ibaDeskline SAS

iba Industrial Computer

Manual

Issue 1.6

Manufacturer

iba AG

Koenigswarterstr. 44

90762 Fuerth

Germany

Contacts

Main office	+49 911 97282-0
Fax	+49 911 97282-33
Support	+49 911 97282-14
Engineering	+49 911 97282-13

E-Mail: iba@iba-ag.com

Web: www.iba-ag.com

The content of this publication has been checked for compliance with the described hardware and software. Nevertheless, deviations cannot be excluded completely so that the full compliance is not guaranteed. However, the information in this publication is updated regularly. Required corrections are contained in the following regulations or can be downloaded on the Internet.

The current version is available for download on our web site http://www.iba-ag.com.

Windows® is a label and registered trademark of the Microsoft Corporation. Other product and company names mentioned in this manual can be labels or registered trademarks of the corresponding owners.

Certification

The device is certified according to the European standards and directives. This device corresponds to the general safety and health requirements. Further international customary standards and directives have been observed.

CE

Issue	Date	Revision	Chapter	Author	Version HW / FW
1.6	02-2023	Controller, hard disk mounting frame			

Table of contents

1 About this manual

This manual describes the construction, the use and the operation of the industrial PC ibaDeskline SAS.

1.1 Target group

This manual addresses in particular the qualified professionals who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded to as professional if he/she is capable of assessing safety and recognizing possible consequences and risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

1.2 Notations

The following designations are used in this manual:

Action	Notations
Menu command	Menu *Logic diagram*
Call of menu command	*Step 1 – Step 2 – Step 3 – Step x* Example: Select menu *Logic diagram – Add – New logic diagram*
Keys	<Key name> Example: <Alt>; <F1>
Press keys simultaneously	<Key name> + <Key name> Example: <Alt> + <Ctrl>
Buttons	<Button name> Example: <OK>; <Cancel>
File names, Paths	„File name", „Path" Example: „Test.doc"

1.3   Used symbols

If safety instructions or other notes are used in this manual, they mean:

⚠ DANGER

The non-observance of this safety information may result in an imminent risk of death or severe injury:

- By an electric shock!

- Due to the improper handling of software products which are coupled to input and output procedures with control function!

If you do not observe the safety instructions regarding the process and the system or machine to be controlled, there is a risk of death or severe injury!

⚠ WARNING

The non-observance of this safety information may result in a potential risk of death or severe injury!

⚠ CAUTION

The non-observance of this safety information may result in a potential risk of injury or material damage!

Note

A note specifies special requirements or actions to be observed.

Tip

Tip or example as a helpful note or insider tip to make the work a little bit easier.

Other documentation

Reference to additional documentation or further reading.

2   Scope of delivery

After unpacking check the completeness and intactness of the delivery.

The scope of delivery includes:

❑ Industrial Computer ibaDeskline SAS

❑ Keyboard

❑ Mouse

❑ Mains cable

❑ Documentation (data medium "iba Software & Manuals")

❑ iba software license key (when a software was ordered)

The documentation contains:

❑ Manual (pdf)

❑ Third party documentation (pdf)

❑ Windows 10 Enterprise Long-Term-Servicing Version or Windows Server Version

❑ Recovery media (for the respective Windows version with all associated operating system settings)

❑ iba software, optional order

❑ Hardware driver (motherboard, graphics card)

❑ 1 iba software license key (dongle), optional with iba software product

❑ Serial number (iba-S/N)

3   Versions

❑ ibaDeskline SAS (Xeon E, Windows 10 IoT Enterprise Long-Term-Servicing version, PCIe) with one hard disk, can be upgraded with up to 4 additional hard disks + 4 hard disks with additional hard disk mounting frame

Upgrade options:

❑ RAID 1 system with 2 hard disks, 1 redundant power supply unit
Data are mirrored.

❑ RAID 6 system with 8 hard disks, 1 redundant power supply unit and a second hard disk mounting frame
The net volume corresponds to the volume of approx. 6 hard disks with simultaneous high performance and system stability against failure.

❑ Server system with Windows Server 2016 or higher

❑ ibaDeskline with SSD disk (on request)

❑ SSD (for upgrade)

❑ Upgrade to RAID1 system for ibaDeskline with SSD

3.1   Factory setting

In delivery state, 2 users with or without password are configured:

User	Password
pda	-
Administrator	xadmin

Important note

Change the default passwords after you have put the PC into operation! This way, unauthorized usage will be impeded.

4 Safety instructions

4.1 Designated use

The device may be used only for the following applications:

❏ Machine test and commissioning of industrial systems

❏ Measurement data logging and analysis

❏ Applications of iba software products (ibaPDA, ibaLogic etc.)

⚠ **Warning!**

This is a Class A device. This equipment may cause radio interference in residential areas. In this case, the operator will be required to take appropriate measures.

ℹ **Note**

The plug of the system serves for disconnecting the device. Therefore, the plug as well as the socket must always be easily accessible in order to allow a quick disconnection of the power supply.

4.2 Proper installation site

According to manufacturer's specifications the device can only be installed on an even non-slip installation surface, for example table or rack.

⚠ DANGER

Electric Shock!

Before opening the device disconnect it from the mains and pull out the mains plug from the socket equipped with earthing contact!

Never use the device with a damaged mains cable!

⚠ WARNING

Before opening the device disconnect it from the mains by unplugging the cable from the socket equipped with an earthing contact and wait for several minutes until the components have cooled down! Thus you will avoid injuries due to the electric shock or burns!

Connect the device to one supply voltage only according to specifications on the built-in power supply unit!

Always use a socket equipped with earthing contact! Use a terminal strip with overvoltage protection or an uninterruptible power supply (UPS)!

Always connect the device to earthed power networks (TN-networks according to VDE 0100 Part 300 and IEC 60364-3)! The operation via ungrounded networks or networks (IT networks) earthed via impedance is not permitted!

In case of faults, a defective device or a possible defect pull out the mains plug from the socket equipped with earthing contact!

Never put a damaged device into operation!

Pay attention to sharp edges in the housing!

Never switch off the device by means of the mains switch without previous shutdown of the device.

Electrostatic discharge!

Touch the components only in electrostatically discharged state!

