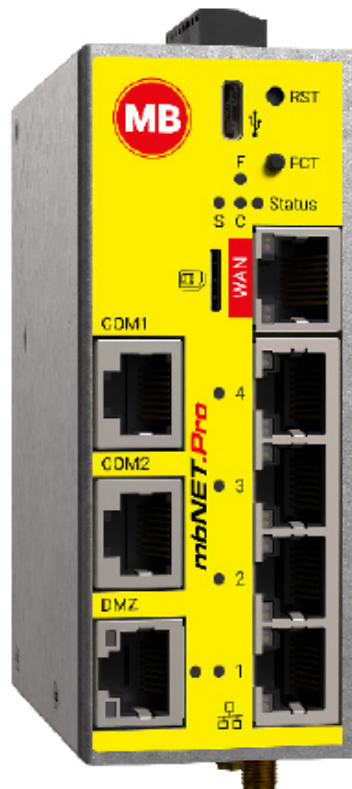


mbNET.Pro ***mbNET.Pro+***

Technical Data

V 1.0.1 | from HW 00 | from FW 1.0.0 | en



mbNET.Pro



mbNET.Pro+

mbNET.pro: MDH 4000, MDH 4002, MDH 4012, MDH 4032, MDH 4300, MDH 4302,
MDH 4312, MDH 4332, MDH 4400, MDH 4402, MDH 4412, MDH 4432,
mbNET.pro+: MDH 5002, MDH 5022, MDH 5042, MDH 5302, MDH 5402





1 Technical Data

Release note (technical data)

Version	Date	Comment
V 1.0.0	June 6 th , 2026	Initial version for devices with hardware revision from HW 00 and firmware version from FW 1.0.0.
V 1.0.1	July 27 th , 2026	Addition of device type MDH 4402 General corrections

Industrial router *mbNET.pro* / *mbNET.pro+*

MDH 4000, MDH 4002, MDH 4012, MDH 4032, MDH 4300, MDH 4302, MDH 4312, MDH 4332,
MDH 4400 EU, MDH 4400 US, MDH 4402 EU, MDH 4402 US, MDH 4412 EU, MDH 4412 US, MDH 4432 EU,
MDH 4432 US

