

mbNET.

Technical Data

V 6.4 - from HW02 - en | Jan 25th, 2022



MDH811, MDH816, MDH831, MDH835, MDH841, MDH850, MDH855,
MDH858, MDH859, MDH871, MDH876

CE  US LISTED PROG. CNTLR. E482663

1 Technical data

mbNET® Industrial router

MDH 811, MDH 816, MDH 831, MDH 835, MDH 841, MDH 850 EU, MDH 850 AT&T, MDH 855 EU, MDH 855 AT&T, MDH 858 EU, MDH 858 AT&T, MDH 859 EU, MDH 859 AT&T, MDH 871, MDH 876

- from hardware version: **HW 02**

You can find the hardware version on the device rating plate.

Housing dimensions

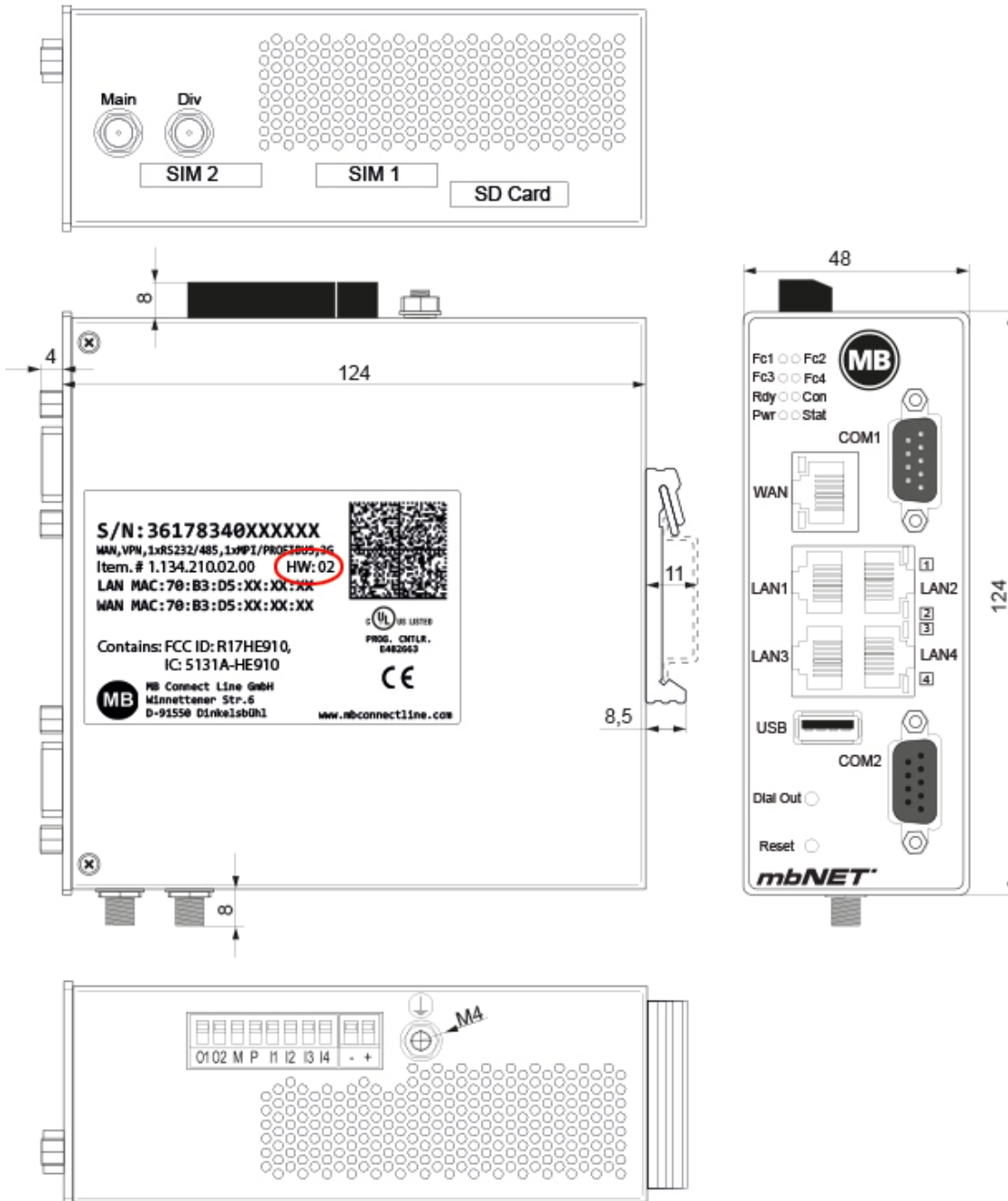


Image 1: Devices and interfaces vary depending on the device type.

