortex A7, 717 MHz
Memory 256 MBytes Flash, 256 MBytes RAM
Powering option 4pin power socket, 9-50 VDC
SIM 2 x External SIM holders (2FF)
Antenna connectors 2 x SMA for mobile, 2 x RP-SMA for Wi-Fi, 1 x RP-SMA for Bluetooth, 1 x SMA for GPS
Ethernet 4 x 10/100/1000 Ethernet ports: 1 x WAN (configurable as LAN), 3 x LAN
WiFi IEEE 802.11b/g/n 2.4GHz, IEEE 802.11ac/n/a 5GHz, Access point (AP), Station (STA)
GNSS GPS, GLONASS, BeiDou, Galileo, QZSS
Bluetooth 4.0 (Low energy)
Inputs/Outputs On 4pin socket: 1 x Digital input, 1 x Digital open collector output
Other 1 x USB host
Status LEDs 4 x WAN type, 2 x Connection type, 5 x Signal strength, 2 x WiFi, 8 x Ethernet, 1 x Power
Operating temperature -40 °C to 75 °C
Housing Aluminium housing with DIN rail mounting option and grounding capability
Dimensions 115 x 44 x 95 mm
Weight 456 g

SOFTWARE

Operating system RutOS (OpenWrt based Linux OS)
Mobile features Multiple PDN, Auto APN, Band lock, SIM switch, Operator black/white list, Data/SMS limits
Network Failover (Network backup), VLAN, QoS, Load Balancing
Routing Static routes, Dynamic routes (BGP, OSPFv2, RIPv1/v2, EIGRP, NHRP), Routing rules
VPN and tunneling OpenVPN, IPSec, GRE, PPTP, L2TP, Stunnel, DMVPN, SSTP, WireGuard, ZeroTier
Cloud solutions RMS, POTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulus, ThingWorx
Hotspot External/Internal Radius, SMS OTP, MAC authentication, Walled Garden
NTP NTP Server, NTP Client, Sync with: External NTP server, GNSS, Mobile operator
GNSS NMEA forwarding, AVL, Geofencing
### DUAL LTE

Cellular speeds up to 600Mbps with dual simultaneous LTE CAT 6 connections

### DUAL SIM

Instant failover switching

### GNSS

Global Navigation Satellite System for location services and time synchronization

### LOAD BALANCING

Allows to use multiple WAN sources to increase throughput

### WIFI & BT

Wave-2 802.11ac Dual Band WiFi and Bluetooth LE

### RMS

Compatible with Teltonika Remote Management System

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**RUTX12**

**DUAL LTE CAT 6 INDUSTRIAL CELLULAR ROUTER**

Powerful Dual LTE Cat 6 router is designed for mission critical applications. Equipped with two LTE modems for dual simultaneous connections allowing instant seamless LTE service switching and load balancing features make this device irreplaceable in applications where losing connection is not an option.

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**HARDWARE**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile</td>
<td>2 x 4G/LTE (Cat 6), 3G</td>
</tr>
<tr>
<td>CPU</td>
<td>Qualcomm, 4 x ARM Cortex A7, 717 MHz</td>
</tr>
<tr>
<td>Memory</td>
<td>256 MB/bytes Flash, 256 MB/bytes RAM</td>
</tr>
<tr>
<td>Powering option</td>
<td>4pin power socket, 9-50 VDC</td>
</tr>
<tr>
<td>SIM</td>
<td>2 x External SIM holders (2FF)</td>
</tr>
<tr>
<td>Antenna connectors</td>
<td>4 x SMA for mobile, 2 x RP-SMA for WiFi, 1 x RP-SMA for Bluetooth, 1 x SMA for GPS</td>
</tr>
<tr>
<td>Ethernet</td>
<td>5 x 1G/100/1000 Ethernet ports: 1 x WAN (configurable as LAN), 4 x LAN</td>
</tr>
<tr>
<td>WiFi</td>
<td>IEEE 802.11b/g/n 2.4GHz, IEEE 802.11ac/n/a 5GHz, Access point (AP), Station (STA)</td>
</tr>
<tr>
<td>GNSS</td>
<td>GPS, GLONASS, BeiDou, Galileo, QZSS</td>
</tr>
<tr>
<td>Connectors</td>
<td>1 x 4 pin DC, 5 x Ethernet, 4 x SMA for LTE, 2 x WiFi RP-SMA, 1 x SMA for GNSS, 1 x RP-SMA for Bluetooth</td>
</tr>
<tr>
<td>Bluetooth</td>
<td>4.0 (Low energy)</td>
</tr>
<tr>
<td>Inputs/Outputs</td>
<td>On 4pin socket: 1 x Digital input, 1 x Digital open collector output</td>
</tr>
<tr>
<td>Other</td>
<td>1 x USB host</td>
</tr>
<tr>
<td>Status LEDs</td>
<td>1 x WAN type, 6 x Connection type, 6 x Signal strength, 2 x WiFi, 10 x Ethernet, 1 x Power</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40 °C to 75 °C</td>
</tr>
<tr>
<td>Housing</td>
<td>Aluminium housing with DIN rail mounting option and grounding capability</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>132 x 44 x 95 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>540 g</td>
</tr>
</tbody>
</table>