MDH 5002, MDH 5022, MDH 5042, MDH 5302, MDH 5402 EU, MDH 5402 US

from hardware version: **HW 00** and firmware version **1.0.0**

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

Housing dimensions

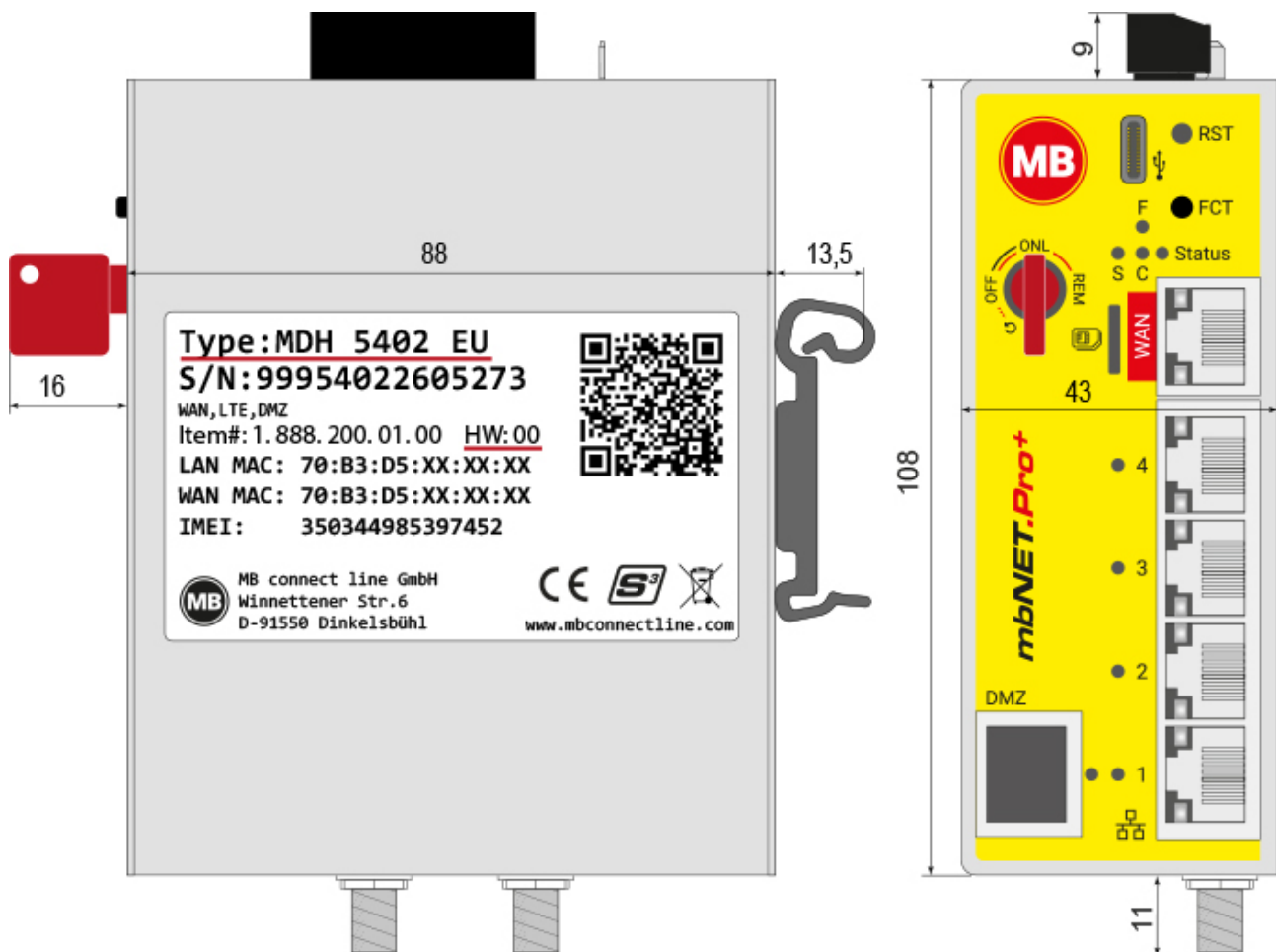


Image 1: Features and interfaces vary depending on the device type.

General data

Performance data	
Voltage $\text{---} \text{ V (DC)}$	10 – 30 V DC*
Current consumption	max. 500 mA @ 24 V
Power dissipation	max. 6 W
Random access memory	512 MB
eMMC storage	1 pc, 4 GB
Processor	ARM Cortex®-A55 1.7 GHz
IP Protection class	IP 30**
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 14 days (depending on the ambient temperature).
Dimensions (max.)	43 mm x 118 mm x 128 mm (W x D x H)
Weight (max.)	460 g
Housing/material	Metal
Installation	DIN-top hat rail mounting

* GND (-) is galvanically (low-impedance) connected to the device housing.
The RJ45 shields, the USB shield and the SMA outer conductors are also connected to GND.
The housing is earthed via the earth terminal.
Using a plastic DIN rail mount does not result in an automatic connection between the housing/GND and PE.

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

I/Os



Terminal block on the top of the device (schematic diagram)

Digital inputs	10 – 30 V DC (galvanically isolated), (Low 0 – 4 V DC, High 8 – 30 V DC)
Digital outputs	10 – 30 V DC (galvanically isolated), max. 1,5 A per output
Terminals X1 and X2 can be configured independently of each other as a digital input or digital output.	
Possible configurations	2 outputs / 2 inputs; 1 output / 3 inputs; 0 outputs / 4 inputs

Standard interfaces

WAN interface	1 pc, 100/1000 MBit/s full and half duplex operation, automatic detection patch cable / cross-over cable (auto detection).
LAN interfaces	4 pcs, 100/1000MBit/s full and half duplex operation, automatic detection patch cable / cross-over cable (auto detection).
USB interface	1 pc, USB-C host
mbNET.pro+	
Key switch (mbNET.pro+)	1 pc, Safety key switch with 4 switch positions (3 x latching, 1 x momentary).
DMZ interface	1 pc, RJ45 100/1000 MBit/s full and half duplex operation, automatic detection patch cable / cross-over cable (auto detection).

