BEETLE /M-III

CPU - Haswell (K1/K2), Sky Lake (M1/M2), Braswell (O1), Coffee Lake (R1/R2)

Operator Manual

01750341829F

DieboldNixdorf.com

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1 Manufacturer's Certification

NOTE

This device meets the requirements of the EU Guidelines 2014/30/EU "Electromagnetic Compatibility" and 2014/35/EU “Low Voltage Directive” and 2011/65/EU "Restriction of Hazardous Substances".

For this, it bears the CE label on the rear side or the icon is printed on the packaging.

NOTE

The device is approved for use in the USA and Canada. The battery is excluded.

Supplier's Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Responsible Party in the U.S.	Diebold Nixdorf
	Address: 5995 Mayfair Road
	N. Canton, OH 44720 / USA
Contact:	mailto:cynthia.williams@dieboldnixdorf.com

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference in which case the user will be required to correct the interference at his expense. Modifications not authorized by the manufacturer may void user’s authority to operate this device.

This class A digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la classe A est conforme à la norme NMB-003 du Canada. (2) this device must accept any interference received, including interference that may cause undesired operation

2 Section-specific Warning Notes

DANGER

This warning note describes a hazard with a high degree of risk which, if not avoided, will result in death or grave bodily injury.

WARNING

This warning note describes a hazard with a medium degree of risk which, if not avoided, could result in death or grave bodily injury.

CAUTION

This warning note describes a hazard with a low degree of risk which, if not avoided, could result in slight or minor bodily injury.

NOTE

This note provides application tips and information that help prevent errors and material damage.

3 Important notes

The BEETLE /M-III modular POS system corresponds to the relevant safety regulations pertaining to data processing facilities.

NOTE

The device may be repaired only by authorized specialist staff. Improper repairs will lead to the loss of any liability claims.

NOTE!

Sub-assemblies with ElectroStatic Discharge-sensitive components (ESD) can be marked with this label.

When installing sub-assemblies or modules, please observe the following information that applies to all sub-assemblies with ESD:

- Ensure that the device is switched off and pull the power plug before you plug in, unplug or install sub-assemblies.
- Always use anti-static equipment (anti-static mat with ground cable with integrated leakage resistance of 1 Mohm, anti-static armband with connection to the mat, anti-statically equipped tools). The anti-static mat must be connected to a suitable ground point via the leakage resistance.
- Place all sub-assemblies with ESD on a suitable anti-static base.
- Touch sub-assemblies with ESD only at their edges and do not touch any components.
- Do not touch any connector pins or conductor paths on an electrostatic-discharge-sensitive assembly.

3.1 Safety Instructions

The BEETLE /M-III modular system corresponds to the relevant safety regulations pertaining to data processing facilities.

- If this device is moved from a cold environment into its operating room, condensation may occur. The device must be absolutely dry prior to commissioning, therefore allow for an acclimatization time of at least two hours before putting it into operation.
- The device is equipped with a safety-tested power cable. It must be connected only to a properly grounded contactor contact electrical socket.
- When installing the device, please ensure that the device plug-in fixture and the contactor contact electrical socket are easily accessible.
- The device must be fully disconnected from the supply voltage when performing any work at the device and when plugging in or disengaging data cables. To completely disconnect the appliance from the supply voltage, switch off the device and pull out the power plug of the power supply unit.

- USB devices may be connected to the BEETLE or removed from it during ongoing operations if these devices comply with the specifications pursuant to usb.org. Other peripherals (e.g. PoweredUSB printer) should not – for safety reasons – be connected to or disconnected from BEETLE systems unless such systems are switched off.
- Before you begin any assembly work on the device, you should discharge yourself, e.g. by touching a grounded object (such as a heater).
- Please make sure that no objects (e.g. paper clips) are able to enter inside the device, as this may result in electrical shocks or short circuits.
- Keep the ventilation slots of the device free to ensure proper ventilation and please observe the installation instructions for the BEETLE. This prevents excessive increases in temperature.
- No data cables may be plugged in or unplugged during storms.
- Protect the device against vibrations, dust, humidity and heat.
- Make sure that used parts, e.g. the accumulator are disposed of in a way that is environmentally friendly.
- In the event of emergencies (e.g. damaged housing or damaged power cable, penetration of liquids or foreign objects), switch the device off immediately, pull the power plug and inform Technical Customer Service at Diebold Nixdorf International GmbH or the authorized service partner of your retailer.
- An explosion hazard exists if the lithium battery of the device is replaced incorrectly. Only identical batteries or other types recommended by the manufacturer are permitted to be used to replace the lithium battery.
- Please ensure state-of-the-art constructional and technical ambient conditions to permit flawless and efficient functioning of the BEETLE system. You should connect the BEETLE or any other IT system only to mains networks with separate protective conductors (PE).
  Otherwise life-threatening contact voltages could occur in the case of conductor breakage.
  This type of mains network is called a TN-S network. Do not use PEN conductors! Please also observe the recommendations of DIN VDE 0100 part 540, Appendix C2. This will help you prevent any potential malfunctions.
- When replacing a storage medium, please ensure that you use only storage media authorized or recommended by Diebold Nixdorf.

3.2 System maintenance

Clean your system at regular intervals with a dry, lint-free cloth. For greater amounts of soiling, please use a cleaning agent suitable for plastic surfaces, as can be ordered from Diebold Nixdorf International. Make sure that the device is deactivated during cleaning, that the power plug is disconnected and that no fluid enters the inside of the device.

4 Introduction

Your BEETLE /M-III is an efficient and future-oriented system platform for multi-functional POS solutions.

The high-performance and thus electricity-saving process technology in the BEETLE /M-III ensures the quick processing of all procedures.

Various peripherals can be connected to the BEETLE /M-III. A sizable number of standard PC and retailer-specific, electrically-supplied interfaces are available for this purpose. Additional USB interfaces are arranged accessibly from the front for ready utilization. The type and number of interfaces can be configured very flexibly and individually.

Optionally, a second mass memory device is available for the BEETLE /M-III.

Different operating systems (Linux, Windows) can be installed on the BEETLE /M-III.

	The use of an 80-Plus Gold power supply unit ensures that the system is making a significant contribution to energy savings and environmental protection. The power supply unit is equipped with an 80-Plus Gold Certificate. A "Gold Certificate" attests to an efficiency of at least 87% during typical operations, which means more performance with less energy supply.

In case of questions about your BEETLE /M-III or other products and solutions of Diebold Nixdorf, please visit us on the Internet.

4.1 About This Manual

The objective of this document is to aid you in the use of the system and also serve as a reference manual. The detailed table of contents will help you find the desired information quickly and easily.

This manual describes the BEETLE /M-III system with the motherboards K1/K2, M1/M2, O1 and R1/R2. The M1/M2 board is preferred for display in the illustrations, particularly for the installation/removal or opening of the system, which is why the rear views and overall views may not correspond to the configuration of your particular system. The differences can be seen from the connection views.

As the type and scope of the application programs depend on the specific individual choice of each customer, this manual will not address any detailed issues pertaining to software. Dedicated manuals are available for the peripherals that can be connected. These devices will therefore not be described in greater detail here. Please inform yourself by consulting the respective manuals on the Internet.

4.2 Warranty

In general, Diebold Nixdorf (DN) guarantees a warranty of 12 months after delivery or acceptance date. This warranty covers all defects that have occurred during normal use of the product.

Defects resulting from incorrect or inadequate maintenance, incorrect use or any unauthorized changes to the product, unsuitable locations or unsuitable environments are not covered.

More details about the warranty regulation can be found in your contract documents.

If no claim to product warranty exists and if you do not have a service contract with Diebold Nixdorf, then the Diebold Nixdorf Customer Care Center (CCC) is available for accepting orders without a contract.

You can find the current telephone numbers under https://www.dieboldnixdorf.com

4.3 Recycling

This product was designed in accordance with our internal standard "Environmentally friendly product design and development".

The system is manufactured without the use of CFC and CHC and the majority of the components and materials used in its manufacture are recyclable.

You are helping us with the recycling if you do not attach any labels to the device.

For materials which currently cannot be used for a new purpose, Diebold Nixdorf offers environmentally friendly disposal at a recycling center that is certified in accordance with ISO 9001 and ISO 14001.

If your system can no longer be used, please send it in for this environmentally friendly and contemporary form of recycling.

Additional information about returns, recycling and disposal of our products can be obtained from your responsible branch office or from our recycling center in Paderborn.

mailto:info@dieboldnixdorf.com

5 The modular system

5.1 Overview

You can connect a variety of peripherals to your BEETLE /M-III modular POS system and enhance system performance by incorporating the latest generation motherboards:

You can

- connect distance, handheld or stationary scanners,
- use scales and scanner scales (observe applicable government agency approval regulations when doing so),
- connect various printers,
- use the POS workplace with various screen displays,
- utilize cash drawers in various design versions,
- connect various keyboards,
- order a BEETLE /M-III with a built-in battery to protect against network failures,
- integrate the BEETLE /M-III in a network,
- upgrade the BEETLE /M-III with a K1/K2, M1/M2 or R1/R2 motherboard, as it offers space for extension boards (1 x PCI Express x1 + 1 x PCI Express x16),
- upgrade the BEETLE /M-III with an O1 motherboard, as it offers space for an extension board (1 x PCI Express x1),

6 Before switching on

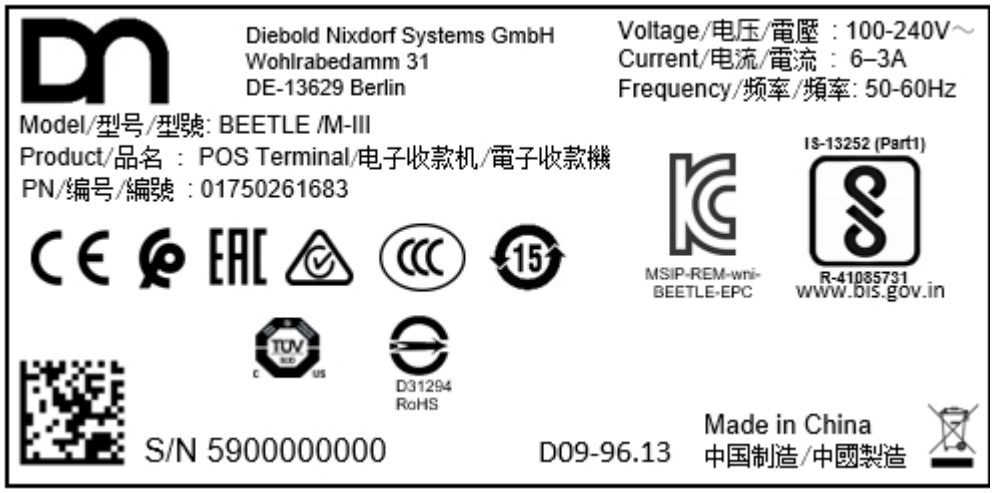
6.1 Checking the Scope of Supply

Unpack the parts and check whether the delivery package corresponds to the parts listed on the delivery note.

The box contains the system unit and a country-specific separate package.

If you notice any shipping damage or deviations between the package content and the delivery note, please inform your contractual partner or sales outlet of Diebold Nixdorf immediately. When doing so, please specify the delivery note number, delivery note item number and serial number of the respective device.

The serial number is located on the label shown here on the underside of the housing.



The serial number is positioned next to the barcode on the label.

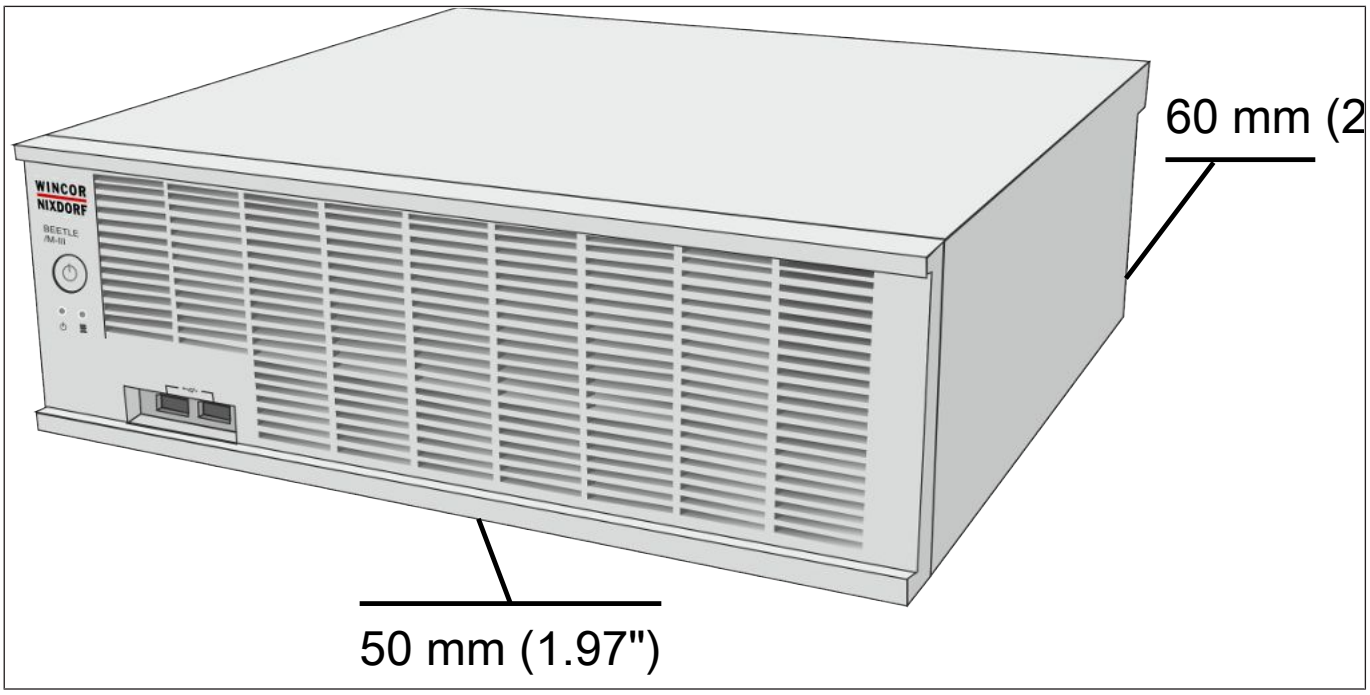
We recommended keeping the original packaging for any subsequent shipment that may be required (protection against jolts and impact).

6.2 Setting up the device

Install the BEETLE in such a way that it is not subjected to extreme ambient conditions. Protect the device against vibrations, dust, moisture, heat and strong magnetic fields.

6.2.1 Horizontal

Please adhere to the listed minimum distances in front of and behind the device! Even if you want to incorporate the device, it is mandatory that you adhere to the minimum distances listed below and ensure constant aeration and ventilation. The direct ambient temperature of the
system must not exceed 40°C.



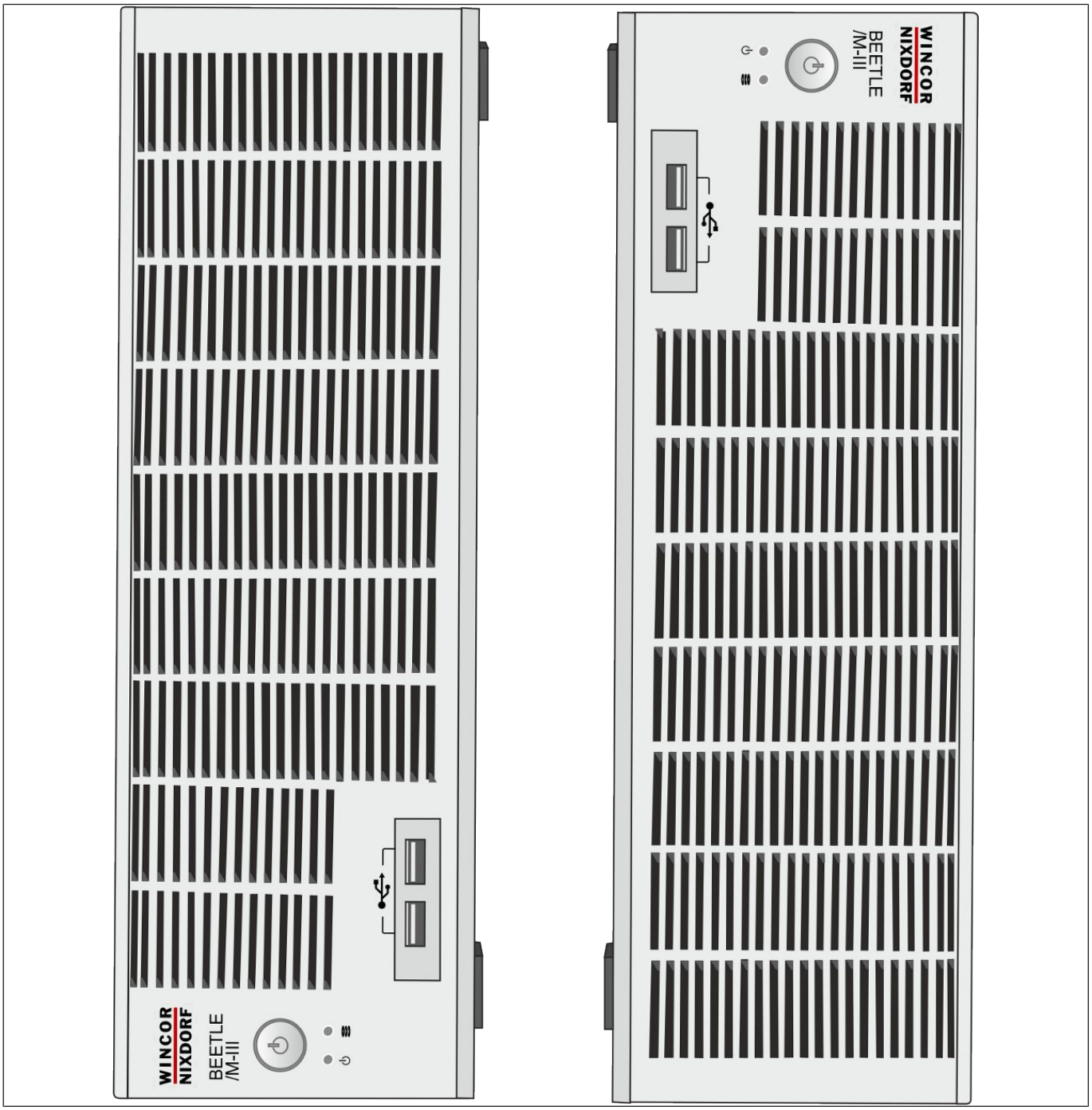
On the underside can be found four stands, each provided with a anti-slip rubber foil.

6.2.2 Vertical

In order to ensure that correct ventilation continues to be guaranteed, the following minimum distances must be maintained, even with free convection (see illustration above)n:

To the rear: 60 mm
To the front: 50 mm

The device can be set up on either the right-hand or the left-hand side.

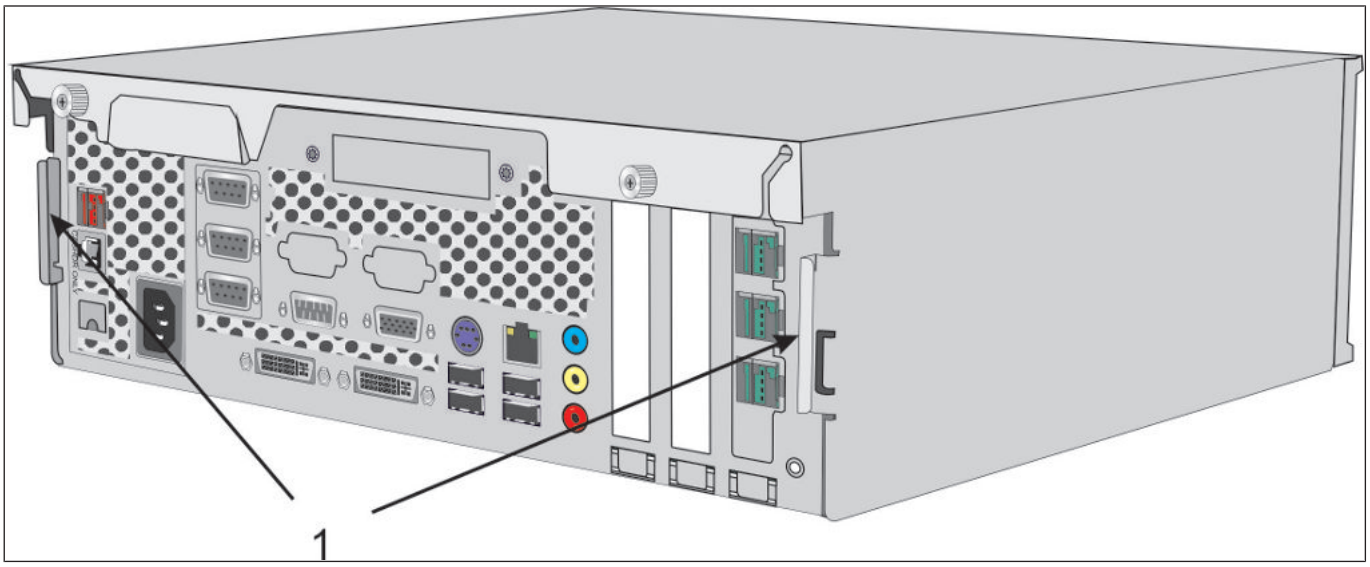


6.3 Fastening the cable cover

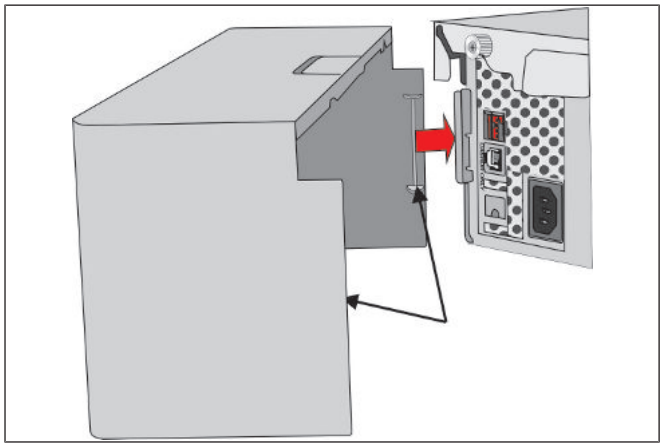
You should remove the necessary cable entries before attaching the optionally orderable cable cover to the device. Their removal is individually dependent on how and which cables you would like to install.

No tools are required, the plastic parts can be removed by hand.

To mount the cable cover, set the two webs into the two rails (see arrows) on the rear of your BEETLE / M-III.

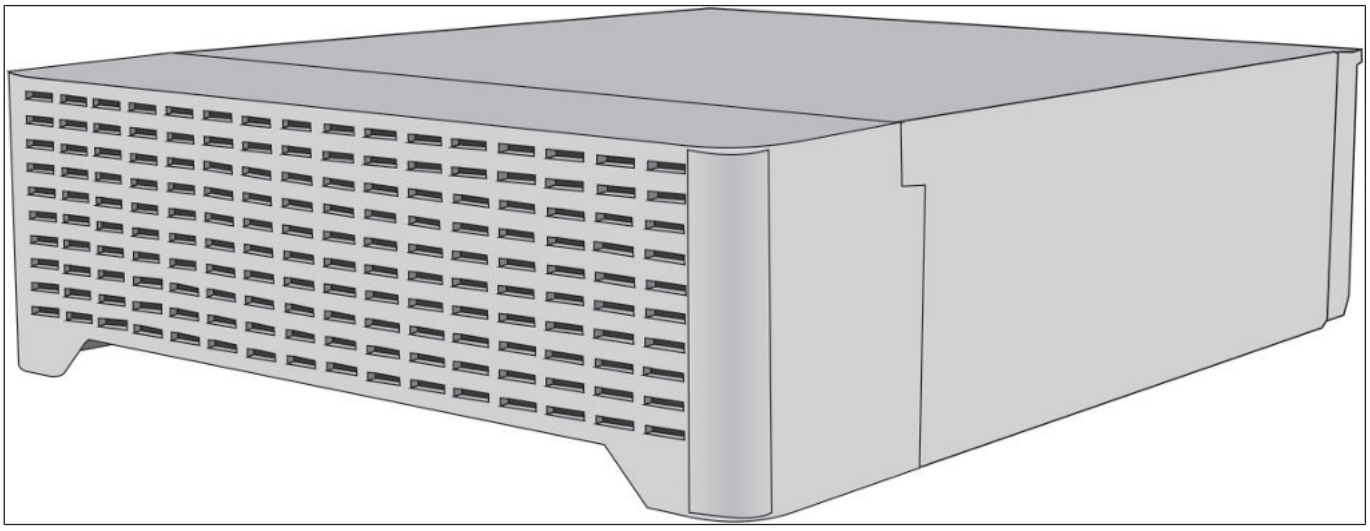


1	Rails



Hang up the cable cover on the left-hand side. Place the web in the plate on the other side.