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**SOFTWARE**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>RutOS (OpenWrt based Linux OS)</td>
</tr>
<tr>
<td>Mobile features</td>
<td>Multiple PDN, Auto APN, Band lock, SIM switch, Operator black/white list, Data/SMS limits</td>
</tr>
<tr>
<td>Network</td>
<td>Failover (Network backup), VLAN, QoS, Load Balancing</td>
</tr>
<tr>
<td>Routing</td>
<td>Static routes, Dynamic routes (BGP, OSPFv2, RIPv1/v2, EIGRP, NHRP), Routing rules</td>
</tr>
<tr>
<td>Monitoring and management</td>
<td>WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS</td>
</tr>
<tr>
<td>Cloud solutions</td>
<td>RMS, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx</td>
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<tr>
<td>Hotspot</td>
<td>External/Internal Radius, SMS OTP, MAC authentication, Walled Garden</td>
</tr>
<tr>
<td>Supported Hotspot platforms</td>
<td>IronWiFi, HotspotSystem, Cloud4Wi, SAI + WiFi, MugCloud, Purple.ai</td>
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</table>
**RUTXR1 ENTERPRISE SFP/LTE RACK MOUNT READY ROUTER**

Cellular speeds up to 300Mbps with Carrier Aggregation

- **DUAL SIM**
  - With auto failover, backup WAN and other switching scenarios
- **GIGABIT ETH**
  - 5 x Gigabit Ethernet ports
- **WIFI**
  - Wave-2 802.11ac Dual Band WiFi
- **RMS**
  - Compatible with Teltonika Remote Management System

---

**HARDWARE**

- **Mobile**
  - 4G/LTE (Cat 6), 3G
- **CPU**
  - Qualcomm, 4 x ARM Cortex A7, 717 MHz
- **Memory**
  - 256 MBbytes Flash, 256 MBbytes RAM
- **Powering option**
  - 4pin power socket, 9-50 VDC (main)
  - 4pin power socket, 9-50 VDC (redundant)
- **SIM**
  - 2 x External SIM holders (2FF)
- **Antenna connectors**
  - 2 x SMA for mobile, 2 x RP.SMA for WiFi
- **Ethernet**
  - 5 x 10/100/1000 Ethernet ports: 1 x WAN (configurable as LAN), 4 x LAN
- **WiFi**
  - IEEE 802.11b/g/n 2.4GHz, IEEE 802.11ac/n/a 5GHz, Access point (AP), Station (STA)
- **Other**
  - 1 x USB host, 1 x SFP, 1 x RS232 console
- **Status LEDs**
  - 2 x WAN type, 2 x Connection type, 3 x Signal strength, 2 x SIM, 2 x Console, 10 x Ethernet, 2 x Power
- **Operating temperature**
  - -40 °C to 75 °C
- **Housing**
  - Full aluminium rack unit housing with grounding capability
- **Dimensions (W x H x D)**
  - 272 x 44 x 123 mm
- **Weight**
  - 1050 g