Optional interfaces

Interface 1 (COM1)	1 pc, RS-232/485 (switchable via software). RJ45 version*
Interface 2 (COM2) - device dependent -	1 pc, RS-232/485 (switchable via software) or MPI/PROFIBUS - 12 MBit/s. RJ45 version *
Interface COM (mbNET.pro+)	1 pc, MPI/PROFIBUS - 12 MBit/s (MDH 5042) or 1 pc, RS-232/485 (switchable via software) (MDH 5022). RJ45 version *
Interface DMZ (mbNET.pro)	1 pc, RJ45 100/1000 MBit/s full and half duplex operation, automatic detection patch cable / cross-over cable (auto detection).
SIM card slot	1 pc, SIM card slot for für nano SIM („Push - Push“)

* A suitable RJ45-to-D-Sub adapter is required here.

VPN

VPN protocol	OpenVPN, WireGuard
Encryption	AES (256/192/128: GCM/CBC/CFB/OFB), ARIA (256/192/128), Camellia (256/192/128), WireGuard: ChaCha20-Poly1305 (hard)
Hash/HMAC	SHA-2 (224/256/384/512, 512/224, 512/256), SHA-3 (224/256/384/512)
Authentication	X.509 certificates; OpenVPN with additional username/password (password, password-tls); WireGuard public-key pairs (+ optional PSK).

Network/security

Firewall	1:1 NAT, Netz-NAT, IP-Filter, Port-Forwarding, Stateful Inspection.
IP router	NAT-IP / Masquerading, TCP/IP routing, IP forwarding.
Services	DHCP server, DNS server, NTP server.
Time levelling	via NTP server.

Communication

Devices with LTE (4G) module - EU (MDH 4400 EU, MDH 4402 EU, MDH 4412 EU, MDH 4432 EU, MDH 5402 EU) from HW 00

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

*Furthermore, the device can technically be operated in other countries.
Check the frequency bands used before connecting the device to the mobile network.

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 – US (MDH 4400 US, MDH 4402, MDH 4412 US, MDH 4432 US, MDH 5402 US) from HW 00

NOTICE

Device types MDH 4400 US, MDH 4402 US, MDH 4412 US, MDH 4432 US, MDH 5402 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, 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

*The frequency bands used in the country of use vary depending on the provider.
Check the frequency bands used before connecting the device to the mobile network.

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: R17LE910CxNF

Devices with Wi-Fi module (MDH 4300, MDH 4312, MDH 4332, MDH 5302) from hardware version HW 00

