



SYSTEM DOCUMENTATION

Mayflower®-B17-LiQuid-vE



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1.1 Notes on the documentation

This documentation is intended exclusively for qualified personnel of the control and automation technology, which is familiar with the applicable standards. For the installation and commissioning of the components, it is absolutely necessary to observe the following instructions. Read the manual completely before first use and keep it in a safe place for later use.

1.2 Qualified personnel

The associated device/system may only be set up and operated in connection with this documentation. Commissioning and operation of a device/system may only be carried out by qualified personnel. Qualified personnel within the meaning of the safety instructions of this documentation are persons who have the authority to use, to ground and to identify devices, systems and circuits in accordance with the standards of safety technology.

1.3 Intended use

The flawless and safe operation of the product requires proper transport, proper storage, installation and assembly as well as careful operation and maintenance.

1.4 Liability conditions

The qualified personnel must ensure that the application or use of the described products complies with all safety requirements, including all applicable laws, rules, regulations and standards.

The documentation has been carefully constructed. However, the products described are constantly being further developed. Therefore, the documentation is not in all cases completely checked for compliance with the described performance data, standards or other characteristics. None of the explanations contained in this manual constitute a guarantee within the meaning of §443 of the German Civil Code (BGB) or an indication of the use required under the contract as defined in §434 Para. 1 Sentence 1 No. 1 of the German Civil Code (BGB). If it contains technical errors or typographical errors, we reserve the right to make changes at any time without notice. No claims for changes to products already supplied can be made on the basis of the information, illustrations and descriptions in this documentation.

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1.5 Explanation of the security symbols

This manual contains information that you must observe for your own safety and to avoid material damage. The indications on personal safety are highlighted by a warning triangle, indications of material damage are without warning triangle. Depending on the level of risk, the warnings are shown in descending order as follows:



DANGER

means that death or serious bodily injury will occur if the appropriate precautions are not taken.



WARNING

means that death or serious bodily injury may occur if the appropriate precautions are not taken.



CAUTION

with warning triangle means that without the appropriate precautions a slight bodily injury can occur.



NOTE

provides general information related to the operation of the system.



CAUTION

without a warning triangle means that without the appropriate precautions, material damage can occur.



ATTENTION

means that an undesirable result or condition may occur if the corresponding notice is not observed.

If multiple levels of risk occur, the warning is always used for the highest level. If a warning triangle warns you of a personal injury, you may also be alerted against damage in the same warning message.

1.6 Basic safety instructions



1. Observe safety instructions

Be sure to read the safety instructions before starting the operation.



2. Proper use

Electronic devices are generally not fail-safe. In the event of a failure of the operating or control device or a non-disruptive power supply, the user is responsible for ensuring that connected devices, such as motors, are placed in a safe state.



3. Checking the mains voltage

Check that the supply voltage matches the voltage requirement indicated on the unit. If you are unsure of the mains voltage and mains frequency for the power supply at the installation location, contact your electrician or your electricity plant.



4. Disconnect the mains voltage

Even when switched off, some parts of your computer system may have power in the interior.



5. Grounded products

Certain products are equipped with a mains plug with a grounding cable. This plug can only be plugged into a socket with grounding line. Contact your electrician if the outlet is not suitable for the plug and may need to be replaced. Do not attempt to tamper with the Plug and therefore override the safety feature.



6. Opening the device

Always disconnect the power plug before opening the device. Do not open any parts that are labeled "do not open".



7. Installation

The installation of the device must be carried out in accordance with local/regional electrotechnical regulations for the installation of data processing facilities by qualified and authorized personnel.

CAUTION 8. Repairs

Repairs to your computer system may only be carried out by specially trained qualified personnel. Only use original spare parts and accessories for repairs.



9. Security check

After servicing or repairing the product, ask the technician to perform safety checks to make sure that the product is working properly.



10. Inserting objects

Never insert objects into the inside of the device by opening a device, as they could hit components that are under voltage or cause a short circuit. This can lead to fire or life-threatening electric shock.

CAUTION 11. Transport and storage

In the case of transport and storage, the equipment must be protected against undue stresses (mechanical load, temperature, humidity, aggressive atmosphere).

CAUTION 12. Moisture

Avoid persistent, extreme humidity and condensation. Protect the device from splashing water and chemicals. Do not operate the device if the humidity is outside the limits specified in the user manual.