---

**SOFTWARE**

- **Operating system**
  - RutOS (OpenWrt based Linux OS)
- **Mobile features**
  - Multiple PDN, Auto APN, Band lock, SIM switch, Operator black/white list, Data/SMCs limits
- **Network protocols**
  - TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPTP, DHCP, Telnet
- **Network Failover** (Network backup), VLAN, QoS, Load Balancing
- **Routing**
  - Static routes, Dynamic routes (BGP, OSPFv2, RIP/v1/v2, EIGRP), Routing rules
- **VPN and tunneling**
  - OpenVPN, IPsec, GRE, PPTP, L2TP, Stunnel, DMVPN, SSTP, WireGuard, ZeroTier
- **Monitoring and management**
  - WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS
- **Cloud solutions**
  - RMS, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx
- **Services**
  - DDNS, VRRP, Wake On Lan (WOL), WEB filter, UPNP, Network shares (Samba), Traffic Logging
**HARDWARE**

- **Powering option**: 4pin power socket, 7-58 VDC
- **Power consumption**: Idle: < 2 W, Max: < 9 W (no PoE device connected)
- **PoE standard**: 802.3af/at (max 30 W per port, total power budget 120W*)
- **Ethernet**: 5 x 10/100/1000 Ethernet ports: 4 x PoE, 1 x Uplink
- **Status LEDs**: 10 x Ethernet, 1 x Power
- **Ingress protection rating**: IP30
- **Operating temperature**: -40 °C to 75 °C
- **Housing**: Aluminium housing with wall or DIN rail mounting option and grounding capability
- **Dimensions**: 115 x 32 x 95 mm
- **Weight**: 340 g

**POE**

- 4 x PoE ports with 802.3af and 802.3at support
- Total power budget at PSE up to 120 W

**PERFORMANCE SPECIFICATIONS**

- **Bandwidth**: 10 Gbps
- **Packet buffer**: 128 KB
- **Jumbo frame support**: 9216 bytes
- **MAC address table size**: 2K entries
- **Auto MDI/MDI-X Cable Detection**: Yes

*Provided power supply only allows 60 W PoE power budget at PSE, to reach maximum 120 W at PSE >130 W power PSU must be used

**DURABLE**

- Rugged aluminium housing
- 5 x Gigabit Ethernet with speeds up to 1000 Mbps

**MOUNTING**

- DIN rail and surface mounting options

**ETHERNET**

- No additional configuration needed

**PLUG-N-PLAY**

- TSW100 – 5-port, unmanaged full Gigabit Ethernet switch supporting Power-over-Ethernet (802.3af and 802.3at standards).
- This device is classified as power source equipment (PSE), and when used in this way, TSW100 switch enables centralization of the power supply, providing up to 30 watts of power per port and reducing the effort for installing power. It has 10/100/1000 Mbps Ethernet ports to provide an economical high-bandwidth solution for your industrial Ethernet network.
REMOTE ACCESS
Have remote access to other equipment, including devices that aren’t manufactured by Teltonika

UPDATES
With RMS you can update hundreds of devices to the latest firmware version in just a few clicks

REALTIME ALERTS
Use real-time email alerts in order to stay informed on what’s happening to your devices

REPORTS
Set up a custom report system that contains information on user requested device parameters

HOTSPOT
Maintains complete awareness of your WiFi network by being able to add or delete users and monitor data usage

SECURITY
RMS complies with CBV V infrastructure security certificate and has been awarded OWASP level 2 security certificate

MAIN FEATURES
Unified protocol Enjoy a well-rounded solution for managing multiple Teltonika devices from a single platform
Remote access to non-Teltonika devices If your Teltonika device is on RMS, it can be used to generate remote access links to equipment that is connected to its private network
Realtime alert system Use real-time email alerts in order to stay informed on what’s happening to your devices
Activity reports Set up a custom report system that contains information on user requested device parameters
Hotspot tracking service Manage and track the activity of your WiFi Hotspot
Remote firmware/backup updates Make sure you don’t miss out on various improvements and new features that come with new firmware updates
GPS history Always stay informed of where your devices are and have been with the help of location history
Statistics displays charts Use automatically generated charts to monitor the history of your device activities
Remote monitoring RMS is a client-server based system, which provides the possibility to access devices remotely even without the use of a public IP address