Wi-Fi	IEEE 802.11b/g/n	
2.4 GHz Frequency Bands	EU: 2.4 GHz to 2.483 GHz FCC/ISED: 2.4 GHz to 2.473 GHz MIC: 2.4 GHz to 2.495 GHz RCM: 2.4 GHz to 2.483 GHz	
2.4 GHz Operating Channels (Wi-Fi)	EU: 13 (3 non-overlapping) FCC/ISED: 11 (3 non-overlapping) MIC: 14 (4 non-overlapping) RCM: 13 (3 non-overlapping)	
5 GHz Frequency Bands	EU 5.15 GHz to 5.35 GHz (Ch 36/40/44/48/52/56/60/64) 5.47 GHz to 5.725 GHz (Ch 100/104/108/112/116/120/124/128/132/136/140) 5.725 GHz to 5.85 GHz (Ch 149/153/157/161/165) FCC 5.15 GHz to 5.35 GHz (Ch 36/40/44/48/52/56/60/64) 5.47 GHz to 5.725 GHz (Ch 100/104/108/112/116/120/124/128/132/136/140/144) 5.725 GHz to 5.85 GHz (Ch 149/153/157/161/165) ISED 5.15 GHz to 5.35 GHz (Ch 36/40/44/48/52/56/60/64) 5.47 GHz to 5.725 GHz (Ch 100/104/108/112/116/132/136/140/144) 5.725 GHz to 5.85 GHz (Ch 149/153/157/161/165) MIC 5.15 GHz to 5.35 GHz (Ch 36/40/44/48/52/56/60/64) 5.47 GHz to 5.725 GHz (Ch 100/104/108/112/116/120/124/128/132/136/140) RCM 5.15 GHz to 5.35 GHz (Ch 36/40/44/48/52/56/60/64) 5.47 GHz to 5.725 GHz (Ch 100/104/108/112/116/132/136/140) 5.725 GHz to 5.85 GHz (Ch 149/153/157/161/165)	
5 GHz Operating Channels (Wi-Fi)	EU: 24 non-overlapping FCC: 25 non-overlapping ISED: 22 non-overlapping MIC: 19 non-overlapping RCM: 21 non-overlapping	
Data rates	802.11a	6 Mbps; 54 Mbps
	802.11b	1 Mbps; 11 Mbps
	802.11g	6 Mbps; 54 Mbps
	802.11n (2.4 GHz)	HT20; MCS0-7; HT40; MCS0-7
	802.11n (5 GHz)	HT20; MCS0-5; HT20; MCS6-7; HT40; MCS0-7
	802.11ac (5 GHz)	VHT20; MCS0-5; VHT20; MCS6-7 VHT20; MCS8; VHT40; MCS0-7; VHT40; MCS8-9; VHT80; MCS0-7; VHT80; MCS8-9
Hardware supported Encryptions/Decryption (Security)	• WEP • WPA, WPA2 Personal and Enterprise, and WPA3 Personal and Enterprise support for powerful encryption and authentication. • AES and TKIP in hardware for faster data encryption and IEEE 802.11i compatibility. • Reference WLAN subsystem provides Wi-Fi Protected Setup (WPS). • CKIP	

Max. output power	16.5 dBm (44.7 mW)
Max. sensitivity	-96 dBm (PER < 8%)

Regulatory certifications

Country/Region	Regulatory ID
USA (FCC)	SQG-LWB5PLUS
EU	N/A
Canada (ISED)	3147A-LWB5PLUS
Japan (MIC)	201-200402
Australia	N/A
New Zealand	N/A

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.

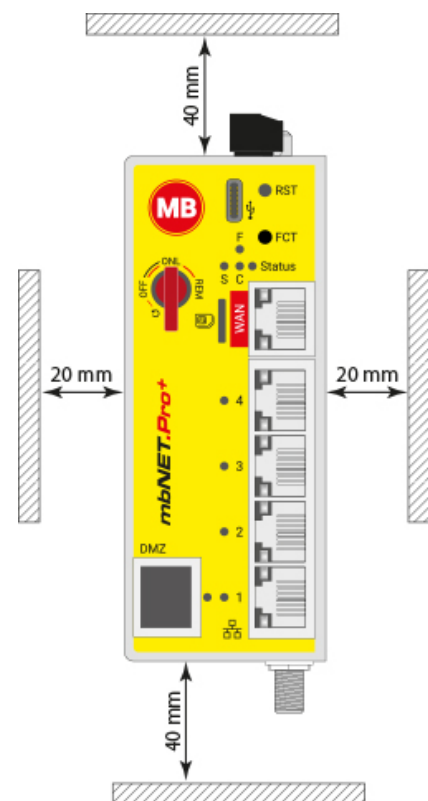
The router is designed exclusively for use in the control cabinet in accordance with DIN EN IEC 62368-1 VDE 0868-1:2021-05.

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!



Markings/Listings/Certifications



Certificates (CE, 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 4300, MDH 4312, MDH 4332, MDH 5302, MDH 4400 EU, MDH 4402 EU, MDH 4412 EU, MDH 4432 EU and MDH 5402 EU comply with Directive 2014/53/EU.

A copy of the EU 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