4.3 Mainboard battery

The computer contains 1 CMOS battery CR2032, included in the mainboard used. The battery is a lithium metal battery and belongs to the following class of dangerous goods: UN3091 Class 9 – PI970 Section II - SP188. The cells are not subject to some require-ments of dangerous goods regulations. The currently valid safety data sheet of CR2032 is available on request.

Observe the correct polarity of the battery.

Important note

Used batteries and rechargeable batteries must not be disposed of with residual waste.

Batteries contain valuable raw materials that can be recycled and reused. Devices with the symbol are subject to EU Directive 2002/96/EC on waste electrical and electronic equipment. As a manufacturer we are obliged under the above directive to make you aware of this directive in the context of selling batteries or rechargeable batteries.

Batteries must not be disposed of in the household waste. This is highlighted by a crossed-out rubbish bin or waste container. You are legally required to properly dispose of batteries. Please dispose of spent batteries as required by law at municipal collection centers or return them to your local retailer free of charge. It is expressly forbidden to dispose of batteries in the household waste; this is harmful for the environment. Batteries delivered by us can be returned free of charge or returned by mail with sufficient postage.
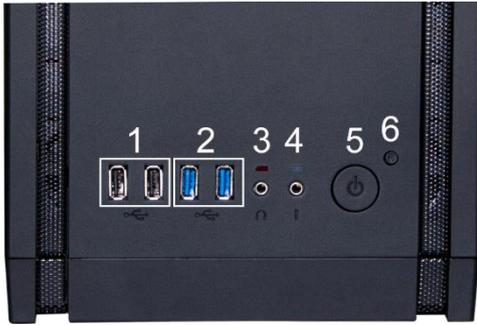
5   Description

5.1   Front view

ibaDeskline

Front view with plug-in slots for hard disks

5.2   Top view

ibaDeskline

1   USB 2.0 interfaces

2   USB 3.0 interfaces

3   Headset interface

4   Microphone interface

5   Power button

6   Reset button

5.3   Rear view

5.3.1   Standard system version

1 Connections for external devices (keyboard, mouse, network etc.)

2 Slots X20 to X26 (iba-cards for rackline slot, e.g. output connection for ibaFOB-i cards)

3 Slot X2 for hard disk controller

4 Slots X3 to X7 (PCIe)

5 Slot X8 (PCI)

6 Power supply with switch and panel plug for non-heating appliances

5.3.2   Version with redundant power supply

RAID systems are equipped with a redundant power supply unit.

1 Connections for external devices (keyboard, mouse, network etc.)

2 Slots X20 to X26 (iba cards for rackline slot, e.g. output connection for
   ibaFOB-i cards)

3 Slot X2 for hard disk controller

4 Slots X3 to X7 (PCIe)

5 Slot X8 (PCI)

6 2x Power supply with switch and panel plug for non-heating appliances, replaceable

5.4   Internal view
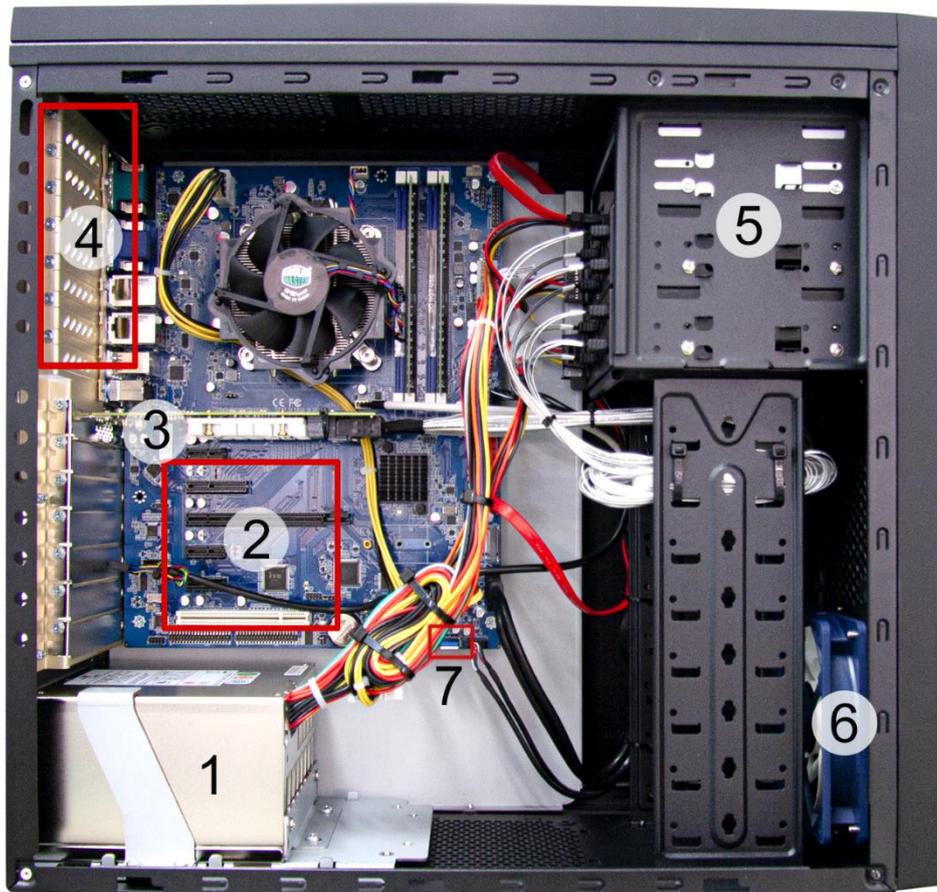
1 Power supply unit (redundant for RAID systems)

2 5x PCIe slots, 1x PCI slot

3 Hard disk controller

4 Slots for low-profile iba cards

5 Drive frame

6 Fan (Ø 12 cm)

7 Internal USB port (dongle)

5.5   Error monitoring

Example: Built-in ibaOut-Temp card

The temperature and the status of the power supply unit can be monitored with the slot cards ibaOut-Temp and ibaOut-State. The cards can be ordered separately as accessory. If the card is ordered with ibaDeskline, it is installed by default in slot X20. If the plug-in card is installed at a later time, please refer to chapter 7.4.

The status of temperature and power supply unit are indicated each with a bicolored LED.

LED	Status	Description
TEMP	green	Temperature OK
	red	Overtemperature
POWER	green	Power supply OK
	red	Power supply error Redundant power supply: error in one of the two power supply units

5.5.1   ibaOut-Temp

ibaOut-Temp provides two relay outputs for temperature and power supply (2-pin connector), which can be used to indicate errors. Both error types are indicated separately.

