

## RA70K - Keyed Remote Access Router

Quick Start Guide (V 7.0.0 Feb 25<sup>th</sup>, 2022)

RKH 210, RKH 216, and RKH 259 - from **HW05** and **FW 7.0.0**

LP1164C

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## 1 IMPORTANT! - Read This

This Quick Start Guide provides a quick overview of selected operating procedures and functions of the keyed industrial router (RKH210, RKH216, and RKH259) from hardware version **HW05\*** and firmware version from V 7.0.0.

However, the detailed manual with the important Notes and safety instructions can NOT be replaced by this document.

Read the following instructions carefully and keep them in a safe place. For the latest information, updates and the complete Manual, visit our website at [www.redlion.net](http://www.redlion.net).

The **SIMPLY.connect** function is only available for devices with the **Simplify<sup>3</sup>** logo \* 

\* see device nameplate

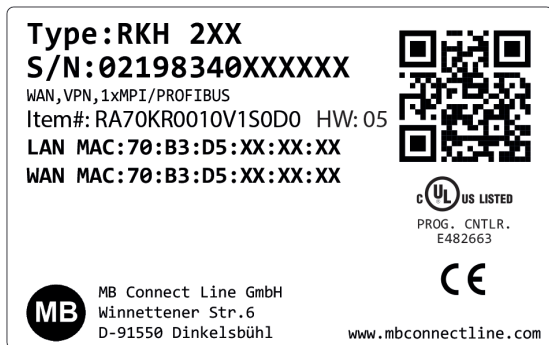


Figure 1: Device nameplate (representative picture)

## **2 Using Open Source Software**

### **2.1 General Information**

Our products contain, amongst others, open-source software that is provided by third parties and has been published for free public use. The open-source software is subject to special open-source software licenses and the copyright of third parties. Basically, each customer can use the open-source software freely in compliance with the licensing terms of the respective producers.

The rights of the customer to use the open-source software beyond the purpose of our products are regulated in detail by the respective concerned open-source software licenses. The customer may use the open-source software freely, as provided in the respective effective license, beyond the purpose that the open-source software has in our products. In case there is a contradiction between the licensing terms for one of our products and the respective open-source software license, the respective relevant open-source software license takes priority over our licensing terms, as far as the respective open-source software is concerned by this.

The use of the used open-source software is free of charge. We do not demand usage fees or any comparable fees for the use of the open-source software contained in our products. The use of the open-source software in our products by the customer is not part of any product pricing.

All open-source software programs contained in our products can be taken from the available list. The most important open-source software licenses are listed in the Licenses section at the end of this publication.

To the extent programs contained in our products are subject to the GNU General Public License (GPL), GNU Lesser General Public License (LGPL), the Berkeley Software Distribution (BSD), the Massachusetts Institute of Technology (MIT) or another open-source software license, which regulates that the source code must be made available, and if this software is not already delivered in source code on a data carrier with our product, we will send you such code at any time upon request. Our offer to send the source code upon request ceases automatically 3 years after delivery of our product to the customer.

Requests must be directed to the following address, if possible under specification of the serial number:

Red Lion Controls, Inc.  
20 Willow Springs Circle  
York, PA 17406

Tel: Inside US: +1 (877) 432-9908  
Outside US: +1 (717) 767-6511  
Website: [www.redlion.net](http://www.redlion.net)  
Support: [support.redlion.net](mailto:support.redlion.net)

## **2.2 Special Liability Regulations**

We do not assume any warranty or liability, if the open-source software programs contained in our product are used by the customer in a manner that does not comply any more with the purpose of the contract, which is the basis of the acquisition of our product. This concerns in particular any use of the open-source software programs outside of our product. The warranty and liability regulations that are provided by the respective effective open-source software license for the respective open-source software as listed in the following are effective for the use of the open-source software beyond the purpose of the contract. In particular, we are not liable, if the open-source software in our product or the complete software configuration in our product is changed. The warranty granted with the contract, which is the basis of the acquisition of our product, is only effective for the unchanged open-source software and the unchanged software configuration in our product.