Press this forward so that the cable cover closes flat.



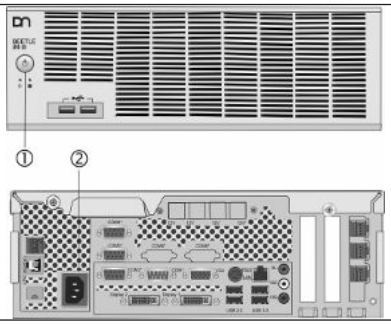
7 Cabling the BEETLE /M-III

All devices that are part of the BEETLE /M-III modular POS system and that have their own dedicated mains voltage cable must be connected to the same electric circuit.

⚠ CAUTION

Never plug in data or power supply cables when the system is switched on!

- Please ensure that all data cables are plugged in at the system unit and that the peripherals are plugged in.
- Plug the power cable into the socket on the rear of the device.
- Now insert the other cable end into the protective contact electrical socket s of the facility installation.



1	On/Off switch
2	Power supply

- To switch the device on, briefly switch the On/Off button at the front. Switching off during operation is possible; to accomplish this, press the button for approx. 5 seconds.

7.1 Basic setting

The BEETLE /M-III is configured in accordance with your order when it leaves the factory. Additional devices such as scanners must be adapted to your configuration afterwards. For this, contact your responsible Diebold Nixdorf branch office.

8 External view

The following illustration shows the BEETLE /M-III from the front.

1	On/Off button	2	Power LED
3	2 USB interfaces		

8.1 On/Off button

If the power supply unit is equipped with current, then the system is switched on by pressing the On/Off button.

8.2 Light emitting diodes

The light emitting diodes at the front of the system are marked as follows:

HDD/SSD	Right LED flashes yellow	Read or write access on HDD/SSD
POWER	Left LED lights orange	Standby mode (S4/S5)
	Left LED lights green	Device is switched on (S0)
	Left LED flashes green	Standby (S3)
	For BEETLE /M-III with an M1/M2 motherboard, the following applies:	
	POWER ON flashes briefly 4 x After a pause 100 ms on / 900 ms off 100 ms on / 900 ms off 100 ms on / 900 ms off 100 ms on / 4750 ms off	Error in the power supply
	POWER ON flashes briefly 2 x After a pause 100 ms on / 100 ms off 100 ms on / 700 ms off	Error in the CPU power supply, in the CPU or in the BIOS
	For BEETLE /M-III with an R1/R2 motherboard, the following applies:	
	2 Hz -> 500 ms	RAM error
	1 Hz -> 1000 ms	CPU error
		Chip set initialization error
	0.25 Hz -> 4000 ms	UEFI/NVRAM GFX error
	0.125 Hz -> 8000 ms	CPU temperature too high
	0.0625 Hz -> 16000 ms	Fan speed greater than 400 rpm
	Drive low	Disabled

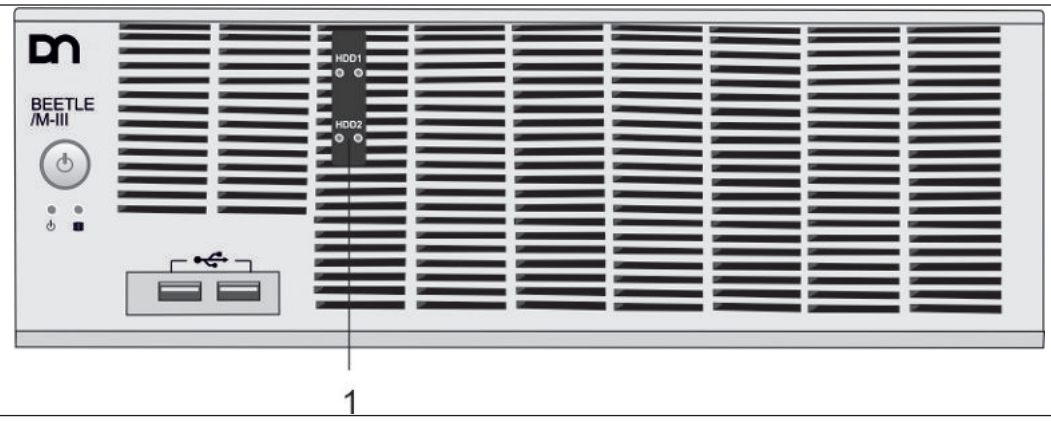
8.3 USB (Universal Serial Bus)-A

USB peripherals can be connected to these connections (USB-A), e.g. scanners, scales or magnetic card readers.

⚠ CAUTION

Only devices and cables that are in accordance with the valid USB specifications are permitted to be connected to the USB interfaces.

8.4 External view with front hard disk access (optional)



1	LEDs for HDD1/HDD2

The functions of the LEDs are described in the manual for the respective motherboard K1/K2 and M1/M2. The O1, R1 and R2 motherboards do not support front LEDs.

9 Connecting orifice plate

9.1 Power supply unit

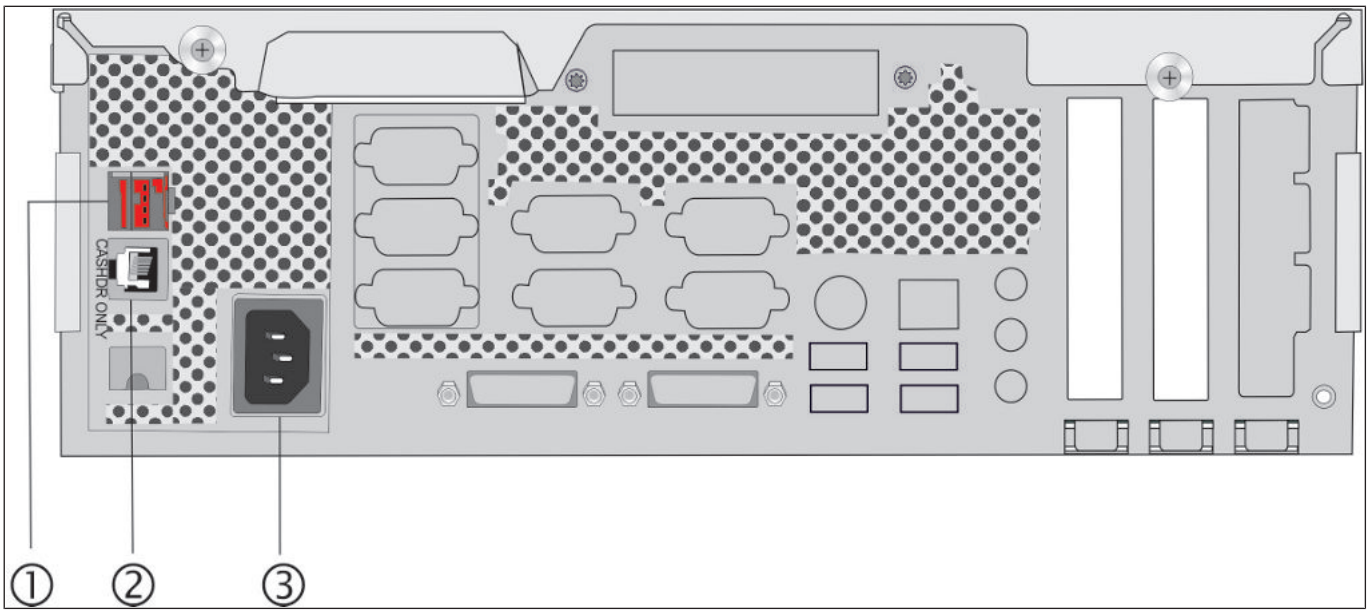
The installed power supply unit automatically adjusts itself to the respective voltage.

⚠ CAUTION

Only a power supply unit approved by Diebold Nixdorf may be used to replace the power supply unit.

⚠ CAUTION

The device must be fully disconnected from the supply voltage when performing any work at the device and when plugging in or disengaging data cables. To completely disconnect the appliance from the supply voltage, switch off the device and pull out the power plug of the power supply unit.



1	PoweredUSB 24 V	2	RJ12 (cash drawer)
3	Power plug		

9.1.1 PoweredUSB 24 V

USB peripherals which are operated with a higher energy requirement than through a standard USB, e.g. printers, barcode scanners or displays, can be supplied with electricity via a PoweredUSB. The power supply is 24 V (marked in red for POS printers).

A mechanical coding prevents a PoweredUSB 12 V or a 5 V plug from being accidentally plugged into a PoweredUSB 24 V socket. PoweredUSB ports can also be used as USB-A sockets.

⚠ CAUTION

The 24 V PoweredUSB interface is provided for the operation of retail thermal printers. The peak load is configured accordingly. The maximum constant current must not exceed 2 A.

9.1.2 RJ12 (CASHDR, cash drawer)

The system includes an RJ12 socket for the connection of a cash drawer. This connection must be used only to connect a till drawer.

Once they are plugged in, RJ12 plugs are locked. The power supply (P24V +5% / -15%) of the cash drawer is provided through this socket.

NOTE

Please ensure that the plug has a tight contact with the socket because otherwise it can lead to malfunctions.

⚠ CAUTION

The connection of sub-drawers (the so-called looping through) and the connection of 12 V OEM till drawers are not permitted!

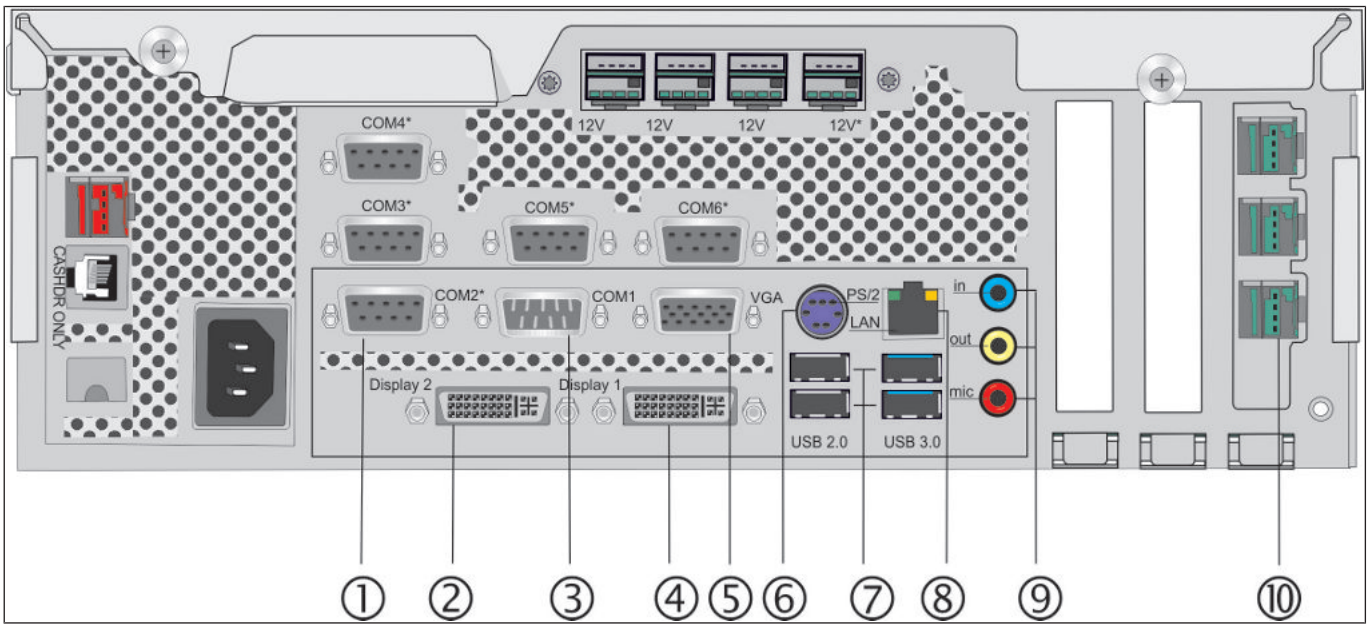
9.1.3 Power plug

The power supply is provided through this socket. Plug the matching end of the power cable into this socket and the opposite end into the socket of the external power supply. To disconnect the device from electrical power, pull out the power plug.

9.2 System unit

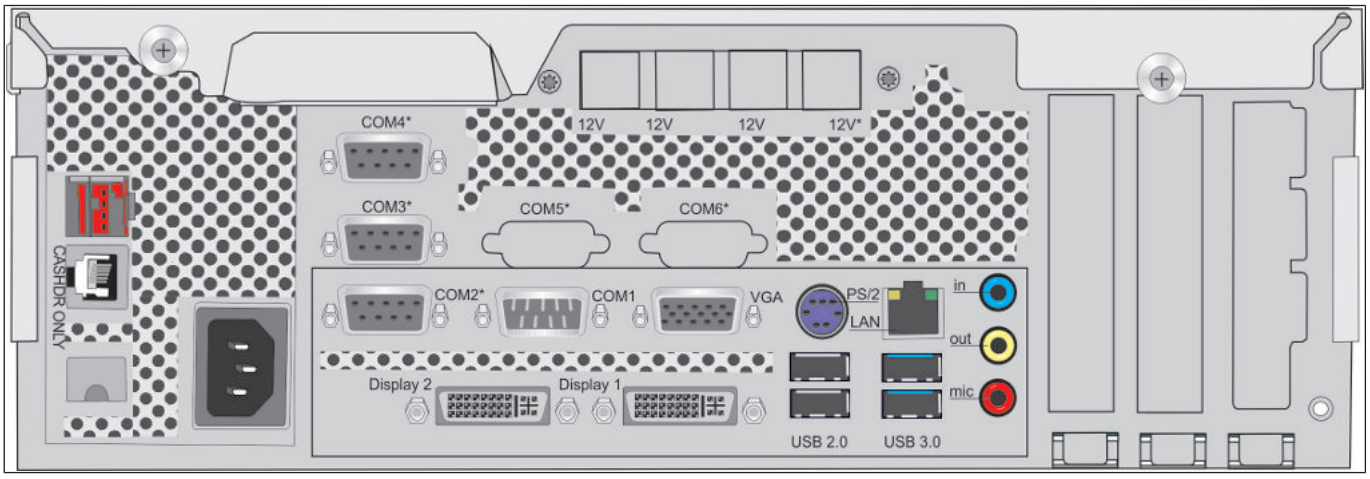
The device must be fully disconnected from the supply voltage when performing any work at the device and when plugging in or disengaging data cables. To completely disconnect the appliance from the mains voltage, switch off the device and pull out the AC plug to the power supply unit. Peripherals may not be plugged into the system when it is switched on!

Example of a connecting orifice plate:



1	3 x D-Sub (COM2*-COM4*- interfaces, with power supply or 5 x D-Sub	2	Display 2 (DVI-D/PLINK2) with RMT for one Mx and Rx Board, without RMT with one Kx Board
3	1 x D-Sub (COM1 interface)	4	Display 1 (DVI-D/PLINK2) with RMT
5	15-pin Mini D-Sub socket (VGA)	6	Mini DIN (KYBD), keyboard
7	2 x USB-A (USB 2.0) 2 x USB-A (USB 3.0)	8	RJ socket (LAN)
9	3 x 3.5 mm jack bush (IN, Out, Microphone)	10	3 x PoweredUSB 12 V (with a K1/K2, M1/M2 or R1/R2-Motherboard)

BEETLE /M-III connecting orifice plate with an O1-Motherboard:



9.2.1 COM2*-COM4*

Scanners, customer displays or operator displays that do not have a dedicated power supply are connected to these ports.

A 9-pin D sub-socket is used for this purpose.

NOTE

Take care to ensure that the plug for the peripheral devices is tightly screw-connected with the socket, because otherwise malfunctions could occur. The power supply is provided through this socket.

9.2.2 D-Sub Plug (COM1)

Connect for example a scale with dedicated power supply to the COM1 interface. COM1 is designed as a 9-pin D-sub plug. If you connect scales to the BEETLE /M-III which are not supplied by DN, then you must acquire a DN license for the driver software!

NOTE

Take care to ensure that the plug is tightly screw-connected with the socket because otherwise erroneous functions could occur.

9.2.3 Display 1 and Display 2

This interface is used for connecting a high-resolution monitor to the BEETLE system. It can be used as DVI-D or as PanelLink 2.0 interface. Here video signals with a maximum resolution of 1920×1200 pixels can be transferred at 60 Hz.
PanelLink 2.0 is supported by specific DN-Displays and supplies video signals and power supply in only one cable.

The display interface of the BEETLE system has an RMT function. This function is utilized by actuating the ON/OFF button on the screen. This function is available only if the BA8x/BA9x display has been connected to a BEETLE system using a PLINK2™ interface cable. The mode of operation depends not only on the settings of the BEETLE BIOS but also on the display settings. Details can be obtained from the following table.

BEETLE BIOS Settings	BA8x/BA9x Settings BEETLE	System and Display status	Reaction after pressing the display power-on button
RMT enabled/ Wake on PLINK	RMT enabled	OFF	The system boots up. The display is switched on by the system.
		ON	The system shuts down; the display switches off once the system itself has been switched off completely.
	RMT disabled	OFF	The system begins with the boot process; the display is switched on by the system.
		ON	FW2.10 and higher: The system does not react; the display switches off. FW2.05: The system switches itself off; the display remains switched on.
RMT disabled/ Wake on PLINK	RMT enabled	OFF	The system does not react. The display remains off.
		ON	The system does not react; the display remains on.
	RMT disabled	OFF	The system does not react; the display remains off.
		ON	The system does not react; the display remains off

The function (RMT) makes it possible for you to switch on the BEETLE system which is currently in Standby or Hibernation mode. It is also possible to move the system from switched-on status into Standby or Hibernation mode. The settings in the operating system determine which mode is active thereby.

9.2.4 Mini D-Sub socket (VGA)

The VGA interface is used for connecting a high-resolution display to the BEETLE system. The display is connected to the system via this 15-pin D-Sub socket.

9.2.5 Mini-DIN (KYBD, keyboard)

The BEETLE /M-III has a 6-pin mini DIN socket for the connection of a keyboard.

NOTE

Please ensure that the plug has a tight contact with the socket because otherwise it can lead to erroneous functions.

The power supply for the keyboard is provided through this socket. A special adapter cable is required for the connection of a PC standard keyboard with a DIN plug. If required, contact your responsible Diebold Nixdorf branch office.

The use of a Y adapter makes it possible to connect a PS/2 mouse in addition to the keyboard.

9.2.6 USB (Universal Serial Bus)

Various USB peripherals can be connected to these connections (USB-A), e.g. not only scanners, scales or mice, but also dongles or even graphics cards or monitors. USB can provide the required power for devices with little wattage such as phones or keyboards.

NOTE

To determine which USB ports you have available, please refer to the respective manual supplied with the motherboard. The manuals can be found online or accessed via the Diebold Nixdorf Intranet.

9.2.7 RJ45 (LAN)

The cable for the connection to a network (LAN) will be plugged in here.

Left LED	Constant green	Network connection established
	Flashes green	Data transfer
Right LED	off	10 MBit
	Constant green	100 MBit
	Constant orange	1000 MBit

NOTE

Use only shielded LAN cables marked with CAT5 or CAT5e (for 1000 MBit). These offer greater protection against malfunctions in the network.

9.2.8 3.5 mm jack bush (In/Out/microphone)

Audio devices such as headphones, loudspeakers and microphones can be connected to these ports. The three sockets are mechanically identical, although they differ in their function. The blue socket (Line In) is an audio input. External audio sources can be connected here. The green socket (Line Out) is an audio output. Headphones or loudspeakers can be connected here. Finally, a microphone can be connected to the pink socket (Mic).

You can adjust the required volume through the software in the operating system or through the operating system itself (for example, the Windows operating system features a small loudspeaker symbol on the taskbar which can be used to control the volume).

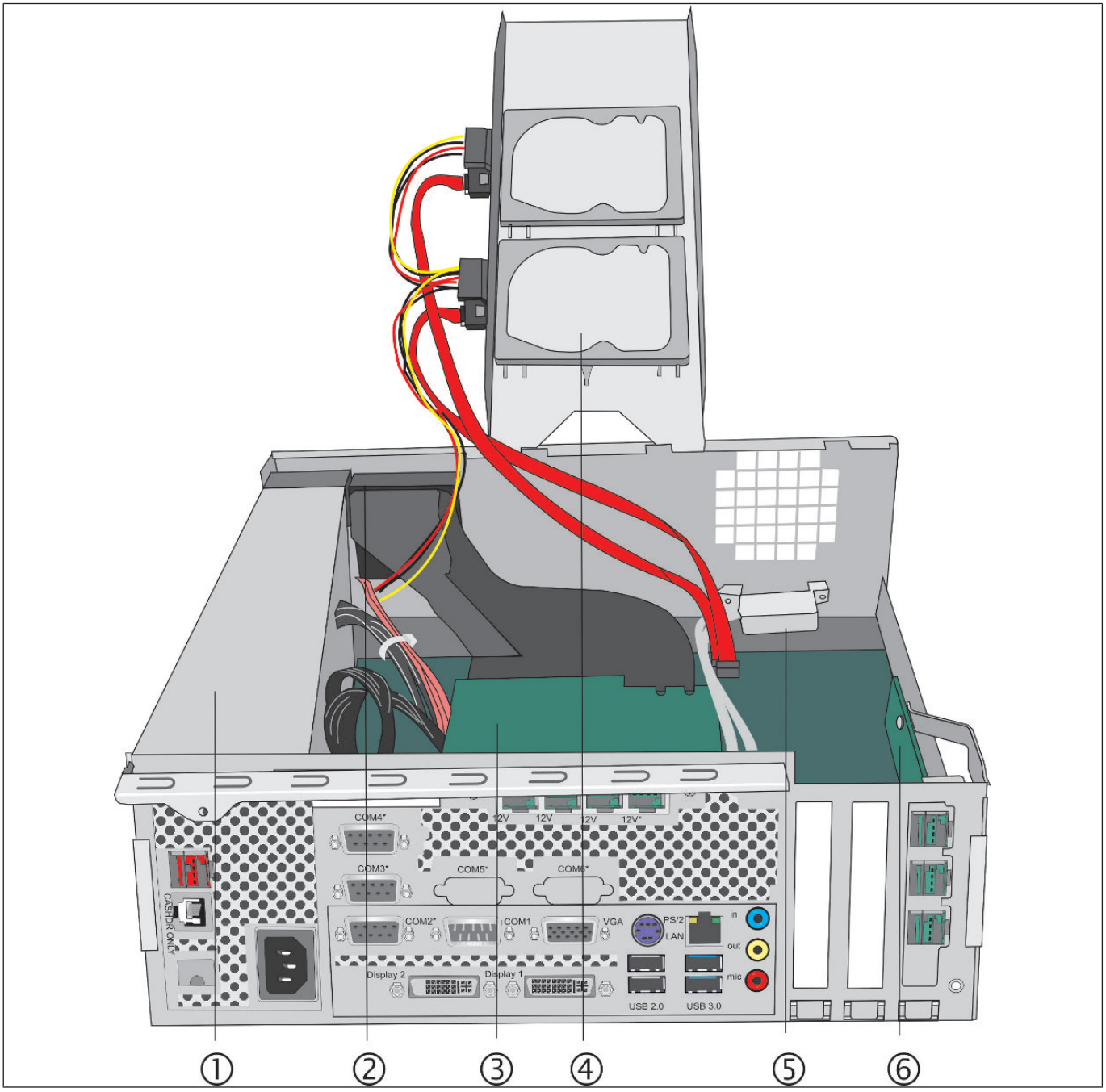
9.2.9 PoweredUSB

USB peripherals, whose energy demand is higher than the supply provided by the standard USBs, e.g. printers, barcode scanners or displays, can be operated at PoweredUSB connections.