NOTE 13. Liability

The manufacturer assumes no liability for any damage caused by non-observance of the operating instructions.

1.7 Duty of care of the operator

The operator must ensure that

- the industrial PC is only used as intended.
- the industrial PC is operated only in perfect working condition.
- the operating instructions are always in a legible state and completely available at the location of the industrial PC.
- only adequately qualified and authorized personnel will service, maintain and repair the Industrial PC.
- this staff is regularly trained in all applicable issues of occupational safety and environmental protection, as well as the operating instructions and in particular the safety instructions contained therein.
- all safety and warning notices attached to the industrial PC are not removed and remain legible.

Only qualified personnel are allowed to open the housing of the Industrial PC!



The operator shall ensure that only sufficient qualified and authorized personnel open the housing.

1.8 Operating personnel requirements



Every user of the industrial PC must have read these operating instructions and know all the functions of the software installed on the PC.

2.1 Transport

Despite the robust construction of the industrial PC, the built-in components are sensitive to heavy shocks and vibrations. Therefore, protect your systems from heavy mechanical loads during transport. Please use the original packaging for shipping.

CAUTION When transporting in cold environments or when the device is exposed to extreme temperature differences, ensure that no moisture (condensation, condensed water etc.) is reflected by and in the appliance. This means that the unit is only slowly able to adjust to the room temperature before it can be put into operation again. At condensation, the device must be switched on again at the earliest after 12 hours. Non-compliance can cause serious damage to the hardware!



Be careful and do not lift heavy loads without assistance. Please carry loads between 18 kg and 32 kg by two, loads from 32 kg to 55 kg by three persons. Loads greater than 55 kg should be transported by driving.

2.2 Unpacking

When unpacking the device, observe the following points:

- Remove the packaging.
- Check the contents of the packaging for visible transport damage.
- Check the delivery for completeness.
- However, keep the packaging for possible re-transport.
- Be sure to keep the supplied documents, they are required for initial startup and belong to the device.



If you notice any transport damage or discrepancies between the contents of the packaging and your order, please inform us immediately.

2.3 Surrounding and environmental conditions

When planning your system, consider the following points:

- Observe the climatic and mechanical environmental conditions in the technical data of the operating instructions.
- Avoid extreme environmental conditions as far as possible.
- Protect your equipment from moisture, dust and heat, as well as shock and vibration.
- Do not expose your system to direct sunlight.

- The system is to be installed professionally so that no danger (e.g. by overturning) can go out of it.
- There must remain a free space of at least 50 mm in the area of the ventilation slots, so that the industrial PC is adequately ventilated.

2.4 Extension/upgrading of the system

CAUTION If your system is equipped with your own expansion cards, it is important to pay attention to the ESD protection!



NOTE Please also note the additional manuals included with the expansion cards.

2.5 Setting up/installing the system

2.5.1 DC version

CAUTION The system is intended for installation in vehicles. For this purpose, the supplied 19" mounting brackets and additionally the mounting holes on the device side must be used. The operator must provide an appropriate mounting device for this purpose. The use of the 19" mounting brackets alone is not recommended, as the device has too great a mass for this.

2.5.2 AC version (HIL, Laboratory)

CAUTION The system can be installed in 19" rack systems. Your computer system is designed for installation in a 19" mounting frame. Due to its weight, it must be supported by suitable supports, shelves or by telescopic rails over the entire depth. Please note that mounting solely via the 19" mounting brackets is mechanically insufficient and may result in damage to the computer system and the rack. Secure the 19" mounting brackets to the 19" frame with appropriate screws to secure the system from unwanted movement. See the technical drawing in the appendix.


The fastening screws of the telescopic rails must not protrude more than 5mm into the device.

When positioning the computer system, ensure that there is unobstructed airflow to the front panel vents, from the rear panel vents, and from the power supply.

2.6 Requirements for commissioning

CAUTION The device must be slowly adjusted to the room temperature before it is allowed to be put into operation. In case of condensation, the device may only be switched on after a waiting period of at least 12 hours (see chapter 2.1 Transport).

2.6.1 DC version

 Before you switch on the system, the peripheral devices mouse, keyboard, monitor as well as the power supply must be connected.

NOTE Since the system is designed for headless operation in the vehicle, these components are optional.

