



CE CA



MDH 811, MDH 816, MDH 831, MDH 835, MDH 841, MDH 850 EU, MDH 850 US, MDH 855 EU, MDH 855 US, MDH 859 EU, MDH 859 US, MDH 871, MDH 876

# **RA70S - Remote Access Router**

**Quick Start Guide** (V 8.0.0 Jan 9<sup>th</sup>, 2024) from **HW 06** and **FW 8.0.0** 

LP1163E

# Contents

1	IMPORTANT! - Read This	3
2	Using Open Source Software	4
	2.1 General Information	4
	2.2 Special Liability Regulations	5
3	Included In Delivery	6
4	Performance Characteristics	7
5	Safety Instructions	7
6	Router Installation	9
	6.1 Installation position / minimum distances	9
	6.2 Device Dimensions in inches (mm)	. 10
7	Displays, Controls and Connections	. 11
8	First Time Operation	. 17
9	Initial Configuration	. 19
	9.1 Initial configuration via RLConnect24	. 20
	9.1.1 Login <i>RLConnect24</i>	. 20
	9.1.2 Creating a project	. 20
	9.1.3 Create a device	. 20
	9.1.4 Transfer configuration to the Remote Access Router	. 22
10	Access the Web Interface of the Remote Access Router	. 23
	10.1 Quick Start	. 24
	10.2 Diagnostics	. 25
11	Factory Settings On Delivery	. 25
12	Loading The Factory Settings	. 26
13	Technical Data (extracts)	. 27
14	Technical Support	. 30
15	Disposal	. 30

# 1 IMPORTANT! - Read This

This Quick Start Guide provides a quick overview of selected operating procedures and functions of the Remote Access Router **RA70S** (*mbNET*) from hardware version **HW 06**\*.

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**.

#### VALIDITY The document is valid for Remote Access Routers RA70SR0W02V1S0D6 - Also referred to in this guide as MDH 811 RA70SR0000V0S0D6 - Also referred to in this guide as MDH 816 RA70SR0W11V1S0D6 - Also referred to in this guide as MDH 831 RA70SR0011R0S0D6 - Also referred to in this guide as MDH 835 RA70SR0W00V0S0D6 - Also referred to in this guide as MDH 841 RA70SR4A02V1S0D6 - Also referred to in this guide as MDH 850 US RA70SR4E02V1S0D6 - Also referred to in this guide as MDH 850 EU RA70SR4A11V1S0D6 - Also referred to in this guide as MDH 855 US RA70SR4E10V1S0D6 - Also referred to in this guide as MDH 855 EU RA70SR4A00V1S0D6 - Also referred to in this guide as MDH 859 US RA70SR4E00V1S0D6 - Also referred to in this guide as MDH 859 EU RA70SR0002V1S0D6 - Also referred to in this guide as MDH 871 RA70SR0011V1S0D6 - Also referred to in this guide as MDH 876 from firmware version V 8.0.0 and from hardware version HW 06\* The SIMPLY.connect function is only available for devices with the Simplify<sup>3</sup> logo

\* see device rating plate

# 2 Using Open Source Software

The Software provided may contain programming, scripts, tools, modules, libraries, components, or other items that were developed using "open-source code" (the "Open-Source Software"). Open-Source Software is provided to you under one or more open-source license agreements that contain important information concerning ownership, terms of use, and rights, and restrictions for the applicable element of the Open-Source Software. By obtaining, accessing, downloading and/or using Software or the Open-Source Software, you agree that you have read, and understood, and will comply with, the terms and conditions of the applicable Open-Source Licenses in addition to all other the terms applicable to Software under this Agreement.

For a list of Open-Source Licensees used in the Software, please visit https://mbconnectline.com/ download-portal/ https://bit.lv/44XU4wZ

Should a license be unavailable through the portal for any reason, requests can be directed to the following address:

Corporate Headquarters	Tel: Inside US: +1 (877) 432-9908
Red Lion Controls, Inc.	Outside US: +1 (717) 767-6511
1750 5th Avenue	Website: www.redlion.net
York, PA 17403	Support: support.redlion.net

## 3 Included In Delivery

Please check that your delivery is complete:



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

Red Lion Controls, Inc. 35 Willow Springs Circle York, PA 17406 Tel: Inside US: +1 (877) 432-9908 Outside US: +1 (717) 767-6511 Website: www.redlion.net | Support: support.redlion.net

This page intentionally left blank.