A mechanical coding prevents a USB 12 V plug from being accidentally plugged into a USB 24 V socket. PoweredUSB ports can also be used as USB-A sockets.

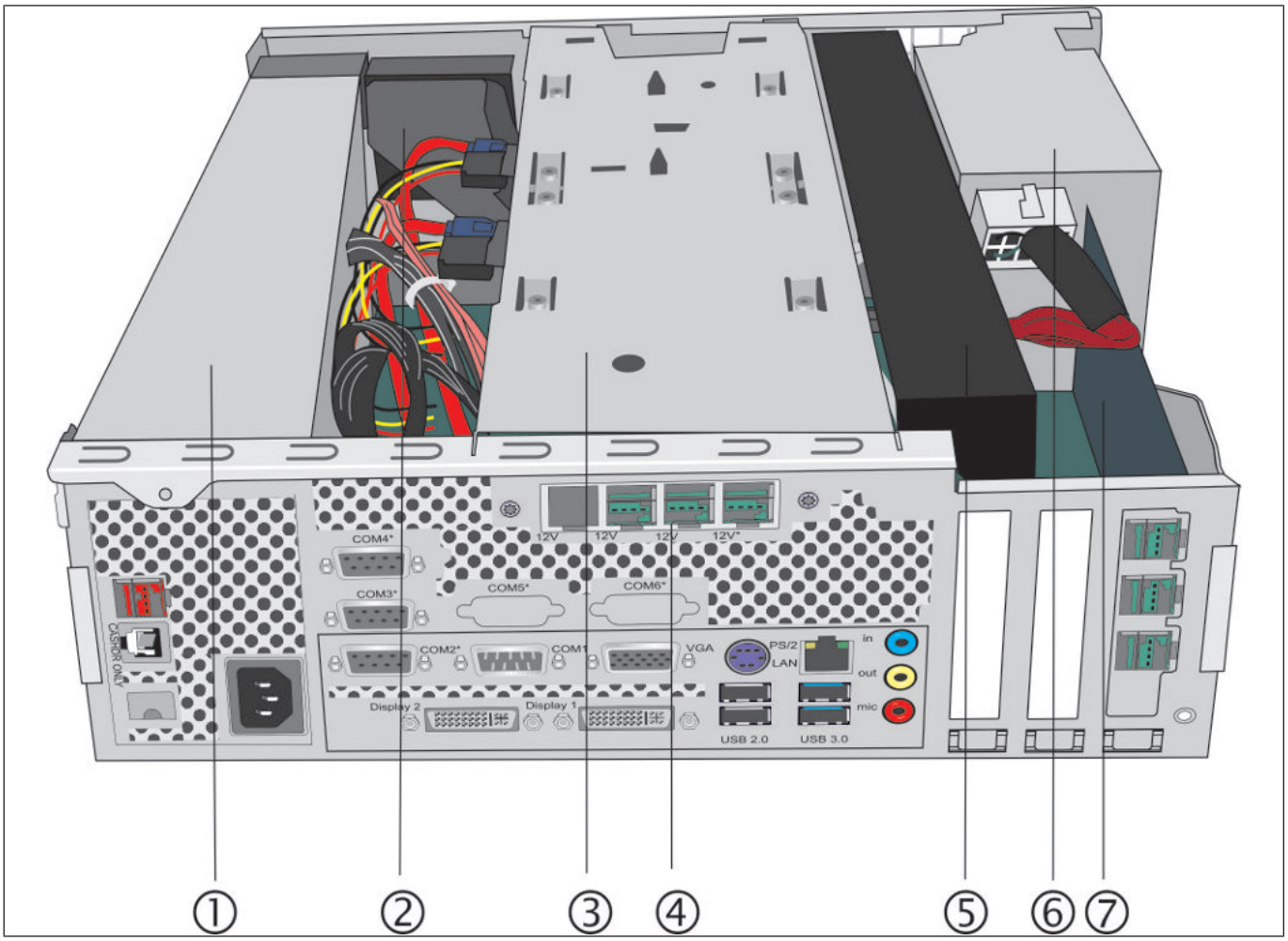
10 Inside view

The following illustration provides an inside view of the BEETLE /M-III (with two 2.5" hard disks, optional).



1	Power supply unit with fan	2	Air duct (not applicable for a BEETLE /M-III with an O1 motherboard)
3	Powered USB hub (optional)	4	Carrier with hard disk(s) (2.5" or 3.5")
5	Two Front-USB	6	Extension board with 3 powered USB ports (Retail board) (not applicable for a BEETLE /M-III with an O1 motherboard)

10.1 Inside view with accumulator

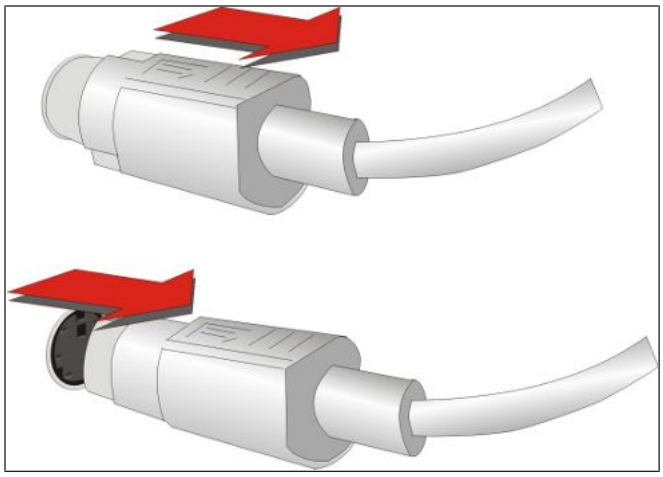


1	Power supply unit with fan	2	Air duct (not with a BEETLE /M-III with a O1-Motherboard)
3	Carrier with hard disk(s)/SSD(s)	4	PoweredUSB Hub (with 3 PoweredUSB ports)
5	Accumulator	6	Battery Backup Unit (BBU)
7	Extension board with three PoweredUSB ports (Retail Card) (not with a BEETLE /M-III with a O1-Motherboard)		

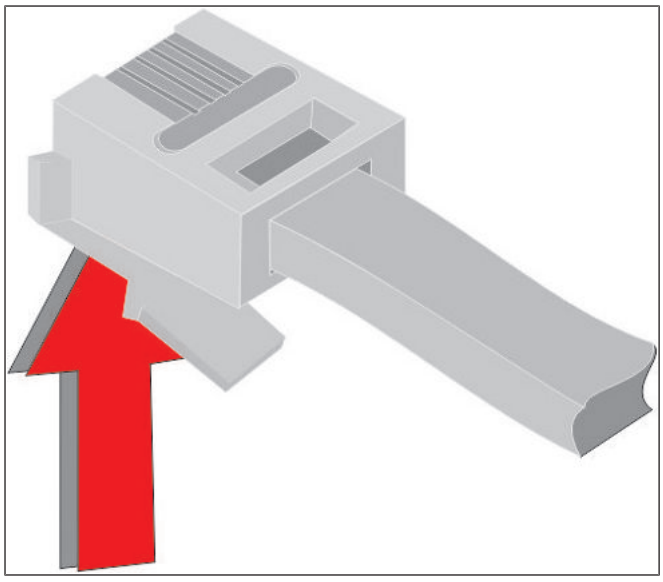
11 Disengaging cables

Never disconnect cables by pulling them on the cable itself but always grip them instead on the connector housing provided for this purpose. To detach the cables, proceed as described below:

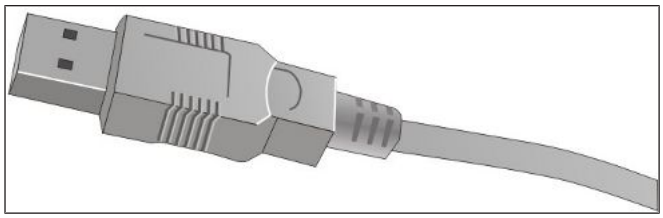
- Switch off all network and periphery device switches.
- Pull all power cables out of the contactor contact electrical sockets of the house installation.
- Pull all data communications cables out of the plug connections of the data networks.
- Disengage all cables at the devices.



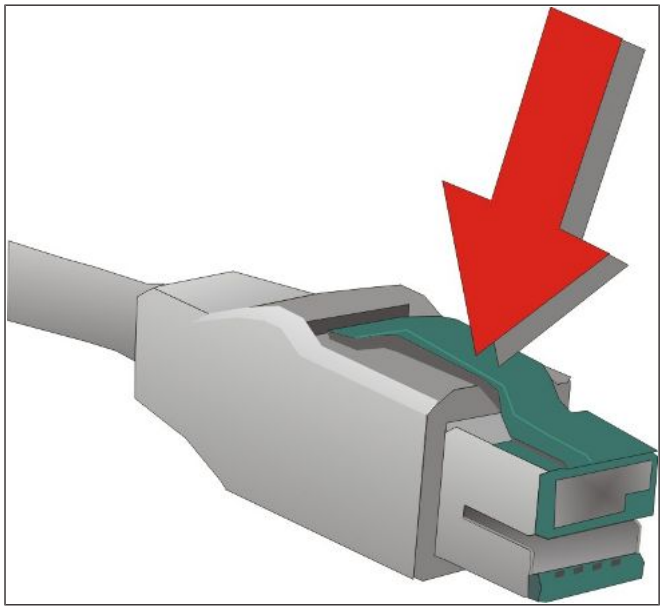
The Mini-DIN plugs (with Diebold Nixdorf keyboards) are equipped with a locking mechanism against unintended disengagement. To disengage this plug, pull the plastic sleeve away from the socket. The interlock is released. The metal of the plug is visible.



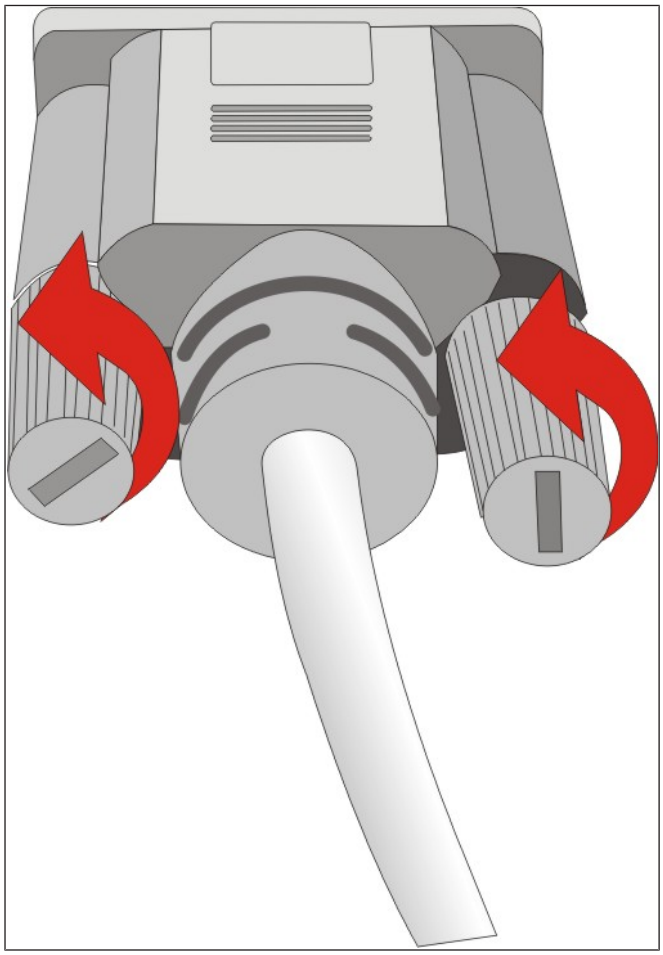
To disengage an RJ12 plug, press the tab below the plug upwards.



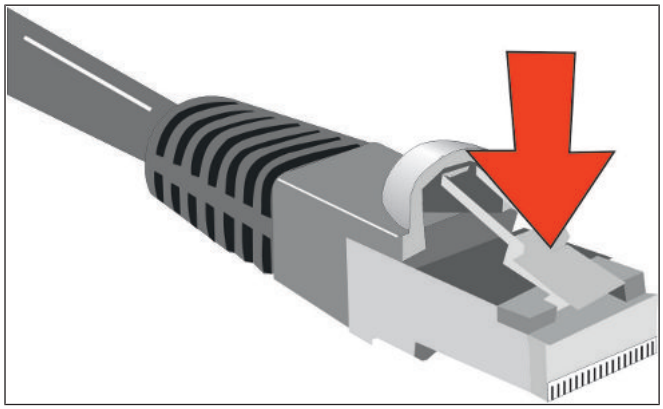
Disengage the USB-A plug by pulling on the plug housing.



The electrically supplied USB plug is disengaged by pressing on the spring marked with the arrow.



Interface connector (COM/DVI/VGA) with knurled screw can be disengaged by hand.



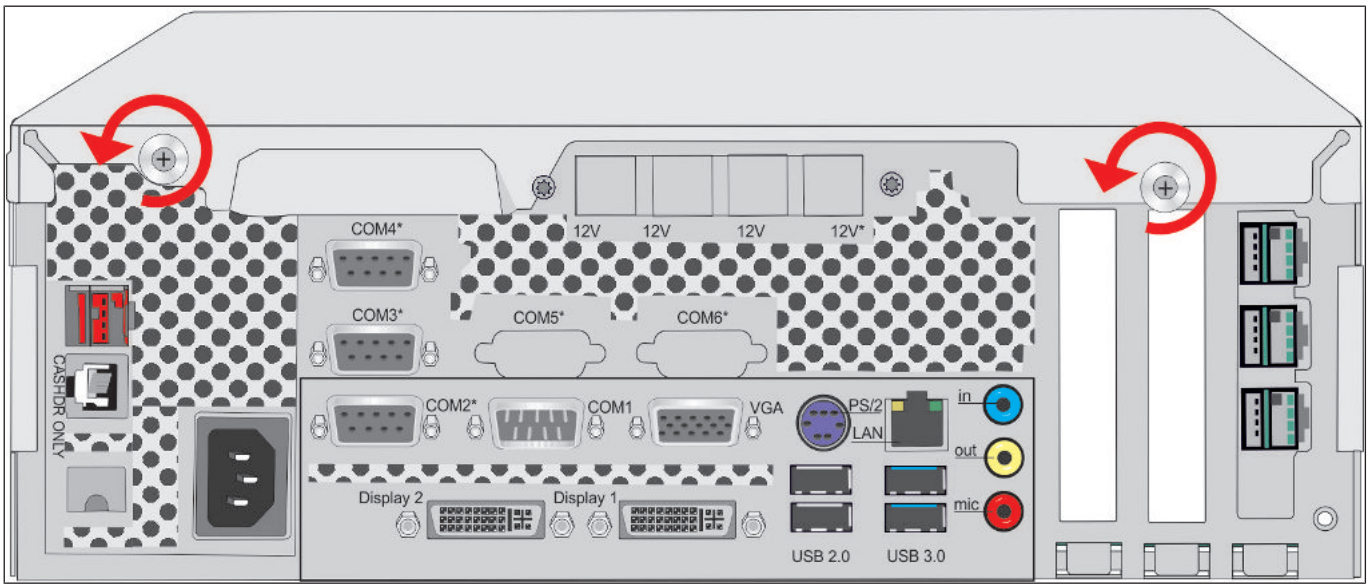
To loosen a RJ45 plug, press the tab above the plug (see arrow) downwards.

12 Removing the housing cover

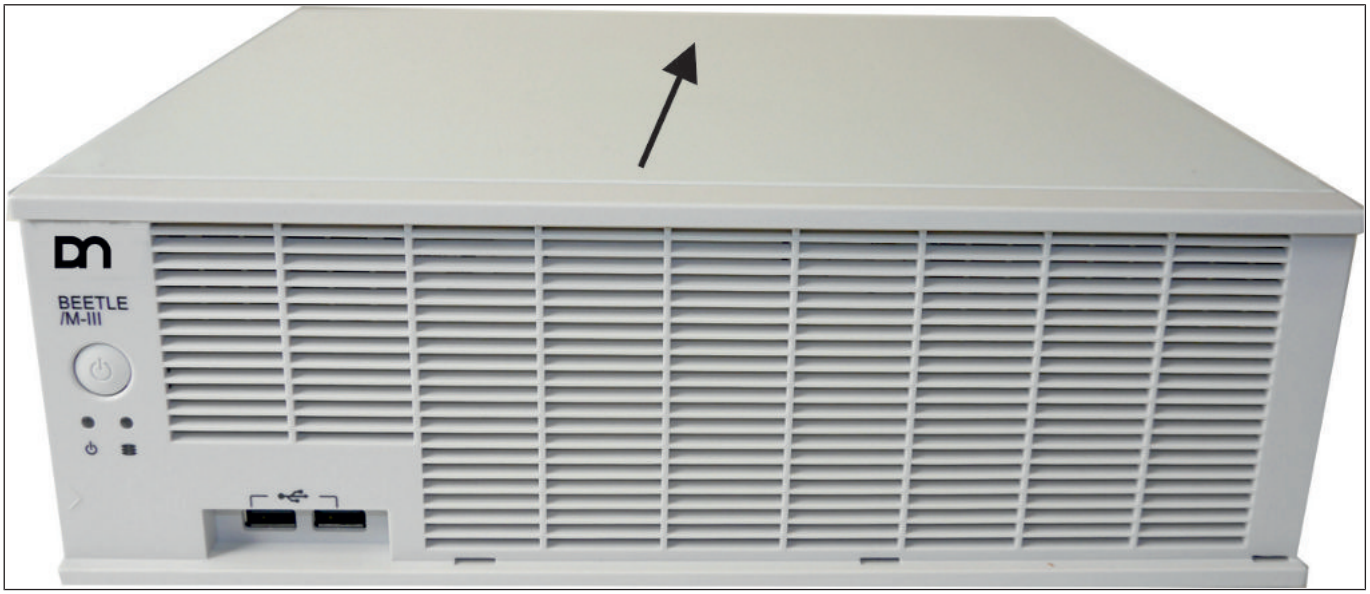
First, take care to ensure that the device is switched off and that the supply voltage plug is pulled out.

Remove any installed cable cover.

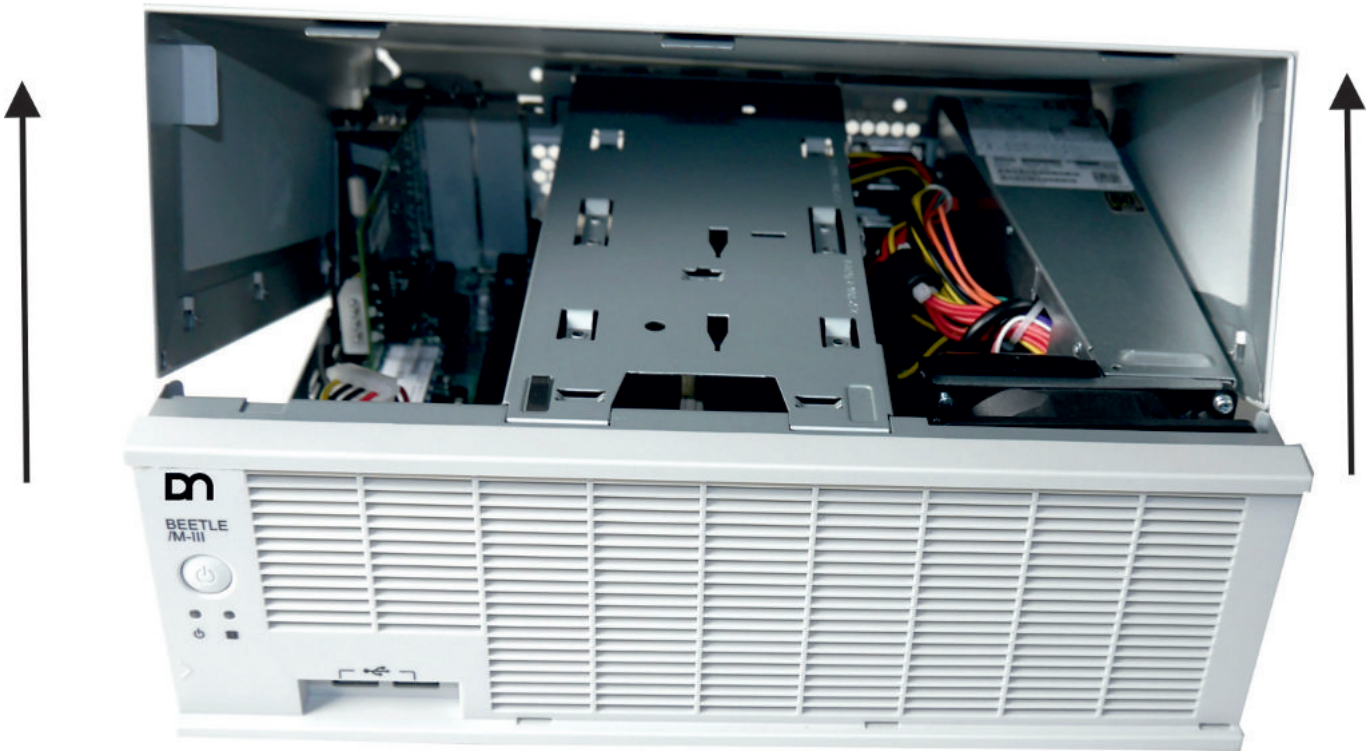
Disengage the knurled screws on the rear of the system.



Slide the housing cover a bit out of the guide.



Lift off the cover upwards. Set it aside.



