mbNET. | RA70S

Technical Data

V 1.0.0 - from HW 06 with FW 8.0.0 - en | Nov 30th, 2023

MDH 811, MDH 816, MDH 831, MDH 835, MDH 841, MDH 850 EU, MDH 850 AT&T, MDH 850 US, MDH 855 EU, MDH 855 AT&T, MDH 855 US, MDH 859 EU, MDH 859 AT&T, MDH 859 US, MDH 871, MDH 876, RA70S

PROG. CNTLR. E482663

1 Technical data

RA70S | *mbNET*® Industrial router

RA70S, MDH 811, MDH 816, MDH 831, MDH 835, MDH 841, MDH 850 EU, MDH 850 AT&T, MDH 850 US, MDH 855 EU, MDH 855 AT&T, MDH 855 US, MDH 859 EU, MDH 859 AT&T, MDH 859 US, MDH 871, MDH 876 - from hardware version: **HW 06** and firmware version **8.0.0**.
You can find the device type and the hardware version on the device rating plate.

Housing dimensions

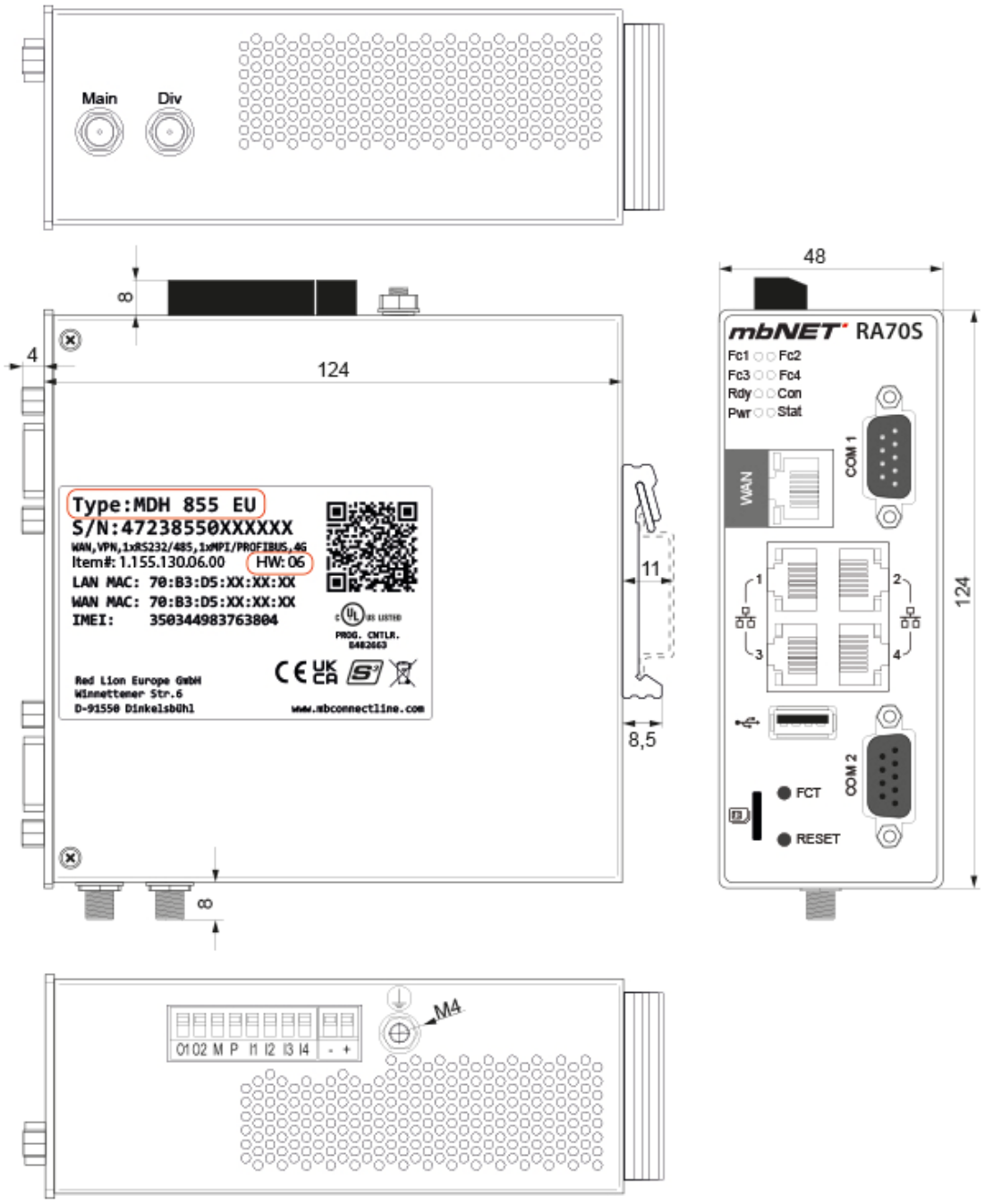

Image 1: Devices and interfaces vary depending on the device type.