# 4 Performance Characteristics

- The router can be fully configured via the portal *RLConnect24* or using the web interface via locally connected computer, or remotely.
- Secure connection using an integrated firewall with IP filter, NAT and port forwarding, VPN with AES (256 Bit, 192 Bit, 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 eMMC storage.
- Variable RS232, RS485, RS422 RS interface for connecting control systems.
- Upgradable to full IOT-Gateway capabilities via an Edge IIoT license.

## 5 Safety Instructions

 Only qualified specialist personnel may install, start up, and operate the router. The national safety and accident prevention regulations must be observed.

Seul un personnel spécialisé qualifié peut installer, démarrer et utiliser le routeur. Les réglementations nationales en matière de sécurité et de prévention des accidents doivent être respectées.

• The router is built to the latest technological standards and recognized safety standards (see Declaration of Conformity).

Le routeur est construit selon les dernières normes technologiques et les normes de sécurité reconnues (voir Déclaration de conformité).

 The router is only intended for operation in the control cabinet and with SELV according to DIN EN IEC 62368-1 (VDE 0868-1).

Le routeur est uniquement destiné à fonctionner dans une armoire électrique et avec SELV selon DIN EN IEC 62368-1 / VDE 0868-1:2021-05.

• The router may only be connected to devices, which meet the requirements of DIN EN IEC 62368-1 (VDE 0868-1).

Le routeur ne peut être connecté qu'à des appareils répondant aux exigences de la norme EN 62368-1 / VDE 0868.

#### Safety instructions - continued

• The router is for indoor use only.

Le routeur est destiné à une utilisation en intérieur uniquement.

 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.

N'ouvrez jamais le châssis du routeur. Une ouverture non autorisée et une réparation inappropriée peuvent présenter un danger pour l'utilisateur. Les modifications non autorisées ne sont pas couvertes par la garantie du fabricant.



#### 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)!

#### ATTENTION : décharge électrostatique! Respectez les précautions de sécurité nécessaires lors de la manipulation de composants sensibles aux décharges électrostatiques (EN 61340-5-1 et CEI 61340-5-1)!

The Remote Access Routers are maintenancefree units. If a router has damage or malfunctions, the device must be immediately taken out of service and secured against inadvertent operation.

Les routeurs d'accès à distance sont des unités sans entretien. Si un routeur présente des dommages ou des dysfonctionnements, l'appareil doit être immédiatement mis hors service et sécurisé contre toute utilisation involontaire.

# 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 60364. The router may only be mounted in a vertical position as described.

Le routeur est destiné au montage sur rails DIN (selon DIN EN 50 022) et à l'installation dans une armoire électrique. L'installation et le montage doivent être conformes à la norme VDE 0100 / CEI 364. Le routeur ne peut être monté qu'en position verticale comme décrit.

## NOTICE / AVIS

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

Le non-respect des distances minimales peut détruire l'appareil en cas de températures ambiantes élevées!



## 6.2 Device Dimensions in inches (mm)



# 7 Displays, Controls and Connections



X1	+	Power supply connection 10 - 30 V DC
	-	0 V DC connection
	4	Digital input I4 (10 - 30 V)
	3	Digital input I3 (10 - 30 V)
	2	Digital input I2 (10 - 30 V)
	1	Digital input I1 (10 - 30 V)
X2	Р	Fuse-protection 10 -30 V DC
	М	0 V DC connection
	02	Digital output O2
	01	Digital output O1

- 1. Function / status LEDs
- 2. WAN interface
- 3. USB Host 2.0
- 4. FCT (Function) button
- 5. SIM card slot (4FF/Nano SIM)
- 6. Reset button
- 7. Serial interface COM2
- 8. LAN interfaces 1 4
- 9. Serial interface COM1





RA70SR0002V1S0D6 (MDH 870); RA70SR0011V1S0D6 (MDH 876)