### **Used Open-Source Software**

For a list of the open-source software used in this product see

<https://www.mbconnectline.com/downloads/open-source-software-licenses.txt>

### 3 Included In Delivery

Please check that your delivery is complete:



1 x **Keyed Router**  
Includes two keys (1 x. red, 1 x black)  
Fig. representative

#### All device types



1 x Quick Start Guide



1 x Device information card

If any of these parts are missing or damaged, please contact the following address:

Red Lion Controls, Inc.  
20 Willow Springs Circle  
York, PA 17406

Tel: Inside US: +1 (877) 432-9908  
Outside US: +1 (717) 767-6511  
Website: [www.redlion.net](http://www.redlion.net)  
Support: [support.redlion.net](http://support.redlion.net)

### Suitable accessories for ...

#### ... types with GSM modem



GSM antenna

#### ... all device types



Ethernet cable

You can find more accessories  
at [www.mbconnectline.com](http://www.mbconnectline.com)

## 4 Performance Characteristics

- On-board 2-level remote access key
  - Pos. REM: trigger remote access connection
  - Pos. ONL: alarms, dashboards & router administration
  - Pos. OFF: no connection with RLCONNECT24
- The router can be fully configured via the portal RLCONNECT24 or using the web interface via locally connected computer, or remotely.
- Deployable in North America / Europe / SAARC using GSM modem connections, plus access via LAN and Internet.
- Secure connection using an integrated firewall with IP filter, NAT and port forwarding, VPN with AES (256-, 192-, 128-Bit), Blowfish (128-Bit), 3DES (168-Bit), DES (56-Bit), and authentication via Pre-Shared-Key, X.509.
- Alarm management:
  - Fully configurable digital inputs and outputs, and the ability to send via email, SMS or Internet dial-up.
  - Via remote output switching in the event of a fault or with an active Internet connection.
- Integrated server secures all settings, keys and certificates and allows data sharing within the network via connected USB flash or hard drive.
- Variable RS232, RS485, RS422 RS interface.
- Upgradable to full IOT-Gateway capabilities (see *mbEDGE*).
- Multi-colored LEDs for clear state-signaling.

## 5 Safety Instructions



### NOTE:

#### **electrostatic discharge!**

Observe the necessary safety precautions when handling components that are vulnerable to electrostatic discharge (EN 61340-5-1 and IEC 61340-5-1)!

The keyed routers are maintenance-free units. If a keyed router has damage or malfunctions, the device must be immediately taken out of service and secured against inadvertent operation.

## Safety instructions - continued

- Only qualified specialist personnel may install, start up, and operate the router. The national safety and accident prevention regulations must be observed.
- The router is built to the latest technological standards and recognized safety standards (see Declaration of Conformity).
- The router is only intended for operation in the control cabinet and with SELV according to IEC 60950/EN 60950/VDE 0805.
- The router may only be connected to devices, which meet the requirements of EN 60950.
- The router is for indoor use only.
- Never open the router chassis. Unauthorized opening and improper repair can pose a danger to the user. Unauthorized modifications are not covered by the manufacturer's warranty.

**Opening up the device voids the warranty!**

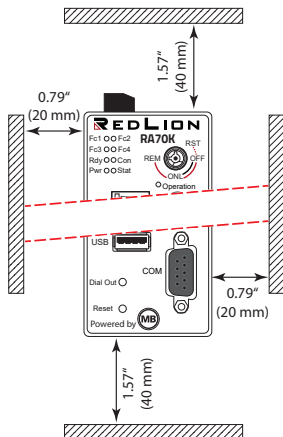
## 6 Router Installation

### 6.1 Installation position / minimum distances

The router is intended for mounting on DIN rails (according to DIN EN 50 022) and for installation in a control cabinet. Installation and mounting must be in accordance with VDE 0100 / IEC 364. The router may only be mounted in a vertical position as described.

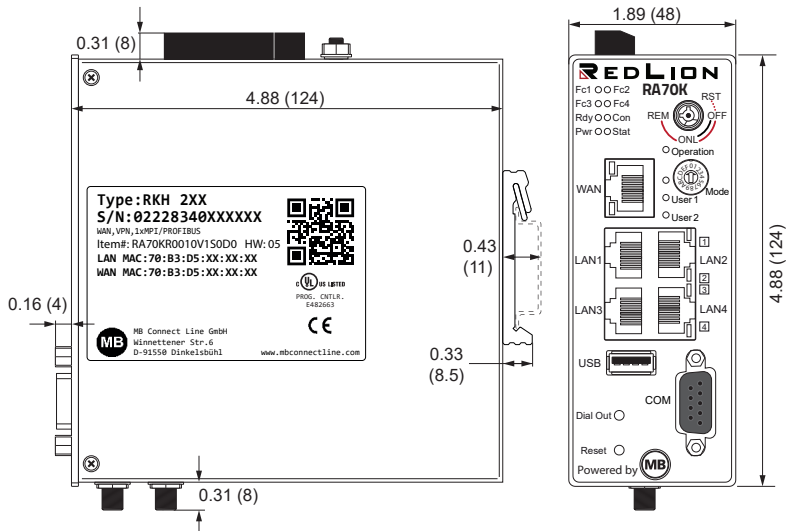
#### NOTICE

Non-compliance with the minimum distances can destroy the device at high ambient temperatures!