2.6.2 AC version (HIL, Laboratory)



Before you switch on the system, the peripheral devices mouse, keyboard, monitor as well as the power supply must be connected.

2.7 Connecting devices

2.7.1 All versions

CAUTION Non-hot-pluggable peripherals may only be connected when the PC is switched off.

CAUTION The information in the descriptions of the peripheral devices must be followed exactly.

2.7.2 DC version

- Check that the vehicle on-board voltage matches the connection values of the system.
- Check that the connection cable has the necessary cross-section.
- Make sure that the power supply switch on the system is in the "0" (off) position.
- Make sure that the connection on the vehicle side is not carrying current.
- Establish the connection: Connection cable -> vehicle. Red = +, Black = -
- Establish the connection: Connection cable -> system. Red = +, Black = -
- Connect the keyboard and mouse to the connectors of the device. If necessary, secure the cables against unintentional disconnection. (Optional)
- Connect the monitor cable to the connector of the graphics port. Hand-tighten the screws of the monitor cable. (Optional)

2.7.3 AC version (HIL, Laboratory)

- Connect the keyboard/mouse or a KVM device to the ports of the device. If necessary, secure the cables against unintentional disconnection.
- Connect the monitor cable or KVM device to the connector of the graphics port. Tighten the screws of the monitor cable hand-tight.

- Check that the local mains voltage corresponds to the connection values of the system.
- Connect the computer and the monitor to your power supply using the enclosed power cables.

2.8 Switching on for the first time

Before commissioning, please read the entire operating instructions and pay particular attention to the safety instructions in Chapter 1.6. Basic safety instructions.

- Turn on the monitor.
- Press the on/off button of the computer. The Power LED should now be lit.
- Now the computer runs through the power on self test. The BIOS boot message then appears on the screen.



If the computer does not report on the screen, please check the cabling again and make sure that the sockets carry power. If this also does not lead to success, please refer to chapter 4.1. or contact our service department.

NOTE



When you switch on the device for the first time, the pre-installed operating system (optional) is started. In this case, the required drivers are already installed for all additional, optional hardware components ordered with the PC.

NOTE



If the device is not equipped with an operating system, you will have to install it and the driver software for the additional hardware you have connected. Follow the instructions in the documentation of the operating system and the corresponding devices.

NOTE

2.9 Switch off



Before shutting down, please exit all applications and follow the software manufacturer's instructions to shut down the operating system.

NOTE

ATTENTION If the device is switched off while the software is writing a file to the hard disk, this file will be destroyed. Control software usually writes something to the hard disk on its own at intervals of a few seconds, so the probability of causing damage by switching off while the software is running is very high.

To switch off, press the on/off button on the front of the device.

CAUTION The computer is now switched off. However, some parts inside the system are still carrying power.



To switch on again, please make sure that the power cord is plugged in and the power switch is in the correct position. Then press the on/off button of the device.

2.10 Decommissioning

Disposal & recycling

According to the EU Directive 2002/96/EC of the European Parliament and the EU Council on Waste Electrical and Electronic Equipment (WEEE) or the revised version of the EU Directive, 2012/19/EU, there is an obligation to collect waste electrical and electronic equipment, to treat it in accordance with the regulations, to dispose it and to finance this. According to the Electrical and Electronic Equipment Act (ElektroG) applicable in Germany, every manufacturer is obliged to provide a reasonable opportunity for the return of old equipment from users other than private households.

Possibility to return and dispose of old equipment

You can professionally recycle an electrical device purchased from InoNet Computer GmbH by commissioning a transport company of your choice or a suitable parcel service at your expense and returning the old electrical devices to us for recycling. Before returning the equipment, please inform us by e-mail (service@inonet.com) about the quantity and equipment information so that we can correctly allocate the return to recycling. You will receive a return authorization number (RMA number) from us.

Personal responsibility with regard to the deletion of personal data

We expressly point out that according to § 19a ElektroG any personal data on the devices to be disposed of must be deleted by you.

Meaning of the symbol for marking electrical equipment



The symbol of the crossed-out wheeled garbage can on electrical appliances indicates that they must be collected separately and means that they must not be disposed of with household waste.



NOTE The shipment is carried out by the customer himself and at his own expense. The customer must observe the applicable laws when shipping goods. Please observe the generally applicable shipping regulations for electrical / electronic equipment and batteries.

