Installationsmanual GATEWAY-IP65BOX

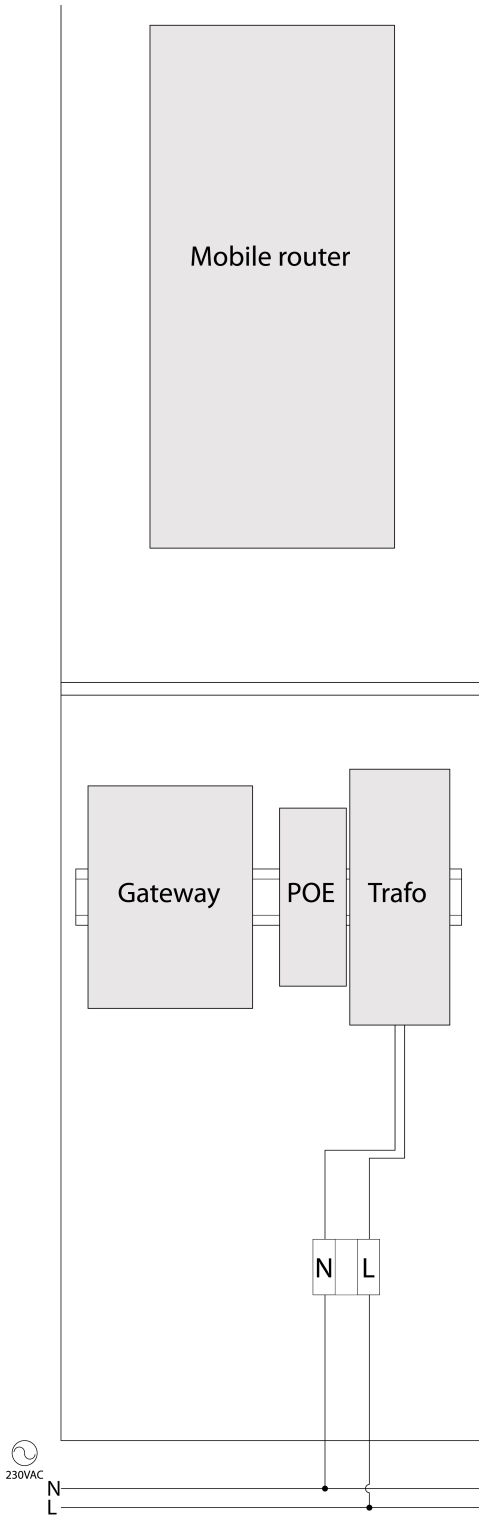
GATEWAY-IP65BOX är en Casambi-gateway anpassad för utomhusmiljö. Den används för att möjliggöra molnuppkoppling av Casambi-nätverk utomhus. Produkten drivs med 230VAC och kommunicerar via 4G SIM-kort (ej inkluderat).

Produkten stödjer Casambi "Long Range".

Tekniska data

IP-klass	IP65
Arbetstemperatur	-20° till 50°C
Montering	Vägg/stolpe (modellberoende)
Låsbar	Ja, med tillhörande nyckel
Molnuppkoppling	4G SIM-kort (ej inkluderat)
Dimensioner	335x210x95mm

Inkopplingsschema



Dimensioner

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SE Installationsmanual
Casambi Molngateway CGW-001

Tekniska data

Processor	Broadcom BCM2711, Quad-core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
Arbetsminne	4GB LPDDR4-3200 SDRAM
Trådlös kommunikation	2.4 GHz and 5.0 GHz IEEE 802.11ac trådlös, Bluetooth 5.0, BLE
Kryptering	HTTPS
Anslutningsportar	USB-C & Ethernet
Strömförsörjning	5V DC via USB-C kontakt (minimum 3A)
Arbetstemperatur	0 - 50°C omgivningstemperatur
Kapslingsklass	IP20
Certifieringar	FCC ID: 2ABCB-RPI4B & IC: 20953-RPI4B

Med Casambi molngateway möjliggörs datainsamling, konfiguration och styrning av ditt Casambi-nätverk på distans. Casambi molngateway är utrustad med port för Ethernet samt stöd för WiFi-uppkoppling. Produkten innehåller ett dedikerat flash-minne i form av ett SD-kort. Tillhörande strömförsörjningskabel och adapter ingår.