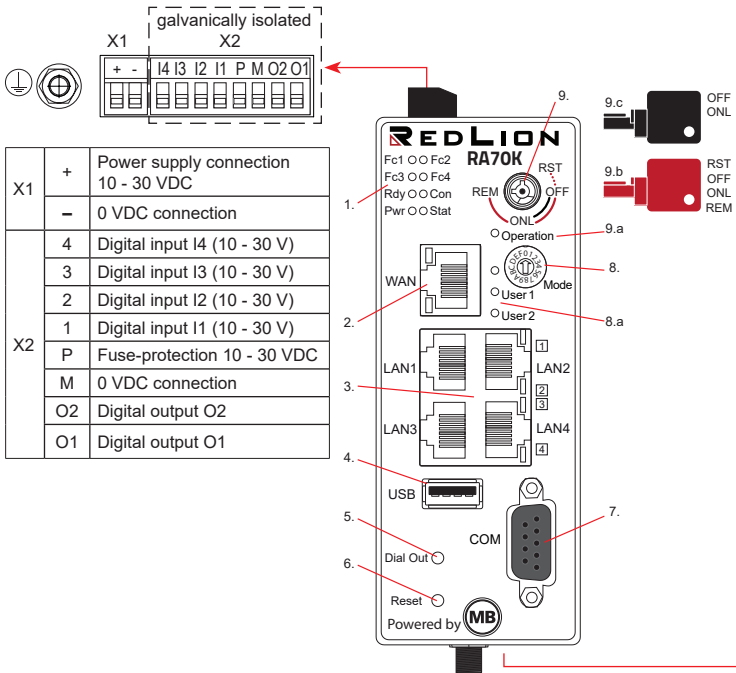




## 6.2 Device Dimensions in inches (mm)



## 7 Displays, Controls and Connections



1. Function / status LEDs
2. WAN interface
3. LAN interfaces 1 – 4
4. USB Host 2.0
5. Dial Out button
6. Reset button
7. Serial interface COM
8. Coding switch hexadecimal
- 8.a Function / status LEDs for coding switch
9. Key switch
- 9.a Function / status LEDs for key switch
- 9.b **Key (red) for switch positions OFF, ONL, RST\*, REM\*\***
- 9.c Key (black) for switch positions OFF, ONL

\* The switch position RST has just a tactile function.

\*\* In the switch position REM, the key can not be removed.

Model: RA70K-R4A00V-1S0D0\* / RA70K-R4A00V-1S0DA\*  
RA70K-R4E00V-1S0D0 / RA70K-R4E00V-1S0DA

\* Note: Cellular coverage for AT&T carrier only

	<table border="1"> <thead> <tr> <th>Type</th> <th>Equipment features</th> </tr> </thead> <tbody> <tr> <td>RKH 259</td> <td>           1 x SD card slot            2 x SIM card slot            2 x SMA connector for GSM antenna (MIMO)         </td> </tr> </tbody> </table>	Type	Equipment features	RKH 259	1 x SD card slot 2 x SIM card slot 2 x SMA connector for GSM antenna (MIMO)
Type	Equipment features				
RKH 259	1 x SD card slot 2 x SIM card slot 2 x SMA connector for GSM antenna (MIMO)				

Model: RA70K-R0010V-1S0D0 / RA70K-R0010V-1S0DA  
RA70C-R0000V-1S0D0 / RA70K-R0000V-1S0DA

	<table border="1"> <thead> <tr> <th>Type</th> <th>Equipment features</th> </tr> </thead> <tbody> <tr> <td>RKH 210 RKH 216</td> <td>1 x SD card slot</td> </tr> </tbody> </table>	Type	Equipment features	RKH 210 RKH 216	1 x SD card slot
Type	Equipment features				
RKH 210 RKH 216	1 x SD card slot				

## Function / status LEDs

LED	Colour	Status	Description
Fc1	green	flashes (5 Hz)	<b>SIMPLY.connect</b> * ready and <b>disabled</b> This function is only available if the device is set to its factory settings
		on	<b>SIMPLY.connect</b> * ready and <b>activated</b> Activation takes place by pressing the <b>Dial Out</b> button
Fc2	orange	flashes	(1 Hz) Data received at COM
	green	flashes	(1 Hz) Data transmission to COM
Fc3	orange	off	GSM devices: no reception
		flashes	(1 Hz) GSM devices: == 20% - 50%
	green	off	GSM devices: reception depending on Fc4
		lights up	GSM devices: (+ Fc4 green): 71% - 100%
Fc4	orange	off	GSM devices: no reception
		flashes	(1 Hz) GSM devices:(+Fc3 Orange) == 51% – 70%
	green	off	GSM devices: reception depending on Fc3
		on	GSM devices: (+Fc3 green) 71% – 100%
		flashes	During the activation phase of mbEDGE the LED Fc4 flashes (3 Hz fast) After completion of activation Fc4 flashes at a frequency of <b>1.5 Hz</b> (slow)

\***SIMPLY.connect** is a web application that helps you to set up a device in the Remote Service Portal **RLCONNECT24**.