SOFTWARE
Connection with server MQTT protocol (with SSL certificates); VPN
Proxy Webru, CLI, HTTP(HTTPS) Non-Teltonika device
Cloud Amazon Web Service
Eligible devices RUT230, RUT240, RUT850, RUT950, RUT955, RUTX08, RUTX10, RUTX11, RUTX12, RUTXR1, RUTB140, RUTB141, RUTB142, RUTB145, RUTB245, RUTB255
Security OWASP II, CIs v7
Createable alerts Signal strength, SIM switch, device status change (on/offline), mobile data (connected/disconnected), GPS geofencing
Update types Firmware update, configuration upload
Report types Manual one time reports (day, week, month), periodic reports (daily, weekly, monthly)
Available downloads Device configuration, event logs, troubleshooting file, CSV file of currently visible devices, generated reports, uploaded firmware files, uploaded configuration files
Static device parameters IMEI, model, manufacturer, hardware version, IMSI, product code, batch number, modem revision
Dynamic device parameters SIM state, PIN state, net state, signal (-dBm), operator, operator number, connection type, temperature, sent bytes (of both SIM cards, if available), received bytes (of both SIM cards, if available), firmware version, current SIM slot, router uptime, mobile IP, WAN IP, network ID, MCC, MNC, LAC, ICCID, RSCP, ECIO, RSRP, SINR, RSSR
Hotspot parameters Hotspot SSID, hotspot status (enabled/disabled), hotspot IP, total downloaded data, total uploaded data, users, active users, active user MAC, active user IP, active user start time, active user end time, active user use time, user downloaded data, user uploaded data, hotspot download limit, hotspot upload limit
GPS parameters Status, latitude, longitude, fix time, GPS date/time, altitude, speed, satellite count, course, accuracy
Input/output parameters Digital input, digital isolated input, analog input, digital OSC output, digital relay output

This platform allows users to analyze and monitor router statistical data, access WebUI interface of individual devices, change configuration of multiple connected routers using customizable selected profiles. In addition, it is possible to do remote automatic firmware updates and access equipment behind the router.
RutOS is our unified router Operating System and the core component of all Teltonika networking products. Over 10+ years of development made RutOS grow to the highest Industry standards. Security, stability and user experience are the key values that our platform is built around. Intuitive Web interface and constantly growing Wiki/Crowd-Support platforms help our partners to cut costs on engineer training while implementing new devices or migrating from other systems.

Teltonika networking products stand out as easily manageable devices on the market. Multiple remote monitoring and control functions are inseparable part of RutOS. This Open-source OpenWrt based Operating System along with full software documentation enable easy development of custom software solutions or new functionality as well as fast integration with 3rd party platforms.

**RUTOS Operating System for Networking products**

**MAIN FEATURES**

**Mobile features**
- Operator black/white list, band lock, multiple PDN, auto APN, data/SMS limits, SIM switch

**Network protocols**
- TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPTP, L2TP, Telnet

**Network**
- Failover (network backup), VLAN, QoS, Load Balancing

**Routing**
- Static routes, Dynamic routes (BGP, OSPFv2, RIP, IS-IS, MP-BGP), Routing rules

**Firewall**
- Port forward: traffic rules, custom rules, pre-configured firewall rules, DMZ, NAT, NAT-T, NAT helpers, unlimited firewall configuration via CLI

**Security**
- DDOS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPPS attack prevention), port scan prevention (SYN-FIN, SYN-RST, X-mas, NULL flags, FIN scan attacks)