Kompatibilitet
För att kunna nyttja molngatewayen så måste Casambi-nätverket ha delningsinställningarna "Admin" eller "Lösenordskyddat" samt kräver att Casambi-nätverket är av typen Evolution. Molngatewayen fungerar inte i Casambi-nätverk som ej är delade, som är öppna eller av typen Classic.

Säkerhet
Casambi molngateway initierar all nätverkstrafik, det finns inga inkommande nätverksanslutningar. Alla internetanslutningar är krypterade (HTTPS).

Driftsättningspraxis
Vi råder att lägga till gatewayen i ett separat nätverk skiljt från affärskritiska enheter och placera molngatewayen på en säker plats i installationsmiljön. Produkten är enbart ämnad för inomhusbruk. Använd endast en molngateway per nätverk.

EN Installation Manual
Casambi Cloud Gateway CGW-001

Technical data

Processor	Broadcom BCM2711, Quad-core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
RAM	4GB LPDDR4-3200 SDRAM
Wireless communication	2.4 GHz and 5.0 GHz IEEE 802.11ac wifi, Bluetooth 5.0, BLE
Encryption	HTTPS
Connection ports	USB-C & Ethernet
Power supply	5V DC via USB-C connector (minimum 3A)
Working temperature	0 - 50°C ambient temperature
Protection class	IP20
Certifications	FCC ID: 2ABCB-RPI4B & IC: 20953-RPI4B

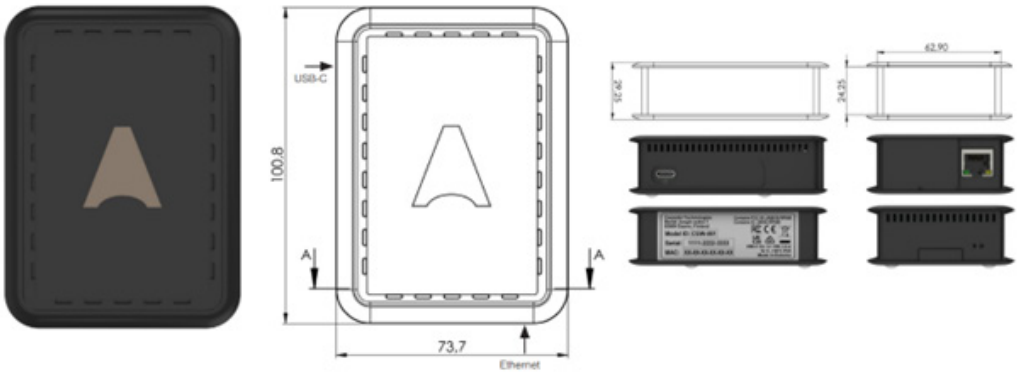
The Casambi cloud gateway enables remote data collection, configuration and control of your Casambi network. The Casambi cloud gateway comes with an Ethernet port and support for WiFi connection. The product includes dedicated flash memory in the form of an SD card. A matched power supply cable and adapter are included.

Compatibility
In order to use the cloud gateway, the Casambi network must have the settings for sharing set to "Admin" or "Password protected" and requires that the Casambi network is of the Evolution type. The cloud gateway does not work in non-shared, open or classic Casambi networks.

Security
The Casambi cloud gateway initiates all network traffic, there are no incoming network connections. All internet connections are encrypted (HTTPS).

Commissioning
We advise adding the gateway to a network that is separated from business-critical devices and placing the cloud gateway in a secure location within the installation environment. The product is intended for indoor use only. Use only one cloud gateway per network.