To activate the function, press the **Dial Out** button until Fc1 lights up.

If you do not want to use **SIMPLY.connect**, simply ignore the flashing LED Fc1.

More information is available at: <https://www.redlion.net/remote-access-software>

LED	Colour	Status	Description
Rdy	orange	off	Waiting for bootloader or signature successfully checked
		on	Check signature, loads kernel
	green	off	Waiting for kernel
		flashes	(1 Hz) Loads rootFs
		on	Boot process completed - device is ready for use
Con	orange	off	No VPN connection started
		on	Internet connection established + VPN connection started
		flashes	Flashing frequency 1.5 Hz: VPN connection established
	green	off	No Internet connection
		flashes	Flashing frequency 3 Hz: Internet connection is being made
on	Internet connection is established		
Pwr	green	off	The power supply to the router is interrupted / the router is not connected to the power supply
		on	Power supply is connected to the terminal block and switched on
Stat	red	flashes	(1 Hz) Error in the error memory
		on	Found fault - The error type can be viewed on the WebGUI of the router under <b>System&gt; Info&gt; "Last error message"</b>
	green	on	In connection with the portal RLCONNECT24: User is connected to the device
Operation	red	on	For key position: <b>RST</b> and <b>REM</b>
	green	on	For key position: <b>OFF</b> and <b>ONL</b>
User 1	-	-	Currently without function
User 2	-	-	Currently without function

## Interfaces and buttons

Label	Status	Description
WAN	–	Router WAN port (customer network, DSL modem ...)
WAN-LED	LED green	lights = Network connection available
	LED orange	flashing = Network data transfer active
LAN 1 - 4	–	Local network ports (e.g. machine network)
LAN-LED 1- 4 (Dual LED)	LED green	lights = Network connection available
	LED orange	flashing = Network data transfer active
USB	–	Portable USB drive port
COM	–	COM port is for either connecting to devices with MPI interface or to devices with RS232 / RS485, RS422 interface This depends on your device type
Dial Out	–	Button for activating the SIMPLY.connect function (if the LED Fc1 flashes (5 Hz))
Reset	–	Pushing this button restarts the router (so-called cold start)


## Key switch

Switch position	Key color	Description
RST	red	Loading the factory settings
OFF	red / black	It is <b>not</b> possible to establish a VPN connection Modem devices can <b>not</b> connect to the Internet
ONL	red / black	It <b>can</b> establish a VPN connection. With modem devices an Internet connection <b>can</b> be established
REM	red	It <b>can</b> establish a VPN connection Including routing to the LAN side of the router With modem devices an Internet connection <b>can</b> be established

## 8 First Time Operation

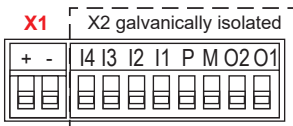
Connect, depending on device type, an antenna, and insert a SIM card.

Before connecting the router to a network or PC, first ensure that it is properly connected to a power supply, otherwise it may cause damage to other equipment.

- Connect equipotential bonding  to the grounding lug on the router's top panel.



- Connect the (10-30 VDC) power supply to the **X1** terminal of the router.



**Make sure that the polarity is correct.**

- After switching on the supply voltage the Pwr LED lights up and the device performs a system check.
- After about 90 sec., both LED Pwr and Rdy light up and Fc1 is flashing green (5 Hz).

The **Keyed Remote Access Router** is now ready for operation.

The flashing LED Fc1 signals that the function ***SIMPLY.connect*** \* is ready but not yet activated.

To activate the function, press the Dial Out button until Fc1 lights up.



If you do not want to use the function, simply ignore the flashing LED Fc1.

\****SIMPLY.connect*** is a web application that helps you to set up a device in the **Remote Service Portal *RLCONNECT24***.  
More information is available at: <https://www.redlion.net/remote-access-software>

## 9 Initial Configuration

### Requirements:

- You have a user account on the **Remote Service Portal *RLCONNECT24* V 2.x**

If you do not have a user account on ***RLCONNECT24***, please contact your system administrator or authorized sales partner.