**VPN and tunneling**
- OpenVPN, IPSec, GRE, PPTP, L2TP, Stunnel, DMVPN, SSTP, WireGuard, ZeroTier

**Monitoring and management**
- WEB UI, CLI, SSH, SMS, TR-069, SNMP, JSON-RPC, MQTT, RMS

**Connection monitoring**
- Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection

**Cloud solutions**
- RMS, FOTA, Telenor, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx

**Hotspot solutions**
- External/Internal Radius, SMS OTP, MAC authentication, Walled Garden

**Supported Hotspot platforms**
- IronWiFi, Hotspot System, Cloud4Wi, SAI + WiFi, MugiCloud, Purple.ai

**NTP**
- NTP Server, NTP Client, sync with: external NTP server, GNSS, mobile operator

**GNSS**
- NMEA forwarding, AVL, geofencing

**Modbus**
- TCP slave, TCP master, RTU master, RTU gateway, Modbus over MQTT

**Serial**
- Console, over IP, modem, NTRIP, Modbus

**SMS features**
- 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

**Services**
- DNS, SRV, Wake On Lan (WOL), WEB filter, UPnP, Network shares (Samba), Traffic Logging

**Administration**
- Multi user, configuration profiles, diagnostics, logs, configuration backup

**Supported languages**
- Busybox shell, Lua, C, C++

**Development tools**
- SDK package with build environment provided

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* Available RUTOS WebUI functionality depends on device's hardware capabilities
## Network Products Comparison

### Products Key Features

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<thead>
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<th>Category</th>
<th>CAT1</th>
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</table>

## Accessories / Powering Options

### EU Power Supply

**4.5 W**
- Order code: 035R-00163

**9 W**
- Order code: 035R-00143

**18 W**
- Order code: 035R-00150

### UK Power Supply

**4.5 W**
- Order code: 035R-00161

**9 W**
- Order code: 035R-00148

**18 W**
- Order code: 035R-00151

### AU Power Supply

**4.5 W**
- Order code: 035R-00160

**9 W**
- Order code: 035R-00149

**18 W**
- Order code: 035R-00152

### US Power Supply

**4.5 W**
- Order code: 035R-00162

**9 W**
- Order code: 035R-00149

**18 W**
- Order code: 035R-00154

### DIN Rail Power Supply

Order code: 035R-00156

### 4-pin Power Cable with 4-way Screw Terminal

Order code: 058R-00229

### DIN Rail Power Supply

Order code: 035R-00156

### Automotive Power Supply

Order code: 058R-00249

### EU Power Supply

Order code: 035R-00163

### UK Power Supply

Order code: 035R-00161

### AU Power Supply

Order code: 035R-00160

### US Power Supply

Order code: 035R-00162

### DIN Rail Power Supply

Order code: 035R-00156

### Automotive Power Supply

Order code: 058R-00249

### EU Power Supply

Order code: 035R-00163

### UK Power Supply

Order code: 035R-00161

### AU Power Supply

Order code: 035R-00160

### US Power Supply

Order code: 035R-00162

### DIN Rail Power Supply

Order code: 035R-00156

### Automotive Power Supply

Order code: 058R-00249
ACCESSORIES / ANTENNA OPTIONS

COMBO MIMO mobile/GNSS/WIFI ROOF SMA antenna
Order code: 003R-00253

COMBO SISO mobile/GNSS/WIFI ROOF SMA antenna
Order code: 003R-00254

COMBO MIMO mobile ROOF SMA antenna
Order code: 003R-00252

Mobile magnetic SMA antenna
Order code: 003R-00229

COMBO MIMO mobile/GNSS/WIFI ROOF SMA antenna
Order code: 003R-00253

COMBO SISO mobile/GNSS/WIFI ROOF SMA antenna
Order code: 003R-00254

COMBO MIMO mobile ROOF SMA antenna
Order code: 003R-00252

Mobile magnetic SMA antenna
Order code: 003R-00229

ACCESSORIES / MOUNTING OPTIONS

Compact DIN Rail Kit*
Order code: 088-00270

DIN Rail Kit*
Order code: 088-00267

Surface mounting kit*
Order code: 088-00260

TRB DIN Rail Kit**
Order code: 088-00256

ACCESSORIES / BLUETOOTH SENSOR

Blue COIN T***
Order code: PRIEDAS12R

Blue PUCK T EN 12830***
Order code: PRIEDAS485

Blue PUCK RHT***
Order code: PRIEDAS7HR

Blue PUCK MAG***
Order code: PRIEDAS1LH

Blue PUCK MOV***
Order code: PRIEDASMMF

Blue PUCK T***
Order code: PRIEDASJDS

Blue PUCK ID***
Order code: PRIEDASC3D

Blue SLIM ID***
Order code: PRIEDASN6O

ACCESSORIES / MOUNTING OPTIONS

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Blue SLIM ID***
Order code: PRIEDASN6O