InoNet-WEEE-Reg-No: DE 22812561

3.1 Controls & Components

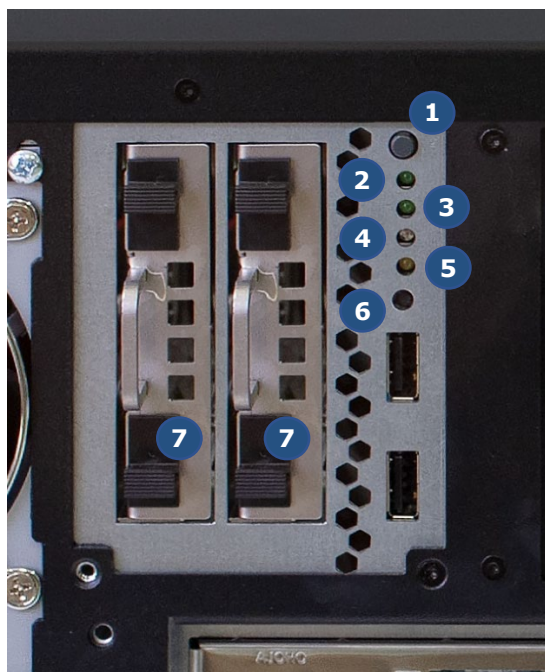
Elements on the front



This system has separate control and connection panels

No	Description
1	Control panel and hard drive removable frames
2	Connection panel for liquid cooling
3	Interfaces
4	Power supply

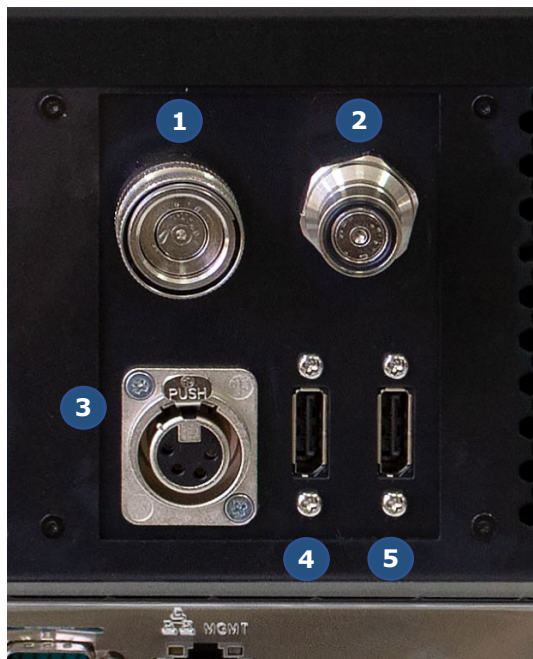
Control panel



No	Description
1	<p>Power button (function only if the power switch on the power supply unit is active.</p> <ul style="list-style-type: none">▪ Short press (<2 sec.) in off state - operating system starts.▪ Short press (<2 sec.) while powered on - operating system shuts down automatically if the operating system supports shutdown via ACPI event.▪ Long press (> 4 sec.) - ATX power supply switches off the device without shutting down (data loss possible!) <p>There is no reset of the processor when the power button is pressed.</p>
2	<p>LED LAN 1 (green)</p> <p>Activity of the onboard LAN adapter 1 is displayed.</p>
3	<p>LED LAN 2 (green)</p> <p>Activity of the Onboard LAN Adapter 2 is displayed.</p>
4	<p>LED Power (white/blue)</p> <p>This LED lights up when the system is switched on.</p>
5	<p>LED HDD (orange)</p> <p>Activity of the onboard SATA controller is displayed.</p>

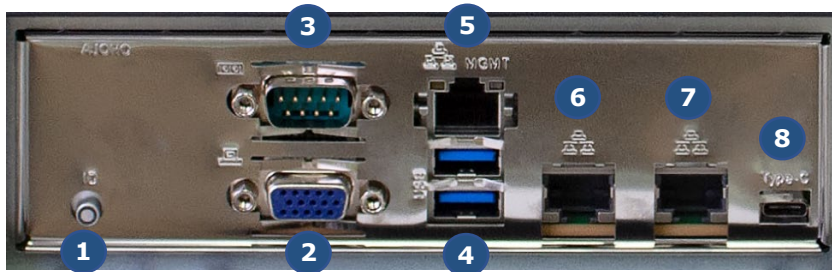
6	Reset button When the reset button is pressed, a hardware reset and a PCI reset are triggered. The device restarts (cold start). A reset by means of the reset button can lead to data loss!
7	Removable frame for 2x 2.5" hard disks/SSDs (Depending on the design of the system, SATA, SAS or NVME data carriers can be operated here). The shuttles can be removed after unlocking by pressing the black sliders together and pulling the tab.