For more information about ***RLCONNECT24*** see [www.redlion.net](http://www.redlion.net) in our Support Portal.

- Windows PC with remote client software ***RLDialUp*** \* installed .  
With ***RLDialUp*** you establish a secure VPN connection to ***RLCONNECT24***.

\* The latest version can be downloaded on [www.redlion.net](http://www.redlion.net)

### Generally following procedure applies:

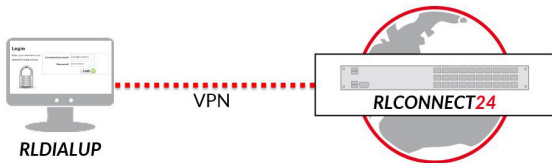
- Add the router in the portal ***RLCONNECT24*** as a new device.
- Enter the necessary basic data, so that the device can connect to the portal (for example, device name, network settings, connection information, etc.).
- Transfer the device configuration from the portal into the ***router***.
- After the ***router*** has been connected to the portal, it can be configured completely there.

For more information about configuring devices, see the ***Keyed Remote Access Router Manual*** (download at [www.redlion.net](http://www.redlion.net)) or in the ***RLCONNECT24*** online help.



## 9.1 Initial configuration via RSP RLCONNECT24 V 2.x

### 9.1.1 Login RLCONNECT24




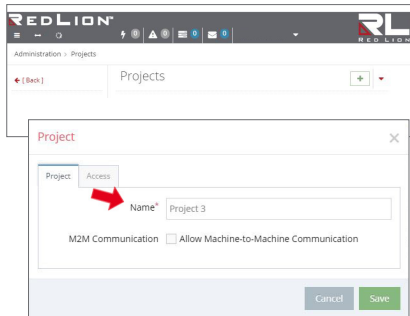
**ADVICE:** Upon first login, please change the default login information!

**Navigation:** Administration > Users

### 9.1.2 Creating a project

**Navigation:** Administration > Projects

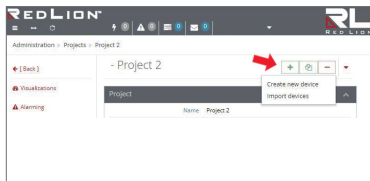
In the project overview, click the plus  and assign the next screen a Project **Name** (all other inputs / information can be made up later).



### 9.1.3 Create a device

**Navigation:** Administration > Projects > *Project 2 (selected project)*

In the selected project, click the plus  and select "Create new device".



For the basic configuration, you only need to select your "Device Type" and enter a unique device "Name".

You can create your own name for the Device.

The following are allowed:

Numbers: 0 to 9, A to Z, a to z (avoid blanks)

Letters: A to Z and a to z

Characters: Point, hyphens and underscores

Device

Device Description Contact Location Map Access

Use Template

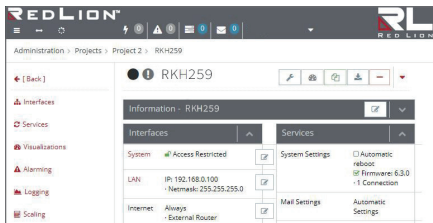
Device Type RKH259

Name

Save and show details Cancel Save

After saving your settings you will be automatically redirected to the device settings.

For the initial configuration here the "Interfaces" menu is relevant.







## 9.1.4 Configuring the device (connection data)

**Navigation:** Administration > Projects > *Project 2 (selected project)* > *New Device (selected device)*

Here the following menus are relevant for the initial configuration:

- **LAN** (all devices)  
*Make sure that the LAN IP and the WAN IP are in different address ranges.*
- **Internet** (all devices)  
*For the initial configuration in the “Connect to server on” selection field, only the “Key switch (ONL)” option is available. Only in this setting, the device automatically tries to establish a connection to the portal.*
- **WAN** (devices with WAN interface)  
*Make sure that the WAN IP and the LAN IP are in different address ranges.*
- **Modem** (devices with 4G modem)

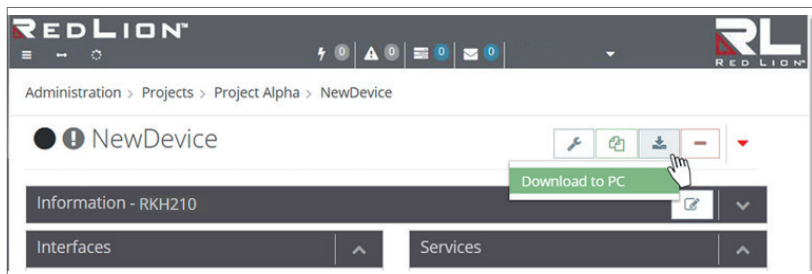
Interfaces		
LAN	IP: 192.168.0.100 · Netmask: 255.255.255.0	
Internet	Key switch (ONL) · External Router	
WAN	DHCP · DNS Server: 8.8.8.8	
Modem		


Click the edit icon  to edit the settings of the respective sub-menus.

