



RA50C - Compact Remote Access Router

Quick Start Guide (V 2.3.1 Aug 8th, 2023)

MDH 860, MDH 862 EU, MDH 862 AT&T, MDH 863, MDH 866 EU, MDH 866 AT&T, MDH 867 from hardware version **HW 02** with firmware from **V 2.2.11**

LP1165D

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1 IMPORTANT! - Read This

This Quick Start Guide provides a quick overview of selected operating procedures and functions of the Remote Access Router RA50C (MDH 860, MDH 862, MDH 863, MDH 866, MDH 867) from firmware version **V 2.2.11** and from hardware version **HW02***.

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* RA50CR0000R000D0 - Also referred to in this guide as MDH 860. RA50CR4A00R000D0 - Also referred to in this guide as MDH 862 AT&T. RA50CR4E00R10D0 - Also referred to in this guide as MDH 862 EU. RA50CR4000R10D0 - Also referred to in this guide as MDH 863. RA50CR4A00R20SD0 - Also referred to in this guide as MDH 866 AT&T. RA50CR4E00R00D0D - Also referred to in this guide as MDH 866 EU. RA50CR4E00R000D0 - Also referred to in this guide as MDH 866 EU. RA50CR0W00R00D0 - Also referred to in this guide as MDH 867. from firmware version V 2.2.11 and from hardware version HW02* The SIMPLY.connect function is only available for devices with the Simplifv³ logo ³

* see device rating plate

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. 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

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.

2.3 Used Open-Source Software

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

https://mbconnectline.com/download-portal/

https://bit.ly/44XU4wZ

3 Included In Delivery

Please check that your delivery is complete:



1 x *Router* (Fig. representative)

All device types

	Your individual device i
	Keep this information
€ S CES S	Device Info Type ritin fax 50% 0336460000 Passer4 AS 040000 We were in 100 00000000000000000000000000000000
RASSC - Compact Remote Access Router Guide Start Guide (1233.4	Building Contraction
1 x Quick Start Guide	1 x Device ir

1	х	Device	information	card
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n a safe place

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

Suitable accessories for ...



You can find more accessories at www.mbconnectline.com

4 Safety Instructions

- Only qualified specialist personnel may install, Opening start up, and operate the router. The national warranty! 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!



NOTE: electrostatic discharge! Observe the necessary safety precautions when handling

to electrostatic discharge (EN 61340-5-1 and

IEC 61340-5-1)!

The compact routers are maintenance-free units.

If a compact router has damage or malfunctions, the device must be immediately taken out of service and secured against inadvertent operation.

The complete manual of the router as well as the conformity declaration can be found in the download area on our website www.redlion.net

5 Maintenance

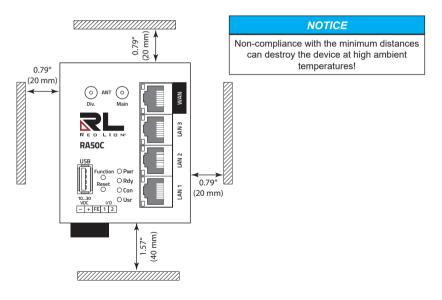
If a Compact Remote Access Router is damaged or malfunctions, the device must be taken out of operation immediately and secured against unintentional operation.

6 Router Installation

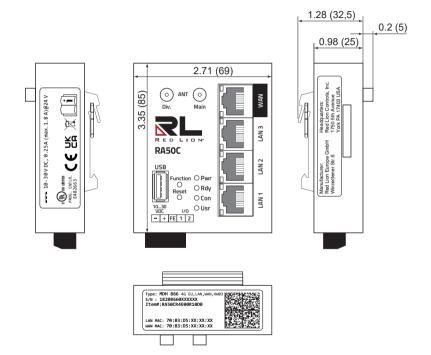
6.1 Installation position / minimum distances

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.