The switch position of the outputs is as follows:

Status	Switch POWER	Switch TEMP
Power off or power error	closed	open
Power OK, temperature OK	open	open
Power OK, overtemperature	open	closed

Contact loading capacity

Nominal current: 400 mA

Nominal voltage: 60 V

Compatibility to previous PC models

ibaDeskline computers of older type series provide only one relay output for error indication. The relay contact is closed when an error occurs, without differentiating between overtemperature or a power supply error.

ibaOut-Temp can be used in the same way, when both outputs are connected to one output (parallel circuit).
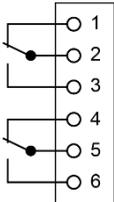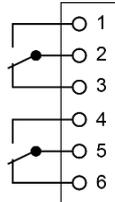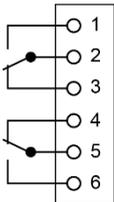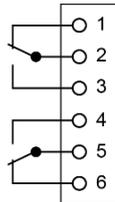
Wiring diagram of the parallel circuit:
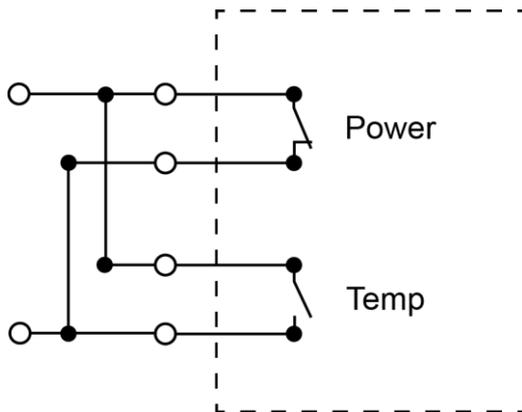
5.5.2   ibaOut-State

ibaOut-State provides an output (6-pin connector) which can be used to indicate errors. Both error types are indicated separately.

These are the switch positions:

Switch	state	switch	state
	Power OK, temperature OK		Power off or Power error and overtemperature
	Power error, temperature OK		Power OK, overtemperature

Contact loading capacity

Nominal current: 300 mA

Nominal voltage: 220 V DC

Compatibility to previous PC models

The behavior of ibaOut-State is identical with the previous models with a relay output, if pin 5 and 6 are used. The relay contact of the previous iba-PC models is closed when an error occurs, without differentiating between overtemperature or a power supply error.

6 Installation, connection and first switching on

6.1 Safety instructions

⚠ DANGER

Electric Shock!

Never use the device with a damaged mains cable!

⚠ WARNING

Connect the device to one supply voltage only according to specifications on the built-in power supply unit!

Always use a socket equipped with earthing contact! Use a terminal strip with overvoltage protection or an uninterruptible power supply (UPS)!

Connect the device only to earthed power networks (TN-networks according to VDE 0100 Part 300 or IEC 60364-3)!

The operation via ungrounded networks or networks (IT networks) earthed via impedance is not permitted!

Never put a damaged device into operation!

6.2 Setting up

Place the device only in the location which has the following properties:

- Stationary
- Shock-free
- In the protected room, for example switch cabinet
- Dust-free and dry environment
- Even and non-slip base

ⅈ Note

If you embed the device, observe the minimum bending radii of the cables and lines. The mounting clearance must be at least 150 mm from the rear wall.

Ensure sufficient air circulation.

490 mm   150 mm

460 mm
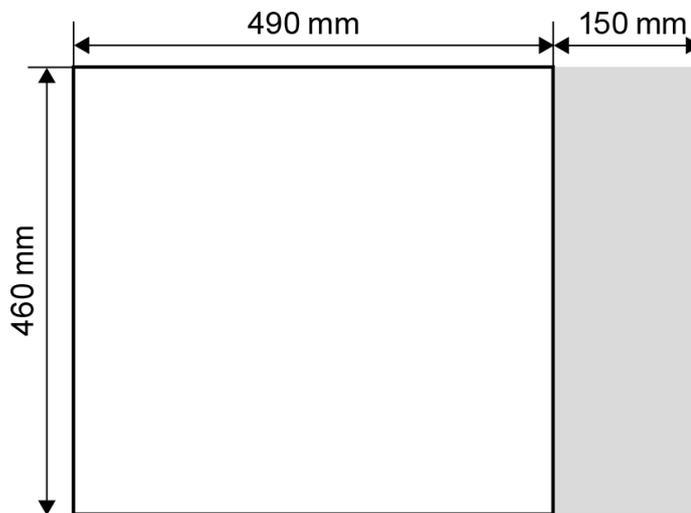
6.3   Connection and first switching on

i

Note

Before switching on the device for the first time check if the power supply is connected properly and the connecting cable (fiber optic and copper data cable) are plugged. The device is delivered in a pre-installed and configured state. You can find the parameters of the operating system and iba software in the corresponding manuals or in the online help.

1. Connect the device to a mains socket using the mains cable.

2. Connect all cables.

3. Switch on the device using the mains switch.

4. Boot the device. Press the power button.
    The computer is booted automatically with Windows.

5. Finally, start all iba-software applications.

7   Installation of measuring or additional boards

7.1   Safety instructions and notes

⚠ DANGER

Electric Shock!

Before opening shut down the device! After that disconnect it from the mains and pull out the mains plug from the socket equipped with earthing contact!

⚠ WARNING

Wait for several minutes after switching off until the components have cooled down! Thus you will avoid injuries due to the electric shock or burns!

Pay attention to sharp edges in the housing!

Electrostatic discharge!

Touch the components only in electrostatically discharged state!

Note

If you upgrade the device, observe the instructions in the third party documentation.

Back up all data on an external storage medium.