13 Storage Media

The following are available as storage media:

- 3.5" SATA hard disk
- 2.5" SATA
- SSD/Solid State Drive
- M.2 SSD
- mSATA

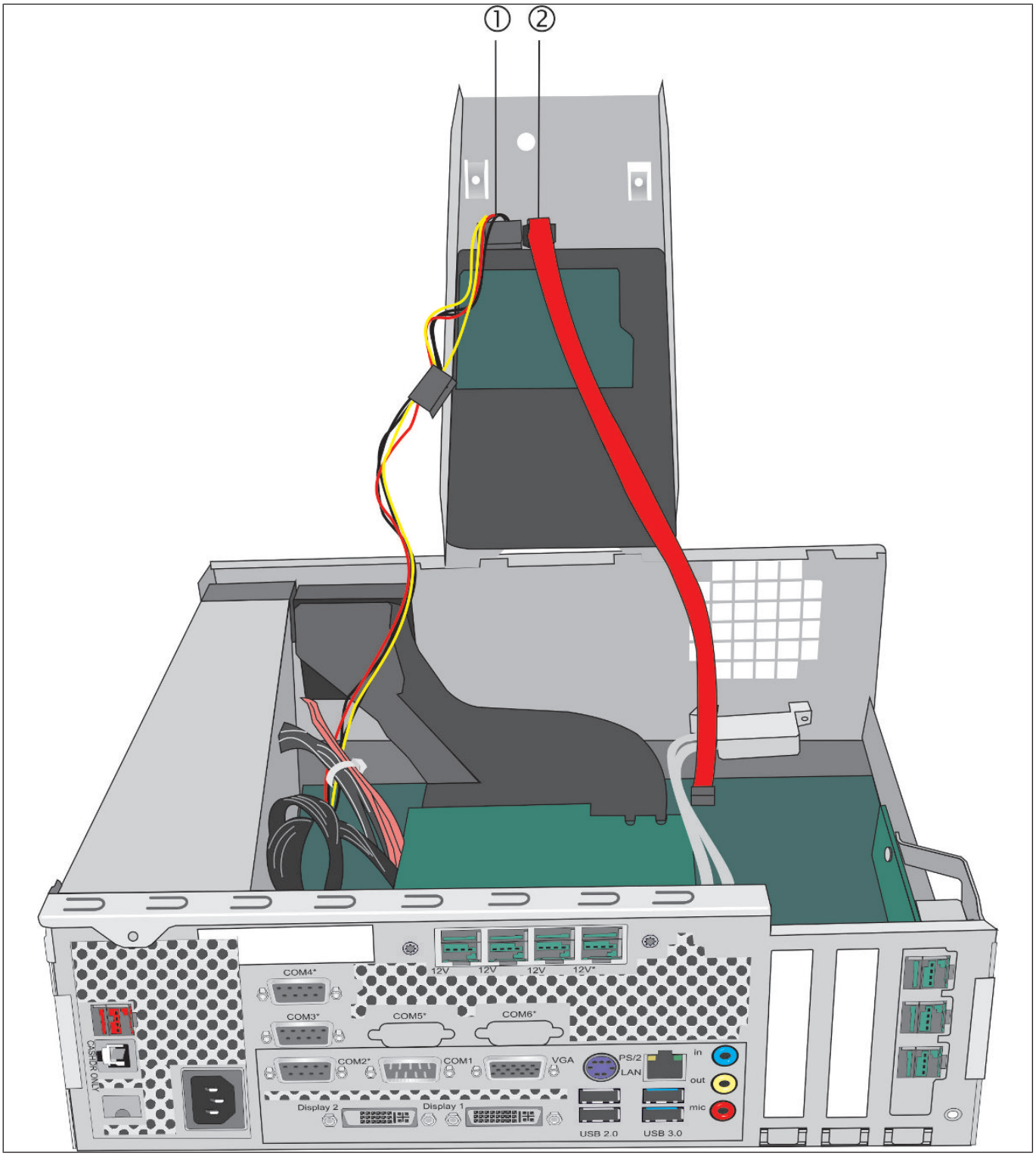
The latter three in this list are storage media that are used and addressed like a hard disk, however, they do not contain a rotating plate. Instead, they contain memory modules that are comparable with the electronic components inside a USB stick.

13.1 Replacing a 3.5" SATA hard disk

First, take care to ensure that the device is switched off and that the supply voltage plug is pulled out.

Open the BEETLE (see chapter 12, "Removing the housing cover").

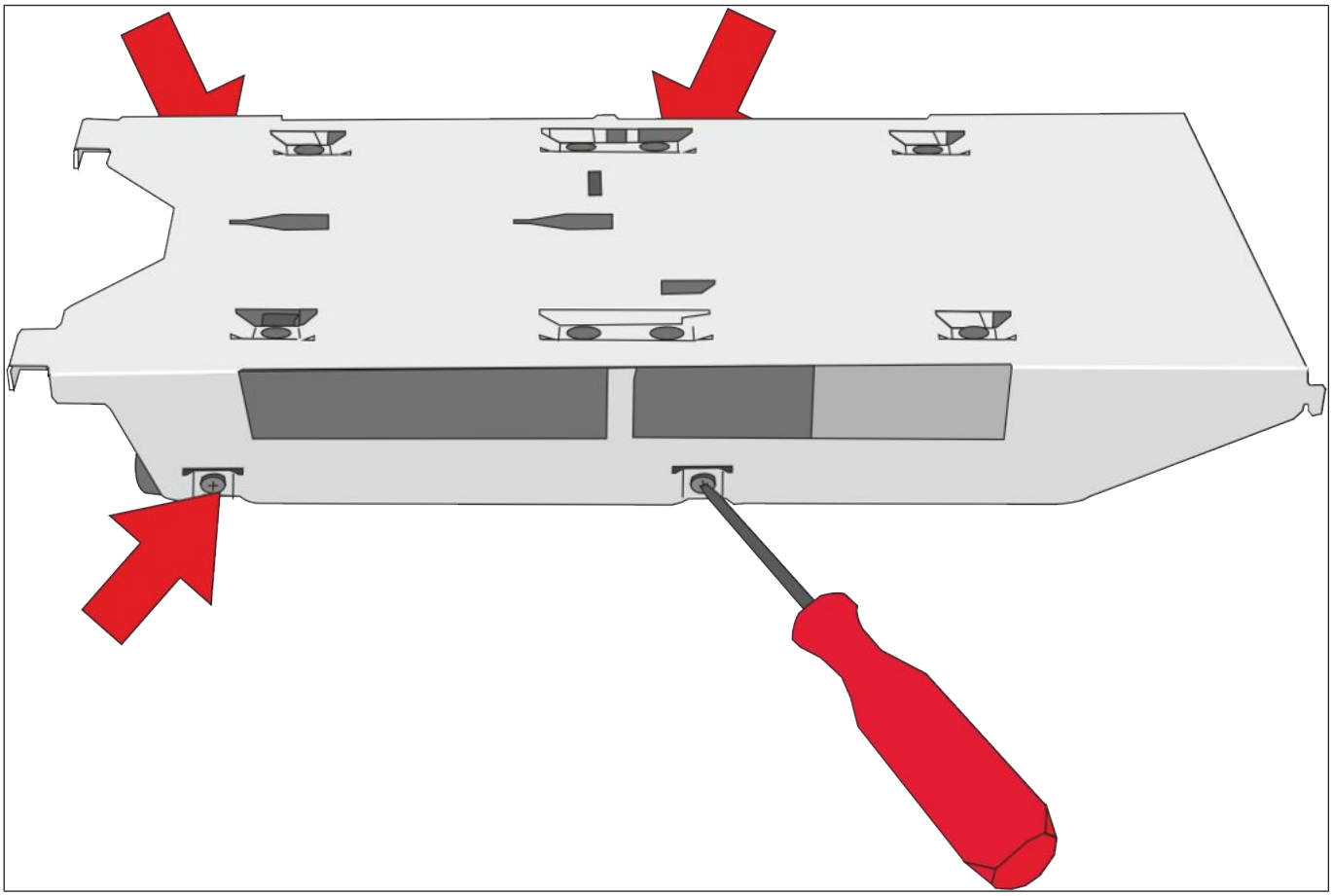
Fold open the data medium upwards and pull the data cable and the power supply cable.



1	Power supply cable	2	Data cable

Remove the hard disk carrier.

Disengage the four screws of the respective hard disk by using a Phillips head screwdriver.

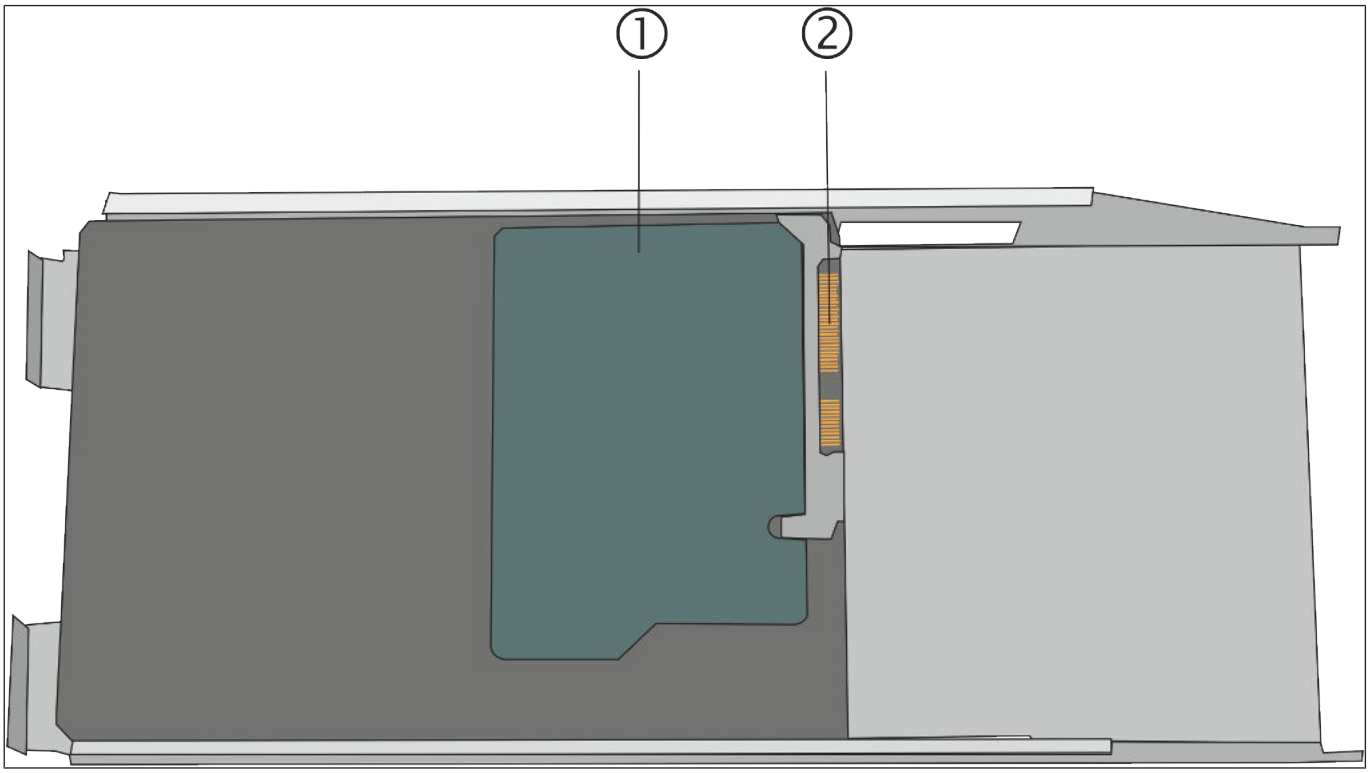


NOTE

Use utmost caution when handling the hard disk, including at the time of assembly, and do not touch any exposed electronics.

Replace the hard disk.

Fasten the new hard disk using the screws removed earlier. Observe the correct mounting position when screwing in the screws. As can be seen in the illustration, the board of the HDD is located at the top and the terminal strip faces to the right.



1	Circuit board	2	Terminal strip

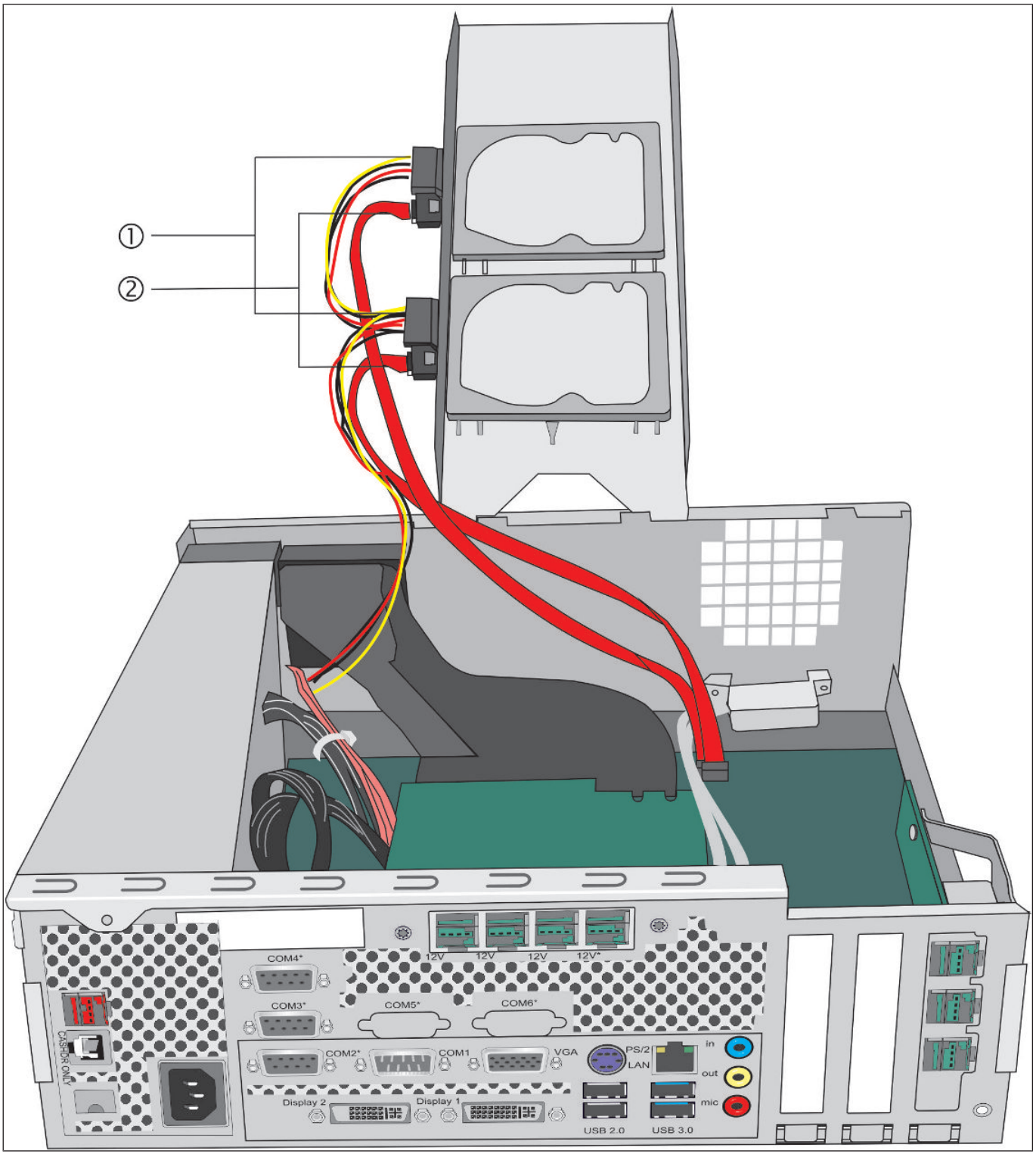
Re-install the hard disk holder following the steps in reverse order.

13.2 Replacing two 2.5" data memories

First, take care to ensure that the device is switched off and that the supply voltage plug is pulled out.

Open the BEETLE (see chapter 12, "Removing the housing cover").

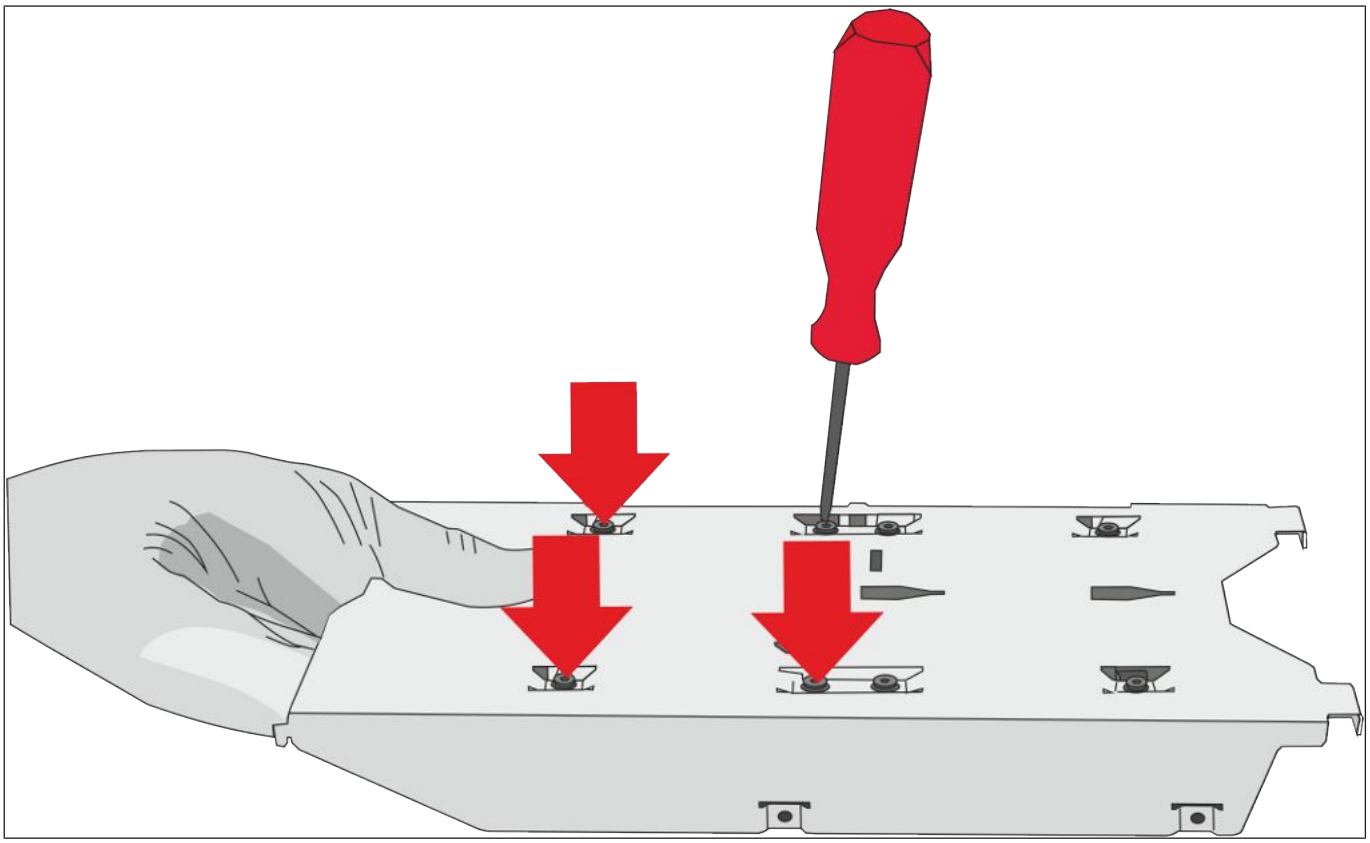
Fold open the data medium upwards and pull the data cables and the power supply cable.

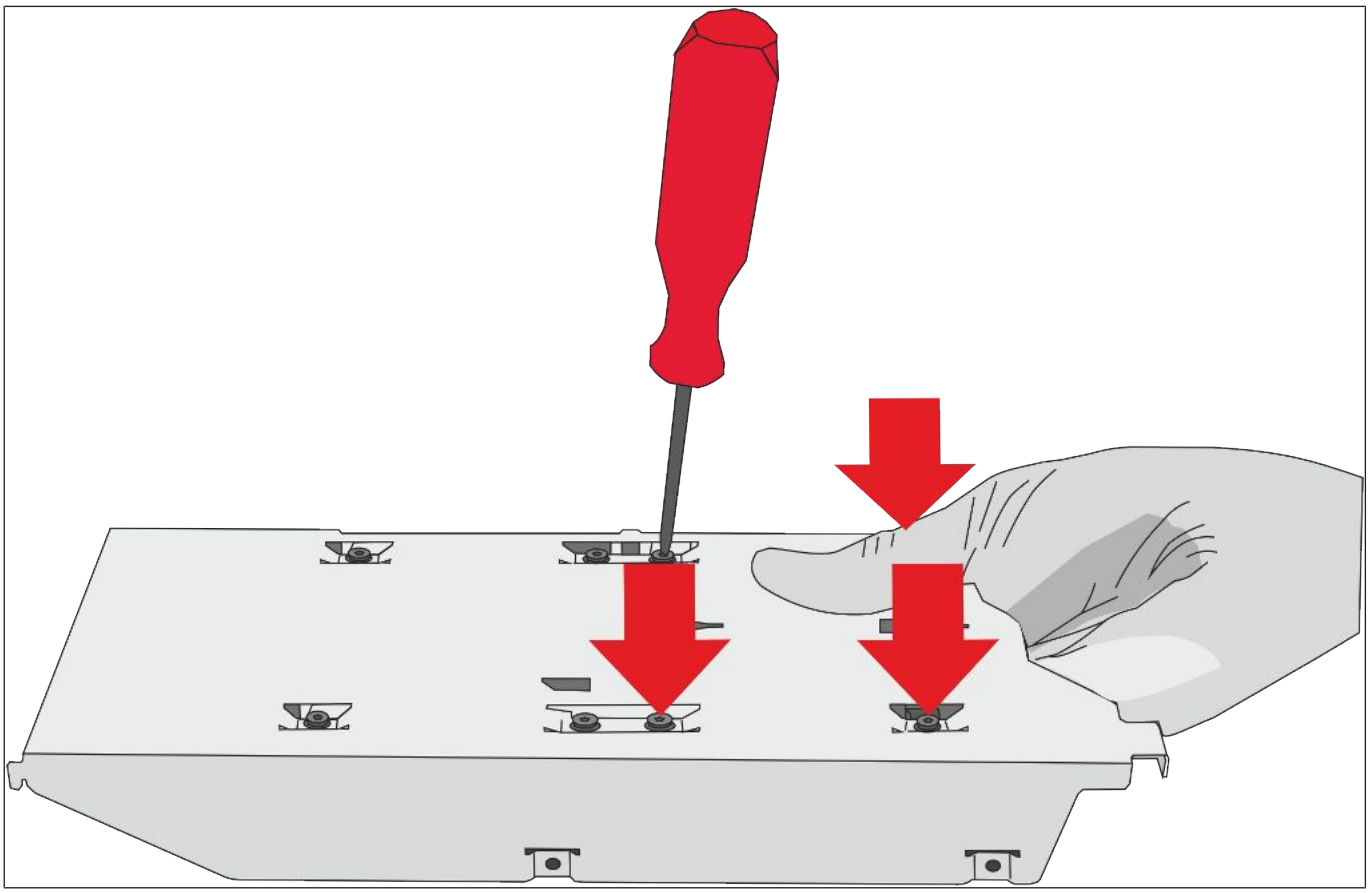


1	Power supply cable	2	Data cable

Remove the hard disk carrier.

Disengage the four screws of each hard disk with a Torx screwdriver. Use one hand to support the hard disk when disengaging the screws.