* Compatible with RUT2**, RUT5** and RUTX** series devices.
** Compatible with TRB14* series devices.
*** Compatible with RUTX10, RUTX11, RUTX12 devices.
## ACCESSORIES COMPATIBILITY

<table>
<thead>
<tr>
<th>EU POWER SUPPLY, 4.5W</th>
<th>Order code: 035R-00163</th>
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<tr>
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<td>AU POWER SUPPLY, 4.5W</td>
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<tr>
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<td>AU POWER SUPPLY, 9W</td>
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<tr>
<td>US power supply, 9 W</td>
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<td>EU POWER SUPPLY, 18W</td>
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<td>UK POWER SUPPLY, 18W</td>
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<td>US POWER SUPPLY, 18W</td>
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<tr>
<td>POWER CABLE WITH 4-WAY SCREW TERMINAL</td>
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<tr>
<td>AUTOMOTIVE POWER SUPPLY</td>
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<td>DIN RAIL POWER SUPPLY</td>
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<tr>
<td>COMBO MIMO MOBILE/GNSS/WIFI/ROOF SMA ANTENNA</td>
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<tr>
<td>COMBO MIMO MOBILE SMA ANTENNA</td>
<td>Order code: 003R-00252</td>
</tr>
</tbody>
</table>

| COMBO 5G MOBILE/GNSS/WIFI/ROOF SMA ANTENNA | Order code: 003R-00254 |
| GNSS ADHESIVE SMA ANTENNA | Order code: 003R-00250 |
| GNSS ADHESIVE FAKRA ANTENNA | Order code: 003R-00251 |
| MOBILE ADHESIVE SMA ANTENNA | Order code: 003R-00252 |
| MOBILE ADHESIVE FAKRA ANTENNA | Order code: 003R-00253 |
| MOBILE MAGNETIC SMA ANTENNA | Order code: 003R-00229 |
| MOBILE SMA ANTENNA | Order code: 003R-00254 |
| WIFI MAGNETIC SMA ANTENNA | Order code: 003R-00230 |
| WIFI SMA ANTENNA | Order code: 003R-00224 |
| WIFI DUAL BAND MAGNETIC SMA ANTENNA | Order code: 003R-00247 |
| WIFI DUAL BAND SMA ANTENNA | Order code: 003R-00249 |
| BLUETOOTH SMA ANTENNA | Order code: 003R-00256 |
| COMPACT MOBILE ANTENNA | Order code: 003R-00279 |
| STRAIGHT COMPACT MOBILE ANTENNA | Order code: 003R-00281 |
| COMPACT DIN RAIL KIT | Order code: 088-00290 |
| DIN RAIL KIT | Order code: 088-00267 |
| SURFACE MOUNTING KIT | Order code: 088-00260 |
| TRB DIN RAIL KIT | Order code: 088-00256 |
OIL & GAS PIPELINE MONITORING

ENERGY & UTILITIES

Our lives depend on energy and while many countries are working towards more sustainable future with development focused on renewable energy sources, oil & gas remain the most popular sources of energy today. Combined, oil & gas account to more than 60% of the global energy consumption, according to BP estimates.

SOLUTION
Pipeline infrastructure is usually placed in remote areas where wired Internet connectivity is not available. The satellite communications are still highly expensive, however global expansion of 4G LTE coverage enables Oil & Gas companies to implement a wide pipeline flow monitoring network by using dedicated flow meters which output data using industrial protocols. In many cases – serial communication with RS-485 and Modbus industrial protocol is used. The data generated by the flow meter must be obtained and forwarded to control centers, SCADA systems to aggregate and interpret centrally. TRB145 Serial IoT Gateway by Teltonika Networks is perfect for such applications - with RS-485 interface, Modbus RTU Master functionality and 4G LTE Cat1 it is able to periodically read flow meter information and send gathered data to remote HTTP servers or various IoT platforms using MQTT. Finally, wide power supply range and low energy consumption allows TRB145 to be powered up by combining solar power and batteries.

BENEFITS
- Low cost and quick to deploy – multiple TRBs can be simultaneously configured immediately using Teltonika Remote Management System (RMS).
- High availability and low data cost – 4G LTE is highly available globally and cost efficient due to low amounts of data needed for this application. The network supports advanced data protection with dedicated firewall and encryption with multiple VPN services available such as OpenVPN, IPsec, L2TP and more.
- Immediate notifications – if preset flow values fall out of defined criteria, system operators can setup TRB145 to receive immediate alarms.