Connection panel for liquid cooling



No	Description
1	No-spill connection external radiator, reverse (female)
2	No-spill connection external radiator, forward (male)
3	Connector supply/control/monitoring external radiator, 4-pin female, Neutrik
4	DisplayPort graphics card connector #1, if an off-board graphics card is installed internally. Alternatively, depending on the configuration, USB 3 port
5	DisplayPort graphics card connector #2, if an off-board graphics card is installed internally. Alternatively, depending on the configuration, USB 3 port

Interfaces



No	Description
1	UID key (without function)
2	VGA port. A VGA monitor can be connected here if there is no other graphics card installed in the system.
3	RS-232 port.
4	2x USB 3.1 Gen1 port
5	1Gbps LAN RJ-45 connector for IPMI/BMC (management port).
6	10Gbps LAN RJ-45 connector (LAN1)
7	10Gbps LAN RJ-45 connector (LAN2)
8	USB 3.1 Gen2 port (USBC)

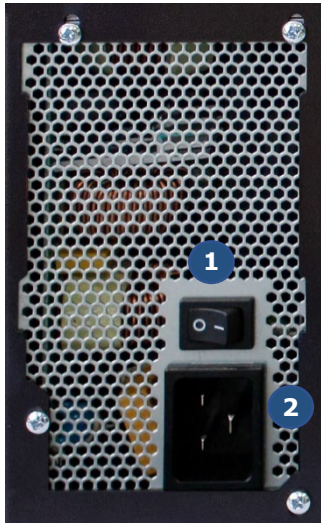
Components: Power supply/battery/hard disk

Power supply DC version



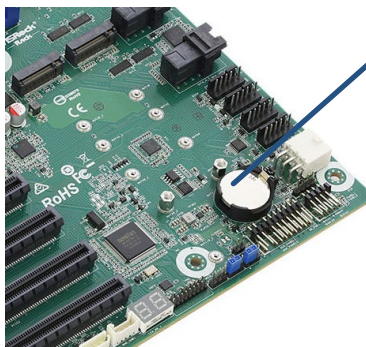
No	Description
1	Power Switch (On/Off) <ul style="list-style-type: none">Position "0" - power supply deactivated.Position "1" - power supply activated, power button is active.
2	Terminal + (Red) Power supply <ul style="list-style-type: none">Designed as a screw connection with M8 screw. The connection cable is screwed on here with a ring cable lug. It must be ensured that the insulation underneath the cable lug is completely removed.
3	Terminal - (Black) Power Supply <ul style="list-style-type: none">Designed as a screw connection with M8 screw. The connection cable is screwed on here with a ring cable lug. It must be ensured that the insulation underneath the cable lug is completely removed.

Power supply AC version (HIL, Laboratory)



No	Description
1	Power Switch (On/Off) <ul style="list-style-type: none">▪ Position "0" - device is disconnected from the power supply.▪ Position "1" - device is supplied with power, power button is active.
2	Power supply connection <ul style="list-style-type: none">▪ IEC socket according to EN 60 320 / C19

Bios battery



On the mainboard there is a **CR2032 battery** to keep the settings of the BIOS. This is located at the marked position. When changing the battery, be careful not to touch the battery with your bare fingers to prevent deposits that accelerate the discharge of the battery.

Hard disk

The HDD/SSD storage in this system is not hot-pluggable/hotswappable by default.

Four slots for 2.5" HDD/SSD are available. Two slots internally next to the power supply and two slots in front shuttles in the control panel.

The two internal slots near the PSU are directly connected to the mainboard in SATA2 standard.

The two slots in the front shuttle are connected as SATA2 to a RAID controller or directly to the mainboard or as NVMe (PCIe Gen3/Gen4) to a RAID controller depending on the device configuration.