## 9.1.5 Creating a configuration

**Navigation:** Administration > Projects > Project 2 (selected project) > NewDevice (selected device)

After entering all necessary data, you must transfer the configuration to the router. Therefore connect a USB stick to your configuration PC (the USB stick must have the file format FAT!).



Click the Sync icon  and select **Download to PC**.

The configuration file "mbconnect24.mbnx" can now be downloaded to the USB stick.

**IMPORTANT:** The downloaded configuration file "mbconnect24.mbnx" must not be renamed and must be in the root directory of the USB stick!

## 9.1.6 Transfer configuration to the Keyed Remote Access Router

When the router is ready to operate, insert the USB stick into the USB port of the device.

As soon as the **router** recognizes the configuration file, both LED **Fc1** + LED **Fc2** are **flashing**.

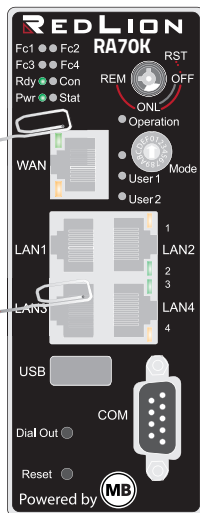
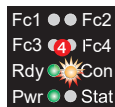
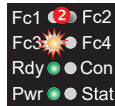
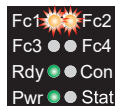
Now press and hold down the **Dial Out** button **1** until LED **Fc3** flashes **2**.

Release the **Dial Out** button **3**.

The settings from **RLCONNECT24** are now automatically copied to the **router** and the device reboots.

If the **router** is able to connect to the Internet (e.g. network, telephone cable, SIM card, antennae installed), the device will subsequently log in to your account.

This is displayed by the flashing LED **Con** **4**.



### NOTICE

The key switch must be in the ONL or REM position so that the **router** can connect to the portal.

If the flashing frequency of the LED **Con** is 3 Hz, the device is attempting to log into the portal. If the login has been successful, the flashing frequency is reduced to 1.5 Hz.

## 10 Access the Web Interface of the Keyed Router

On the web interface of the **router** a Status page and a Diagnostic page are available.

On the **Status** page, five steps with additional information are displayed, which must be run through when connecting the **router** to the portal.

The **Diagnostic** page helps you in case of a failed connection establishment in troubleshooting.

### Requirements:

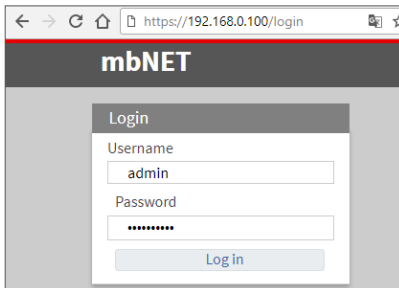
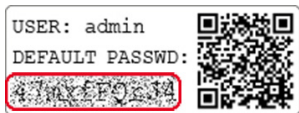
- The configuration PC and the **router** must be in the same IP address range. Depending on the LAN IP that you assigned to the device in the portal, you may need to assign the configuration PC to the same address range. If you assigned the **router** e.g. the LAN IP 192.168.2.200, you need the configuration PC to assign the same address range (192.168.2.X). This applies to both the IP address and subnet mask.
- The **router** must be accessible via the LAN interface of the configuration PC.

Start a browser and enter the LAN IP you have assigned in the portal to the **router**.

To log on to **router** enter the following data:

**Username:** admin





**Password:** The default password is located on the back of the device.



## 10.1 Quick Start

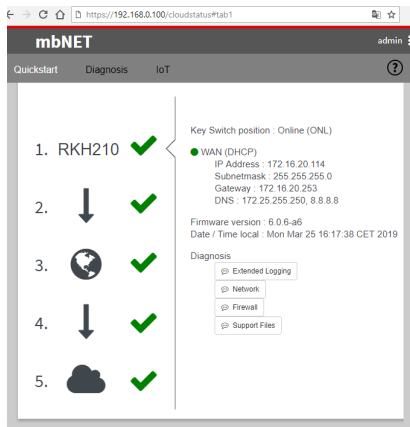
After a successful login you will see in the Quick Start menu the device state.

Here, five steps are displayed that are required so that the device can connect to the portal.

