MFN 200

User and installation guide

Document type:	User Manual
Document number:	D-NERVE-G-11-009
Document revision:	1.0.0
Document date:	2024-04-22
Classification:	Public

Introduction

The MFN 200 is an industrial edge computing device and part of the Nerve platform, an industrial IoT solution designed to converge and connect automation systems. It is intended to be used for the hosting of industrial applications, connection to industrial infrastructure and processing of industrial data.

The variants of the MFN 200 come with different RAM and SSD sizes. Currently available variants that are covered by this document include:

- MFN200-08-128 with 8 GB RAM and 128 GB storage

- MFN200-16-256 with 16 GB RAM and 256 GB storage

The type of unit can be identified via the ordering code which is printed at the top left of the product label. The label of the MFN 200 can be found on the back of the device, close to the DIN rail clip.

Technical Data

CPU	Intel® Atom® x6413E, 4 cores, 3.0 GHz/1.5 GHz, 9W TDP
Memory	8 GB or 16 GB
Disc size and type	128 GB SSD or 256 GB SSD
Interfaces	1x 3-Pin Terminal Block Power connector, 60 W, 24 V/2.5 A
	6 x 2.5 GbE (Intel® i226)
	3x USB 3.2 Gen2x1
	1x DP v1.4 4096 x 2160 @ 60 Hz
Operating temperature range	-20 °C to 60 °C
Dimensions	100 mm (L) x 100 mm (W) x 95 mm (H)
Weight	0.79 kg with DIN rail 0.78 kg without DIN rail
Shock	15 g with 11 ms impulse length, 18 shocks DIN-Rail (EN 60068-2-27)
Vibration	1 G, with DIN-Rail (EN 60068-2-6)
Ingress protection	IP 30
Certification	CE (For the declaration of conformity, see https://docs.nerve.cloud) WEEE
Other environmental parameters	Indoor use only
	Relative Humidity 5 % to 95 % (in non-condensing environments)

Intended use

The MFN 200 is an industrial PC for a variety of applications in the industrial 4.0 world, to collect data from industrial processes and machines; store, analyze and transfer industrial machine data to data centers, host and execute customer applications and is specifically designed for industrial applications.

Limitations of use

The MFN 200 is not suited to execute safety relevant software or controls.

⚠️ **Caution:** If the equipment is not used as specified in this manual, the protection provided by the equipment may be impaired.

Safety considerations

To ensure the safe operation of an MFN 200, follow all instructions given in this manual.
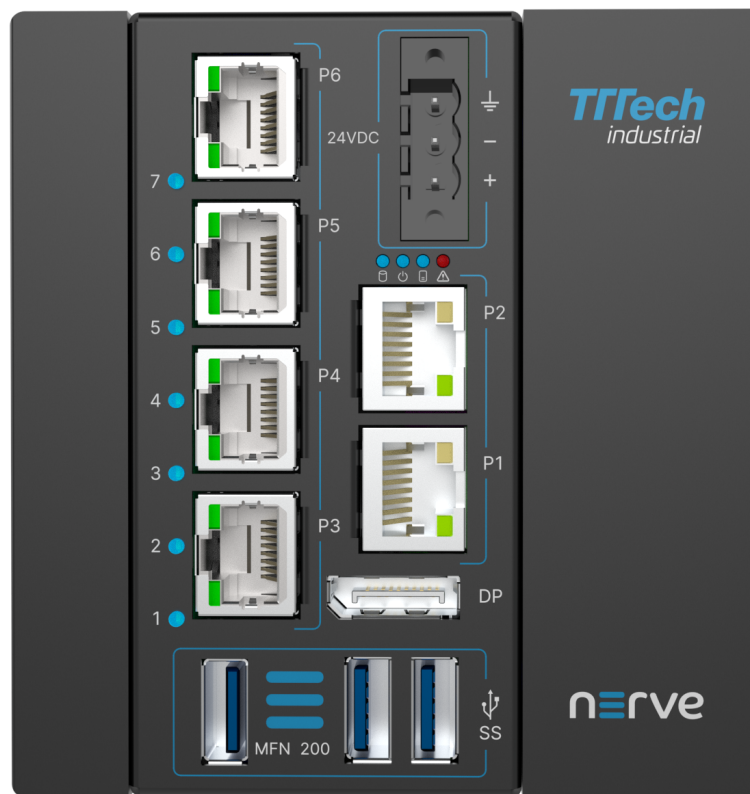
Front panel and indicators