## Function / status LEDs

LED	Colour	Status	Description	
Fc1	orange	flashes	(1 Hz) Data received at COM1	
	green	flashes	(1 Hz) Data transmission to COM1	
		flashes ( <b>5 Hz</b> )	SIMPLY.connect * ready and disabled This function is only available if the device is set to its factory settings	
		on	SIMPLY.connect * ready and activated Activation takes place by pressing the FCT button	
Fc2	orange	flashes	(1 Hz) Data received at COM2	
	green	flashes	(1 Hz) Data transmission to COM2	
Fc3	orange	off	GSM devices: no reception	
	flashes (1 Hz) GSM devices: == 20% - 50%		( <b>1 Hz</b> ) 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 device: (+Fc3 orange) ==		( <b>1 Hz</b> ) GSM device: (+Fc3 orange) == 51% – 70%	
	off GSM device: reception depending on Fc3		GSM device: reception depending on Fc3	
		on	GSM device: (+Fc3 green) == 71% – 100%	
	green	n flashes	During the activation phase of the "Edge IIoT license" the LED Fc4 flashes (3 Hz fast)	
			After completion of activation Fc4 flashes at a frequency of 1.5 Hz (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 FCT 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		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 The device is ready for use	
Con	orange	on	Internet connection established + VPN connection started	
flashes (1.5 Hz) VPN connection is established		(1.5 Hz) VPN connection is established		
	green	green off No Internet connection		
flashes (3 Hz) Internet connection is being made		(3 Hz) Internet connection is being made		
on Internet connection is established		Internet connection is established		
Pwr	Pwr         green         off         The power supply to the router is interrupted / the router is not of to the power supply		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 swit		Power supply is connected to the terminal block and switched on		
Stat	Stat red flashes (1 Hz) Error in the error memory		(1 Hz) Error in the error memory	
Green     on     Found fault The error type can be viewed on the WebGUI of the router u System> Info> "Last error message"       green     on     In connection with the portal <i>RLConnect24</i> : User is connected to the device		Found fault The error type can be viewed on the WebGUI of the router under System> Info> "Last error message"		
		In connection with the portal <i>RLConnect24</i> : User is connected to the device		

## Interfaces and buttons

Label	Status	Description
WAN –		Router WAN port (customer network, DSL modem)
WANLED	LED green lights	Network connection available
WAN-LED	LED flashing orange	Network data transfer active
LAN 1 - 4	-	Local network ports (e.g. machine network)
	LED green lights	Network connection available
LAN-LED 1-4	LED flashing orange	Network data transfer active
USB	-	Portable USB drive port
COM1	-	COM1 port for connecting to devices with RS232 / RS485, RS422 interface
COM2 – COM2 port is for either connecting to devices with M to devices with RS232 / RS485, RS422 interface This depends on your device type		COM2 port is for either connecting to devices with MPI interface or to devices with RS232 / RS485, RS422 interface This depends on your device type
FCT a) establishes an Inter (Function) b) activates the SIMF is flashing (5 Hz)		This button a) establishes an Internet or VPN connection <b>or</b> b) activates the <i>SIMPLY.connect</i> function, when LED Fc1 is flashing (5 Hz)
Reset – Pushing this button restarts the router (so-called cold st		Pushing this button restarts the router (so-called cold start)

This page intentionally left blank.

# 8 First Time Operation

For routers with cellular or Wi-Fi modems, connect an antenna to and insert a SIM card.

## **CAUTION / ATTENTION**

Router must be properly connected to a power supply before connecting the router to a network or PC. Otherwise, it may cause damage to other equipment.

Le routeur doit être correctement raccordé à une source d'alimentation avant d'être connecté à un réseau ou à un PC. Dans le cas contraire, il risque d'endommager d'autres équipements.

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



2. Connect the 10-30 VDC power supply to the X1 terminal of the router.

## NOTICE / AVIS

Ensure that that polarity is correct.

Veillez à ce que la polarité soit correcte.

- 3. Turn on the supply voltage and ensure the Pwr LED lights up and the device performs a system check.
- After 90 seconds, both Pwr and Rdy LEDs will light up and Fc1 LED will flash green (5 Hz).



The router is now ready to be connected to the internet.

First time operation - continued

- 1. Connect an Ethernet cable to the WAN port.
- 2. The flashing green Con LED indicates the router is attempting to connect to the internet.

## NOTICE

The WAN port is configured as a DHCP client by default. When a DHCP server is present, the WAN port will obtain its IP address from the server. When a DHCP server is not present, the WAN port must be statically assigned.