ELEVATOR CONNECTIVITY
SMART CITY

Today, we see massive growth in urban development. New shopping malls, skyscrapers, hospitals, offices are built all over the world. All these buildings have many things in common, but the most important one is an elevator. According to Statista, the elevator market size in 2018 exceeded 90 billion USD and there are forecasts that the market will grow up to 135 billion USD by 2026. This means that every day many elevators must be installed and maintained.

SOLUTION
All maintenance companies invest in security systems and reliability to optimize their operations and reduce the potential need for physical maintenance traveling to all locations where they have elevators deployed. Since the whole solution is subject to a risk of failure, there must be a reliable way to provide a stable and secure Internet connectivity. Our partners connect all parts of such an elevator solution to our RUTX09 industrial cellular router. It is equipped with 4G LTE Cat6 & 2 SIM card slots, which ensures additional connection reliability through the failover feature. Also, it has four gigabit Ethernet interfaces – sufficient to connect all solution components. Furthermore, it runs our RutOS operating system designed with a multitude of security services such as multiple VPNs, firewalls, DDoS attack prevention features, and more. The whole solution can be easily controlled and monitored remotely by using our software system RMS - Remote Management System.

BENEFITS
- Internet failover – possibility to use two different operator SIM cards for internet backup and failover.
- Security – our products have been tested and validated by the most prominent ISP across the globe.
- Easy to use – RUTX09 is powered by our RutOS, which has a very friendly user interface – easy to use and understand.
- Alerts and notifications – if an error occurs, you can be sure that with the help of RMS, you will get alerts and notifications as soon as possible, saving your time and costs.
REMOTE TOWER SITE MANAGEMENT

According to GSMA, there are more than 5.2 billion unique mobile subscribers and more than 9 billion mobile connections worldwide. This number includes cellular IoT subscribers and is continuously growing as the world is moving forward towards digitalisation. As the number of subscribers and providers is growing, the need for more cellular base stations is also increasing rapidly.

**SOLUTION**

The cellular base station tower site is a complex infrastructure solution since it includes various elements, as mentioned above. However, most of those parts are connected directly to the tower site controller (also called site manager), which jointly monitors and allows to control everything using a single platform. These tower site controllers need to be connected to the Internet. Our partners are using the RUTX11 to ensure a secure and reliable connection, which grants the tower site controller connected to the Internet using 4G LTE. Also, this professional cellular router is equipped with Gigabit Ethernet and Wi-Fi, which allows connecting additional components like CCTV cameras or access control barriers. Furthermore, every maintenance company must have alerts and notifications if something happens to the system. In this case, the whole system is controlled remotely via the management software and, if necessary, via SMS.

**ENERGY & UTILITIES**

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**BENEFITS**

- Reliability – our RUTX11 has two SIM card slots, meaning that you can use two different operators for the best Internet connection reliability.
- Wireless interfaces – RUTX11 has 2.4 & 5 GHz Wi-Fi included, which enables integrators to provide Internet to various devices without additional cabling.
- Remote configuration – our product can act as a gateway between the controller and software system for control and management.
- Remote monitoring – with RMS, it is possible to configure all Teltonika routers remotely at once.

BOAT AND YACHT CONNECTIVITY

Europe and North America have witnessed high demand for recreational boats during the forecast period as the commercial adoption of boats have increased in these regions. With over 37,000 kilometers of inland waterways and over 70,000 kilometers of coastline, Europe offers its 480 million citizens a perfect ecosystem to participate in recreational marine activities annually. Countries such as Belgium and Croatia have witnessed significant growth in the recreational boat market. There are an estimated 6 million boats kept in European waters.

**SOLUTION**

As we can see in the topology, there are possibilities to use different products from Teltonika Networks’ portfolio depending on the size of the vessel and the demanded solution. There are numerous applications when Internet connectivity on a boat is essential: weather forecasts, voyage planning, CCTV monitoring. However, when it comes to recreational services, marketing value can be just as significant. With public WiFi service on a boat, trip operators can provide additional value to the consumers while offsetting the costs of mobile data plans with interactive captive portals and digital advertising. Moreover, such tools provide valuable data to help further develop a growing customer base. Both devices RUT950 and RUTX12 are compatible with the Remote Management System - IoT platform for Teltonika Networks’ devices. With the help of RMS, you can set the alerts if the boat or yacht has left the geofence area, which you have specified on the platform.