Mått/Dimensions



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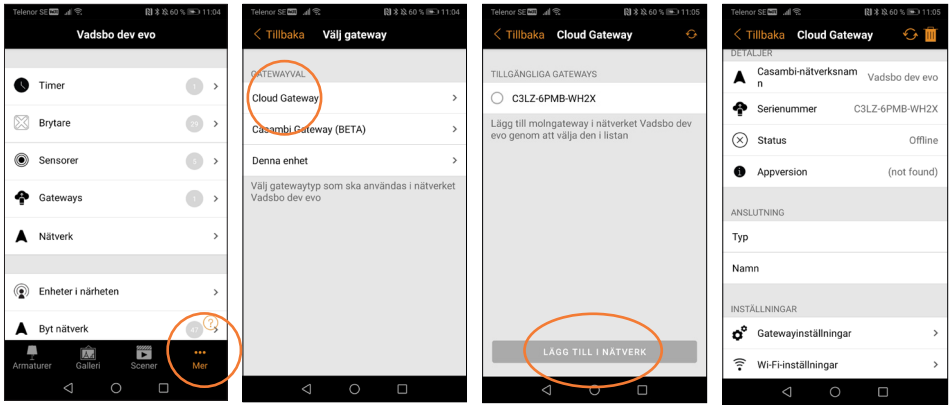
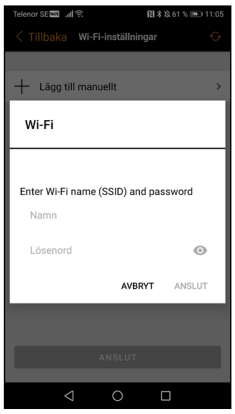
Installationsförfarande

1. Sätt i strömförsörjningen (och Ethernet-kabel) till molngatewayen.
2. Logga in på det Casambi-nätverk molngatewayen ska läggas till i.
3. Gå till fliken ”Mer” och välj sedan ”Gateways”.



4. Välj sedan ”Cloud Gateway”.
5. Molngatewayen dyker nu upp i listan på till gängliga gateways. Markera moln-gatewayen och välj ”Lägg till i nätverk”. Om flera är tillgängliga i närheten, välj då den med rätt serienummer. Enhetens serienummer finnes på undersidan av molngatewayen.
6. Nu är enheten inlagd och din skärm ska nu se ut som följande. Du kan nu välja att sätta upp en WiFi-anslutning eller ändra inställningarna för moln-gatewayen. För att ta bort enheten, klicka på soptunnan uppe i det högra hörnet.

För att ansluta till WiFi



1. Välj alternativet ”Wi-Fi”.
2. På nästa skärm välj ”Lägg till Wi-Fi” och fyll i inloggningsuppgifterna för det trådlösa nätverket som är tillgängligt i installationsmiljön. När du är ansluten kommer ett kort bekräftelsemeddelande dyka upp längst ner på skärmen.

Molngateway-inställningar

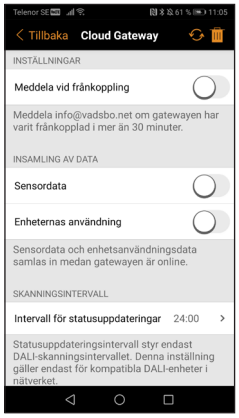
Meddela vid frånkoppling

Om ”Meddela vid frånkoppling” är aktiverad så kommer ett meddelande att skickas till nätverksadministratörens e-postadress om fjärranslutningen kopplas bort av någon anledning.

Insamling av data

Detta kan konfigureras i de olika gateway-alternativinställningarna. Datainsamlings-alternativ kan aktiveras om du behöver komma åt nätverkets sensor- eller enhets-användningsdata separat. Insamling av sensordata och användning av enhetsdata kan aktiveras separat. Om du aktiverar dessa alternativ ökar mängden nätverksdata samtidigt som informationen samlas in och laddas upp från enheter. För att förhindra överdriven dataanvändning rekommenderas det att aktivera dessa alternativ endast när det är nödvändigt.

Dataloggningen innehåller information om enhetsspecifika detaljer såsom information om dess tillstånd och förändringar i tillståndet. Vissa enheter kanske kan ge mer information. Till exempel kan en DALI-enhet också kunna tillhandahålla data om specifika hårdvarufunktioner.