Figure 1: *MFN 200 front panel*

Label	Description
24 VDC	9 to 36 VDC with chassis GND
Status indicator LEDs	The LEDs from left to right are: • **Storage** Flashes green when storage is being accessed. Otherwise off. • **Power** Solid green when the device is powered on. • **EC ready** Solid green when ready. Otherwise off. • **Error** Solid red if the device is overheating. Solid orange when throttling.
P1	Console port. This port is typically used to connect a computer for configuration.
P2/P3/P4/P5/P6	Ethernet ports
DP	Display Port
SS	Three USB 3.2 ports
LED 1 to 7	Not in use

Table 1: *Front panel descriptions*

Installation and removal

The MFN 200 is intended to be mounted on a 35 mm (W), 7.5 mm(H) DIN rail inside a closed cabinet. Before mounting, the DIN rail needs to be applied to the MFN 200. Fasten the DIN rail bracket with M3 x 5L screws on the MFN 200.
Due to its weight it is advisable to install a strong DIN rail. No tool is required to install or remove the MFN 200. Follow these steps to install the MFN 200 on a DIN rail:

1. Make sure that the DIN rail is fastened to the MFN 200.

2. Engage the DIN rail mounting clip of the MFN 200 with the upper edge of the DIN rail.

3. Push the MFN 200 down into the DIN rail.

4. Place the MFN 200 in a vertical position so that the mounting clip engages the lower edge of the DIN rail.

If you want to remove the MFN 200 from a DIN rail, follow these steps:

1. Push the MFN 200 down to un-secure the device on the rail.

2. Rotate the MFN 200 upwards so that the lower edge of the DIN rail disengages.

3. Lift the MFN 200 slightly to remove it.

Document Number:
D-NERVE-G-11-009

Caution: For using the MFN 200 up to the maximum permissible environmental temperature, it must be mounted with at least 5 mm distance to neighboring units. The surface temperature of neighboring units shall not have more than 20 °C above ambient.

Caution: The MFN 200 needs to be mounted vertically to enable airflow through the cooling fins. No obstacles below and above the MFN 200 should hinder the air flow.

Caution: Follow the local regulations for installing the device.

Maintenance

Caution: Only the manufacturer may repair the device. If a repair should be necessary, please contact customer support.

Caution: Always install the product with sufficient surrounding space to allow for adequate heat dissipation and cooling effect.

Do not operate or store the MFN 200 in temperatures or humidity outside the range specified in the specifications; or in the locations with:

- high-frequency noise
- static electricity
- other forms of noise
- strong electromagnetic fields
- possible exposure to radioactivity
- power lines

Cleaning

Warning: Working on the MFN 200 while it is live can lead to electric shock. Turn off the supply voltage before cleaning the device.

Caution: The use of unsuitable cleaning agents can damage the device. Only clean the MFN 200 as specified.

It is essential to observe the following aspects when cleaning the MFN 200:

- Make sure that no dust gets into the device.
- Always keep the ventilation slots clear.
- Do not use corrosive substances to clean the device. Doing so may result in failure or malfunction.
- Use a vacuum cleaner exclusively to clean the device.

Battery

The MFN 200 contains an active CR2032 battery at the point of the delivery. The battery is powering the BIOS and keeping the synchronization of the clock of the device in a powerless state. In case of a need of replacement, please contact customer support.

Caution: The MFN 200 shall not be opened by untrained personnel.