Depending on the configuration, up to two M.2 2280 NVMe PCIe Gen4 slots are available on the mainboard.

Changing hard disks in the front shuttle

Proceed as follows to change the hard disk:

1. switch off the device and disconnect it from the power supply
2. unlock the hard disk by pressing the two black latches together and pull the metal tab at the same time
3. remove the old hard disk
4. insert the new hard disk in the same position and push it into the device until it clicks into place.

3.2 Liquid cooling

Cooling liquid

As standard, the systems are supplied with a coolant which consists of equal parts of demineralised water and standard automotive radiator protection. This protects the system from freezing and associated damage.

If the coolant is to be topped up or replaced by the user, ensure that the coolant used is certified for use in engines with aluminium block.

Connections

The connections of the cooling system are designed as so-called "no-spill" fittings. This means that when the connections are loosened, no coolant can escape from the system and no air can enter the system.

Loosening connections:

The hose connections can be disconnected by moving the collar of the female connector outwards. As the connection is under spring tension, it is automatically disconnected.

Making Connections:

A hose connection can be made by pushing the two connectors into each other until they click into place. This is associated with a clearly perceptible click.

Connecting the radiator

The coolant hoses of the external radiator are connected at the connection panel of the system as described. The connections are made safe from interchanging. The electrical connection must also be made at the same connection panel. This is done by plugging the 4-pin connector into the corresponding socket on the system until it clicks into place.

Refilling the system

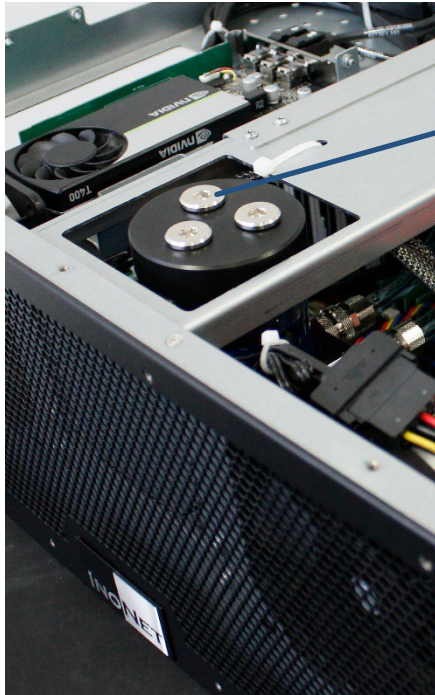
Over time, especially during operation at elevated temperatures, the coolant level can drop due to diffusion through plastics and rubber. To ensure trouble-free operation, the coolant level must therefore be checked during maintenance and, if it is too low, it must be replenished.

To top up the coolant, the system housing must be opened. This will expose access to the expansion tank. The expansion tank is transparent with a black lid, round and accessible through the recess in the central crosspiece.

The expansion tank has three G1/4" blind plugs with hexagon socket on its upper side. One of these plugs must be removed to refill coolant. Refilling can be done either by using a funnel or better by using a refilling device which is screwed into the G1/4" thread. The latter is preferable to avoid liquid entering the system and to prevent damage.

The correct liquid level is reached when the filling of the expansion tank is 2/3 to 3/4 of its inner height.

3. Description



Open and fill here

4.1 Troubleshooting

In this chapter, you'll find tips on how to fix or isolate problems you may encounter.

Malfunction	Causes	Measures
No function of the computer	Lack of power supply to the computer	Check the power supply cables.
The screen remains dark.	Screen is off	Turn on the screen.
	Screen is dark-controlled	Press any key on the keyboard.
	Brightness control set to dark	Set the brightness control on the screen to light.
	Power line or screen line not connected	Check that the mains cable is connected correctly. According to the screen and the system unit or to the GE grounded outlet.
		Check that the screen line is correctly connected to the system unit and to the screen.
		If the screen continues to remain dark after these controls and measures, please contact our service department.
No mouse pointer appears on the screen	Mouse Driver not loaded	Check if the mouse driver is installed correctly and is present when the application program starts.
	Mouse not connected	Check that the mouse line is properly connected to the system unit. If you are using an adapter or an extension for the mouse connection, also check this connector.
		If the mouse pointer does not appear on the screen after these controls and measures, please contact our service department.
Time and/or date of the computer are not correct		<ol style="list-style-type: none"> 1. Press <F2> during the boot process to enter the BIOS setup. 2. Set the time or date in the Setup menu.
Time/date are incorrect even after correct setting in BIOS setup	Buffer battery is empty	In this case, contact our service department.