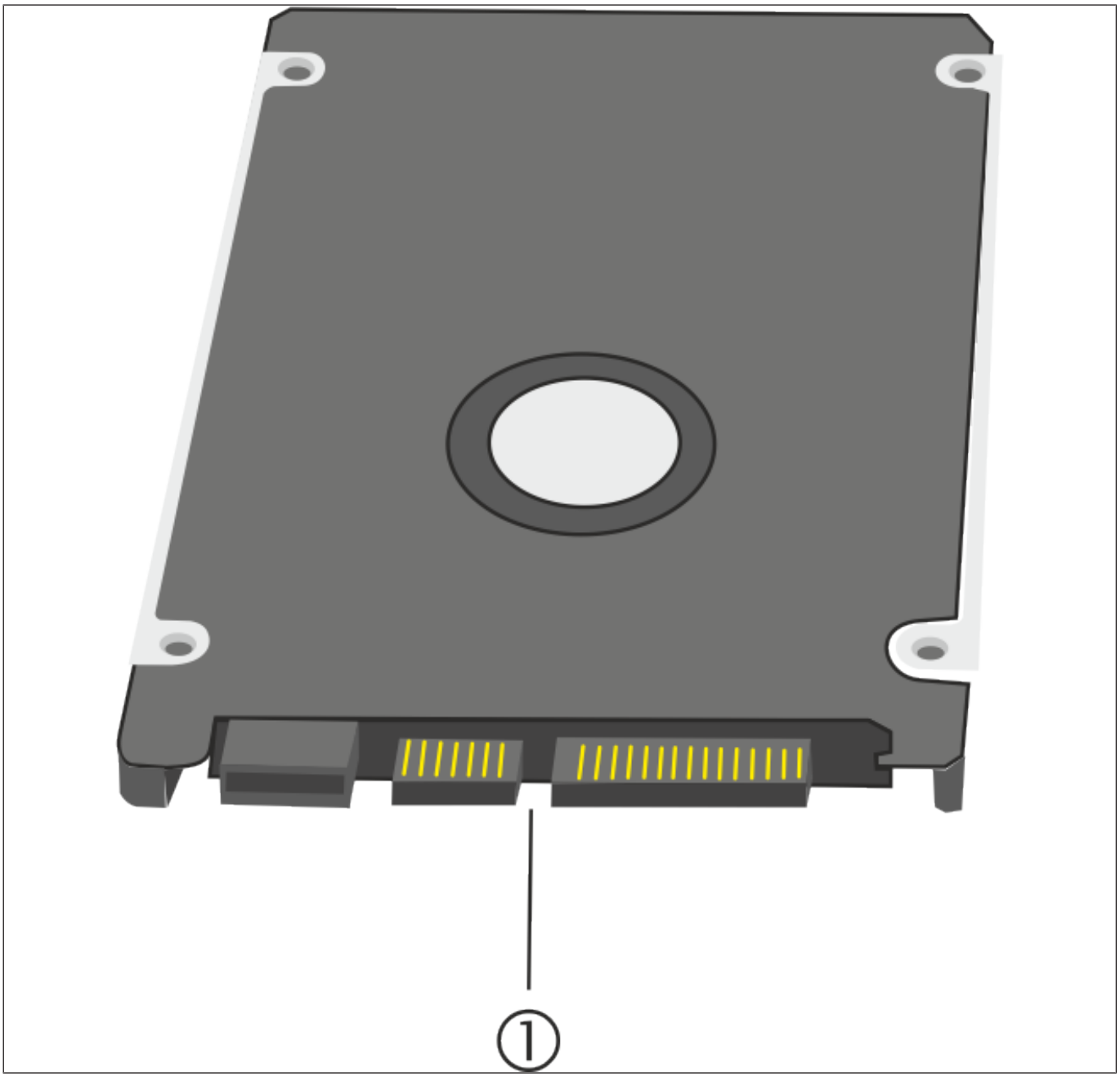
NOTE

Use utmost caution when handling the hard disks, including at the time of assembly, and do not touch any exposed electronics.

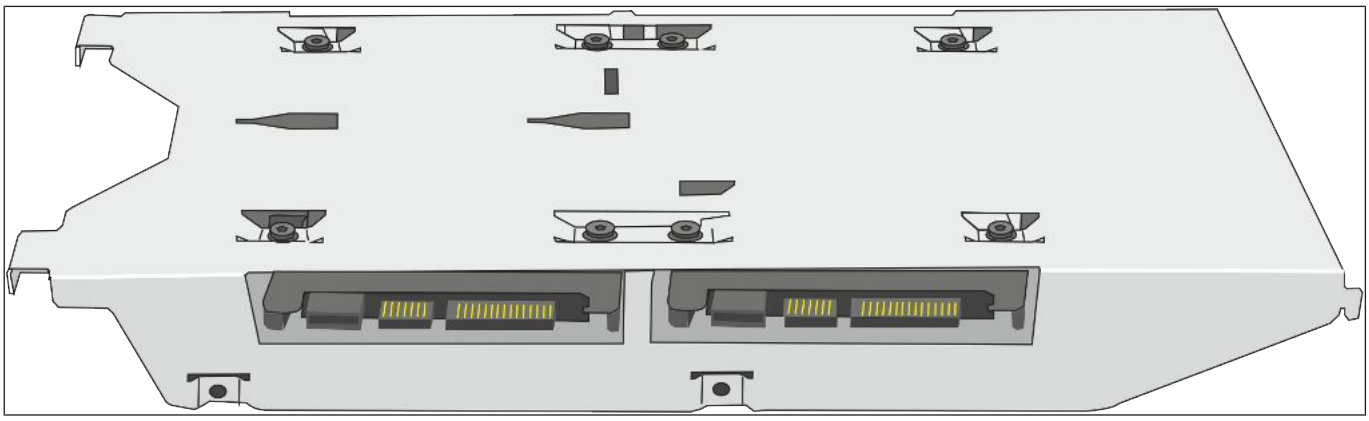
Replace the hard disks.

Fasten the new hard disks using the screws removed earlier. Observe the correct mounting position when screwing in the screws.

When inserting the hard disk into the carrier, take care to ensure that the terminal strip is facing the openings in the side of the carrier.



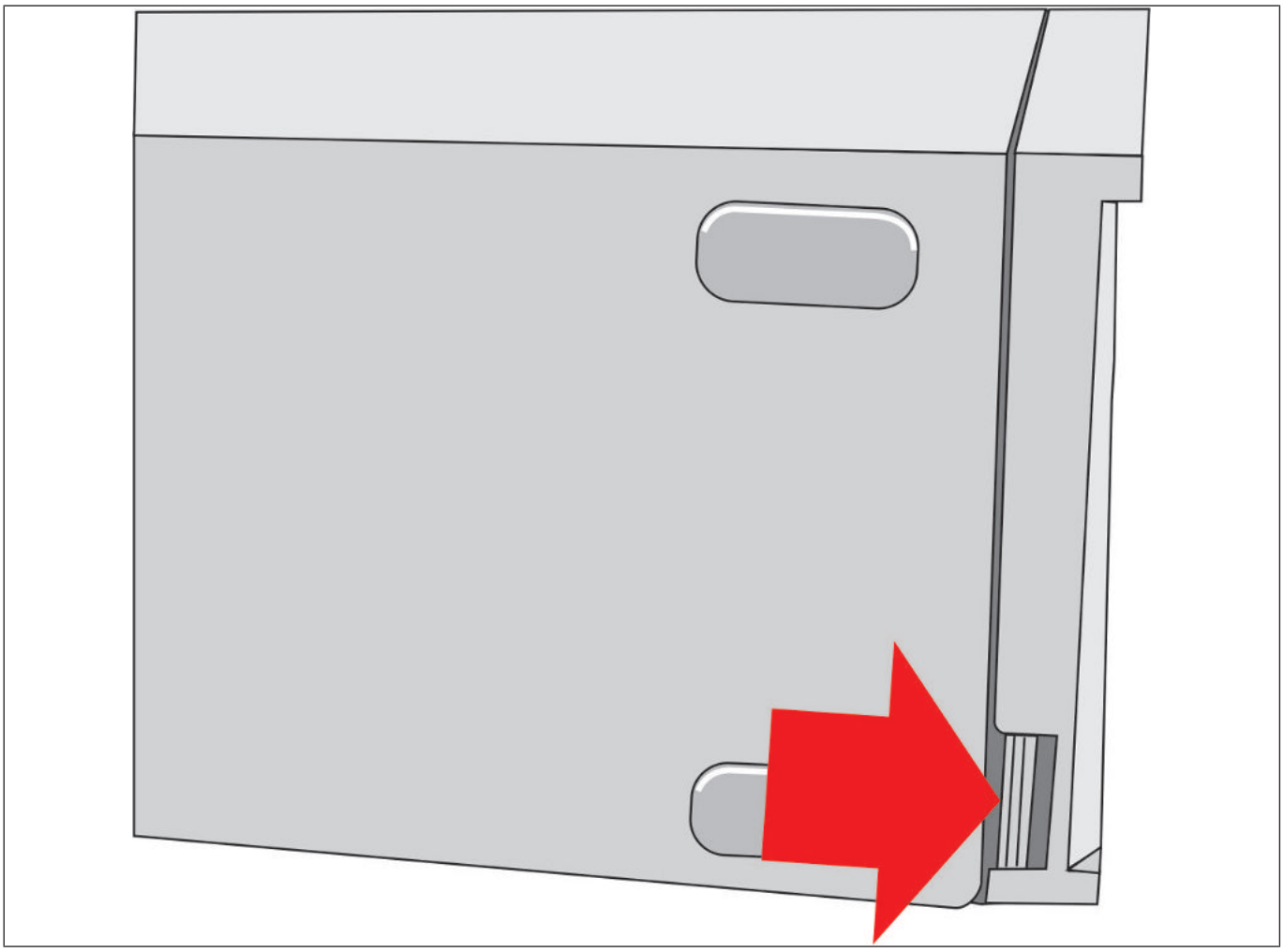
1 Terminal strip

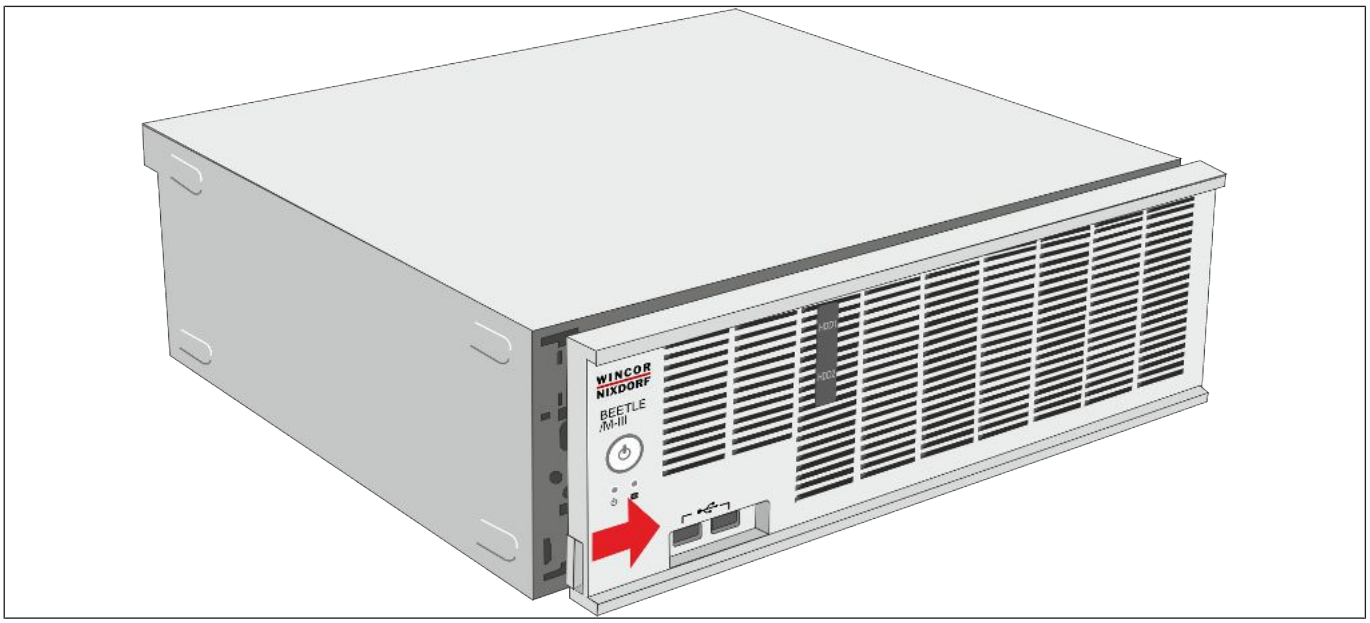


Re-install the hard disk holder following the steps in reverse order.

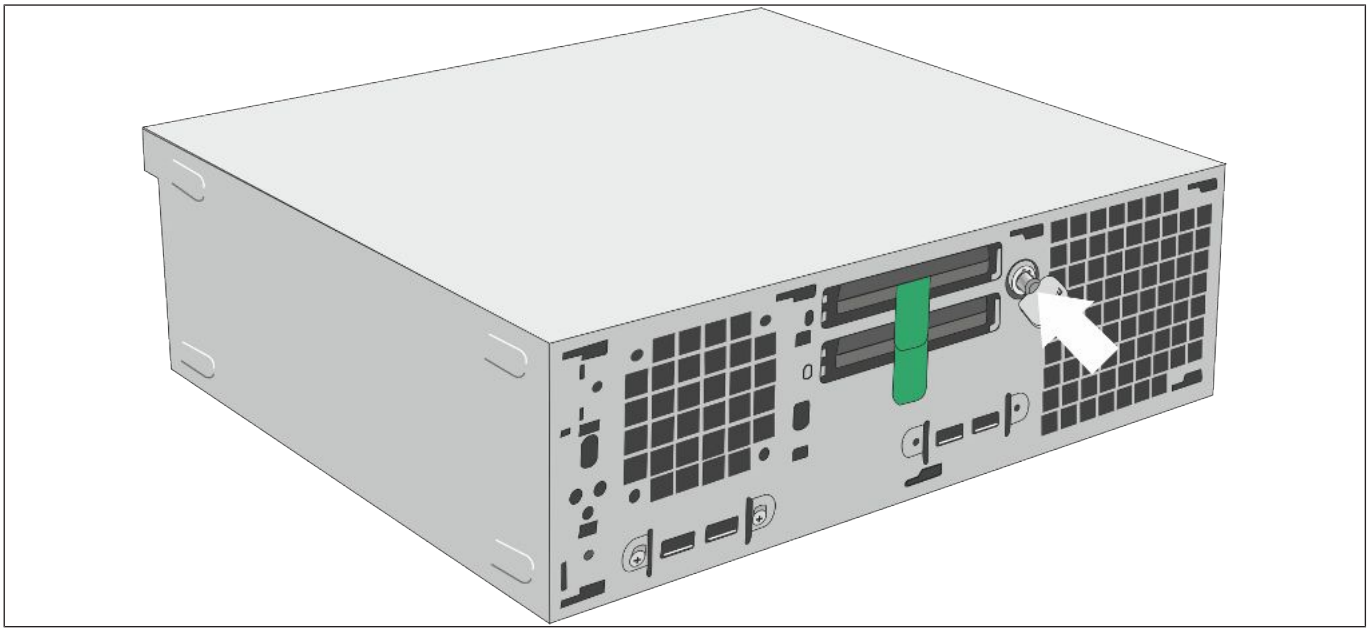
13.3 Replaceable 2.5" hard disk(s) with frontal access

First, take care to ensure that the device is switched off and that the supply voltage plug is pulled out. Open the front orifice plate by pressing the unlocking mechanism towards the front and sliding the orifice plate to the side (see arrow in the bottom illustration).

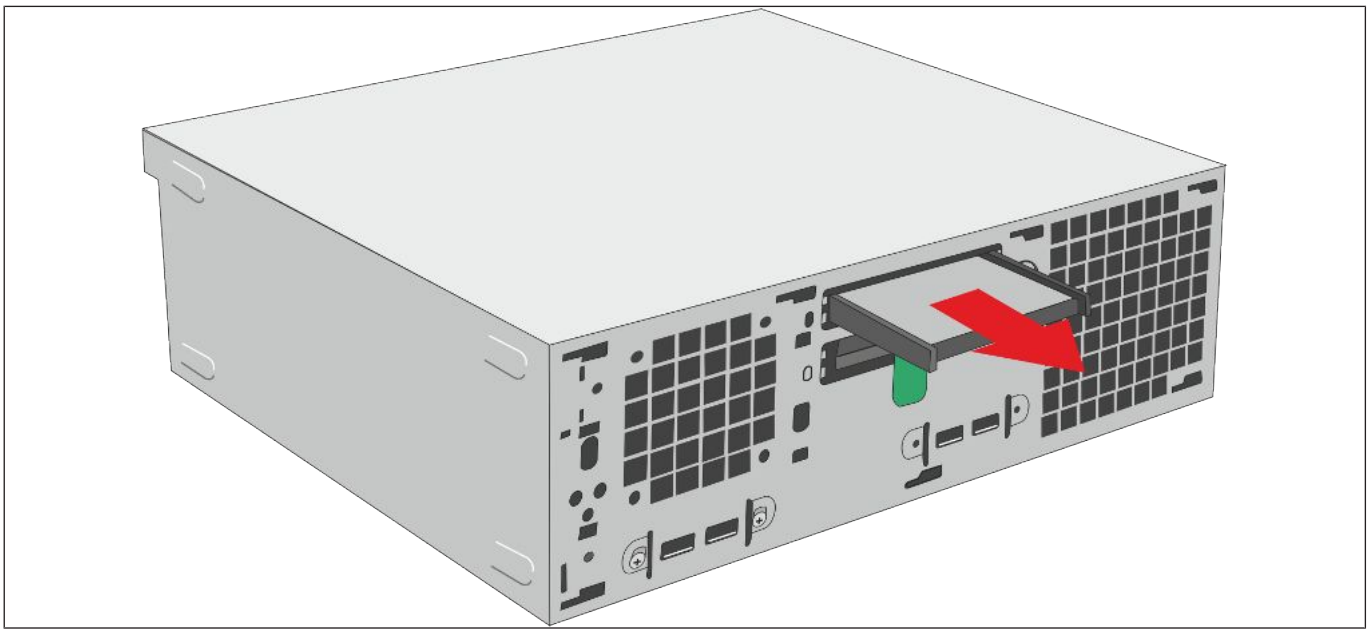




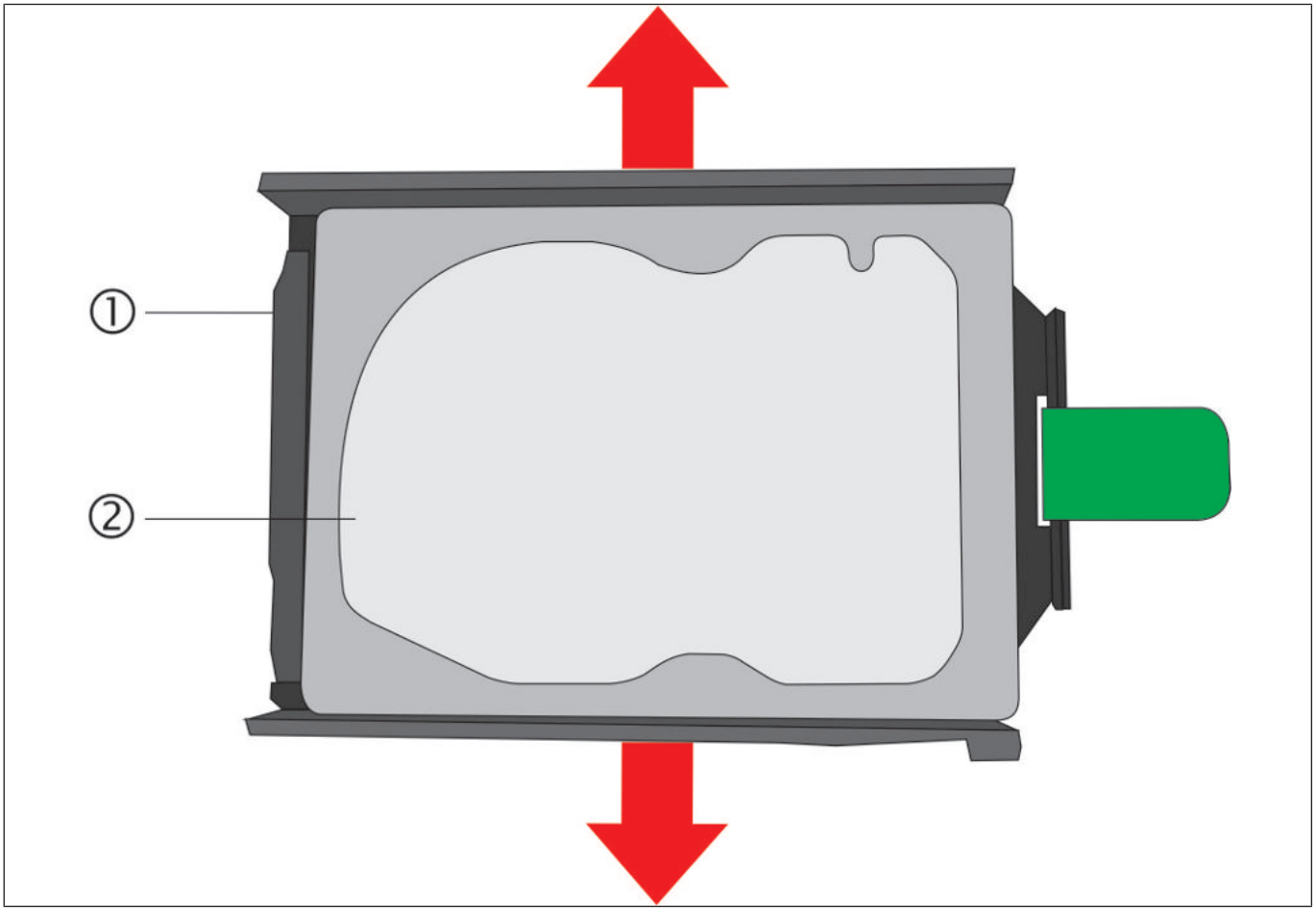
Set the orifice plate to the side. Unlock the hard disks using the key provided (note the interlock symbols).



Pull out the carrier along with the hard disk using the green belt.



Press the sides of the mount outwards and remove the hard disk.



1	Terminal strip	2	Label

⚠ CAUTION

Use utmost caution when handling the hard disks, including at the time of assembly, and do not touch any exposed electronics.

Replace the hard disk.

When inserting the new hard disk into the carrier, take care to ensure that the terminal strip is at the back and that the label appears at the top. Also take care to ensure that the knobs of the carrier fit into the respective opening in the hard disk.

Slide the carrier into the insert point until it engages. The hard disk must be firmly inserted so that the key can lock the hard disk.

Proceed accordingly when replacing a second hard drive.

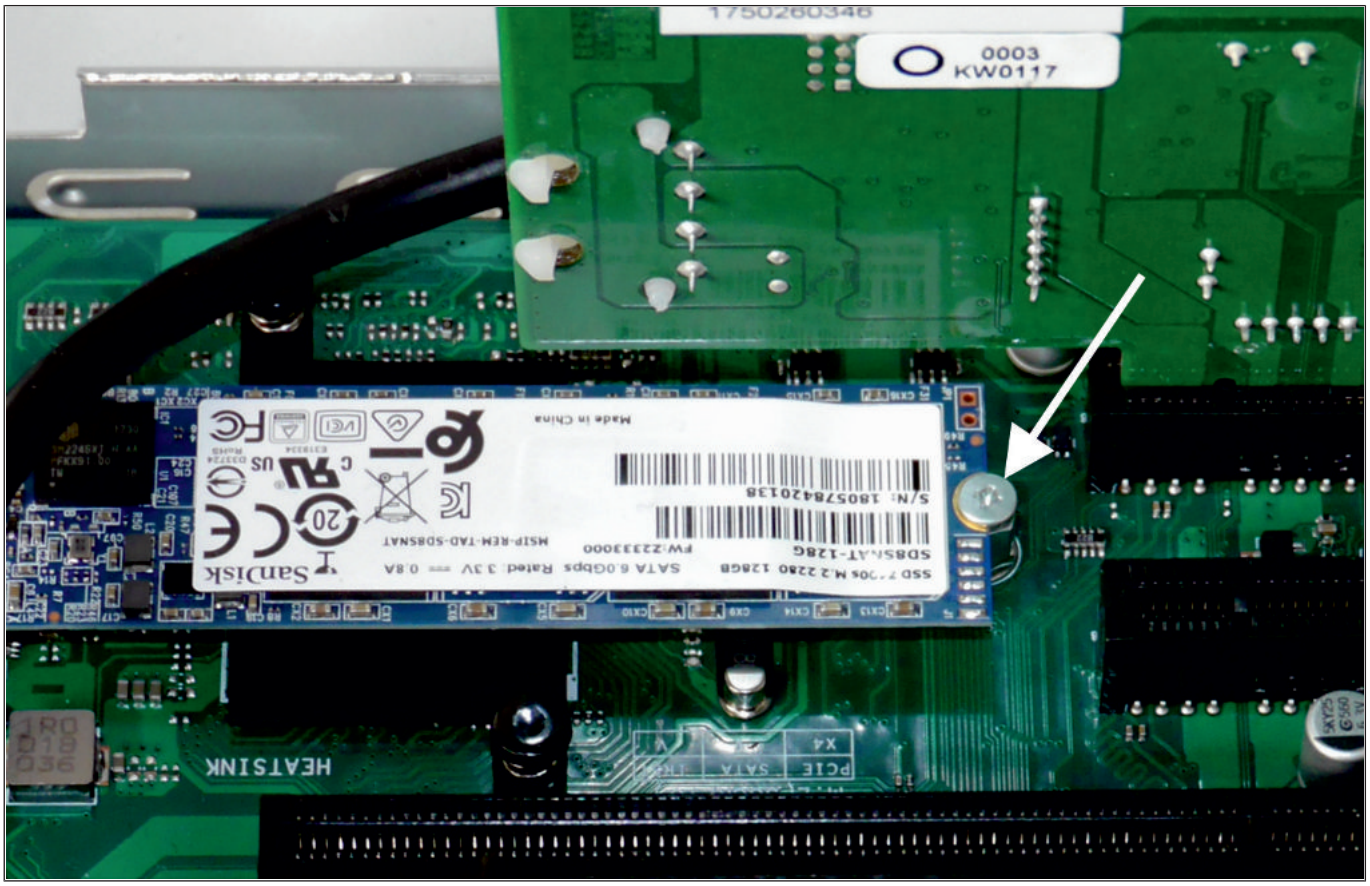
Lock the hard disk with the key.