Release note

Version	Date	Comment
V 6.2	Feb 26 th , 2020	Previous version: V 6.0 from June 4 th , 2019 Correction of the current consumption: old = 1300 mA => new = 500mA Add the performance data for new LTE module, for devices with hardware version HW04.
V 6.2 DR01	Apr 22 nd , 2020	Add processor performance data.
V 6.2 DR02	July 6 th , 2020	Adding the transmission power for radio modules.
V 6.2 DR03	Feb 8 th , 2021	Update / change of the encryption method and encryption algorithms.
V 6.2 DR04	July 14 th , 2021	Adding the performance data for devices with Wi-Fi module from HW 05.
V 6.2 DR05	Nov 3 rd , 2021	Adding the performance data for devices with LTE module from HW 05.
V 6.3	Nov 22 nd , 2021	Adding the performance data for devices with LTE AT&T module from HW 05.
V 6.4	Jan 25 th , 2022	Deleted types: MDH 810, MDH 814, MDH 815, MDH 819, MDH 830, MDH 834, MDH 849 Added types: MDH 871, MDH 876

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	Devices uo to hardware version HW02 : 256 MB Devices from hardware version HW03 : 512 MB
Processor	Devices up to hardware version HW03 : ARM Cortex®-A8 up to 600MHz Devices from hardware version HW04 : 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
SD card slot	For SD cards (32.0 mm x 24.0 mm x 2.1 mm) SDHC max. 32 GB; FAT/FAT32

NOTICE

As of firmware version **6.0.6** and hardware version from **HW03**, all devices can use the **mbEDGE** function.

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 858 EU, MDH 858 AT&T, 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

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 slots	2 pieces SIM card reader with ejector (for mini-SIM)

Communication**Devices with LTE (4G) module EU (MDH 850 EU, MDH 855 EU, MDH 858 EU, MDH 859 EU)**Devices with hardware version **from HW 05**

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

- 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)

Antenna connector	2 pieces SMA socket 
TAC	35162610

Devices with LTE (4G) module - AT&T (MDH 850 AT&T, MDH 855 AT&T, MDH 858 AT&T, MDH 859 AT&T)

NOTICE

Device types MDH 850 AT&T, MDH 855 AT&T, MDH 858 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)!

Devices with hardware version from **HW 05**

Target region	North America (Public safety, AT&T, FirstNet, T-Mobile, Verizon + 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)

Antenna connector	2 pieces SMA socket 
TAC	35034498; 35432809; 35604311
FCC	Contains FCC ID: R17LE910CxNF

Devices with hardware version up to **HW 04**

Countries where used	North America
GSM/GPRS/EDGE	850, 1900 MHz; max. 236 kbps
HSxPA	1900 (B2), 850 (B5) MHz; Downlink max. 21 Mbps, Uplink max. 5.76 Mbps
LTE	1900 (B2), AWS 1700 (B4), 850 (B5), 700 (B17) MHz; Downlink max. 100 Mbps, Uplink max. 50 Mbps
Transmit output power	Class 4 (2 W, 33 dBm) @ GSM 850 / 900 Class 1 (1 W, 30 dBm) @ GSM 1800 / 1900 Class E2 (0.5 W, 27 dBm) @ EDGE 850 / 900 Class E2 (0.4 W, 26 dBm) @ EDGE 1800 /1900 Class 3 (0.25 W, 24 dBm) @ UMTS Class 3 (0.2 W, 23 dBm) @ LTE
Antenna connections	2 pieces SMA socket 
FCC	Contains FCC ID: R17LE910NA

Devices with Wi-Fi module (MDH 811, MDH 831, MDH 841) from HW 05

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

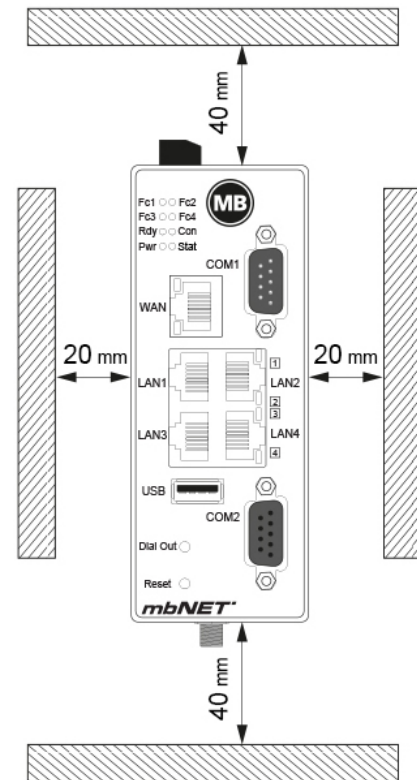
The router is designed to be mounted on DIN top hat rails (in accordance with DIN EN 50 022) and for installation in a control cabinet.

The installation and assembly must be carried out according to VDE 0100/IEC 364.

The router may be only mounted vertically as described.

NOTICE

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



Markings / Listings / Certifications



PROG. CNTLR.
E482663

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 858 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: www.mbconnectline.com



MB connect line GmbH offers universal solutions for worldwide remote maintenance of machines and equipment. The specialists at MB connect line can draw on years of experience and extensive know-how.

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