7.2   Basic procedure

If you carry out any work at the device, always proceed in the following way:

1. Remove all mobile data carriers (USB sticks, memory cards and so on).

2. Shut down the device.

3. Switch off the device.

4. Unplug the mains cable from the socket.

5. Remove the side panel (If you want to exchange cards, remove the left side panel).

6. Carry out upgrade operations.

7. Attach the side panel again.

8. Put the device into operation again.

7.3   Opening the device

1. At the rear side, loosen the two screws fixing the side panel.

2. Push the side panel slightly backwards.

3. Tilt the side panel and pull it upwards.
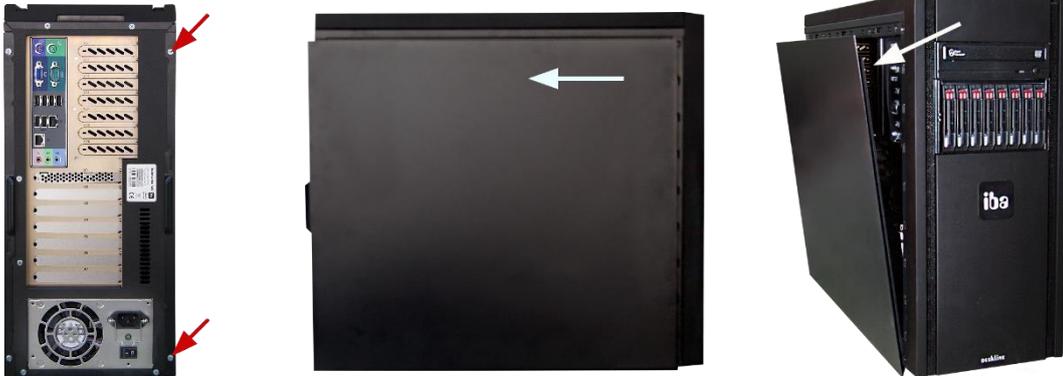
7.4   Installing ibaOut-Temp/ibaOut-State

The temperature and the status of the power supply unit can be monitored with the slot cards ibaOut-Temp and ibaOut-State, see also chapter 5.5.

The installation procedure is identical for both cards. The installation is described below using the example of ibaOut-Temp in an ibaRackline system.

ibaOut-Temp
Order no. 11.110001

ibaOut-State
Order no. 11.110002

After having opened the housing cover proceed as follows:

1. ibaOut-Temp can be installed in one of the slots X20 to X26 (X20 is recommended).

2. Break out the cover plate of the intended slot on the back of the device using a screwdriver.
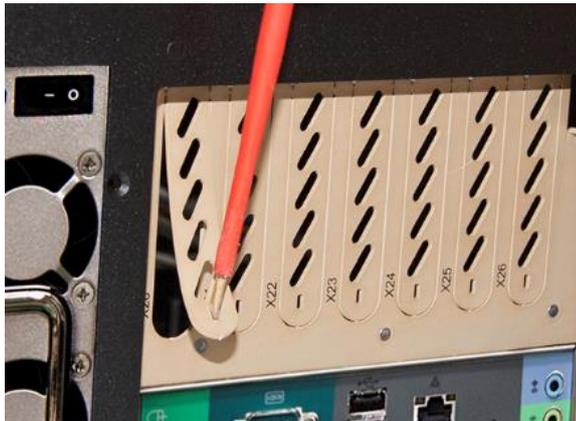
3. Above the slot, there is a screw in an opening, which is used to fix the card later. Loosen the screw and remove it.
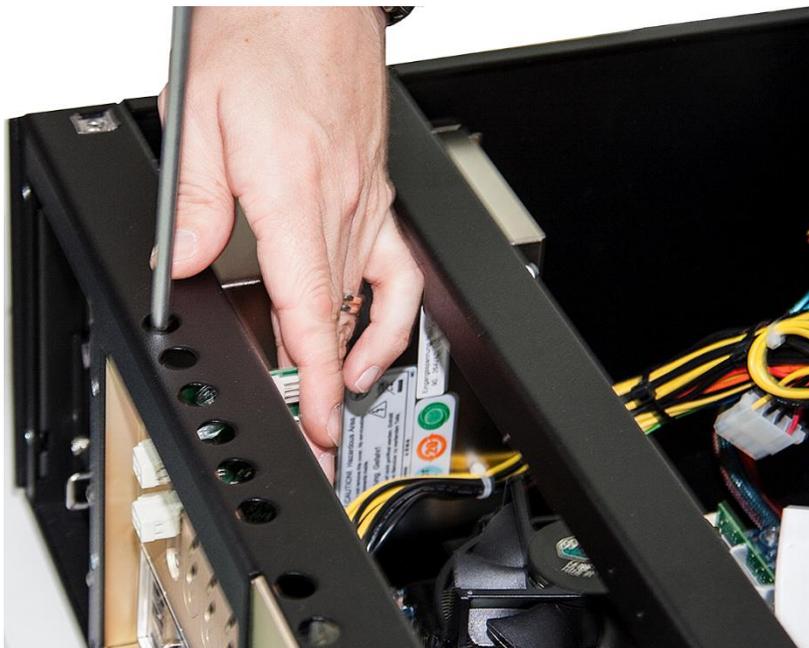
Electrostatic discharge!

