mbNET.mini

Version: 2.2.0 DR01
Date: Oct 27th, 2021

Technical data

MDH860; MDH862 EU; MDH862 AT&T; MDH863; MDH866 EU; MDH866 AT&T; MDH867
from HW02 / 03 and FW from 2.2.0

The ***mbNET.mini*** is a very compact industrial router for DIN-rail mounting. It offers secure IP-based access to Ethernet devices and networks through the remote service platform ***mbCONNECT24***.
Therefore, it is not only suitable for remote maintenance applications but also for tasks such as data collection, visualization, alerts and M2M communication.

- Integrated Ethernet switch (3-port or 4-port)
- 4G modem variant
- Wi-Fi variant
- Failover function
  WAN to Modem
  WAN to Wi-Fi
- OpenVPN security protocol
- 2 pieces I/Os
  These connectors can be independently configured as a digital input or digital output.
- Robust metal housing
- Ideal for M2M applications

PROG. CNTLR.
E482663

1 General

Release notes

Version	Date	Comment
1.9.0 DR02	Jan. 28th, 2019	Previous version: 1.9.0 DR01 (May 4th, 2018) Correction / completion of the encryption and OpenVPN parameters
1.9.19	March 11th, 2019	The following new device types have been added: MDH 865, MDH 866 EU, MDH 866 AT & T and MDH 867. Technical feature of the new types: 3 x LAN interface, 1 x WAN interface with failover function WAN > Modem / Wi-Fi.
2.0.0	May 5th, 2019	Inclusion of the hardware version HW2 in the extended temperature range.
2.0.0 DR01	Oct. 2nd, 2019	Technical data exclusively for devices from hardware version HW02.
2.0.6	Dec. 3rd, 2019	For devices with hardware version HW 02 and firmware from V 2.0.6, the two I/Os can be configured independently of each other as a digital input or digital output.
2.0.6 DR01	Jan. 13th, 2020	Changed data (frequencies and target region) for devices with LTE (4G) module (MDH 862 EU, MDH 866 EU) with hardware version: **HW 03**
2.0.6 DR02	July 6th, 2020	Adding the transmission power for radio modules.
2.0.6 DR03	Sept. 23rd, 2020	Adding processor speed and RAM
2.2.0	May 27th, 2021	Elimination of devices with 3G modems (MDH 861, MDH 865). Adding the performance data for Wi-Fi devices (MDH 863, MDH 867) with hardware version: **HW 03**
2.2.0 DR01	Oct. 27th, 2021	Correction of the performance data for the Digital Outputs: Changed from 1.5 A to 0.5 A per output.

SIMPLIFIED EU DECLARATION OF CONFORMITY

Hereby, MB connect line GmbH declares that the radio equipment types MDH 862 EU; MDH 863; MDH 866 EU; MDH 867 are in compliance with Directive 2014/53/EU.
The full text of the EU declaration of conformity is available at the following internet address:
www.mbconnectline.com

Issued by:
MB connect line GmbH
Fernwartungssysteme
Winnettener Str. 6
91550 Dinkelsbühl
GERMANY

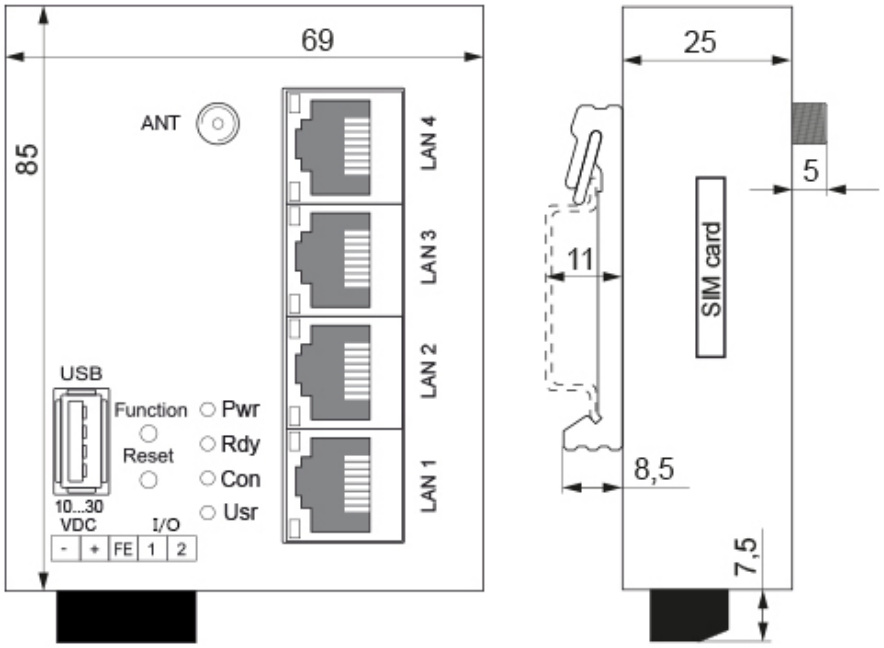
Phone +49 (0) 700 MBCONNECT
+49 (0) 700 622 666 32
Web www.mbconnectline.com

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.

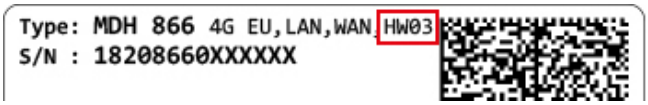
You can find the latest information on our website.