Mount the orifice plate, press it down and slide it to the left.

Plug in all of the cables that were pulled out and switch the device on.

13.4 Replacing the M.2 memory

Switch off the device and remove the mains plug. Remove the body cover. Remove the screw with a Phillips head screwdriver PHO1 (see arrow).



Pull the memory module out to the right. Install the memory module following the steps in reverse order.

14 Replacing a 3.5" SATA hard disk

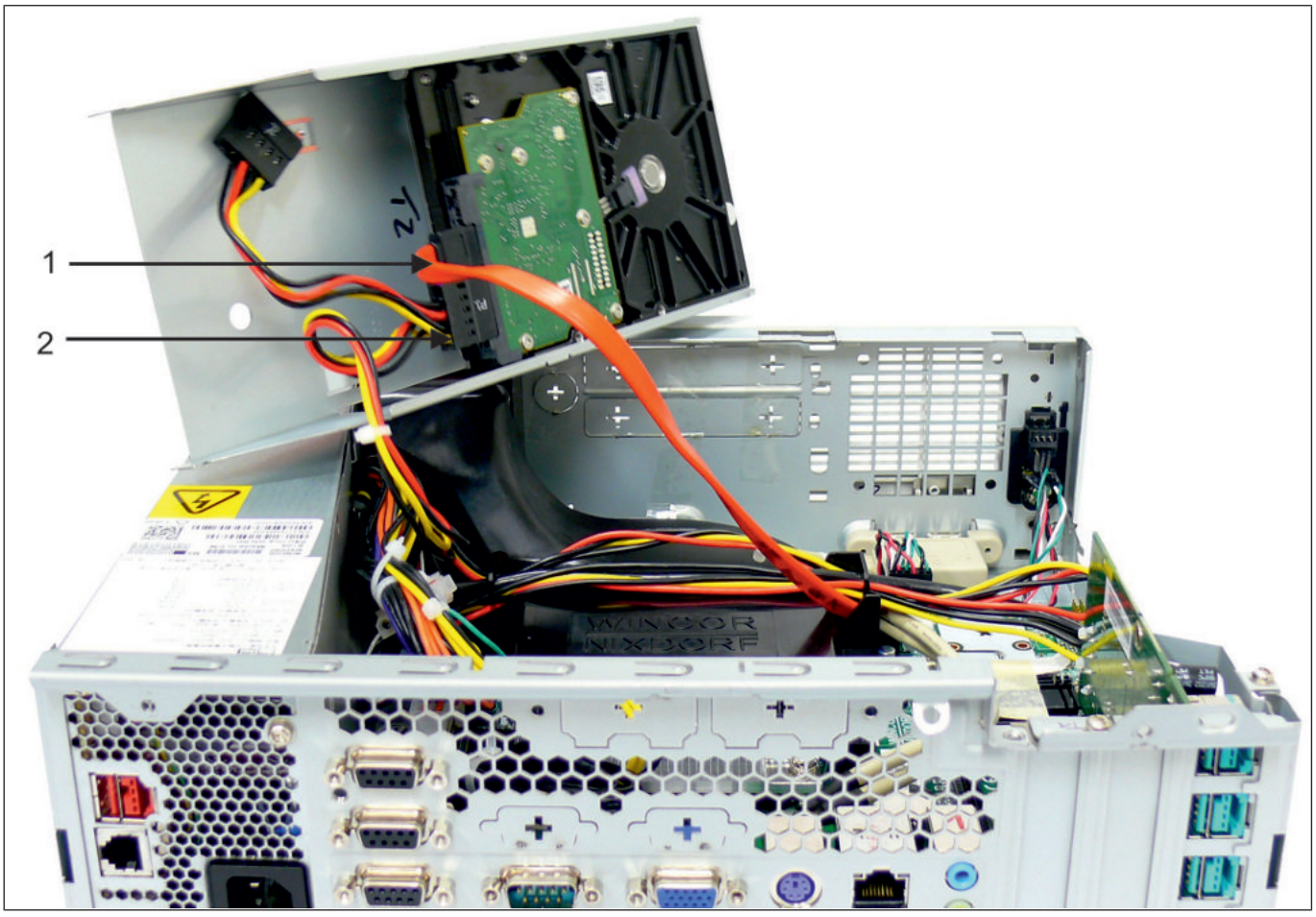
Shut down the system. Remove the cable cover and pull the power plug at the rear.

Remove the housing cover.

NOTE

Observe the instructions regarding electrostatic discharge-sensitive assemblies (see chapter "Electrostatic discharge-sensitive components").

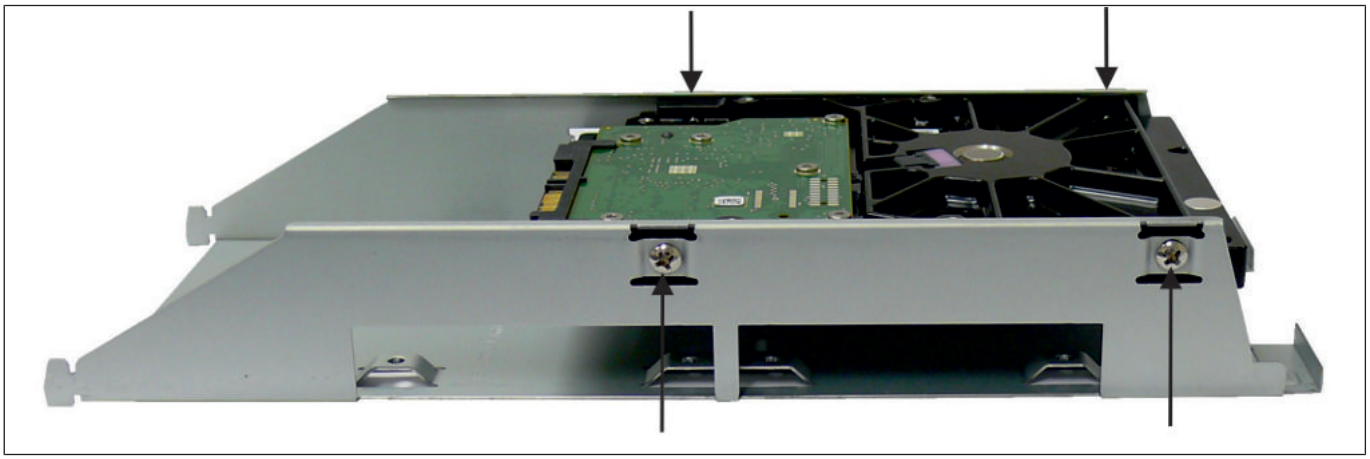
Fold open the hard disk carrier upwards and pull the data cable and the power supply cable from the 3.5" hard disk.



1	SATA data cable	2	SATA power supply cable

Remove the hard drive carrier.

Remove the four screws of the 3.5" hard disk with a Phillips head screwdriver.



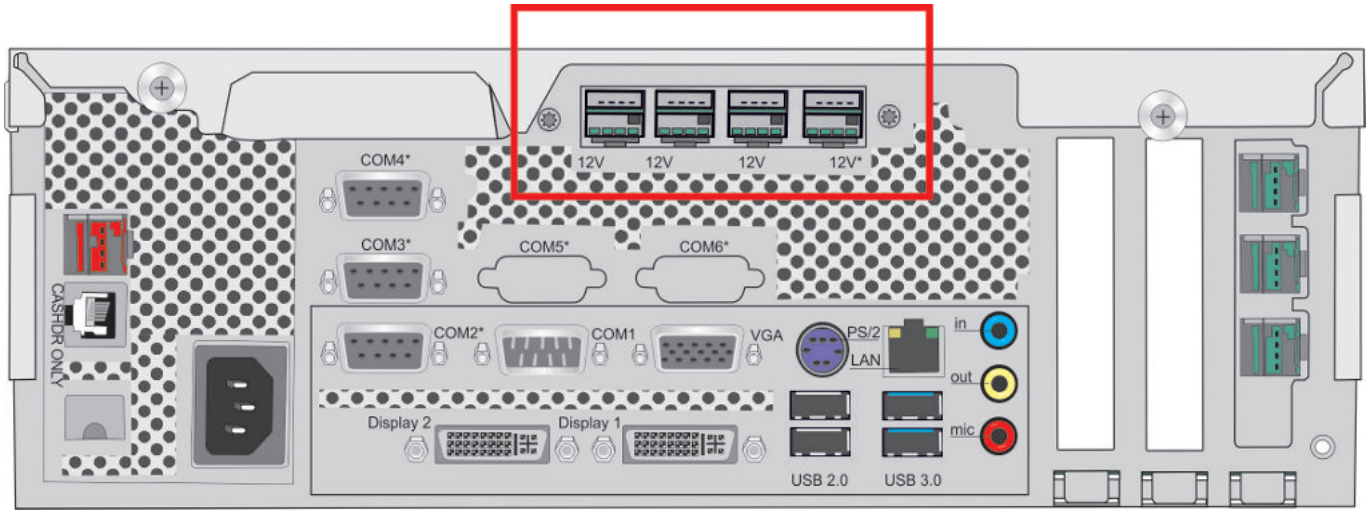
Re-install the hard disk holder following the steps in reverse order.

15 PoweredUSB Hub (optional)

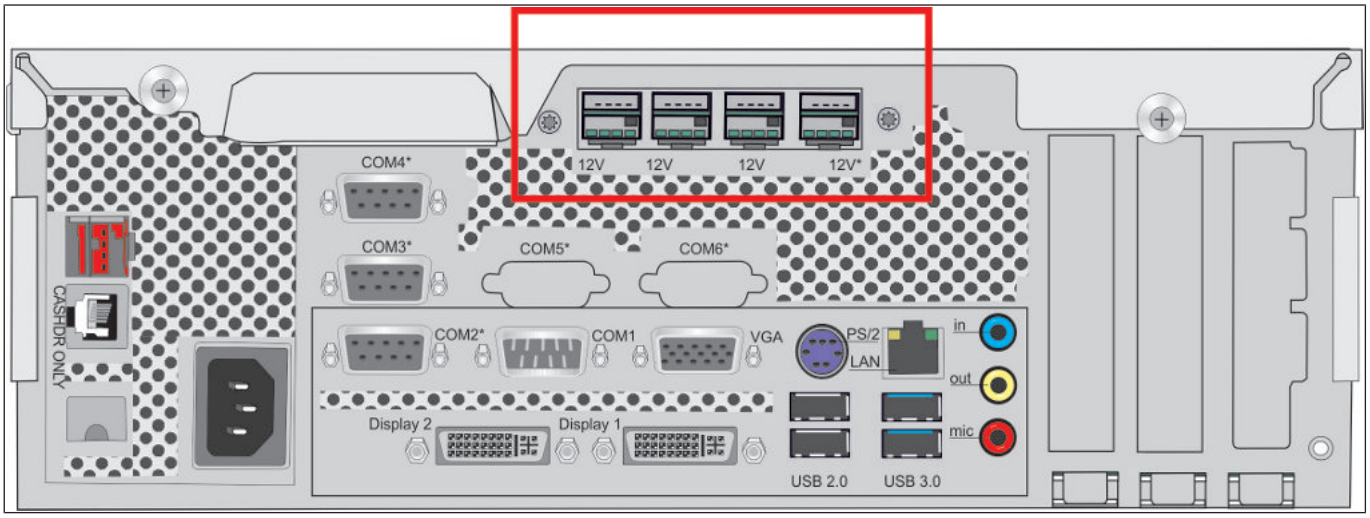
The optional USB hub provides four 12V powered USB ports.

These allow the connection of peripheral devices such as printers and scanners. Mass storage devices (e.g. hard disks) can also be connected via a USB port. Powered USB ports can also be used as USB-A sockets.

BEETLE /M-III with a K1/K2, M1/M2 or R1/R2 motherboard



BEETLE /M-III with an O1 motherboard



NOTE

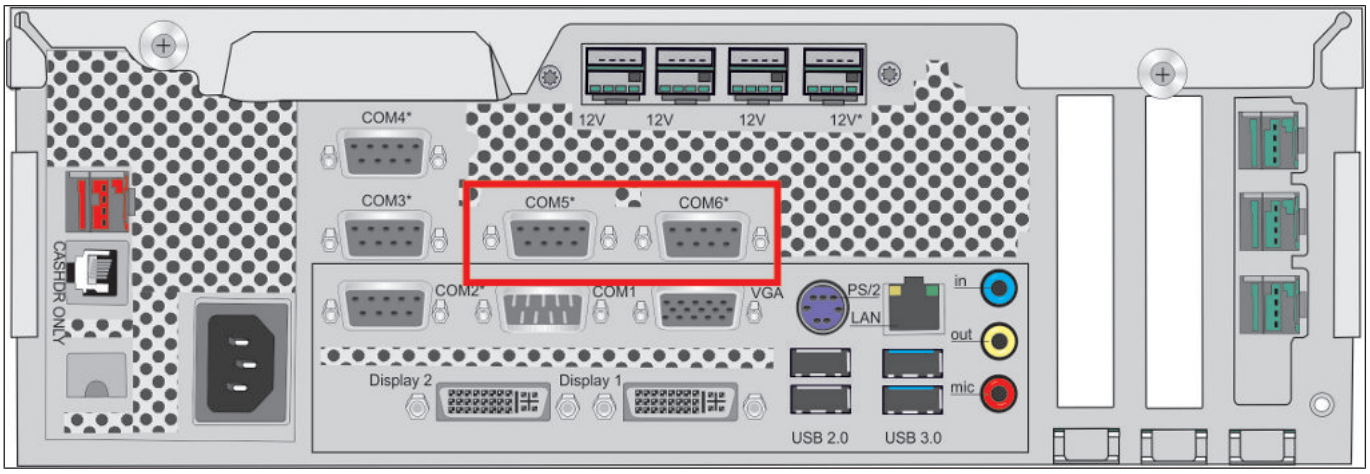
Connect a BA82/BA83 screen with additional options or other multi-function screens exclusively to the 12 V/3 A – powered USB socket (12 V(*)) of the hub.

16 COM5*-COM6* interfaces (optional)

You can apply different configurations to your BEETLE /M-III. Four COM(*) ports are available as standard (COM1, plug, not powered, and COM2*-COM4*, sockets, powered). In addition, extensions are available via a plug connection to the motherboard.

Both the COM5* and COM6* ports and the non-powered COM5 and COM6 ports are optionally available.

Here is an example of a BEETLE /M-III with a K1/K2, M1/M2, or R1/R2 motherboard



Scanners, customer displays or operator displays that do not have a dedicated power supply are connected to the serial COM* ports depending on the existing configuration. 9-pin D sub-sockets are used for this purpose. The power supply (5 V and 12 V) is provided via these sockets.

Take care to ensure that the plug of the peripheral device is tightly screw-connected with the socket because otherwise erroneous functions could occur.

17 USB C card (optional for an R1/R2 motherboard)

A USB C card can optionally be installed in this device. The USB C card is installed in the central PCI slot (see illustration).

18 Accumulator (optional)

The accumulator bypasses an eventual power failure for up to 15 minutes and enables a controlled termination of the POS program (see below "Safety in the event of power failure").

For the operation of an accumulator, the BEETLE /M-III must be equipped with a special UPS power supply unit.

⚠ WARNING

Danger of injury!

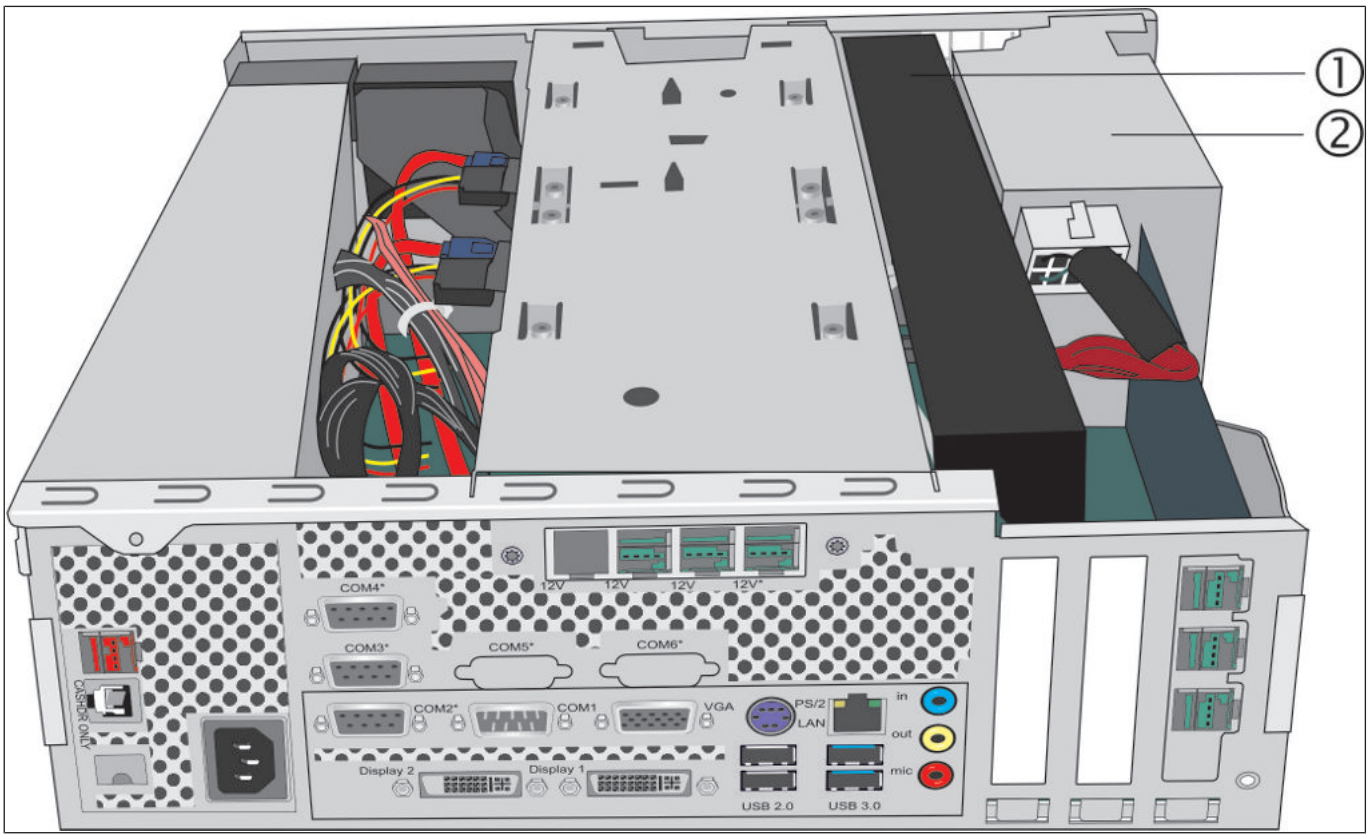
An explosion hazard exists if the accumulator is replaced incorrectly. Only identical types or by types recommended by the manufacturer are permitted as replacements for the accumulator.

18.1 Safety in the event of power failure

The charging time of the battery is approx. 6 hours after commissioning. The battery will only be charged if the system is switched on and the system software (Wincor UPS-Software under Windows/Linux) is configured and loaded (trickle charging also takes place in standby mode to prevent the NiMh cells from self-discharging).

The system remains fully functional for approx. 15 minutes after a failure of the supply voltage. The energy required for further operation is then supplied by the battery, the failure of the system voltage is bypassed for a certain period and the system is shut down in the event of a low battery charge level, depending on the software used (DN UPS Windows/Linux driver).

Peripherals with a dedicated power supply unit (e.g. VGA monitor) are not supplied with voltage in the event of a power failure.



1	Rechargeable battery	2	Battery Backup Unit

The optionally available battery is supplied with a UPS power supply unit and a connected BBU (Battery Backup Unit).

NOTE

The battery will discharge when the system is placed in storage

If the device has been stored in excess of three months before being used for the first time, you will need to charge the battery, as it will discharge when the system is not used.

To commission the POS system, press the On/Off button on the front of the BEETLE system.

A PCI port is no longer required when there is a built-in battery.

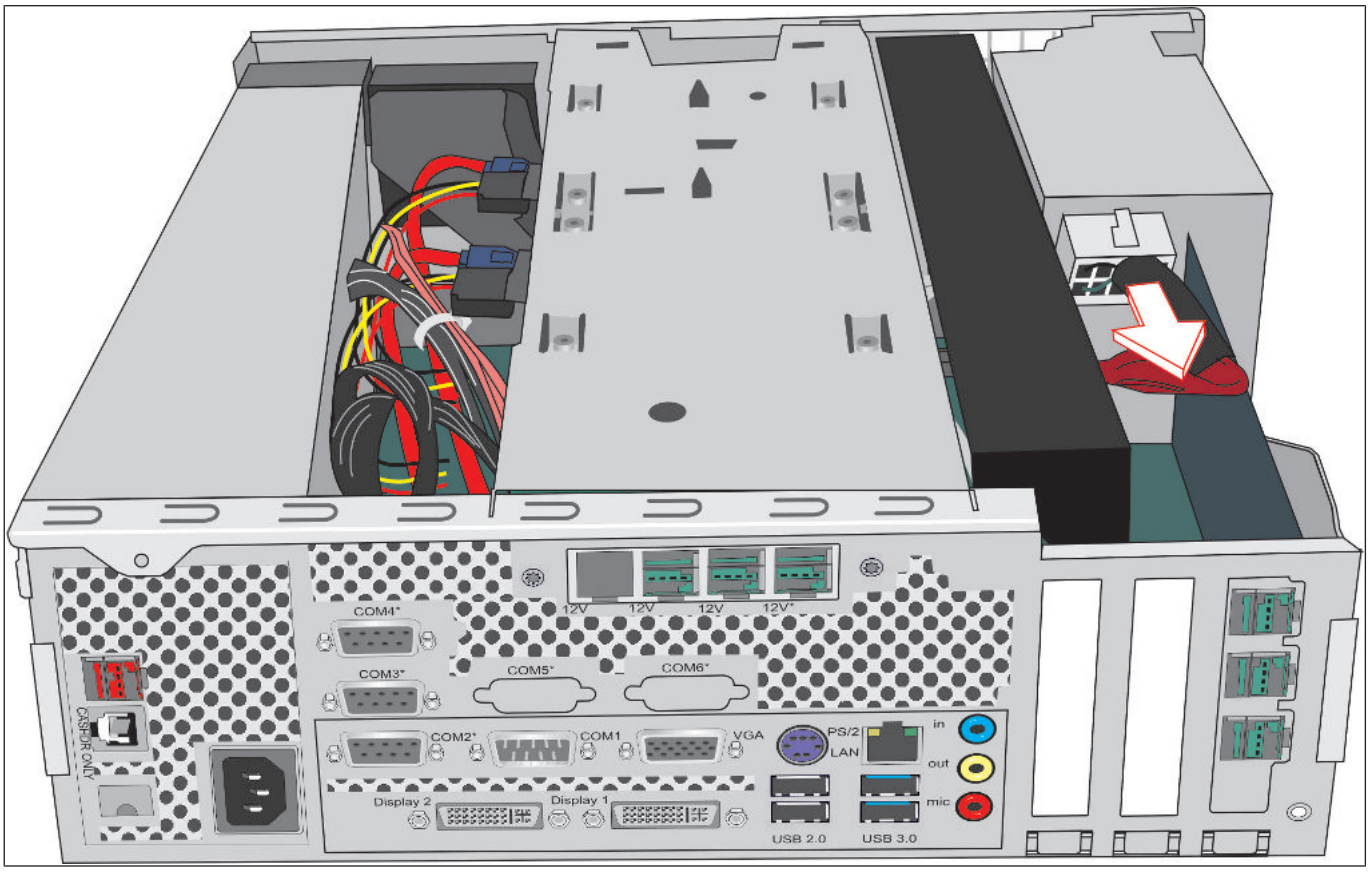
18.2 Replacing the accumulator

Each battery has a limited service life. It should be replaced no later than every five years.