6.2 Device Dimensions in inches (mm)



7 Performance Characteristics

- The router can be fully configured via the portal RLConnect24.
- · Can connect to machines and systems via LAN, WAN, or Wi-Fi.
- Deployable in North America using mobile communications plus access via LAN and Internet.
- Secure connection using an integrated firewall with IP filter, NAT, port forwarding and VPN with Blowfish encryption.
- 2 pieces I/Os. These connectors can be independently configured as a digital input or digital output.

8 Getting Started

Depending on the device, connect an antenna, and insert a SIM card.

Before connecting the device 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 functional earth (FE).

Connect the Compact Router to a power supply (10 - 30 VDC).

Make sure the polarity is correct!



Start sequence

- 1. After turning on the power supply, the LED **Pwr** lights up.
- 2. As soon as the system has been checked and started (duration approx. 25 sec), the **Rdy** LED flashes for the duration of the starting up process (approx. 90 sec).
- 3. When both LEDs Pwr and Rdy light up, the RA50C is ready for operation.
- With SIMPLY.connect * capable devices, the Usr LED flashes briefly at intervals (500 msec ON - 1500 msec OFF). That means: SIMPLY.connect is available but deactivated.



* The **SIMPLY.connect** function is only available for devices with the Simplify³ logo * (See device nameplate).

SIMPLY.connect is a web application that supports you when creating a Compact Router in the RLConnect24. You can find more information at: https://www.redlion.net/remote-access-software

NOTICE

If you want to forego the support of SIMPLY.connect, ignore the flashing LED **Usr** and continue with the commissioning / configuration of the device.

For further support on the RA50C, visit our website on www.redlion.net

9 Initial Configuration

Requirements:

• You have a user account on the Remote Service Portal (RSP) RLConnect24 V 2.x

If you do not yet have a user account on *RLConnect24*, you can apply for your access at **www.redlion.net** - free of charge.

 Windows PC with remote client software *RLAccess*^{*} installed. With *RLDialUp* you establish a secure VPN connection to *RLConnect24*.

* The latest version can be downloaded at www.redlion.net

Generally following procedure applies:

- Add the Compact 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 Compact Router.
- After the Compact Router has been connected to the portal, it can be configured completely there.

More information about configuring devices, see the *Compact Router* Manual (download at www.redlion.net) or in the *RLConnect24* online help.

9.1 Initial configuration via RSP RLCONNECT24 V 2.x

9.2 Login RLCONNECT24



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

The procedure described relates to the ad view = **Simple**. You can find the currently used setting in the footer of the portal display.

9.3 Creating a project

Navigation: Administration

Click the " + Create new project" button in the structure tree.

Enter a project name in the following input field.

Administration

View: Simple | Extended RLConnect24 - V2.14.0 · 01.06.2023 17:09 (UTC +02:00) powered by Red Lion Controls Inc.

9.3.1 Create a device

Navigation: Administration

Now click on "+ Create new device" under the new project.

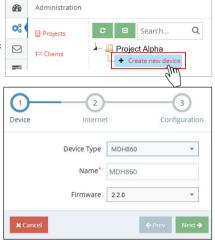
A configuration wizard then appears, which guides you in 3 steps when creating a basic configuration.



Select your device type from the selection field Type (e.g. MDH860).

Enter a device name under Name* so that you can find and assign the device later in the portal.

The name is freely selectable but only a - z, A - Z, 0 - 9, dashes and dots are allowed.



9.3.3 Step 2 - Internet

Here you assign a LAN IP address for the device and determine how the device should connect to the Internet.

Depending on the device type, you have to make the necessary settings and / or enter the required access data.



Step 2 - Internet

NOTICE

Make sure that the WAN-IP and the LAN-IP are in different address ranges.

NOTICE

In the initial configuration, the device is configured so that it always tries to connect to the Internet. You can change this setting later at any time.



Fig. 1: Navigation: Administration > selected device > Configuration > Internet

9.3.4 Step 3 - Configuration

Click on the download icon to download the basic configuration you just created.

Save the configuration file "mbconnect24. mbn" on a USB stick.

IMPORTANT:

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



You can now transfer the configuration data to the Compact Router.