Warning: Hot Surface. The surface temperature of the MFN 200 can rise by up to 25 °C above the ambient temperature. Avoid touching the metallic parts of the housing at ambient temperatures above 40 °C.

Power supply and peripheral connections

A 2-position, screw-type terminal block (MC 1,5/ 2-STF-3,5) is provided for connecting power to the terminal.

Warning: The device shall only be connected to 24 V DC supply networks which comply with the regulations for Safety Extra Low Voltage (SELV). In addition, the short-circuit current of the power supply and the cable cross-section must be selected as such that no damage occurs at the cabling. The maximum short-circuit current of the power supply must be less than 12 A.

Caution: The GND pin of the connector and the housing are electrically connected. Ensure that no equalizing current larger than 1 A flows between the GND pin and the housing. The power supply input is protected against reverse polarity.

Caution: The lengths of cables connected to the Display Port connector and to the USB connectors must not exceed 3 meters.

Warning: Use Input wire AWG16, rated for 90 °C for power supplies. Use copper conductors only.

Pin	Description
⏚	Chassis GND
-	GND
+	9 to 36 VDC

Table 2: *MFN 200 pins*

Disposal

Disposal of the device must be performed in accordance with prevailing national environmental regulations. WEEE 2012/19/EU is valid in Europe, while national laws and regulations may apply as well.

Customer support information

Company address:

TTTech Industrial Automation AG
Schoenbrunner Str. 7,
A-1040 Vienna, Austria,
Tel. +43 1 585 34 34 – 0,
Fax +43 1 585 34 34 – 90

For technical assistance and support regarding TTTech Industrial Automation AG products, contact our customer support through the TTTech Industrial support portal at https://tttech-industrial.4me.com/.

For the latest version of this document, visit https://docs.nerve.cloud.

Disclaimer

THE INFORMATION GIVEN IN THIS USER MANUAL IS GIVEN AS A SUPPORT FOR THE USAGE OF THE MFN 200 ONLY AND SHALL NOT BE REGARDED AS ANY DESCRIPTION OR WARRANTY OF A CERTAIN FUNCTIONALITY, CONDITION OR QUALITY OF THE MFN 200. THE RECIPIENT OF THIS USER MANUAL MUST VERIFY ANY FUNCTION DESCRIBED HEREIN IN THE REAL APPLICATION.

TTTECH INDUSTRIAL AUTOMATION AG PROVIDES THE USER MANUAL FOR THE MFN 200 "AS IS" AND WITH ALL FAULTS AND HEREBY DISCLAIMS ALL WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ACCURACY OR COMPLETENESS, OR OF RESULTS TO THE EXTENT PERMITTED BY APPLICABLE LAW. THE ENTIRE RISK, AS TO THE QUALITY, USE OR PERFORMANCE OF THE USER MANUAL, REMAINS WITH THE RECIPIENT. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW TTTECH INDUSTRIAL AUTOMATION AG SHALL IN NO EVENT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO LOSS OF DATA, DATA BEING RENDERED INACCURATE, BUSINESS INTERRUPTION OR ANY OTHER PECUNIARY OR OTHER LOSS WHATSOEVER) ARISING OUT OF THE USE OR INABILITY TO USE THE USER MANUAL, EVEN IF TTTECH INDUSTRIAL AUTOMATION AG HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

TTTECH INDUSTRIAL AUTOMATION AG MAKES NO WARRANTY OF ITS PRODUCTS, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW DISCLAIMS ALL LIABILITIES OR DAMAGES RESULTING FROM OR ARISING OUT OF THE APPLICATION OR USE OF THESE PRODUCTS.

ALL PRODUCT NAMES AND TRADEMARKS MENTIONED IN THIS USER MANUAL ARE THE PROPERTY OF THEIR RESPECTIVE OWNERS, WHICH ARE IN NO WAY ASSOCIATED OR AFFILIATED WITH TTTECH INDUSTRIAL AUTOMATION AG.

MFN 200 User Manual

Document version **1.0.0** of 2024-04-22

Document number: **D-NERVE-G-11-009**