Sensordata

Genom att aktivera “Sensordata” kan läsbar sensordata laddas upp, till exempel:

- Närvaro-/närvarosignaler (Närvaro/Frånvaro)
- Ljussensor (lux)
- Kretskortstemperatur
- Batterinivå
- Indikator för överhettning/överbelastning (specifik för maskinvara)

Enheternas användning

“Användning av enheter” gör det möjligt för gatewayen att samla in och ladda upp annan nätverksspecifik data, till exempel:

- Status för enheten i nätverket
- Tillstånd för enhetskontroller, t.ex. dimningsdata, CCT-nivå, färginställningar, etc.
- Energiräknare
- Tillverkarens uppgifter om DALI-drivrutiner
- Andra utökade diagnostik- och underhållsdata som kan hämtas från (DALI)-enheter

Skanningsintervall

Detta gäller endast DALI-enheter i ditt nätverk. DALI-sensor- och/eller enhetsdata från ditt nätverk kan sedan laddas upp till Casambis molntjänst med ett intervall som definieras av inställningen för statusuppdateringsintervall.

Datan kan sedan nås genom att använda ett lämpligt mjukvarugränssnitt från tredje part som är designat kring Casambi Application Programming Interface (API).
Vilka data som är tillgängliga för insamling beror på den designade DALI-kapaciteten hos sensorerna eller andra enheter som används i nätverket. t.ex. kan en DALI-enhet utan termisk mätfunktion inte tillhandahålla temperaturdata.

Det här alternativet kan använda en betydande mängd nätverksdatabandbredd och kan sakta ner nätverksdriften.

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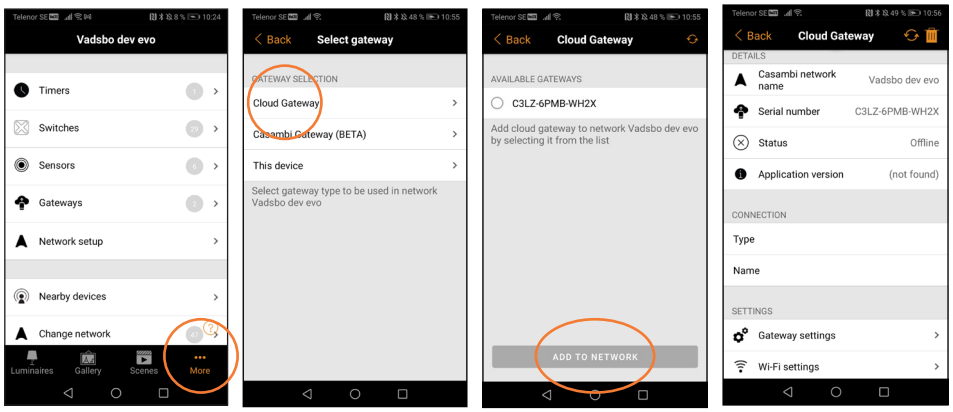
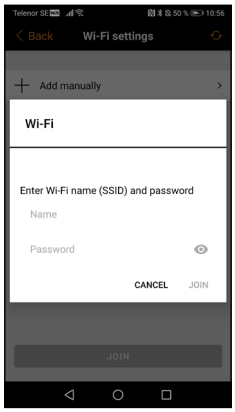
Installation procedure

1. Plug the power supply (and Ethernet cable) in to the cloud gateway.
2. Log in to the specific Casambi network that the cloud gateway is to be added to.
3. Go to the “More” tab and then select “Gateways”.



4. Then select “Cloud Gateway”.
5. The cloud gateway now appears in the list of available gateways. Select the cloud gateway and select “Add to network”. If several are available within range, then select the one with the correct serial number. The device serial number can be found underneath the cloud gateway.
6. Now the device is inserted and your screen should show the following. You can now choose to set up a WiFi connection or change the cloud gateway settings. To remove the device, click on the waste bin in the upper right corner.

To connect to WiFi



1. Select the “Wi-Fi” option.
2. On the next screen, select “Add Wi-Fi” and fill in the wireless network details to be used in the installation environment. When you are connected, a short confirmation message will appear at the bottom of the screen.

Cloud Gateway Settings

Notify on disconnect

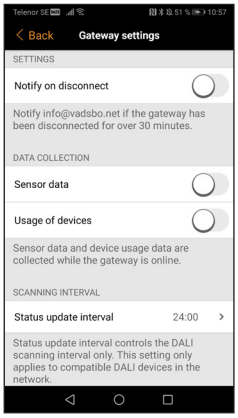
If “Notify on disconnect” is enabled, a notification will be sent to the network administrator’s email address if the remote connection is disconnected for any reason.