**BENEFITS**

- Performance – RUTX12 with 2 LTE CAT 6 cellular modules working simultaneously provides speeds up to 600 Mbps and is ready for industrial applications with rugged aluminium housing, wide operating temperature range, and resistance to vibrations.
- Functionality – RUTX950 is a compact IoT router, which provides flexibility to choose between different mobile operators in different areas. Moreover, RUT950 offers additional profit-generating features including the mentioned about any undesirable issues with both RUT950 and RUTX12.
- Security – with advanced RutOS features, RUTX12 and RUT950, offer multiple VPN options, embedded firewall, and other security features to comply with high-security standards.
OUT-OF-BAND MANAGEMENT FOR CISCO ISR

Out-of-band management has long been used to access a remote site or device, as a way to monitor, restore service or determine an issue affecting service. In the past, the most popular method of out-of-band access was the PSTN (Public Switched Telephone Network), via analog POTS lines (Plain Old Telephone Service) or ISDN lines (Integrated Service Digital Network). Dial-up modems or ISDN equipment attached to remote site devices would accept incoming calls from an administrator at the main site. These lines are still in common use today.

SOLUTION

The most reliable option for remote site monitoring is having a certified network technician on-site at all times, though in most cases costs of doing so are too large to justify. Most commonly such engineers are hired by dedicated businesses offering technical support services which delegate their technical engineers on-demand to the location of client’s infrastructure in case the main router is unreachable over its wired Internet connection. In the majority of cases, a simple reboot or configuration change is needed. However, the costs of hiring a certified professional engineer to travel to a remote site, debug and solve a problem are significantly higher than upgrading existing PSTN infrastructure to reliable and secure remote access solution for out-of-band management.

BENEFITS

- Fast deployment – multiple RUT955s can be quickly preconfigured for out-of-band management using Teltonika RMS.
- Reduced network maintenance costs – even one on-site visit by a certified technical support engineer can be more expensive than installing a single RUT955 for out-of-band management.
- Support speed – a professional engineer can access the console interface of an ISR remotely immediately and resolve any arising issues avoiding time zone differences and traveling time to site.

4G CONNECTIVITY IN VENDING MACHINES

The worldwide vending machine market is valued more than 5.8 billion USD and will grow to nearly 7 billion USD in 2024, according to the MarketWatch. The habits of the people are changing, due to the faster pace of life, everybody is trying to save as much time as possible. This leads to a shift of buyer behavior: more and more customers buy drinks, food, and other products from vending machines since it is simpler and way faster than going to a grocery store.

SOLUTION

Connection reliability is the most crucial feature for the vending machine market since all parts of the solution are connected to one single device. If the machine loses connectivity to the Internet, most of these solution components would stop functioning. Installing a professional cellular router, like RUTX11, vending machine operators and integrators can connect all parts of the vending solution to a single device and have Internet backup because RUTX11 is equipped Internet 4G LTE Cat 6 with 2 SIM cards supported. The whole solution can be monitored via RMS, which gives the possibility to get notifications and alerts if something unexpected happens. Also, RUTX11 works as a gateway to the service center, allowing operators to monitor the stock levels inside the vending machine and make efficient decisions for refilling the machine.

BENEFITS

- Versatility - RUTX11 is perfect for this solution since it is compatible with different devices including Bluetooth sensors, payment terminal and digital screen using Ethernet and Wi-Fi interfaces.
- Reliability - Dual SIM is an essential feature for Internet backup and reliable connectivity ensuring that connection is not lost even in the event of cellular operator disruptions.
- Remote management - RUTX11 is fully compatible with Teltonika Networks Remote Management System (RMS) which enables robust remote monitoring and management capabilities.
- Security - RUTX11 supports advanced firewall, access control and multiple VPN options such as OpenVPN, IPsec, and others – essential for ensuring electronic payment functionality.