# 9 Initial Configuration

#### Requirements

- A user account on the Remote Service Portal (RSP) *RLConnect24*. If your organization does not have a *RLConnect24* Customer Account, you can register for your account at https://rsp. redlion.net. If you do not have a user account on your organization's *RLConnect24* portal, contact your system administrator.
- A Windows PC with remote client software *RLAccess* installed.*RLAccess* offers the ability to create a VPN connection into a remote site sitting behind a router. The latest version of *RLAccess* can be downloaded at www.redlion.net/portfolio/secure-remote-accessplatform.

#### **Procedure Overview**

- 1. Open a web browser and log into the portal at https://rsp.redlion.net.
- 2. Create the router configuration file.
- 3. Transfer the router configuration from the portal to the router.
- 4. Connect the router to the portal and configure the remaining configuration parameters from the portal.

## 9.1 Initial configuration via RLConnect24

## 9.1.1 Login RLConnect24

Open a web browser and log into the portal at https://rsp.redlion.net.



9.1.2 Creating a project

On the *RLConnect*<sup>24</sup> home page, navigate to the Administration tab. Select the Projects section.

In the Projects overview section, select Create new project, and assign the project a name. Click the Save button.

## 9.1.3 Create a device

Navigate to the Administration tab. Select the Projects section.

In the Projects overview section, select the name of the project you would like to modify.

On the selected project's page, click the + icon and select Create new device from the dropdown menu.



In the Device tab, select your Device Type from the dropdown menu, and enter a unique device Name in the field. Click the Next button.

#### NOTICE

The Device Type can be found on the label of the router.

On the device's page in the Interfaces section, define the following categories by selecting the Edit icon. When configurations are satisfied, click the Next button.

WAN	IP and Netmask addresses for how the router connects to the internet.
Internet External Router for wired connections.	
Modem	Cellular capable routers.
Wi-Fi	Wi-Fi capable routers.

Click the red Download icon to download the device configuration file.

Download the configuration file to a USB drive. The USB drive must be formatted to FAT32.

NOTICE	<b>~</b>		3
The downloaded configuration file "mbconnect24.mbn" must not be renamed and must be in the root directory of the USB stick.	Device	Internet	Configuration
WARNING			
The configuration file contains sensitive information that should be deleted after use.	Download the devi Once downloa As soon as the LEDs Fc'	ce configuration file by clicking o aded, put it on a USB drive and p 1 + Fc2 start flashing, press the D starts blinking.	n the download icon above. Jug ic into your device. Iai Out button until the Fc3 LED

#### 9.1.4 Transfer configuration to the Remote Access Router

## NOTICE

You have 10 seconds after the router recognizes the USB drive to press the FCT button on the router. If you miss this window, disconnect the USB drive from the router, power cycle the router, and try again.

When the LEDs Fc1 and Fc2 start flashing on the router, press the FCT button until the Fc3 LED starts blinking. Release the FCT button.

When the router connects to the portal, the Con LED will blink yellow.

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

More information is available at www.redlion.net/portfolio/secure-remote-access-platform.



## 10 Access the Web Interface of the Remote Access 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 the *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.



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*.

MDH855 ×	Θ – □ ×
← → C ☆ D https://192.168.0.100/ck	pudstatus#tab1 🛚 🗟 🛧 🚦
mbNET	admin 🛔
Quickstart Diagnosis	?
1. MDH855 ✔ < 2. ↓ ✔ 3. ⓒ ✔	Modem : Change SIM Stot         Network registration :         SiM :         Active BM socket : SIM 1         Met : 339552053660966         Modem Legging      WAN (DHCP)         IP Address : 172.16.20.179         Subcentuk: 55.5525.50         Gatemay : 172.16.20.23         DHS : 172.25.525.20         Gatemay : 172.16.20.37      Subcentuk: 55.5525.50      Gatemay : 172.16.20.37      Subcentuk: 55.5525.50      Gatemay : 172.16.20.37      Subcentuk: 55.5525.50      Gatemay : 172.16.20.37      House the society of the soc
4. 🗼 ✔ 5. 🏔 ✔	Firmware version: 6.0.0-c66 Date/Time local: Thu Feb 15 08:5432 UTC 2018 Diagnose Districted Logns Districted Logns Pitetock Pireval

## 10.2 Diagnostics

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

MDH816	admin 🔅 🕐
Quickstart Diagnosis Device type: MDH816(6.0.3) - Serialnur	nber: 13188310034248 - Signal Quality: 🚺 🚺 (-67 dBm)
Ping	
google.com	▶ Ping
TraceRoute	
google.com	► TraceRoute
NS Lookup	
google.com	NS Lookup
TCPDUMP	
-i eth0 not port 443	► TCPDUMP
Return Message	

traceroute to google.com (172.217.23.174), 30 hops max, 38 byte packets

## 11 Factory Settings On Delivery

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

**IP address** 192.168.0.100

Subnet mask 255.255.255.0

Username admin

Password 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/storage medium should be connected to the device.