Data gathering

This can be configured in the various gateway option settings. Data collection options can be enabled if you need to access the network’s sensor or device usage data separately.

Sensor data collection and device data usage can be enabled separately. Enabling these options increases the amount of network data as information is collected and uploaded from devices. To prevent excessive data usage, it is recommended to enable these options only when required.

The data logging contains device-specific details such as information about their state and changes in state. Some devices may be able to provide more information. For example, a DALI device may also be able to provide data about specific hardware functions.



Sensor data

By activating “Sensor data”, readable sensor data is uploaded, for example:

- Presence/presence signals (Presence/Absence)
- Light sensor (lux)
- Circuit board temperature
- Battery level
- Overheat/overload indicator (hardware specific)

Usage of devices

“Usage of devices” enables the gateway to collect and upload other network-specific data, such as:

- Status of the device in the network
- Permissions for device controls, e.g. dimming data, CCT level, colour settings, etc.
- Energy meter
- Manufacturer’s information on DALI drivers
- Other extended diagnostic and maintenance data that can be sourced from (DALI) devices

Scanning interval

This only applies to DALI devices in your network. DALI sensor and/or device data from your network can then be uploaded to the Casambi cloud service at an interval defined in the status update interval setting.

The data can then be accessed using an appropriate third-party software interface designed around the Casambi Application Programming Interface (API). The data available for collection depends on the designed DALI capability of the sensors or other devices used in the network.

For example a DALI device without a thermal measurement function cannot provide temperature data. This option may use a significant amount of network data bandwidth and may slow down network operations.

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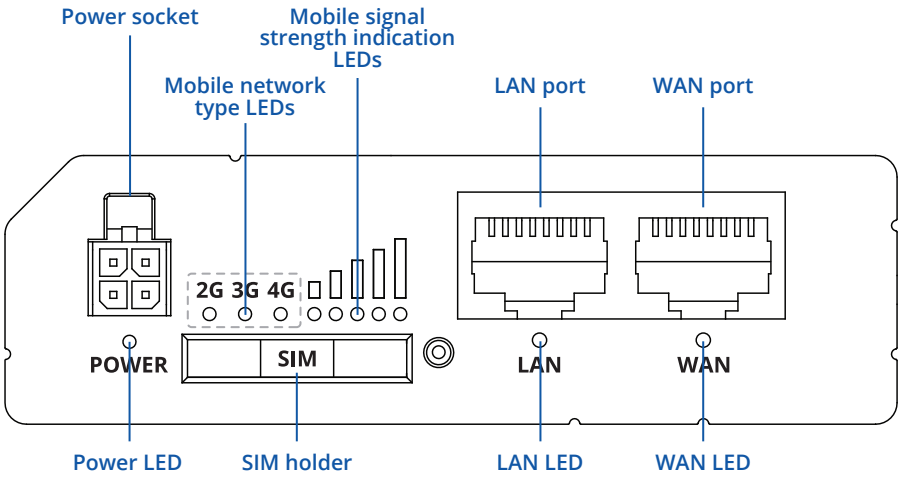
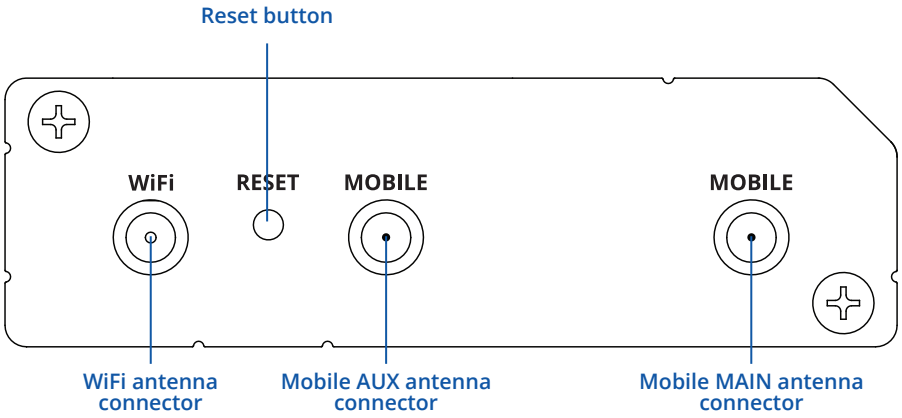
HARDWARE