Touch the components only in electrostatically discharged state! Hold the card cautiously at the edges and at the slot bracket.
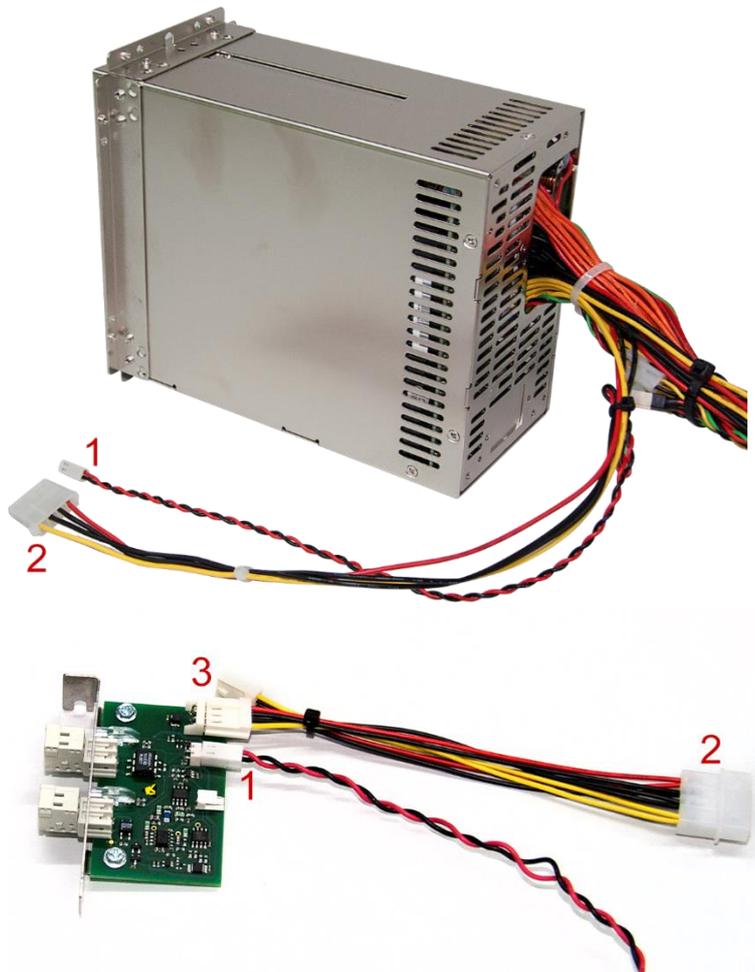
4. Insert the card in the respective slot. The bar at the bottom is used to fix the card.
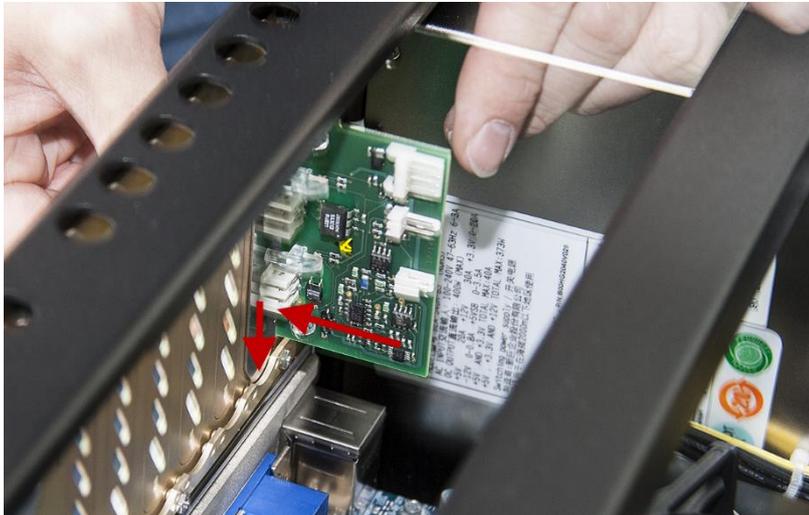
**5.** Fasten the card with the previously loosened screw.

6. Connect the cables as follows:

(1): Connection of redundant power supply unit: If a redundant power supply unit is to be monitored, connect the twisted cable (black/red) of the power supply unit (1 – picture above) to the 2-pin connector (1 – picture below) of the card. This connection is not necessary, when a standard power supply unit is used.

(2): Power supply connection: Use the cable included in delivery. Connect the connector of the power supply cable from the power supply unit (2 – picture above) with the wide connector of the cable included in delivery (2 – picture below). Make sure that the cables of the same color are connected. Plug one of the two narrow connectors to the 4-pin connector (3) of the card, the second narrow connector is not used.

7. Properly installed card:
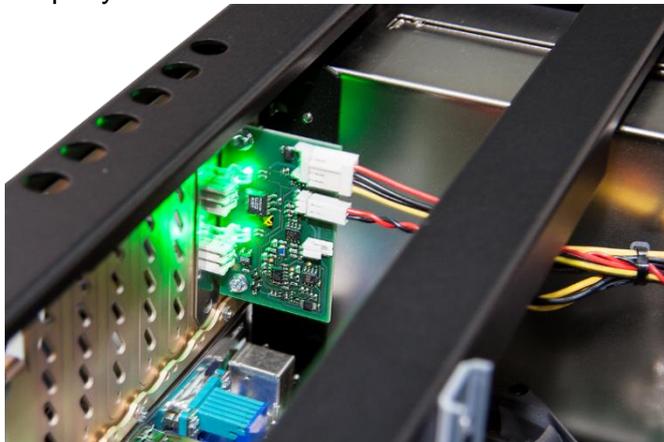
8. Fix the cable with a cable tie and close the housing cover.

8 Maintenance work

8.1 Basic procedure

If you carry out any maintenance work at the device, always proceed as follows:

1. Remove all mobile data carriers (USB sticks, memory cards and so on).

2. Shut down the device.

3. Switch off the device.

4. Unplug the mains cable from the socket.

5. Remove the left or, if necessary, both side panels.

6. Carry out the maintenance work.

7. Attach the side panels again.

8. Put the device into operation again.

8.2 Power supply slide-in module for replacement of redundant power supply unit

If the green lamp of a connected power supply unit is not lit any more during operation or you can hear a loud beep, the power supply unit must be replaced.

⚠ DANGER

Electric Shock!

Only qualified professionals are allowed to replace a power supply unit during operation!

Electrostatic discharge!

Touch the components only in electrostatically discharged state!

1 Fastening screw of slide-in module

1. Loosen the fastening screw which is used to secure the power supply slide-in module at the rack.

2. Pull out the power supply slide-in module.

3. Replace the power supply slide-in module with the module of the same type (available at iba).

8.3   Restoring of a RAID system during operation

⚠ DANGER

Only qualified professionals are allowed to replace a hard disk unit during operation!

Electrostatic discharge!

Touch the components only in electrostatically discharged state!

ℹ Important Note

The RAID system is not automatically restored after having changed the hard disk. Use the program „maxView Storage Manager".

ℹ Note

The program "maxView Storage Manager" is included on the data media „Drivers and Manuals". "maxView Storage Manager" is a web application which requires a web browser, e.g. Internet Explorer.

ℹ Note

The program "maxView Storage Manager" may be configured that the administrator will be informed by e-mail in case of an error.