9.3.5 Transfer configuration to the Compact Router

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

The device will recognize the configuration file and show that through the slowly flashing LED **Usr** (flashing frequency: 1.5 Hz).

As soon as the LED **Usr starts to flash 0**, you must press the **Function button** within 10 seconds.

Hold down until the LED Usr lights.

Now release the Function button 2.

When the LED **Usr goes off** and the LED **Pwr** + **Rdy light up**, then the configuration transfer is complete.

When the **Compact Router** can connect to the Internet

(e.g. network cable, SIM card, antennae installed), the device will subsequently log in to your account. This is displayed by the **flashing** LED **Con**.

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.



💿 Pwr

Rdv

Con
 Usr

💿 Pwr

🗋 Rdv

Ion

LAN 3

LAN 2

AN

BLIDN

unction A Dur

Rdy

Usr

RA50C

LISE

10 Access the Web Interface of the Compact Router

On the web interface of the Compact Router a Status page and a Diagnostic page is available.

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

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

Requirements:

- The configuration PC and the *Compact 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 *Compact 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 Compact 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 Compact Router.

Cancel

To log on to **Compact Router** enter the following data:



18

10.1 Device State

After a successful login you will see on the status page the "Device State". Among other things, the five steps are displayed that are required so that the device can connect to the portal.



		Welcome a	dmin Setu	Help Reboot > Logout >
Device State	Diagnostics	Tags		
		Unittype: M	DH860 (2.2.2)	Serialnumber: 17198600044596
	1.	MDH860	Ve	
	2.	Ļ	Vo	
	3.		Va	
	4.	Ļ	Vo	
	5.		Ve	

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 **Compact Router** is connected to the portal **RLConnect24**.

10.2 Diagnostics

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

Device State	Diagnostics	Tags
Ping		
www.google.d	e	Ping
TraceRo	ute	
www.google.d	e	TraceRoute
NS Look	up	
www.google.d	e	NS Lookup
Port Che	ck	
www.google.d	e 80	Port Check
Result		

10.3 Tags

If the *Compact Router* has established a connection to the portal (indicated by the green LED symbol next to "Portal communication"), all available Tags for the portal are listed here. In addition to the name of a Tag, its status (using the LED symbol*) and the respective Tag value are displayed.

* green LED symbol = data point can be read grey LED symbol = data point cannot be read



Logging

In case of difficulties, possible causes of errors can be detected by "Logging".

This data is for further support in case of problems or hints in our FAQ

Portal communication

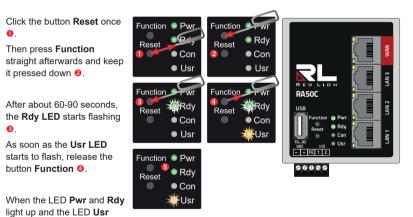
▲Logging Har 18 16:00:02 Service started! Har 18 16:00:04 [monitoring] MONITORING START SERVICE Har 18 06:04:34 [sead] Other PID [] Har 19 06:44:53 [api] Connection settings: IP/PORT [10.0.10.8 9] Har 19 06:46:58 Start Download Config Har 19 08:46:58 Start Download 1

11 Loading The Factory Settings

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

- The device must be operational (LED Pwr + Rdy light up).
- The IP address of the router is reset to 192.168.0.100.
 You may have to adjust the network settings of the configuration computer accordingly.

To reset the *Compact Router* to factory defaults, proceed as follows:



flashes*, the factory settings have been loaded 6.

* flashes briefly at intervals (500 msec on - 1500 msec off)

The *Compact Router* is now ready for operation and to be configured again.

12 Factory Settings On Delivery

The Compact 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 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 each loading of the factory settings.

13 Technical Data (extracts)

Performance data		
Voltage V (DC)	10 - 30 V DC (SELV and Limited Energy circuit)	
Power consumption	250 mA (max. 1.8 A *) @ 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)	
* 250 mA = operating current, max. 1.8 A under full load (USB interface + switched outputs I/O 1 and I/O 2).		
** at full occupancy of all connections and interfaces. Alternatively, unused interfaces can be covered with dust protection plugs.		