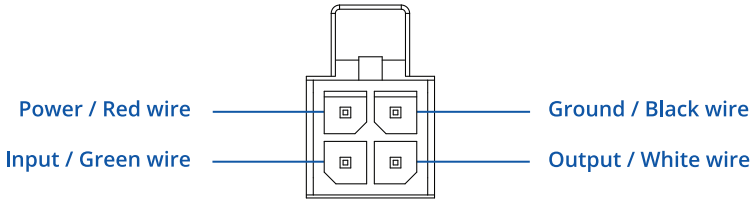
FRONT VIEW



BACK VIEW



POWER SOCKET PINOUT



FEATURES

MOBILE

Mobile module	4G (LTE) – Cat 4 up to 150 Mbps, 3G – Up to 42 Mbps, 2G – Up to 236.8 kbps
Status	Signal strength (RSSI), SINR, RSRP, RSRQ, EC/IO, RSCP, Bytes sent/received, connected band, IMSI, ICCID
SMS	SMS status, SMS configuration, send/read SMS via HTTP POST/GET, EMAIL to SMS, SMS to EMAIL, SMS to HTTP, SMS to SMS, scheduled SMS, SMS autoreply, SMPP
Black/White list	Operator black/white list
Band management	Band lock, Used band status display
APN	Auto APN
Bridge	Direct connection (bridge) between mobile ISP and device on LAN
Passthrough	Router assigns its mobile WAN IP address to another device on LAN
Multiple PDN (optional)	Possibility to use different PDNs for multiple network access and services (not available in standard FW)

WIRELESS

Wireless mode	IEEE 802.11b/g/n, Access Point (AP), Station (STA)
WiFi security	WPA2-Enterprise - PEAP, WPA2-PSK, WEP, WPA-EAP, WPA-PSK; AES-CCMP, TKIP, Auto Cipher modes, client separation
SSID	SSID stealth mode and access control based on MAC address
WiFi users	Up to 50 simultaneous connections
Wireless Hotspot	Captive portal (Hotspot), internal/external Radius server, built in customizable landing page

ETHERNET

WAN	1 x WAN port (can be configured to LAN) 10/100 Mbps, compliance with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX
LAN	1 x LAN port, 10/100 Mbps, compliance with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX

NETWORK

Routing	Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2, RIPng, OSPF6)
Network protocols	TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSL v3, TLS, ARP, VRRP, PPP, PPPoE, UPnP, SSH, DHCP, Telnet client, SNMP, MQTT, Wake On Lan (WOL)
VoIP passthrough support	H.323 and SIP-alg protocol NAT helpers, allowing proper routing of VoIP packets
Connection monitoring	Ping Reboot, Wget Reboot, Periodic Reboot, LCP and ICMP for link inspection
Firewall	Port forward, traffic rules, custom rules
DHCP	Static and dynamic IP allocation, DHCP Relay, Relayd
QoS / Smart Queue Management (SQM)	Traffic priority queuing by source/destination, service, protocol or port, traffic priority queuing by source/destination, service, protocol or port, WMM, 802.11e
DDNS	Supported >25 service providers, others can be configured manually
Network backup	VRRP, Mobile, Wired and WiFi WAN options, each of which can be used as backup, using automatic Failover
Load balancing	Balance your internet traffic over multiple WAN connections
SSHFS (optional)	Possibility to mount remote file system via SSH protocol (not available in standard FW)

SECURITY

Authentication	Pre-shared key, digital certificates, X.509 certificates
Firewall	Pre-configured firewall rules can be enabled via WebUI, unlimited firewall configuration via CLI; DMZ; NAT; NAT-T
Attack prevention	DDOS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPS attack prevention), port scan prevention (SYN-FIN, SYN-RST, X-mas, NULL flags, FIN scan attacks)
VLAN	Port and tag based VLAN separation
Mobile quota control	Set up custom data limits for the SIM card
WEB filter	Blacklist for blocking out unwanted websites, whitelist for specifying allowed sites only
Access control	Flexible access control of TCP, UDP, ICMP packets, MAC address filter