If the buzzer sound can be heard at the same time, it is possible that a hard disk in the RAID system is defective. To restore the RAID system, proceed as follows:

1. Start the program " maxView Storage Manager ". The "Log in" window is displayed.
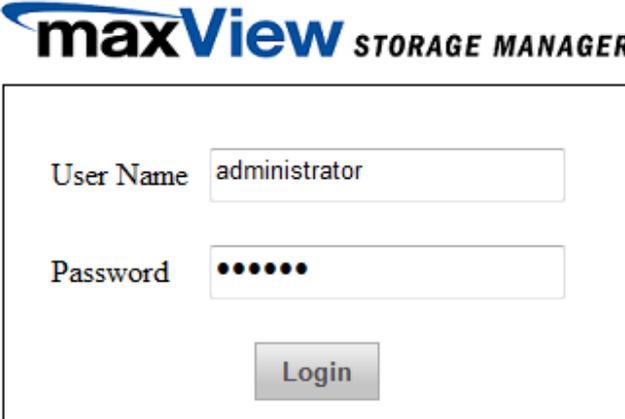
2. Log in as follows:
   User Name: administrator
   Password: xadmin

3. A click on <Login> opens the program window of the manager.
   The defective hard disk is not indicated.

4. Mark the hard disk, which is available ("Device 1" in the example above) and click on the „Locate" icon in the "Physical Device" section. The available hard disk blinks in the drive frame.

5. Replace the defective hard disk.

Note

The removal and installation is described in the documentation of the hard disk manufacturer.

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6. The new hard disk is indicated in the „maxView Storage Manager". But the hard disk has not been registered in the system.
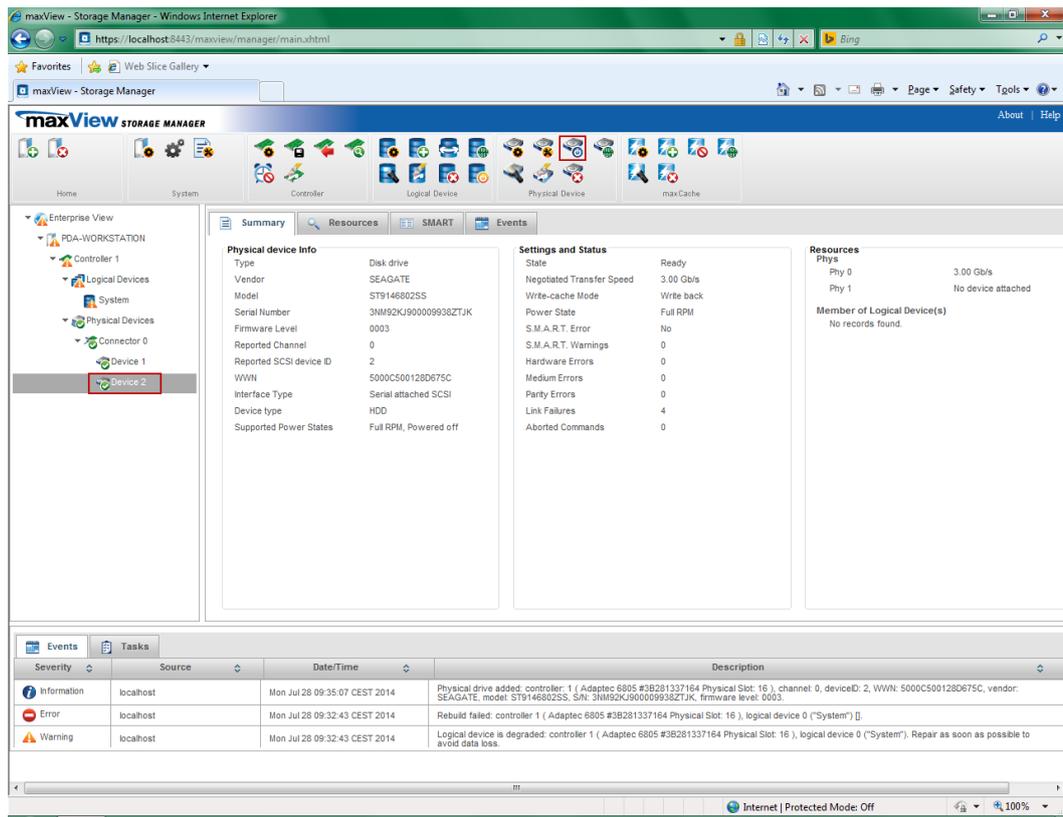
7. Mark the new hard disk („Device 2" in the example above) and click on the „Initialize" icon in the „Physical Device" section.

8. Then, click on the „Spare Management" icon in the „Physical Device" section.
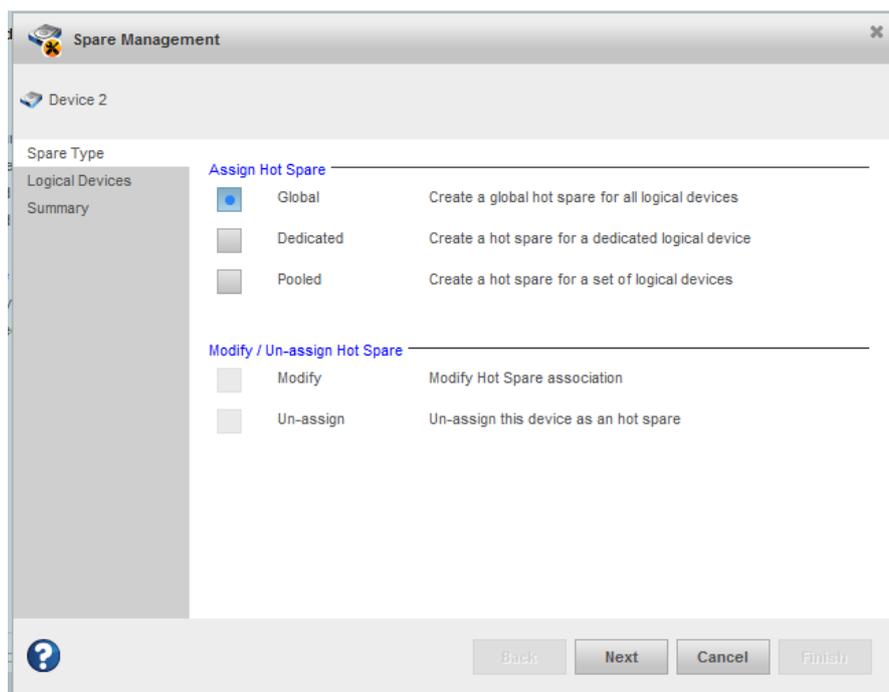
9. Select the option "Global" and click on the <Next> button.