2 Technical data industrial router *mbNET.mini* MDH 860 – MDH 867

(Type: MDH 860, MDH 862 AT&T, MDH 862 EU, MDH 863, MDH 866 AT&T, MDH 866 EU, MDH 867).
From hardware version HW02, HW03* and firmware version from V 2.2.0



* You will find the hardware version on the device nameplate.



General data

Voltage ⎓ V (DC)	10 - 30 V DC (SELV and Limited Energy circuit)	
Power consumption (Normal mode)	250 mA @ 24 V - without additional consumers	
Power consumption under full load	max. 1.8 A @ 24 V - (including 2 digital outputs + USB port)	
Random Access Memory	128 MB	
Processor speed	454 MHz	
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 application	Dry environments	
Operating temperature	-40 – +75 °C (Type: MDH 860, MDH 862, MDH 866) -40 – +75 °C (Type: MDH 863, MDH 867 - **HW 03**)	
Operating temperature	0 – +60 °C (Type: MDH 863, MDH 867 - **HW 02**)	
Storage temperature	-40 – +85 °C	
Humidity	0 – 95% (non condensing)	
Weight (max.)	240 g	
Dimensions (max.)	69 mm x 38.5 mm x 92.5 mm (W x D x H)	
Housing (material)	metal	
Mounting	DIN rail mounting (based on DIN EN 50022)	

Interfaces / Communication

	Type				
	MDH 860	**MDH 862 EU / AT&T**	**MDH 863**	**MDH 866 EU / AT&T**	**MDH 867**
USB interface	1 x	1 x	1 x	1 x	1 x
Digital inputs / outputs	2 x	2 x	2 x	2 x	2 x
LAN interface	3 x	4 x	4 x	3 x	3 x
WAN interface	1 x	–	–	1 x	1 x
SIM card reader (mini SIM)	–	1 x	–	1 x	–
SMA socket 	–	2 x	–	2 x	–
RP-SMA socket 	–	–	1 x	–	1 x
GSM module 3G (UMTS)	–	–	–	–	–
GSM module 4G (LTE)	–	1 x	–	1 x	–
Wi-Fi modem	–	–	1 x	–	1 x
Failover WAN > Modem / Wi-Fi	–	–	–	✔	✔

Interface specification

LAN interface	10/100 Mbit/s full and half duplex operation, autodetection patch cable / crossover cable
WAN interface	10/100 Mbit/s full and half duplex operation, autodetection patch cable / crossover cable
USB interface	USB Host 2.0
2 pieces I/Os	These connectors can be independently configured as a digital input or digital output - only in the mbCONNECT24 **V2** portal.
Digital input	10 – 30 V DC (low 0 – 3.2 V DC, high 8 – 30 V DC)
Digital output	10 – 30 V DC to a maximum of 0.5 A per output

VPN

Can only be operated with (my)***mbCONNECT24 ****.	
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
* The types MDH 866 and MDH 867 can only be operated in the portal (my)mbCONNECT24 **V2**.	

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 (MDH 862 EU, MDH 866 EU); hardware version: **HW 03**

Target region	Europe
GSM/GPRS/EDGE	900 (B8), 1800 (B3) MHz; max. 236 kbps
HSxPA	900 (B8), 2100 (B1) MHz; downlink max. 42 Mbps, uplink max. 5,76 Mbps
LTE	800 (B20), 900 (B8),1800 (B3), 2100 (B1), 2600 (B7) MHz; downlink max. 150 Mbps, uplink max. 50 Mbps
Transmission output power	CLass 3 (0.2 W, 23 dBm) @ LTE; CLass 3 (0.25 W, 23 dBm) @ 3G Class 4 (2 W) @ GSM 900; Class 1 (1 W) @ DCS 1800
TAC	35162207

.

> Devices with **LTE (4G)** module (MDH 862 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

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	35162610

.

> Devices with **LTE (4G)** module - **AT&T*** - Type: MDH 862 AT&T, MDH 866 AT&T; hardware version: **HW 02**

Target region	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; downl. max. 100 Mbps, upl. max. 50 Mbps
Transmission 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
FCC	FCC ID: R17LE910NA

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)!

> Devices with **Wi-Fi** module (MDH 863, MDH 867); hardware version: **HW 02**

Wi-Fi	IEEE802.11b/g & 802.11n (1T1R mode), up to 150 MBit/s
Wi-Fi specification	· EU (2.412 GHz-2.472 GHz, 1-13 channel) · USA (2.412 GHz-2.462 GHz, 1-11 channel) · WPA/WP2, 64/128/152bit WEP, WPS · 802.11b: 1,2,5.5,11 Mbps · 802.11g: 6,9,12,18,24,36,48,54 Mbps · 802.11n: (20 MHz) MCS0-7, up to 72 Mbps · 802.11n: (40 MHz) MCS0-7, up to 150 Mbps
Transmission output power (typical)	11b: 19+/- 1.0 dBm @ 11 Mbps 11g: 16+/- 1 dBm @ 54 mbps 802.11n: (HT20), 15 +/- 1dBm, 802.11n: (HT40), 15 +/- 1dBm
Reception sensitivity (typical)	11b: -84dBm @ 11 Mbps; 11g: -70dBm @ 54 Mbps 802.11n: (HT20), -66 dBm @ MSC7, (HT40), -62 dBm @ MSC7
FCC	FCC ID: YWTWFXM05

.

> Devices with **Wi-Fi m**odule (MDH 863, MDH 867); hardware version: **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).

PROG. CNTLR.
E482663