

# Industrial DIN Rail Router® – Quick User Guide

## INTERFACES

- 1 – POWER (9-28V DC): 2-pin terminal block connector (for 12V/24V DC power adapter) – order option
- 2 – RS485 port: 2-pin terminal block connector (pinout from left-to-right: A, B)
- 3 – RS232 port / DIN (Digital Input): 4-pin terminal block connector, pinout left-to-right: GND, Tx, Rx (RS232) / GND, DIN (Digital Input)
- 4 – \*SIM card slot (2FF)
- 5 – Ethernet (RJ45, 10/100 Mbit)
- 6 – Reset button
- 7 – Antenna connector (SMA-M, 50 Ohm)
- 8 – 7pcs operation LEDs (on top plastic cover)
- 9 – DIN-Rail adapter (35mm standard)
- 10 – Fastening locker of DIN-Rail adapter

## CELLULAR MODULE TECHNICAL DATA

- Mini SIM card slot (2FF type, push/insert)
- Cellular modules (order options):
  - LTE Cat.4 / 3G / 2G module: SIMCom A7602A
  - LTE Cat.4 / 3G / 2G module: SIMCom A7608SA-H
  - LTE Cat.1 with 2G „fallback“ module: Quectel EG915N-EU
  - LTE Cat.1 / 3G / 2G module: Quectel EG91-EX
  - LTE Cat.M / Cat.NB module: Quectel BG95-M2
  - LTE Cat.M / Cat.NB with 2G „fallback“ module: Quectel BG95-M3
  - LTE Cat.M / Cat.NB / 450MHz module: Quectel BG95-M4
  - LTE Cat.M / Cat.NB / 450MHz with 2G „fallback“ module: Quectel BG95-M8

## POWER SUPPLY / OPERATION CONDITIONS

- Power connection: 12V DC, IA (9-28VDC), 2-pin power input connection (terminal block)
- Consumption: 200mA - 320mA 12VDC / from 2.4W to 3.84W @ 12VDC
- Operation: from -20°C to +70°C / Storage: from -40°C to +80°C at 0 to 95 relative humidity
- Dimensions: · 92.5 x 85 x 35 mm / Weight: 175gr. (without antenna, adapter)
- IP31 plastic modular casing, mountable to 35mm DIN-rail (built-in adapter)

## INSTALLATION STEPS

1. Ensure that the router is not under power voltage, therefore the power adapter cable is removed from the **DC** titled connector (1) – or the adapter is not connecting to the power network. Ensure, that all the operations LEDs (8) are blank.
2. The device's casing can be fixed to a 35mm DIN-rail using its built-in DIN-rail fastener. The mount / fastening can be performed by pulling out fastening lockers on two-sides of the product casing's bottom part. Then installing to the DIN rail and release of the lockers. The router will be securely fastened to the rail.
3. **Mount a proper LTE antenna** to the left **SMA connector** (6).
4. **Insert an activated SIM card** to the SIM slot (4) - the SIM chip surface should look to the center of the device. The bottom-side, cutted edge of the SIM should look down, closer to the router. Insert the SIM into the cutted rectangular hole of the product casing's top cover. Then push the SIM until it will be fastened (you will hear a soft click sound). (In case of necessary of SIM removal you have to power off the router and push down the SIM card a little bit, while it will be released and can be removed from the SIM holder).
5. Based on the needs, **connect** the related **cables** to the interface(s) of **RS232** (3) terminal block, **RS485** (2) terminal block, **DI (digital input)** (3) terminal block interfaces according to the interface titles. The wiring / connection should be performed by using the opposite side (green, terminal block pluggable) connectors.
6. **Connect an UTP cable** to the router's **Ethernet** (5 - RJ45 port). During the configuration it should be connected to the PC's Ethernet port. (After the configuration you can reconnect it to the port, according to the needs – e.g. for connecting external industrial device, etc.)
7. Connect the external devices or meters to the wired interfaces, whose data you want to receive.
8. **Connect 9-28V DC power source** (or use a 12V/24V DC adapter) to the 2-pin of the **DC connector** (1). Then the router begins its operation, where the LED lights will be signing and inform you about the current status of the device.
9. The **POWER** LED will be active by **green**, signing that the device is under DC power.
10. If a device is connected on Ethernet (RJ45) cable, the **ETHERNET** LED will be also lighting by **green** or flashing to indicate the network traffic.
11. The system start requires about 1-2 minutes, while the device loads the necessary modules and prepares the web configuration user interface. Then you can login on web or via SSHv2.
12. Later, if the **RS232**, the **RS485** or the digital input (**DI**) was connected and having data traffic, then the related LED(s) of the connection will also indicate it.
13. The network registration of the SIM by the cellular module is signed by **green** light of the **CELLULAR** LED – if proper settings were performed. This signs that the router can access the cellular network.