10. Confirm the following overview with <Finish>.
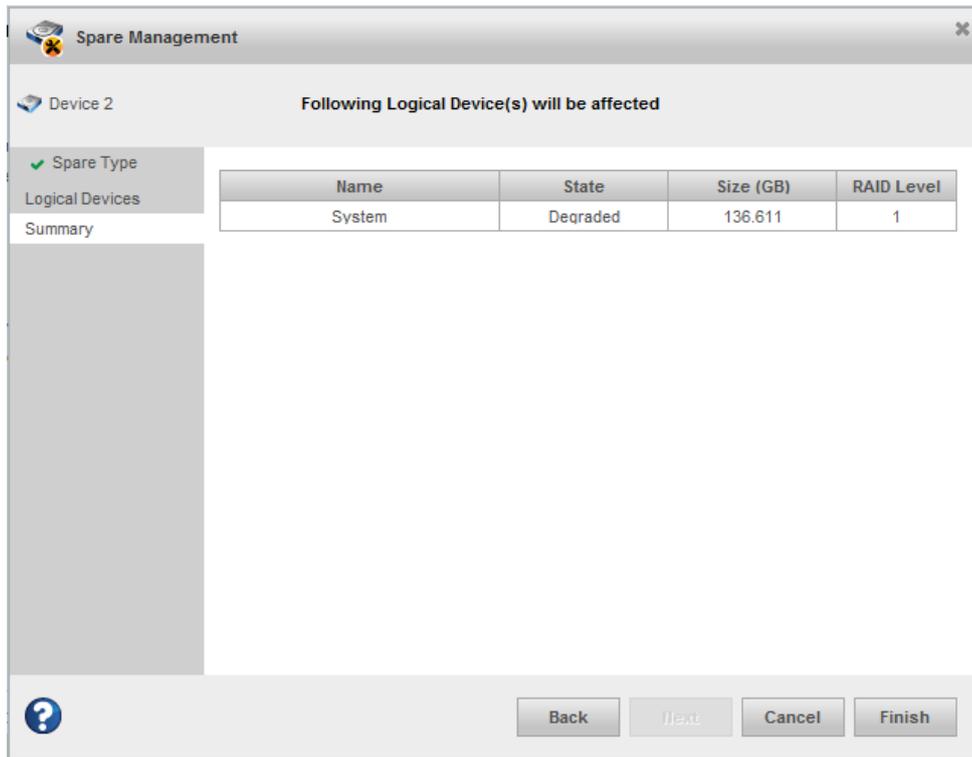
11. The following message appears when the operation was successful.

Otherwise an error message appears.

12. The progress of the rebuild process is displayed under "Tasks".

13. As soon as the hard disk has been successfully registered in the system, the program can be closed.

9   Installing operating system and iba software

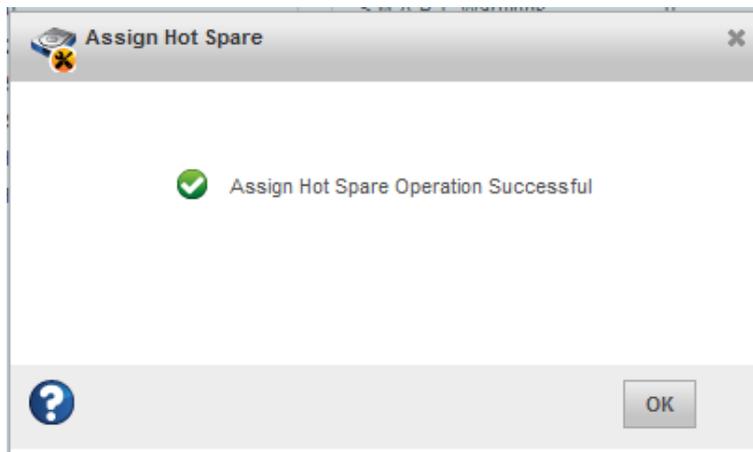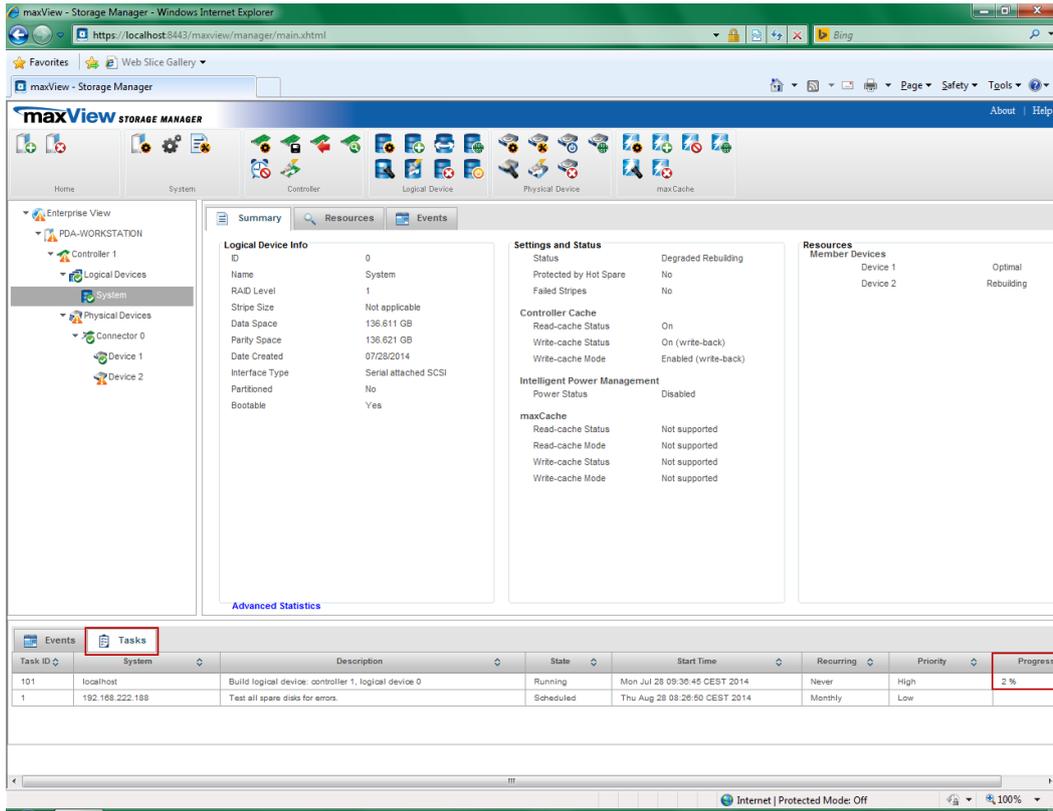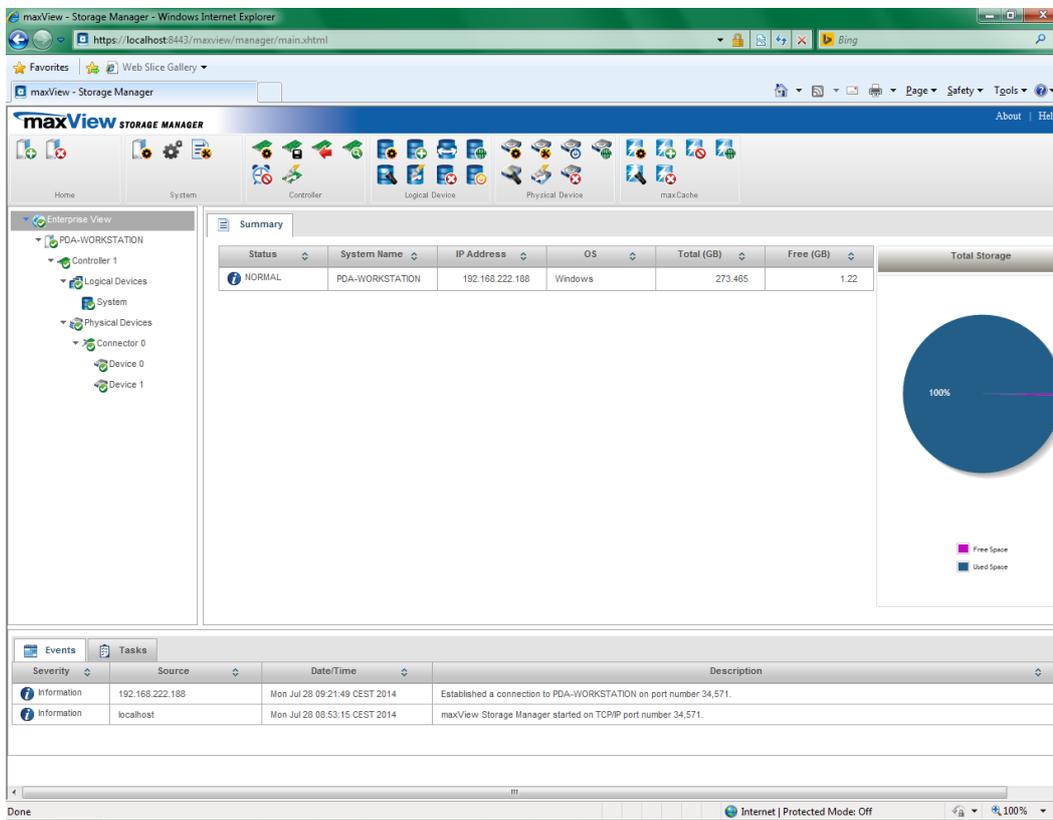## 9.1   Installation