USB device does not work	USB ports are disabled in BIOS	Other USB port or turn on the port.
	USB 2.0/3.0 device connected, although USB 2.0 is disabled	Turn on USB 2.0/3.0.
	Operating system does not support the USB interface	No remedial action.
Fan led flashes and an alarm tone is played	One or more fans are defective	Check if all fans are still working intact. Contact our service department.

4.2 Spare parts & accessories

A large number of accessories and spare parts are available for your computer system. Please contact our service department if necessary.

E-Mail: support@inonet.com

Tel: +49 (0)89 / 666 096-40

4.3 Contact

If a device is defective, please proceed as follows:

1. Contact us:

Phone: + 49 (0)89 / 666 096-337

Fax: + 49 (0)89 / 666 096-100

E-Mail: rma@inonet.com

2. You tell us the S/N No. of the product and describe the error.
3. Our RMA department will try to solve the problem on the phone immediately.
4. If this does not succeed immediately, you will get a RMA number.
5. You send the device in original packaging to us with the following information:
 - S/N number of the product
 - Error description
 - RMA number
 - Contact details

Address:

InoNet Computer GmbH

Wettersteinstrasse 18

82024 Taufkirchen, Germany

6. If the warranty still exists, we will repair the device free of charge and send it back to you.
7. If the warranty has expired, we will contact you and you will receive a cost estimate.
8. If you accept it, we will repair the device and send it back to you.



See also:

<https://www.inonet.com/unternehmen/kontakt/>



In the appendix you will find an inspection and maintenance schedule. This should be continued on a regular basis.

5.1 Cleaning

Turn off the industrial PC and all devices connected to it. Disconnect the system from the power supply.



The system can be cleaned with a moist, soft cloth. Do not use caustic detergents, solvents, abrasives, or hard objects that could lead to scratches or similar.

5.2 Internal battery of the mainboard



Your computer system is equipped with a battery-powered real-time clock. Replace the battery only with a battery of the same type. Dispose of the replaced battery according to the manufacturer's instructions. Do not attempt to recharge the battery and never bring it into contact with water or fire. Danger of explosion!

5.3 Drives



Storage drives with removable media should also be cleaned regularly to ensure reliable operation. Only use the accessories recommended by the manufacturer of the drive. If you have questions about this topic, contact your supplier or the drive manufacturer.

Inspection and maintenance schedule

Object	Type	Interval	Execution	Last test on:
Hard disks	Functional test	semi-annually		
Fans	Visual and functional check	semi-annually		
BIOS battery	Voltage check	yearly		
Chassis	Cleaning	every two years		
Liquid cooling level	Visual inspection	monthly		

Technical data

Mayflower®-B17-LiQuid-vE	
Dimensions	430mm(W) x 400mm(D) x 175mm(H)
Environmental conditions in operating condition:	
▪ Temperature	0° up to 55° C
▪ Humidity	8% up to 90% rH, non-condensing
▪ Shock	10 G, duration 11 msec.
▪ Vibration	1 G, 5 up to 500 Hz (with SSD) 0,25 G, 5 up to 500 Hz (with HDD)
Environmental conditions storage and transport (in the packaging)	
▪ Temperature	-20° up to 70° C
▪ Humidity	5% up to 95% rH, non-condensing
▪ Shock	10 G, duration 11 msec.
▪ Vibration	1 G, 5 up to 500 Hz (with SSD) 0,25 G, 5 up to 500 Hz (with HDD)
Voltage input	DC, 9V up to 18 V DC, 1000W @55°C max. AC, 90V up to 264V AC, 1200W @50°C max.
Mounting position	Flat, the case cover faces up, air inlet and outlet on front and rear side must not be covered.
Platform	AMD® EPYC® 7002/7003
Mainboard	Industrial Mainboard (ATX), 24/7 operation
Cooling system	Air-cooled/hybrid
Liquid cooling expansion tank and pump	In system case
Certified operating systems	Microsoft® Windows Server 2016/2019 (64 bit) Linux®, VMWare®

Technical drawing