#### Execution:

- 1. Switch on the router or press the **Reset** button.
- 2. Wait until the LED Rdy flashes green.
- 3. Press and hold the FCT button until LED Fc4 is lit.
- 4. Press the FCT button again => LED Fc3 lights up.
- 5. Repeat step 4. => LED FC2 lights up.
- Press the FCT => button one last time, after approximately 10 20 sec. LED Fc3 flashes.

When both the Pwr and Rdy LEDs light up and the Fc1 LED flashes\* (5Hz), the router is reset to its "factory settings at the time of delivery" and can/must be reconfigured.

\* only for devices with SIMPLY.connect function.

## 13 Technical Data (extracts)

Performance data		
Voltage V (DC)	10-30 V DC (external Power Supply or other SELV Power Supply Source, rated 10-30 V DC, 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)	

\* At full occupancy of all connections and interfaces.

Alternatively, unused interfaces can be covered with dust protection plugs.

I/Os and standa	I/Os and standard interfaces		
Digital inputs	4 pcs. digital inputs, 10 – 30 V DC (galvanically isolated), (Low 0 - 3.2 V DC, High 8 - 30 V DC)		
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		
eMMC storage	8 GB		

#### Communication

Devices with LTE (4G) modem - EU (MDH 850 EU, MDH 855 EU, MDH 859 EU), from hardware version HW 06				
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			
RF parameters				
Output power (typical) 2G: LB: 33 dBm; HB: 30 dBm 3G/TD-SCDMA: 24 dBm 4G (FDD & TDD): 23 dBm @1RB		Sensivity (typical) -108 dBm @ 2G -113.5 dBm @ 3G -103 dBm @ 4G FDD (BW=5 MHz)		
TAC	35162610			

Devices with Wi-Fi module (MDH 811, MDH 831, MDH 841) from hardware version: HW 06			
Wi-Fi	IEEE 802.11b/g/n		
Frequency bands	2.4 GHz, channel 1 - 13* (2.412 GHz - 2.472*)		
Channel bandwidth	20 MHz		
Data rates	802.11b: 1, 2, 5.5 and 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps 802.11n: MCS0-MCS7 (max 72.2Mbps)		
Hardware supported Encryptions/Decryption	AES/CCMP, AES/CMAC, WAPI, WEP/TKIP		
Max. output power	19 dBm EIRP**		
Max. sensitivity	-97 dBm EIRP**		
FCC	FCC ID: XPYLILYW1 IC: 8595A-LILYW1		
IC	IC: 8595A-LILYW1		

Devices with LTE (4G) module - US (MDH 850 US, MDH 855 US, MDH 859 US) from hardware version HW 06				
Target region	North America Cellular Carriers			
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				
Output power - 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: RI7LE910CxNF			

#### NOTICE

Device types MDH 850 US, MDH 855 US, and MDH 859 US bear no CE marking and may not be used or put into operation in the European economic area (EEA)!

#### SIMPLIFIED EU DECLARATION OF CONFORMITY

Red Lion declares that the radio equipment type MDH 811; MDH 831; MDH 841; MDH 850 EU; MDH 855 EU; MDH 859 EU is manufactured in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at www.redlion.net.

#### SIMPLIFIED UKCA DECLARATION OF CONFORMITY

Hereby, Red Lion declares that the equipment type MDH 811; MDH 831; MDH 841; MDH 850 EU; MDH 855 EU; MDH 859 EU is in compliance with the relevant statutory requirements. The full text of the declaration of conformity is available at the following internet address: www.redlion.net.

# 14 Technical Support

For technical support (FAQ, troubleshooting, most recent information, etc.) see our website www.redlion.net.

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

```
Support: 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.

Red Lion Europe offers the possibility of returning and disposing of old devices. Details can be found at www.mbconnectline.com/disposal.

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.





© 2024 Red Lion Controls, Inc. All Rights Reserved. The terms Red Lion and the Red Lion logo are registered trademarks of Red Lion Controls. All other marks are the property of their respective owners.