Release note

Version	Date	Comment
V 1.0.0	Nov 30th, 2023	First edition for devices with hardware version HW06 and firmware version from 8.0.0.

General Data

Performance data		
Voltage ⎓ V (DC)	10 – 30 V DC (ext. power supply or SELV power supply, 10-30 V DC, Max. 40A)	
Current consumption	max. 500 mA @ 24 V	
Dissipated power	max. 6 W	
Random access memory	512 MB	
Processor	ARM Cortex®-A8 up to 1GHz	
IP Protection class	IP 30*	* at full occupancy of all connections and interfaces. Alternatively, unused interfaces can be covered with dust protection plugs.
Area of use	Dry environment	
Temperature (operating)	-40 – +75 °C	
Temperature (storage)	-40 – +85 °C	
Humidity	0 – 95% non-condensing	
Real-time clock	In the event of a power failure, the date and time are maintained for up to 7 days (depending on the ambient temperature).	
Dimensions (max.)	48 mm x 137 mm x 140 mm (W x D x H)	
Weight (max.)	650 g	
Housing/material	Metal	
Installation	DIN-top hat rail mounting	

I/Os and standard interfaces

Digital inputs	4 pieces, 1030 V DC (electrically isolated), (low 0 – 3.2 V DC, high 8 – 30 V DC)
Digital Outputs	2 pieces, 10-30 V DC (electrically isolated), to a maximum of 1.5 A per output
LAN interfaces	4 pieces, 10/100MBit/s full and half duplex operation, automatic detection patch cable/cross-over cable (auto detection)
USB interfaces	USB Host 2.0
eMMC storage	8 GB

Optional Interfaces

WAN interfaces	10/100MBit/s full and half duplex operation, automatic detection patch cable / cross-over cable (auto detection)
Interface 1 (COM1)	RS-232/485 (software-switchable)
Interface 2 (COM2) - device-dependent -	RS-232/485 (software-switchable) or MPI/PROFIBUS - 12 MBit/s
SIM card slot	1 piece SIM card slot for nano SIM ("Push - Push")

VPN

VPN protocol	IPsec/PPTP/OpenVPN, 64 Tunnel	MDH 811, MDH 831, MDH 850 EU, MDH 850 AT&T, MDH 855 EU, MDH 855 AT&T, MDH 871, MDH 876

VPN protocol	OpenVPN, 1 Tunnel	MDH 816, MDH 835*, MDH 841, MDH 859 EU, MDH 859 AT&T

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

*can only be operated with my / mbCONNECT24.

Network / security

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 server, NTP client, PPP server, DynDNS
Time levelling	via NTP server

Communication

Devices with LTE (4G) module EU (MDH 850 EU, MDH 855 EU, MDH 859 EU) from 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 values for max output level	Sensitivity - typical sensitivity levels
• 2G: LB: 33 dBm; HB: 30 dBm • 3G/TD-SCDMA: 24dBm • 4G (FDD & TDD): 23dBm @1RB	• -108 dBm @ 2G • -113.5 dBm @ 3G • -103 dBm @ 4G FDD (BW=5 MHz)

Antenna connector	2 pieces SMA socket 
TAC	35162610

Devices with LTE (4G) module - AT&T (MDH 850 AT&T, MDH 855 AT&T, MDH 859 AT&T) from HW 06

NOTICE

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

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

Output power - typical values for max output level	Sensitivity - typical sensitivity levels
• 2G: LB: 33 dBm; HB: 30 dBm • 3G/TD-SCDMA: 24dBm • 4G (FDD & TDD): 23dBm @1RB	• -108 dBm @ 2G • -113.5 dBm @ 3G • -103 dBm @ 4G FDD (BW=5 MHz)

Antenna connector	2 pieces SMA socket 
TAC	35034498; 35432809; 35604311
FCC	Contains FCC ID: RI7LE910CxNF

Devices with LTE (4G) module - (MDH 850 US, MDH 855 US, MDH 859 US) from HW 06

NOTICE

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

Target region	North America (Public safety, AT&T, Verizon, 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	Sensitivity - typical sensitivity levels
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Antenna connector	2 pieces SMA socket 
TAC	35034498; 35432809; 35604311
FCC	Contains FCC ID: RI7LE910CxNF

Devices with Wi-Fi module (MDH 811, MDH 831, MDH 841) from 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	

* Maximum, depends on the region. ** RF power including maximum antenna gain (3 dBi).