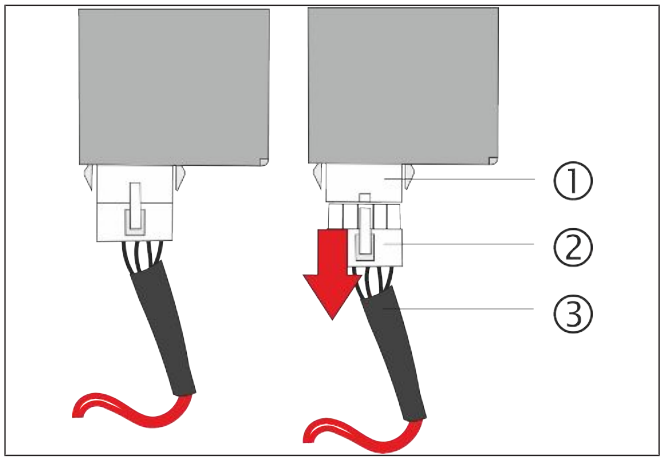
⚠ CAUTION

First, take care to ensure that the device is switched off and that the supply voltage plug is pulled out.

Remove the cable cover at the rear of the housing. Disengage the two knurled screws at the rear and lift the housing cover slightly. Pull the cover off the housing towards the rear. Disengage the battery cable.



Take care to ensure that the latches at the top are released. Pull the plug from the socket.

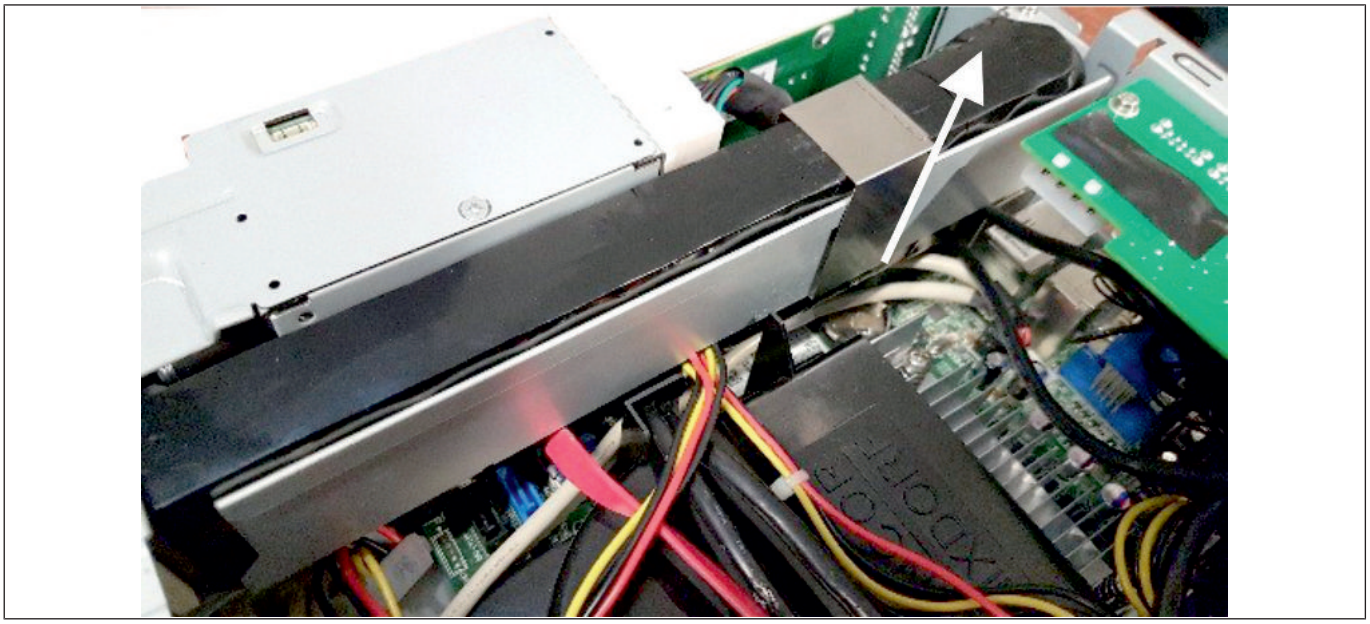


1 = socket

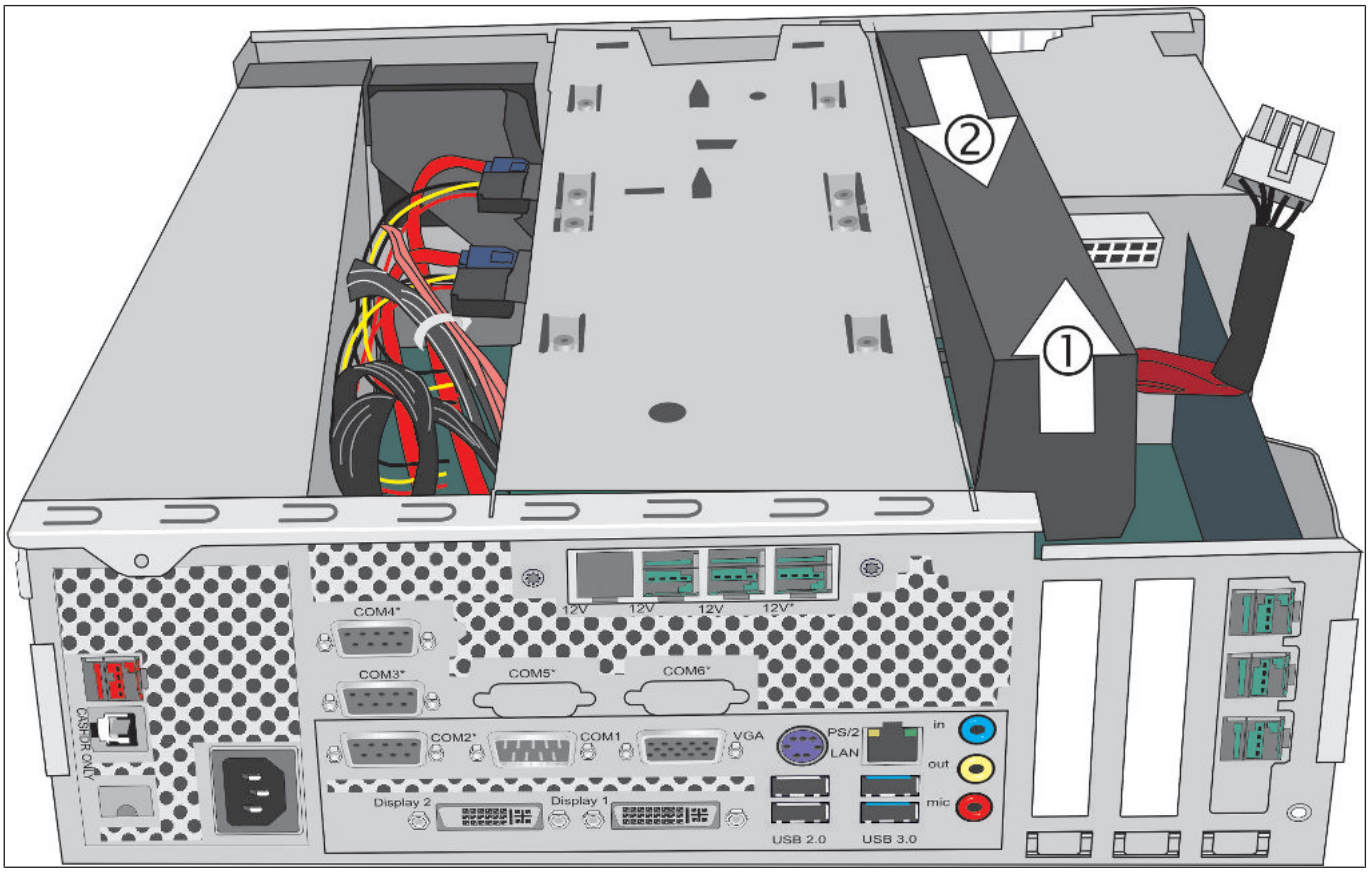
2 = plug

3 = battery cable

Lift and remove the clip (if installed).

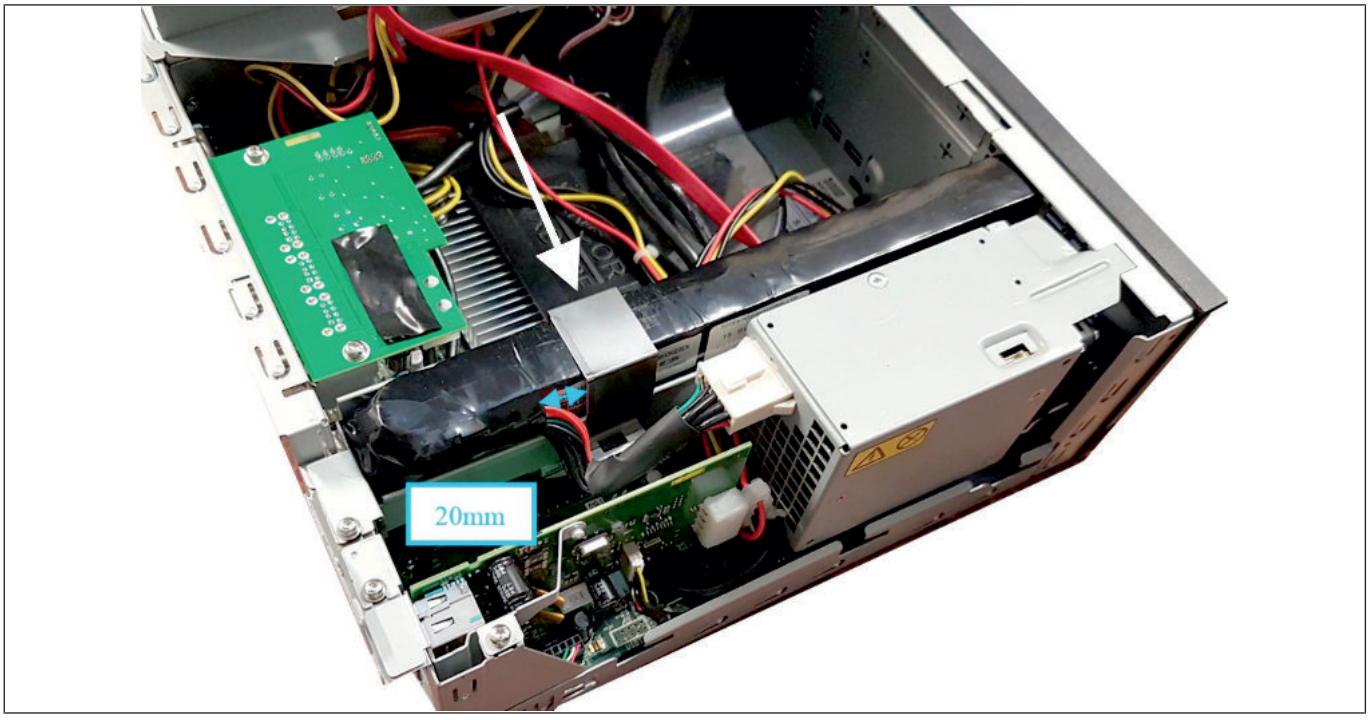


Raise the battery slightly at the front (1) and remove it from the system at an angle (2).



Replace the battery and plug the battery cable into the socket.

Mount the clip (optional) approx. 20 mm (0.79") from the rear of the device.



Mount the housing cover and screw it in place. Attach the cable cover.

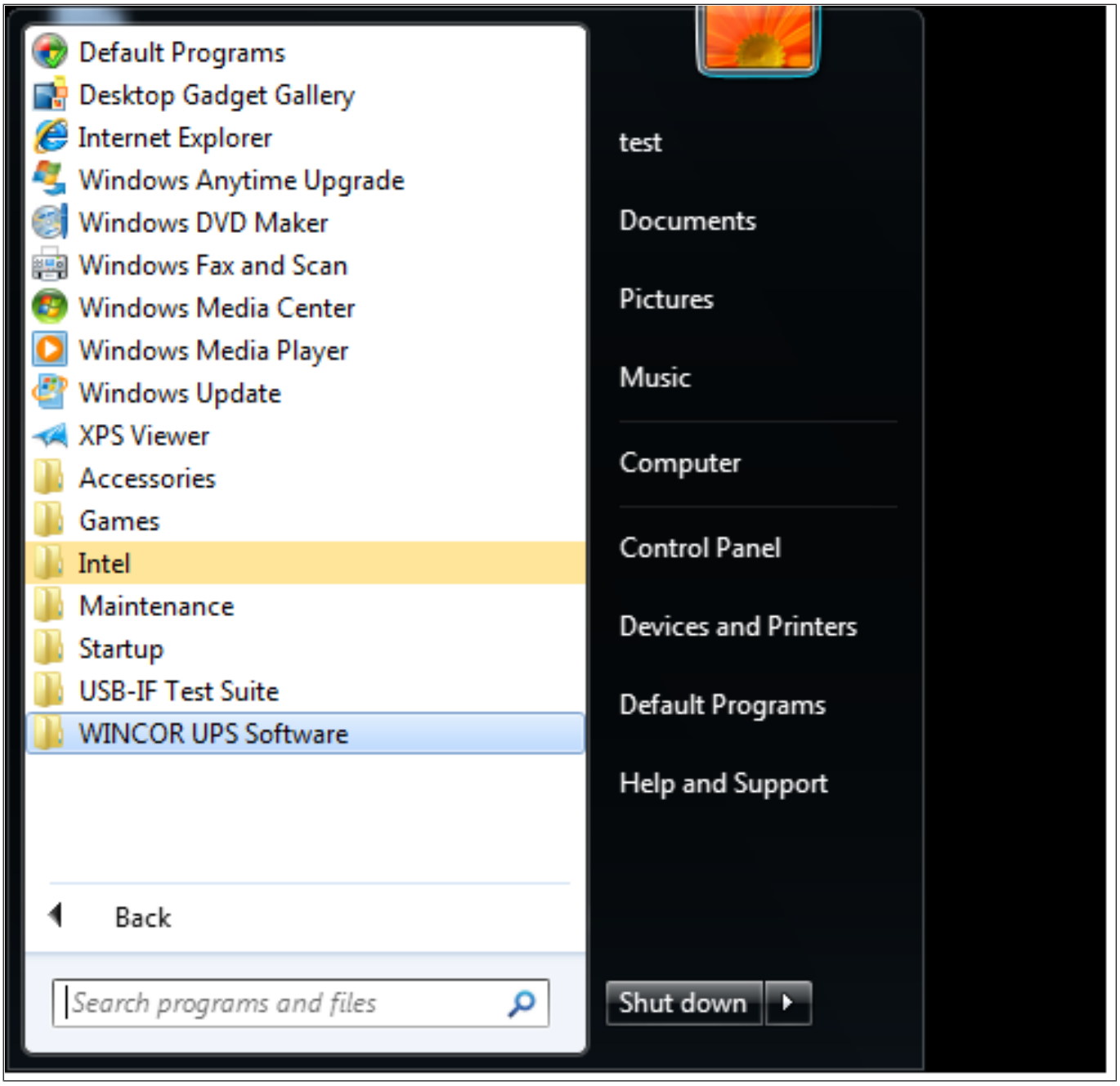
Please note that the battery is only fully charged after the system has been started up.

Observe the necessary settings after replacing the battery (see the following chapter).

18.3 Settings after the replacement

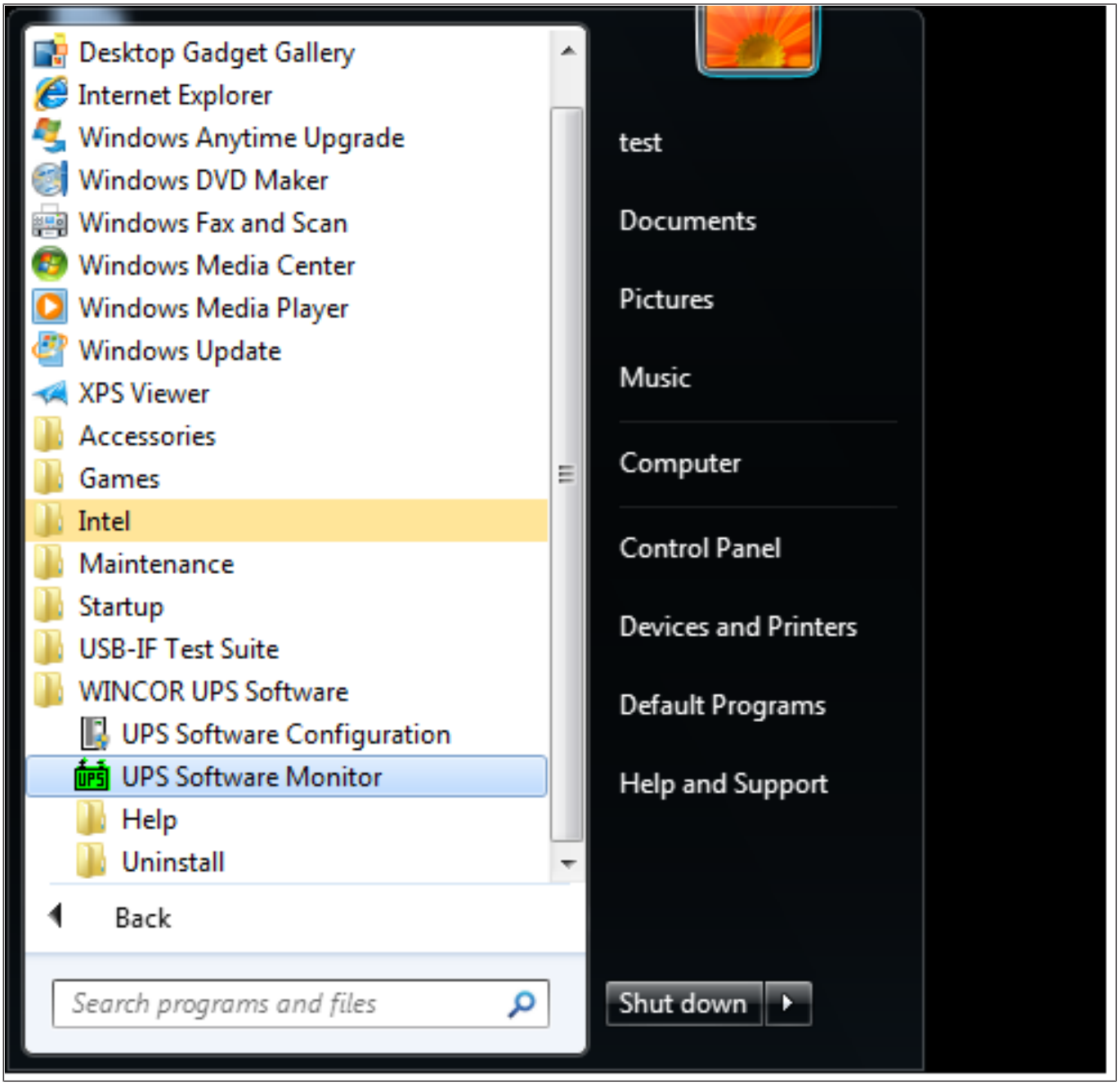
The following settings must be implemented in order to integrate the new accumulator into the system.

- Click with the left mouse button on the Windows start menu. The following display appears:

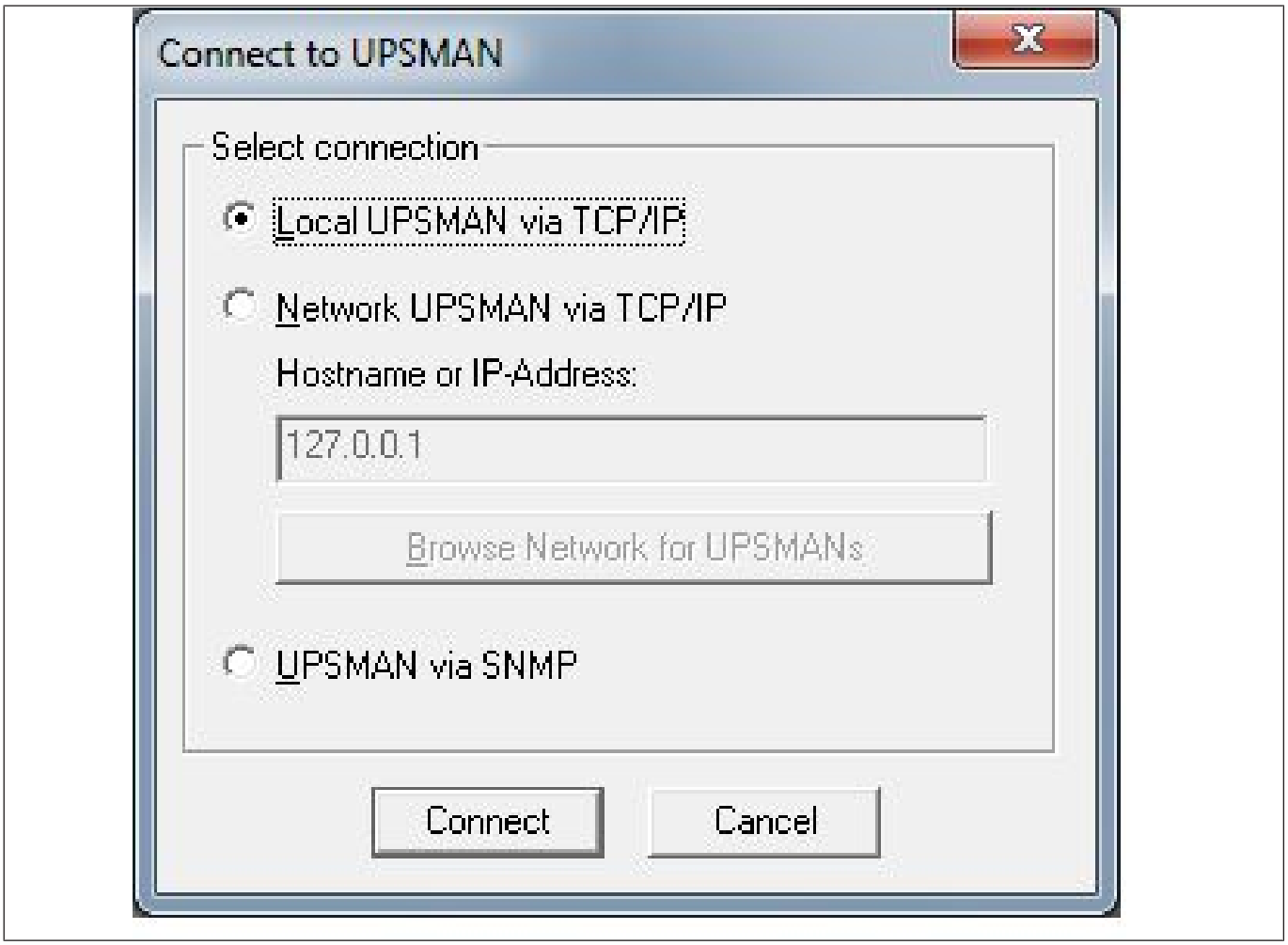


Here in the example, the text appears in English; in a German-language version it would be displayed in German.