VPN		
VPN protocol	OpenVPN, 1 tunnel	
Encryption parameter	Control Channel:TLSv1.2, cipher ECDHE-RSA-AES256-GCM-SHA384 Data Channel:Cipher 'AES-256-GCM' initialized with 256 bit key	
Authorization	Pre-Shared-Key, X.509	

Network / Security		
Firewall	1:1 NAT, IP-Filter, Port-Forwarding, stateful inspektion	
IP router	NAT-IP, TCP/IP routing, IP forwarding	
Service	DHCP client, NTP client	
Time synchronization	NTP server	

Communication

Devices with LTE (4G) module - EU (MDH 866 EU) hardware version: HW 04		
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	
Output power (typic 2G: LB: 33 dBm; H 3G/TD-SCDMA: 2 4G (FDD & TDD):	IB: 30 dBm -108 dBm @ 2G 4dBm -113.5 dBm @ 3G	
TAC	35162610	

Devices with LTE (4G) module - AT&T (MDH 862 AT&T, MDH 866 AT&T) with hardware version: from HW 03			
Target region	North America (Public safety, A	T&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			
Output power - typical values for max output level > 2G: LB 33 dBm; HB: 30 dBm > 3G/TD-SCDMA: 24dBm > 4G (FDD & TDD): 23dBm @1RB		Sensitivity - typical sensitivity levels > -108 dBm @ 2G > -113.5 dBm @ 3G > -103 dBm @ 4G FDD (BW=5 MHz)	
TAC 35034498; 35432809; 35604311		1	
FCC Contains FCC ID: RI7LE910C>		NF	

Devices with Wi-Fi module (MDH 863, MDH 867) with hardware version: from HW 03		
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	
* Maximum, depends on the region. ** RF power including maximum antenna gain (3 dBi).		

SIMPLIFIED EU DECLARATION OF CONFORMITY

Red Lion declares that the radio equipment types MDH 862 EU; MDH 863 MDH 866 EU; MDH 867 are 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 types MDH 862 EU; MDH 863 MDH 866 EU; MDH 867 are 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.

NOTICE

The device types MDH 862 AT&T and MDH 866 AT&T are not CE marked and must not be operated or commissioned in the European Economic Area (EEA)!

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

For your notes

15 Information on cyber security

To prevent unauthorized access to facilities and systems, observe the following security recommendations:

General

- Periodically ensure that all relevant components meet these recommendations and any additional internal security policies.
- Perform a security assessment of the entire system. Use a cell protection concept with suitable products. For example, "ICS Security Compendium" from the BSI (Bundesamt für Sicherheit in der Informationstechnik (Federal Office for Security in Information Technology)). https://www.bsi.bund.de/SharedDocs/Downloads/EN/BSI/ICS/ICS-Security_compendium.html. Shortened URL: http://bit.ly/3Ya4tTH

Physical access

· Restrict physical access to security-relevant components to qualified personnel.

Security of the software

- Keep software/firmware updated.
 - -> Stay informed about security updates for the product.
 - -> Stay informed about product updates.

You can find information about this at: www.redlion.net.

Passwords

- Define rules for the use of the devices and assigning passwords.
- Change passwords regularly, to increase security.
- Use only passwords with a high password strength. Avoid weak passwords such as "password1", "123456789" or the like.
- · Make sure that all passwords are protected and inaccessible to unauthorized personnel.
- Do not use the same password for different users and systems.

16 Disposal of old devices

NOTICE

Before you dispose of an old device, make sure that all device data and/or personal data and the device configuration have been completely deleted.

- 1. Remove/erase all storage media connected to the device.
- 2. Disconnect the device from all networks (LAN and WAN) and carry out the "Reset to factory settings" directly on the device.
- 3 Make sure that removing a device from the network does not result in a security risk!

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 despose 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 - WEFE





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