## SOFTWARE SYSTEM

The router comes with a pre-installed OpenWRT® system, which is tailored to the customer's requirements and includes the operating system, software, and a factory default configuration. The device uses a web user interface (LuCI®), and standard Linux-based and UCI commands at the command line. The router can also be managed with our state-of-the-art Device Manager® platform (order option), providing clients with the ability to perform OTA firmware updates and mass deployments more efficiently

## IMPORTANT!

Configure the device's wireless internet module settings (SIM and APN data on the router web interface) for the cellular internet connection – otherwise the router will be restarting in every 10 minutes.



The DHCP service is turned off by default. When enabled, the router assigns IP addresses to connected devices, while the available Ethernet interface addresses use **static** addresses. If you want to assign IP addresses by DHCP, change the protocol value to **DHCP client**. You can do this in **Network / DHCP and DNS settings** menu or in the **Network / Interfaces** menu, at the **LAN** interface, in the **DHCP** section.

## CONFIGURATION STEPS

1. To connect to the router, allow the device IP address for the Ethernet connector interface in your computer's network settings of the Microsoft Windows® system (IP address for Ethernet connection: **192.168.127.x**, Subnet mask: 255.255.255.0 – „x“: from 2 to 255).
2. Open the router's local website in an Internet browser on **LAN** (Ethernet) interface: <https://192.168.127.1>
3. Accept the security risk messages in the internet browser by choosing the **Advanced** option at the **Potential Security Risk**, then choose **Accept the Risk and Continue** option. Then the router's local web interface will be loaded and you can login. **Username: root Password: wmrpwd** Push to the **Login** button.
4. The list of the available network interfaces can be found at the **Network / Interface Overview** menu item. At the **WAN (Protocol: 4g-wan)** interface, at right modify the settings with the **EDIT** button. At the **General Settings** tab setup the module parameters.
  - Fill the **APN** name, then the **PIN** code (if SIM card using it).
  - **PAP/CHAP username** and **password** settings can be also configured here – if they are required for the connection.
5. Click to the **Save** button for saving the settings.
6. Then the device will attempt to connect to the mobile network, which is indicated by **CELLULAR** LED's **green** flashing. If the APN and SIM settings were correct, and APN connection succeeds, this LED will indicate successful network registration by **green** lighting. This shows that the router can already access the cellular network.



## OTHER IMPORTANT SETTINGS

- **Change the current login password of the router before connecting on public internet** – configure in **System / Administration** menu!
- Open the **Status / Overview** menu and check device status. **Network** connection and cellular network signal at **RSSI / SQ** values.
- Configure the Ethernet interface in the **Interfaces / Interface Overview** menu, at the **LAN** tab.
- Further network settings can be found in **Network / Interfaces** menu in the current interface settings at **Advanced Settings** tab.
- Configure the **DHCP, DNS services** in the **Network / DHCP and DNS** menu.
- Configure the **Ser2net settings (RS485 / Modbus)** according to the **User Manual** of the device.
- Also configure the Modbus data collection and PLC register readout in **Services / Data Collection** menu – according to the **User Manual**.
- Save your settings in the **System** menu, **Backup / Flash Firmware** item, then choose the **Backup / Restore**, **Download backup** part to push the **Generate Archive** button.
- You can refresh the firmware in the **System / Flash Firmware** menu, where choose the **Browse** and **Refresh Firmware** button. **Ask our sales about the latest firmware!**
- If you need **IPSec** or **VPN**, first you have to enable the required services in **Systems / Startup** menu, then configure it according to the **User Manual**.

## SSH ACCESS

The router can be also accessed via **SSH** connection also, when it is available on its IP address – use the **putty** terminal program for the connection.

- Connect to the **192.168.10.122** IP address (**Login: root, password: wmrpwd**)
- **Accept the security risk** (RSA token) encryption key usage warning notice (visible at first time only).
- Then the Linux command line will appear, where you can use standard UCLinux commands and execute scripts on the device.
- The router's operating system uses the embedded Micro uLinux kernel version 5.10 and interprets UCI Command line interface commands
- The UCI® (Unified Configuration Interface) is an OpenWrt® API / utility that allows centralized configuration and management of OpenWrt® system. To review the UCI commands and options that can be used, we recommend that you review the UCI guide in English, which can be downloaded from our website: [https://m2mserver.com/m2m-downloads/UCI\\_Command\\_Line\\_Reference\\_v3.pdf](https://m2mserver.com/m2m-downloads/UCI_Command_Line_Reference_v3.pdf)

## DOCUMENTATION & SUPPORT

User Manual and latest firmware: <https://m2mserver.com/en/product/industrial-din-rail-router/>

Read our support website for the further contact opportunities please: <https://www.m2mserver.com/en/support/>

In case of product support request, ask our support at the [lotsupport@wmsystems.hu](mailto:lotsupport@wmsystems.hu) email address.

This product is marked with the CE symbol according to the European regulations. The crossed out wheeled bin symbol means that the product at the end of its life cycle should be disposed of with general household waste within the European Union. Only discard electrical/electronic items in separate collection schemes, which cater for the recovery and recycling of materials contained within. This refers not only to the product, but also to all other accessories marked with the same symbol.