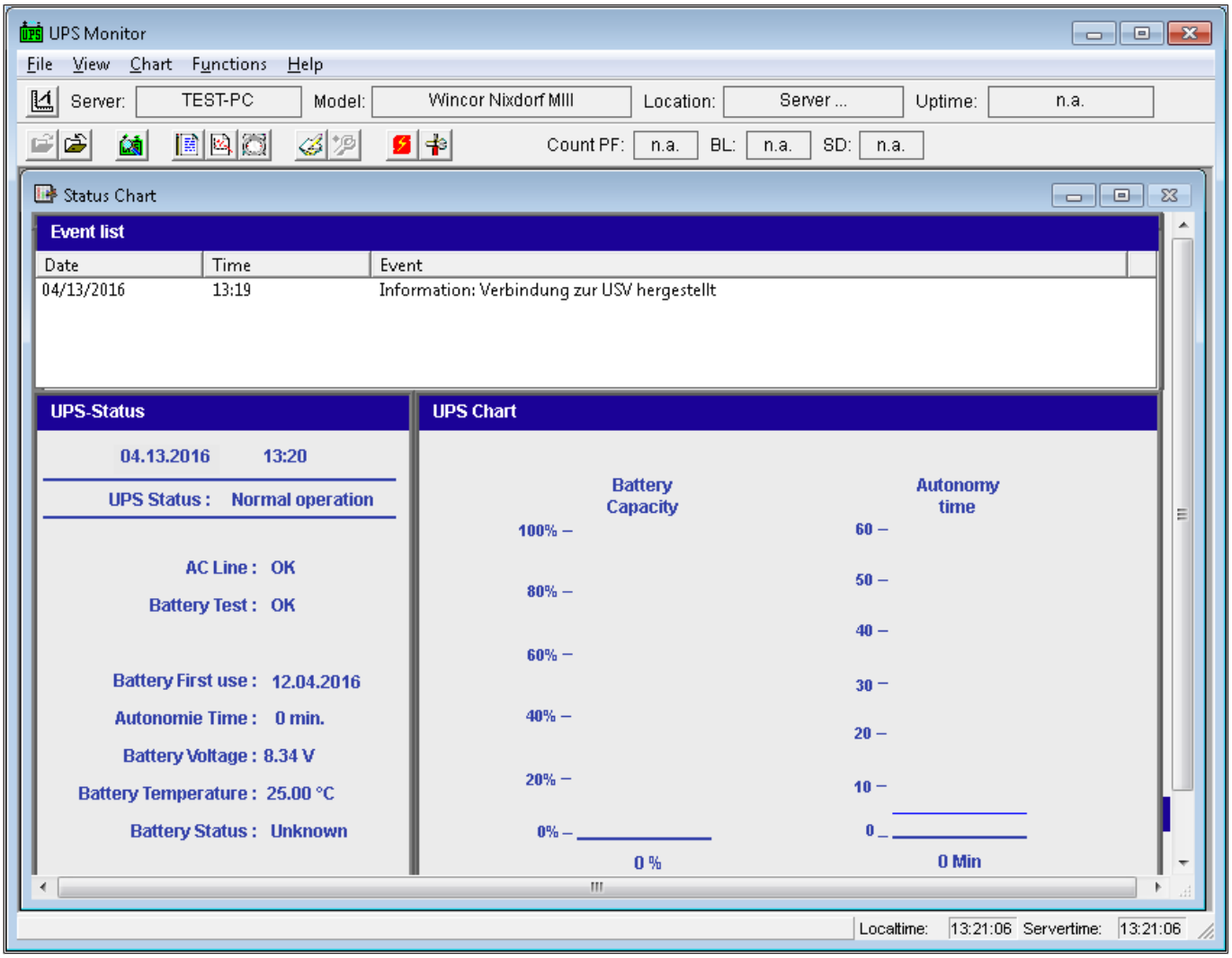
- Press the folder WINCOR UPS SOFTWARE
- The folder opens. Press on UPS SOFTWARE MONITOR



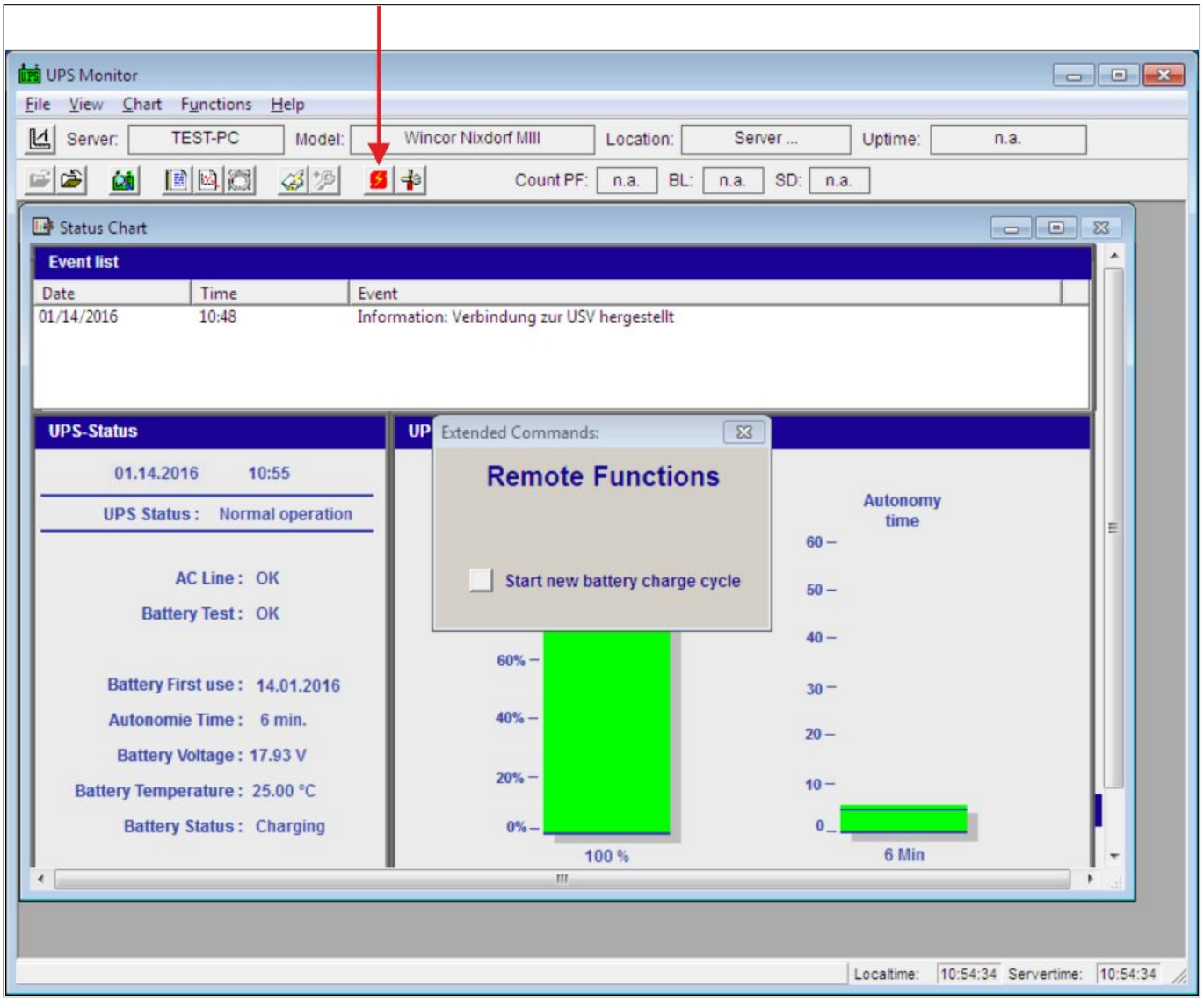
- The menu appears in the following:
  Select the menu item "LocalUPSMAN via TCP/IP".

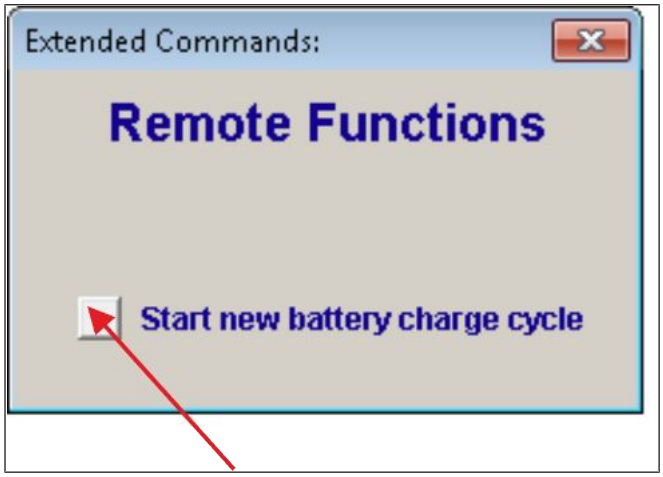


- The UPS monitor opens.



- Press the red button at top in the menu strip (see arrow).





Click on the "Start new battery charge cycle" button (see arrow) in the Remote Functions menu.

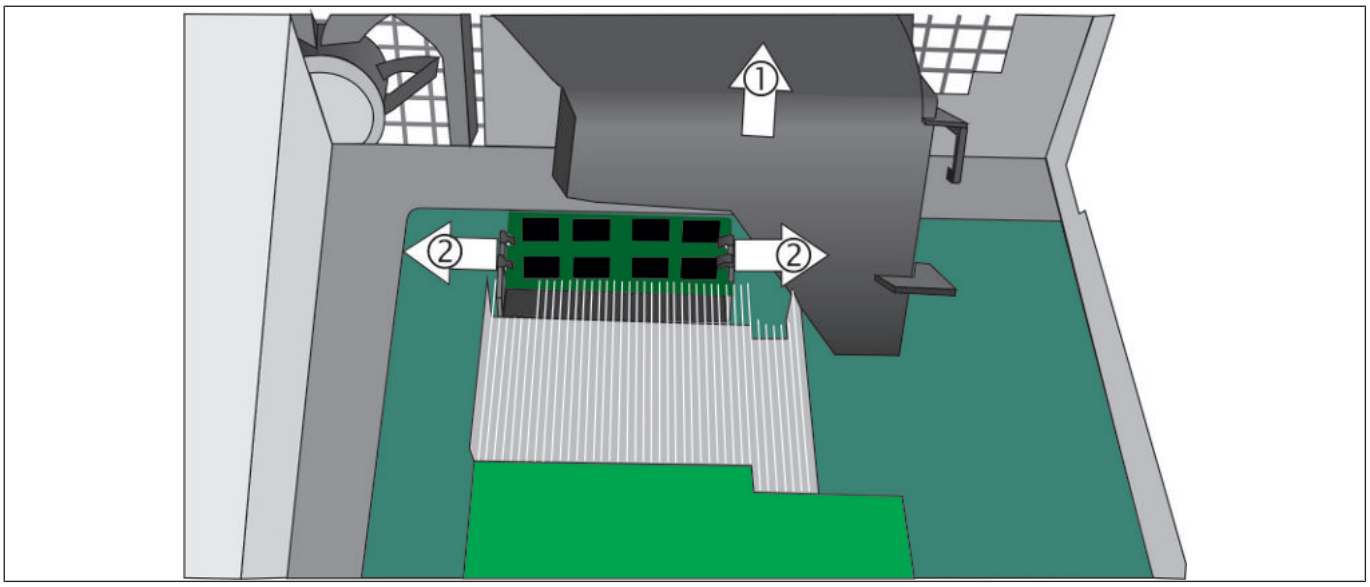
19 Changing memory extensions

Switch off the device and disconnect the mains plug.

⚠ CAUTION

Use ESD equipment.

Disengage the two knurled screws at the rear of the BEETLE /M-III (see chapter "Opening the BEETLE / M-III"). Slide the housing cover from the front guide slightly and lift it off upwards. Detach the cables that run over the air duct on the right-hand side of the motherboard. Grasp the air duct and pull it upwards (1) so that you can access the RAM socket on the motherboard. The removal of the air duct does not apply to a BEETLE /M-III with an O1 motherboard. Open the latching mechanism outwards on both sides of the RAM socket (2).



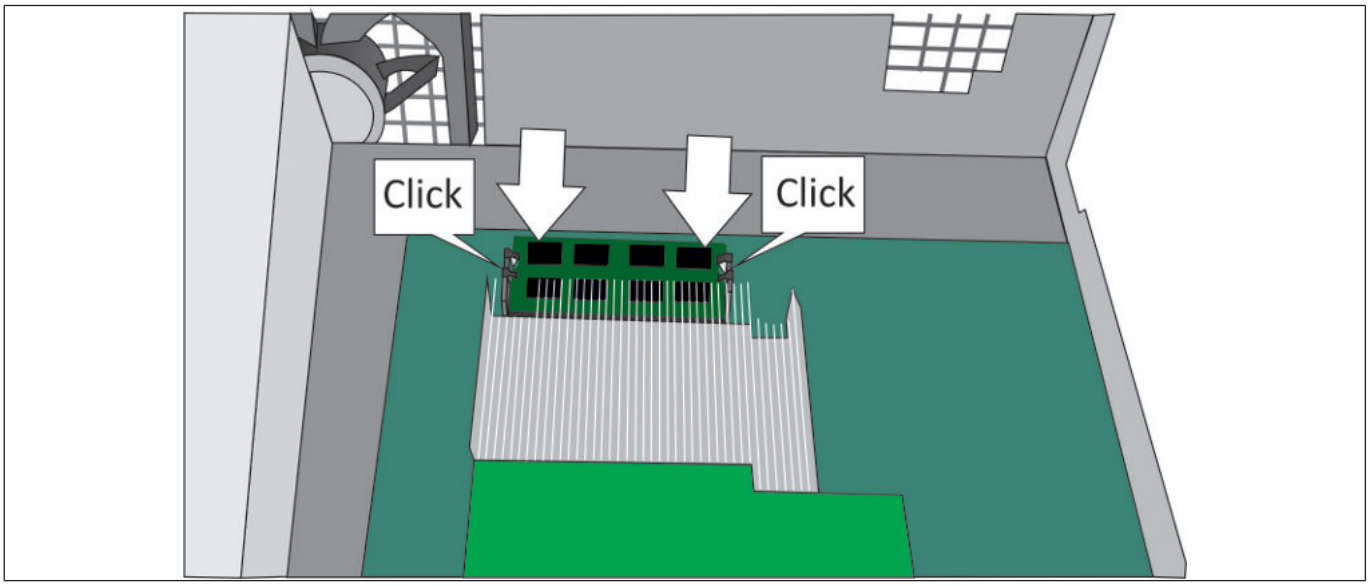
The RAM strip disengages from the socket and can be removed.

Insert the new RAM strip into this memory socket. The coding of the RAM strip (indentation) prevents incorrect insertion.

NOTE

Please note that the bottom memory socket must always be inserted first.

Press the strip downwards until it engages audibly in place.



Slide the ventilation channel back into its previous position and insert the previously removed cables.

Close the device by mounting the housing cover, sliding it into the front guide and fastening it place with the knurled screws.

Now insert the power cable into the contactor contact electrical socket of the facility installation and switch on the device.

20 Putting into service

After installation, switch on the system using the On/Off button on the front. First, an automatic self-test takes place, during which the system is checked for its basic functions.

A decision is subsequently made regarding the medium from which the operating system and the software application are to be started. This means that each medium is is assigned a logical drive depending on the configuration of your system.

The following media can be assigned to a drive:

- Network
- Hard disk/SSD
- USB drive

Once the operating system has started up without error, the software for the POS application will be started automatically if necessary.

As soon as the workstation is ready for operation, this will be indicated by a message.

More detailed information can be obtained from the description of your user program.

21 Appendix

21.1 Technical Data

Table 21-1:

Size	
Width	311.5 mm (12.26")
Depth	302.9 mm (11.93") (without cable cover, incl. screws) 366.5 mm (14.43") (with cable cover)
Height	102.1 mm (4.03")
Weight	approx. 5 kg (11 lbs.)
Ambient conditionsen	
Climate class 3K3	DIN IEC 60068-3
Climate class 2K2	DIN IEC 60068-2
Climate class 1K2	DIN IEC 60068-1
Operating temperature (3K3)	+5°C to +40°C (+41°F to +104°F)
Transport temperature (2K2)	-25°C to +60°C (-13°F to +140°F)
Storage temperature (1K2)	+5°C to +40°C (+41°F to +104°F) 0°C to +40°C with a R1/R2-Motherboard
Processors	
K-Motherboard	Celeron G1820, Core i3-4330, Core i5-4570S Intel Pentium G3420, 2x 3.3 GHz
M-Motherboard (Skylake)	Intel Core i5-6500, 4x 3.2-3.6 GHz Intel Core i3-6100, 2x 3.7 GHz Intel Pentium G4400, 2x 3.3 GHz Intel Celeron G3900, 2x 2.8 GHz
M-Motherboard (Kabylake)	Intel Core i5-7500, 4x 3.4-3.8 GHz Intel Core i3-7101E, 2x 3.9 GHz
O-Motherboard (Braswell)	Celeron QC N3160 4x1.6 GHz to 2.24 GHz
R-Motherboard (Coffeelake)	Intel Core i5-9500E 6x 3.0-4.2 GHz Intel Core i3-9100E, 4x 3.1-3.7 GHz Intel Pentium G5400, 2x 3.7 GHz Intel Celeron G4900, 2x 3.2 GHz
Power supply voltage	100-240 V
Power consumption	6-3 A

Table 21-1: (continued)

Supply voltage frequency	60/50 Hz

21.2 Interfaces (K1/K2, M1/M2)

COM	COM1 (without power supply) COM2* - COM4* (with power supply) Optional COM5 - COM6 (without power supply) COM5* - COM6* (with power supply)
USB	2 x standard USB 2.0 at the front 2 x standard USB 2.0 2 x standard USB 3.0 3 x 12 V powered USB via Retail board 1 x 24 V powered USB on the power supply unit Optional 4 x 12 V via powered USB hub or 3 x 12 V powered USB hub
Graphics adapter	1x VGA, max. resolution 1920 x 2000 pixels @ 60 Hz 2x PLINK2/DVI-D, max. resolution 1920 x 1200 pixels @ 60 Hz K1/M1: Max. 3 displays for simultaneous connection K2/M2: Max. 2 displays for simultaneous connection
In, Out, Mic	Ports for microphone, headset, loudspeaker
PS/2	1 (keyboard and mouse via Y-cable)
RJ12	Cash Drawer
RJ45/LAN	10/100/1000 Mbit/s
PCIe	1 x PCIe x1 and 1 x PCIe x16
LPT	Optional: 1 x
Serial ATA	K1/M1/M2: 3 x SATA III K2: 2 x SATA III and 1 x SATA II
mSATA+mPCIe*	K1*, K2, M1* and M2
M.2	KeyM 2280/2260; 4 x PCIe/1 x SATA to M1

21.3 Interfaces (O1 motherboard)

COM	COM1 (without voltage supply) COM2* - COM4* (with power supply) Optional COM5 - COM6 (without power supply) COM5* - COM6* (with power supply)
USB	2 x Standard USB 2.0 at the front side 2 x Standard USB 3.0 2 x Standard USB 2.0 1 x 24 V PoweredUSB on the power supply unit Optional 4 x 12 V via PoweredUSB Hub
Graphics adapter	1x VGA, Resolution max. 1920 x 2000 Pixel @ 60 Hz 2x PLINK2/DVI-D, Resolution max. 1920 x 1200 Pixel @ 60 Hz O1: Max. 3 displays for simultaneous connection
In, Out, Mic	Ports for microphone, headset, loudspeaker
PS/2	1 (keyboard and mouse via Y-cable)
RJ 12	Cash Drawer
RJ45/LAN	10/100/1000 Mbit/s
PCIe	1 x PCIe x1
LPT	Optional: 1 x
Serial ATA	1 x SATA III
M.2	KeyM 2280, 1 x SATA

21.4 Interfaces (R1/R2-Motherboard)

COM	COM1 (without power supply) COM2* - COM4* (with power supply) Optional COM5 - COM6 (without power supply) COM5* - COM6* (with power supply)
USB	2 x standard USB 2.0 at the front 2 x standard USB 3.1 2 x standard USB 2.0 1 x 24 V powered USB on the power supply unit Optional 4 x 12 V via powered USB hub USB C card with USB, type C port (alternate mode) with USB3.1 Gen1/ Gen2, DP and PD (PD2.0 with 5 V and 12 V only and 3 A) as optional TYPEC extension * Max support USB3.1 gen2 on R1, USB3.1 gen1 on R2
Graphics adapter	1x VGA, max. resolution 1920 x 2000 pixels @ 60 Hz 2x PLINK2/DVI-D, max. resolution 1920 x 1200 pixels @ 60 Hz
In, Out, Mic	Ports for microphone, headset, loudspeaker
PS/2	1 (keyboard and mouse via Y-cable)
RJ12	Cash Drawer
RJ45/LAN	10/100/1000 Mbit/s
PCIe	1 x PCIe x1, PCIe x16 slot
LPT	Optional: 1 x
Serial ATA	3 x SATA 6 Gb/s connectors
M.2	KeyM 2280, 1 x SATA, M.2 Sata on R2, PCIe x4 + SATA on R1

21.5 Total Current Consumption Interfaces

The total current consumption at 5 V interfaces must not exceed past 5 A:

Every COM*	= 300 mA, total of 1000 mA
Every USB2.0/USB3.0, USB 3.1	= 500 mA/900 mA, total of 3 A
Every USB (HUB)	= 500 mA, total of 2 A
TFT/LCD display	
	Max. 5 A @ 5 V

The total current consumption at 12 V interfaces must not exceed past 5 A:

Every COM*	= 600 mA, total of 900 mA
Every PoweredUSB	= 1.5 A, total of 2 A
Every PoweredUSB 12 V*	= max. 3 A
TFT/LCD display	
	Max. 5 A @ 12 V

The 24 V PoweredUSB interface is provided for the operation of DN retail thermal printers. The peak load is configured accordingly. The maximum average continuous current strength must not exceed 2 A.

DN retail printers can be set to 90 Watt.

For thermal reasons, the power consumption of additionally implemented PCI and PCIe controllers is limited per slot to 10W and in total to 20W.

22 Abbreviations

AC	Alternating Current
CE	European Symbol of Conformity
COM	RS232 interface
COM*	RS 232 interface (asterisk = power supply)
CPU	Central Processor Unit (for example INTEL Celeron-M)
cUL	Canadian Underwriters Laboratories
DIN	Deutsches Institut für Normen (German Institute for Standards)
DN	Diebold Nixdorf
D-Sub	D-Shaped Subminiature
DVI-D	Digital Visual Interface Digital
EC	European Community
ESD	Electrostatic-discharge-sensitive components
CFC/CHC	Fluorinated chlorinated hydrocarbons/chlorinated hydrocarbons
GS	Tested Safety
HDD	Hard Disk Drive
IEC	International Electrotechnical Commission
ISO speed ratings	International Organisation for Standardization
LAN	Local Area Network
LED	Light Emitting Diode
PCI	Peripheral Component Interconnect
PCIe	Peripheral Component Interconnect express
PEN conductor	Protective Earth Neutral - conductor
POS	Point Of Sales
RAM	Random Access Memory
RJ	Registered Jack (standardized socket), e.g. RJ45
SATA	Serial Advanced Technology Attachment
TFT	Thin Film Transistor
TN-S	Terre Neutre-Separé
UL	Underwriters Laboratory (standards)

USB	Universal Serial Bus
VDE	VDE Association for Electrical, Electronic & Information Technologies
VGA	Ultra extended graphics array wide

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