1. RKH210  = everything OK
2.   = processing
3.   = Error










Click on the icon to the right of each progress to get details / information about this step.

If all five steps have been completed successfully, the **router** is connected to the portal **RLCONNECT24**.



The screenshot shows the mbNET web interface. The browser address bar displays `https://192.168.0.100/cloudstatus#tab1`. The page title is "mbNET" and the user is logged in as "admin". The navigation menu includes "Quickstart", "Diagnosis", and "IoT".

The "Quickstart" section displays a list of five steps:

1. RKH210  = everything OK
2.   = processing
3.   = Error
4.   = processing
5.   = everything OK

The right-hand side of the interface shows the device status:

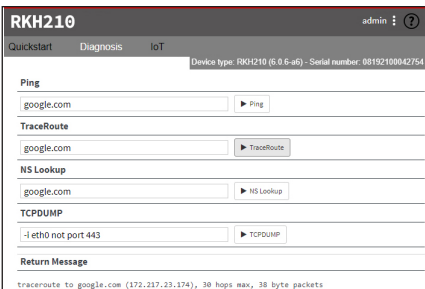
- Key Switch position : Online (ONL)
- WAN (DHCP)
  - IP Address : 172.16.20.114
  - Subnetmask : 255.255.255.0
  - Gateway : 172.16.20.253
  - DNS : 172.25.255.250, 8.8.8.8
- Firmware version : 6.0.6-a6
- Date / Time local : Mon Mar 25 16:17:38 CET 2019

The "Diagnosis" section is expanded, showing the following options:

- Extended Logging
- Network
- Firewall
- Support Files

## 10.2 Diagnostics

In case of a failed connection setup, the Diagnostic page provides support for troubleshooting.



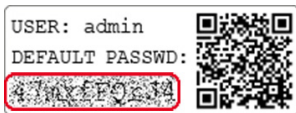
## 11 Factory Settings On Delivery

The **router** is delivered with the following factory settings:

<b>IP address</b>	192.168.0.100
<b>Subnet mask</b>	255.255.255.0
<b>Username</b>	admin
<b>Password</b>	The default password is located on the back of the device.

### ADVICE:

Upon first login, please change the default login information!



### NOTICE

Keep the device default password in a safe place.  
You need the default password during the initial configuration and after loading the factory settings.



## 12 Loading the Factory Settings

### *NOTICE*

Before you configure the device to its factory defaults, you should note the following:

- Save your configuration first. After restoring the factory defaults, all of your settings/ changes will be deleted.
- The IP address of the device is reset to the original IP address (192.168.0.100).
- You may also need to modify the network settings of the configuration PC accordingly.
- The device password is reset to its individual default password. The default password can be found on the back of the unit.
- No USB stick/USB storage medium should be connected to the device.
- For this action you need the red key for the key switch.

## Load the factory settings - continued

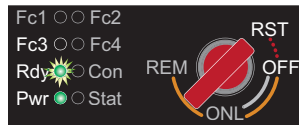
1. a) Switch on the router **or**  
b) if the router is ready for operation, press the Reset button.



2. When the LED **Rdy** flashes (green), turn the red key switch - with the red key - to the switch position **RST** and hold this key position.



3. When LED Fc3 is flashing (orange), release the key.



When both the **Pwr** and **Rdy** LEDs **light up**, the router is reset to its "factory settings at the time of delivery" and can/must be reconfigured.



## 13 Technical Data (extracts)

<b>Performance data</b>	
Voltage V (DC)	10 – 30 VDC (external Power Supply or other SELV Power Supply Source, rated 10 - 30 VDC, max. 40 A)
Power consumption	max. 500 mA @ 24 V
IP protection class	IP 30*
Area of application	Dry environments
Operating temperature	-40 – +75 °C
Storage temperature	-40 – +85 °C
Humidity	0 – 95% (non condensing)
Dimensions (max.)	48 mm x 137 mm x 140 mm (W x D x H)
Weight (max.)	650 g
Housing / material	metal
Mounting	DIN rail mounting (based on DIN EN 50022)

\* at full occupancy of all connections and interfaces  
Alternatively, unused interfaces can be covered with dust protection plugs.

<b>I/Os and standard interfaces</b>	
Digital inputs	4 pcs. digital inputs, 10 – 30 VDC (galv. isolated), (Low 0-3.2 VDC, High 8 - 30 VDC)
Digital outputs	2 pcs. digital outputs, 10 – 30 VDC (galvanically isolated), max. 1.5 A / output
LAN interfaces	4 pcs. 10/100 Mbit/s full and half duplex operation, autodetection patch cable / crossover cable
USB interface	USB Host 2.0
SD card slot	For SD cards (32.0 mm x 24.0 mm x 2.1 mm) max. 64 GB; Format FAT / FAT32.