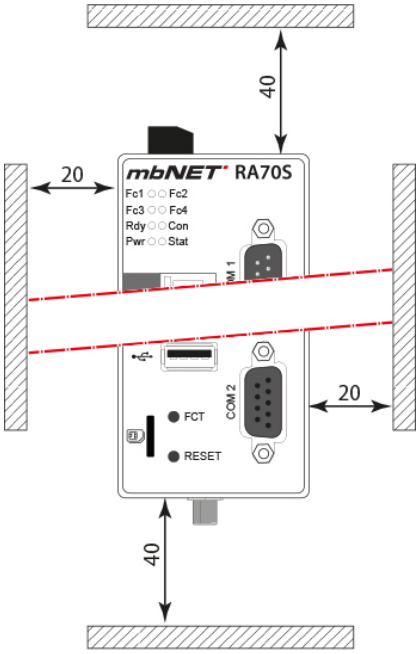
Installation position / minimum distances

The router is designed to be mounted on DIN top hat rails (in accordance with DIN EN 50 022) and for installation in a control cabinet.

The router is designed exclusively for use in the control cabinet and with safety extra-low voltage (SELV) in accordance with DIN EN IEC 62368-1 VDE 0868-1:2021-05.

The installation and assembly must be carried out according to IEC 60364-1; VDE 0100-100.

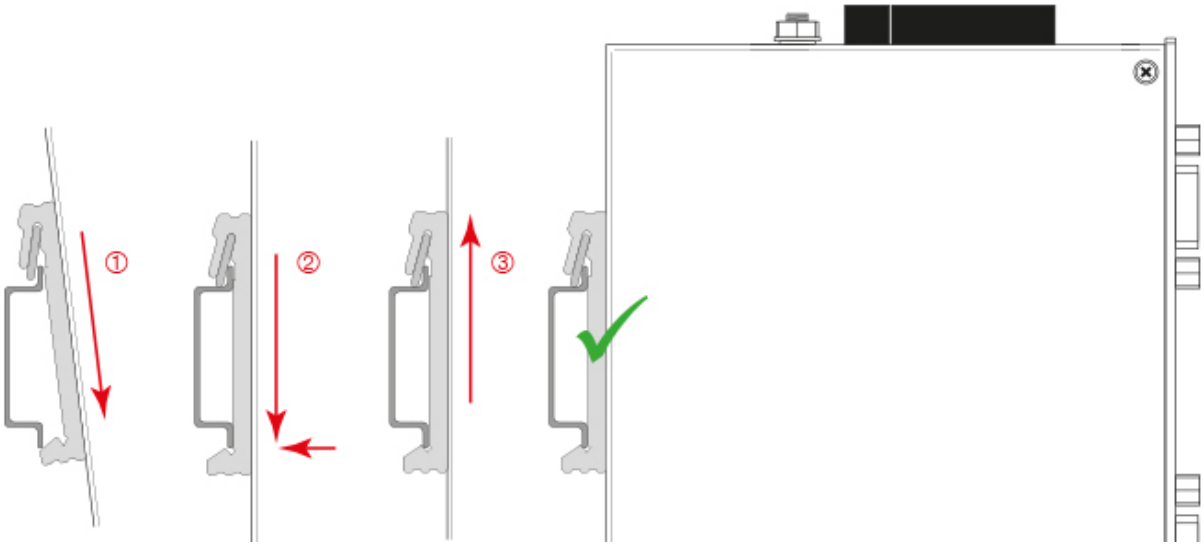
The router may be only mounted vertically as described.



NOTICE

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

Top hat rail mountin



Attach the upper guide of the DIN rail holder to the top hat rail and then press the router down against the top hat rail until it fully engages.

Markings / Listings / Certifications

PROG. CNTLR.
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Certificates (CE, UL, etc.) can be downloaded at www.mbconnectline.com.

SIMPLIFIED EU DECLARATION OF CONFORMITY

MB connect line GmbH hereby declares that the radio system types MDH 811, MDH 831, MDH 841, MDH 850 EU, MDH 855 EU, MDH 859 EU corresponds to the 2014/53/EU directive.
A copy of the EU declaration of conformity is available at the following Internet address:
https://mbconnectline.com/conformity/

SIMPLIFIED UKCA DECLARATION OF CONFORMITY

Hereby, Red Lion Europe GmbH declares that the equipment types MDH 811, MDH 831, MDH 841, MDH 850 EU, MDH 855 EU, MDH 859 EU are in compliance with the relevant statutory requirements.
The full text of the declaration of conformity is available at the following internet address:
https://mbconnectline.com/conformity/

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Great care was taken in compiling the texts and illustrations.
Despite all efforts, mistakes can never be completely avoided. We are always grateful for suggestions for improvement and / or references to errors.

Current manuals and other information
The latest manuals and further information on products for secure remote maintenance can be found in the download portal at www.mbconnectline.com