VPN

OpenVPN	Multiple clients and server can be running 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 4 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
Stunnel	Proxy designed to add TLS encryption functionality to existing clients and servers without any changes in the programs' code
SSTP	SSTP client instance support
ZeroTier	ZeroTier VPN
WireGuard	WireGuard VPN client and server support

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 requests, which read/write to a file inside the router, and can be used to extend MODBUS TCP Slave functionality

MODBUS TCP MASTER

Supported functions	01, 02, 03, 04, 05, 06, 15, 16
Supported data formats	8 bit: INT, UINT; 16 bit: INT, UINT (MSB or LSB first); 32 bit: float, INT, UINT (ABCD (big-endian), DCBA (little-endian), CDAB, BADC)

MODBUS DATA TO SERVER

Protocol	HTTP(S), MQTT, Azure MQTT

MQTT GATEWAY

MQTT gateway	Allows sending commands and receiving data from Modbus Master through MQTT broker

MONITORING & MANAGEMENT

WEB UI	HTTP/HTTPS, status, configuration, FW update, CLI ,troubleshoot, event log, system log, kernel log
FOTA	Firmware update from sever, automatic notification
SSH	SSH (v1, v2)
SMS	SMS status, SMS configuration, send/read SMS via HTTP POST/GET
Call	Reboot, Status, WiFi on/off, Mobile data on/off, Output 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
JSON-RPC	Management API over HTTP/HTTPS
MODBUS	MODBUS TCP status/control
RMS	Teltonika Remote Management System (RMS)

IoT PLATFORMS

Clouds of things	Allows monitoring of: Device data, Mobile data, Network info, Availability
ThingWorx	Allows monitoring of: WAN Type, WAN IP Mobile Operator Name, Mobile Signal Strength, Mobile Network Type
Cumulocity	Allows monitoring of: Device Model, Revision and Serial Number, Mobile Cell ID, ICCID, IMEI, Connection Type, Operator, Signal Strength, WAN Type and IP
Azure IoT Hub	Can send device IP, Number of bytes send/received/ 3G connection state, Network link state, IMEI, ICCID, Model, Manufacturer, Serial, Revision, IMSI, Sim State, PIN state, GSM signal, WCDMA RSCP WCDMA EC/IO, LTE RSRP, LTE SINR, LTE RSRQ, CELL ID, Operator, Operator number, Connection type, Temperature, PIN count to Azure IoT Hub server

SYSTEM CHARACTERISTICS

CPU	Mediatek, MT7628, 580 MHz
RAM	128 MB, DDR2
FLASH storage	16 MB, SPI Flash

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 built environment provided

INPUT/OUTPUT

Input	1 x Digital input, 0 - 6 V detected as logic low, 8 - 30 V detected as logic high
Output	1 x Digital open collector output, max output 30 V, 300 mA
Events	SMS, EMAIL, RMS

POWER

Connector	4 pin industrial DC power socket
Input voltage range	9 – 30 VDC, reverse polarity protection, surge protection >33 VDC 10us max
PoE (passive)	Passive PoE over spare pairs (available from HW revision 0007 and batch number 0010). Possibility to power up through LAN port, not compatible with IEEE802.3af, 802.3at and 802.3bt
Power consumption	< 6.5 W Max

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

Ethernet	2 x RJ45 ports, 10/100 Mbps
I/Os	1 x Digital Input, 1 x Digital Output on 4 pin power connector
Status LEDs	3 x Connection type status LEDs, 5 x Connection strength LEDs, 2 x LAN status LEDs, 1 x Power LED
SIM	1 x SIM slot (Mini SIM – 2FF), 1.8 V/3 V, external SIM holder
Power	1 x 4 pin DC connector
Antennas	2 x SMA for LTE, 1 x RP-SMA for WiFi antenna connectors
Reset	Reboot/Factory reset button

PHYSICAL SPECIFICATION

Casing material	Aluminium housing with DIN rail mounting option, plastic panels
Dimensions (W x H x D)	83 x 25 x 74 mm
Weight	125 g
Mounting options	Bottom and sideways DIN rail mounting slots