<b>VPN</b>	
VPN protocol	IPsec/PPTP/OpenVPN, 64 Tunnel
Encryption method	AES (256-, 192-, 128-Bit), Blowfish (128-Bit), 3DES (168-Bit), DES (56-Bit)
Hash algorithms	SHA-2 (SHA-256, SHA-512), SHA-1, MD5
Authentication	Pre-Shared-Key, X.509

<b>Network/security</b>	
Firewall	1:1 NAT, IP-Filter, Port forwarding, stateful inspection
IP router	NAT-IP, TCP/IP routing, IP forwarding
Services	DHCP server, DHCP client, DNS server, NTP client, PPP server, DynDNS
Time levelling	NTP server

<b>Optional Interfaces</b>	
COM	RS-232/485 (software-switchable) (RKH 210)
SIM card slots	2 pieces SIM card reader with ejector (for mini-SIM)

### **SIMPLIFIED EU DECLARATION OF CONFORMITY**

Red Lion declares that the radio equipment type RKH 259 EU (RA70K-R4E00V-1S0D0 and RA70K-R4E00V-1S0DA) is manufactured in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at [www.redlion.net](http://www.redlion.net)

### **NOTICE**

Device type RKH 259 AT&T bears no CE marking and may not be used or put into operation in the European economic area (EEA)!

## Communication

Devices with <b>LTE (4G)</b> module - <b>AT&amp;T</b> (RKH 259 AT&T) from hardware version <b>from HW 05</b>	
Target region	North America (Public safety, AT&T, FirstNet, T-Mobile, Canada)
HSxPA	1900 PCS (B2), AWS (B4), 850 (B5) MHz; Downlink max. 42 Mbps
LTE	700 Lower (B12), 700 PS (B14), AWS (B4), 1900 PCS (B2), 850 (B5), 700 Upper (B13), AWS-3 (B66), 600 (B71) MHz; Downlink max. 150 Mbps, Uplink max. 50 Mbps
RF parameters	
<b>Output power</b> - typical values for max output level > 2G: LB 33 dBm; HB: 30 dBm > 3G/TD-SCDMA: 24dBm > 4G (FDD & TDD): 23dBm @1RB	<b>Sensitivity</b> - typical sensitivity levels > -108 dBm @ 2G > -113.5 dBm @ 3G > -103 dBm @ 4G FDD (BW=5 MHz)
TAC	35034498; 35432809; 35604311
FCC	Contains FCC ID: R17LE910CxNF

Devices with <b>LTE (4G)</b> modem - <b>EU</b> (RKH 259 EU), from hardware version <b>HW 05</b>	
Target region	EMEA
GSM/GPRS/EDGE	900 (B8), 1800 (B3) MHz; max. 236 kbps
HSxPA	900 (B8), 1800 (B3), 2100 (B1) MHz; Downlink max. 42 Mbps, Uplink max. 5.76 Mbps
LTE	800 (B20), 900 (B8), 1800 (B3), 2100 (B1), 2600 (B7), 700 (B28A) MHz; Downlink max. 150 Mbps, Uplink max. 50 Mbps
<b>Output power</b> (typical) 2G: LB: 33 dBm; HB: 30 dBm 3G/TD-SCDMA: 24dBm 4G (FDD & TDD): 23dBm @1RB	<b>Sensitivity</b> (typical) -108 dBm @ 2G -113.5 dBm @ 3G -103 dBm @ 4G FDD (BW=5 MHz)
TAC	35162610

## 14 Technical Support

For technical support (FAQ, troubleshooting, most recent information, etc.) see our website [www.redlion.net](http://www.redlion.net).

For support enquiries, always give the serial number of your router.

Support: [support.redlion.net](mailto:support.redlion.net)

Tel: Inside US: +1 (877) 432-9908 | Outside US: +1 (717) 767-6511

## 15 Disposal

In the interests of environmental protection, final holders must collect old devices separately from unsorted municipal waste at the end of their service life.

Old batteries and accumulators that are not enclosed by the old device, as well as lamps that can be removed from the old device without destroying them, must be separated from the old device in a non-destructive manner before they are handed over to a collection point.

The final holder is responsible for deleting personal data on the old devices to be disposed of.

Do not dispose of old devices into household waste!



Only for EU countries:

Dispose of the device in accordance with the Waste Electrical and Electronic Equipment Directive 2012/19/EU - WEEE.



[www.redlion.net](http://www.redlion.net)

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