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, UKCA, CB

EMI IMMUNITY

Standards	EN 301 489-1 V2.2.3 EN 301 489-17 V3.2.4 Final draft EN 301 489-52 V1.2.0 EN 55032:2015+A1:2020 EN 55035:2017+A11:2020 EN 61000-3-3:2013+A1:2019 EN IEC 61000-3-2:2019
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
Conducted Immunity	EN 61000-4-6:2014
DIP	EN IEC 61000-4-11:2020

RF

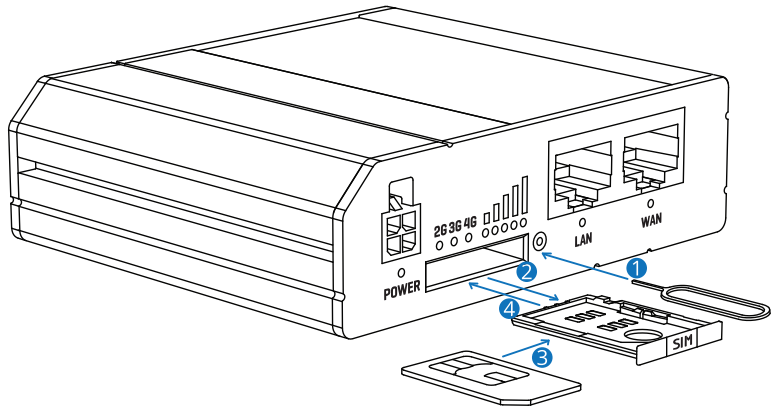
Standards	EN 300 328 V2.2.2, EN 301 511 V12.5.1, EN 301 908-1 V13.1.1, EN 301 908-2 V13.1.1, EN 301 908-13 V13.1.1

SAFETY

Standards	EN IEC 62311:2020, EN 50665:2017, EN IEC 62368-1:2020+A11:2020, IEC 62368-1:2018

HARDWARE INSTALLATION

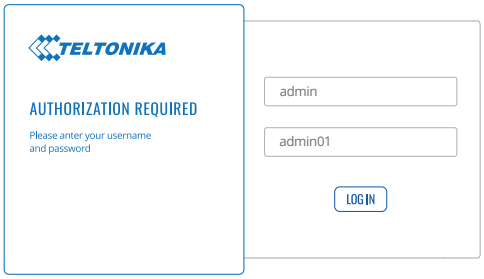
1. Push the SIM button with the SIM needle.
2. Pull out the SIM holder.
3. Insert your SIM card into the SIM holder.
4. Slide the SIM holder back into the router.
5. Attach Mobile and WiFi antennas.
6. Connect the power adapter to the socket on the front of the device. Then plug the other end of the power adapter into a power outlet.
7. Connect to the device wirelessly using SSID and password provided on the device information label or use an Ethernet cable connected to LAN port.



LOGIN TO DEVICE

1. To enter the router's Web interface (WebUI), type http://192.168.1.1 into the URL field of your Internet browser.
2. Use login information shown in image A when prompted for authentication.
3. After you log in, you will be prompted to change your password for security reasons. The new password must contain at least 8 characters, including at least one uppercase letter, one lowercase letter, and one digit. This step is mandatory, and **you will not be able to interact with the router's WebUI before you change the password.**
4. When you change the router's password, the Configuration Wizard will start. The Configuration Wizard is a tool used to set up some of the router's main operating parameters.
5. Go to the Overview page and pay attention to the Signal Strength indication (image B). To maximize the cellular performance try adjusting the antennas or changing the location of your device to achieve the best signal conditions.

A.



B.

TECHNICAL INFORMATION

Radio specifications	
RF technologies	2G, 3G, 4G, WiFi
Max RF power	33 dBm@GSM, 24 dBm@WCDMA, 23 dBm@LTE, 20 dBm@ WiFi
	Bundled accessories specifications*
Power adapter	Input: 0.4 A@100-240 VAC, Output: 9 VDC, 1A, 4-pin plug
Mobile antenna	698~960 / 1710~2690 MHz, 50 Ω, VSWR<3, gain** 4 dBi, omnidirectional, SMA male connector
WiFi antenna	2400~2500 MHz, 50 Ω, VSWR<2.5, gain** 5 dBi, omnidirectional, RP-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.