For the installation of the operating system and the ibaSoftware there are 2 possible ways:

❏   Install the Windows operating system and the required device drivers (graphic card, hard disk controller etc.).

❏   Install the operating system using the Recovery media.
Compared to the common installation of the operating system the method named above is advantageous because all required settings and configurations of the device hardware (e.g. drivers) have already been performed on the Recovery media. The delivery includes the Recovery media for the operating system stated in your order.

> **Note**
>
> If you install the operating system with the Recovery media, all settings and configurations of the device hardware (e.g. drivers) will be installed.
>
> Do not change the basic configuration of the device components (e.g. motherboard)!
>
> If you modify the device components, it may not be possible to install it with the Recovery media.

9.2   Installing Windows from the recovery medium

> **Important note**
>
> The Windows license is bound to the computer where iba software is installed. The license must not be used on another computer.

9.2.1   General

❏   If you install the operating system from the Recovery media, the computer must be started from the data media. Make sure, that the required settings in the BIOS are correct.

❏   The recovery procedure is only available in English.

❏   The setup routine of Microsoft is used.

❏   When the recovery procedure is finished, update your Windows version to have the latest safety related version.

❏   6 pre-installed languages can be chosen as system language: English, French, German, Italian, Spanish, Russian (additional languages optionally).
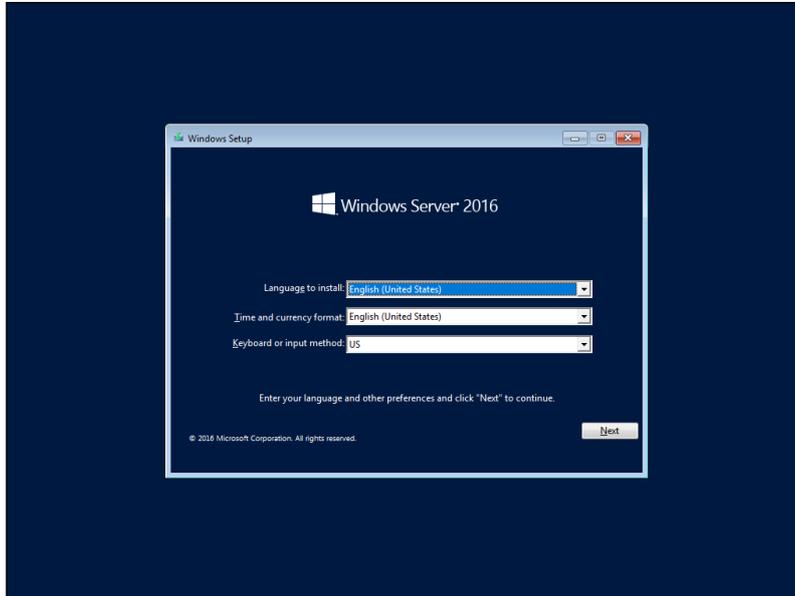
> **Important note**
>
> No liability is assumed for the loss of data due to incorrect handling. Always make sure, that you select the correct drives and partitions.

![Note icon] **Note**

The recovery process takes approx. 50 minutes. It is possible that only a black or green screen is visible during the process.

9.2.2   Select the language

When the installation has started, you can select the system language to be installed. When using Windows 10 Enterprise or Windows Server the language can be changed subsequently.

9.2.3   Enter the product key

(only with Windows Server 2016 or higher)

With Windows Server a product key must be entered subsequently.

This is printed on the back of the housing.
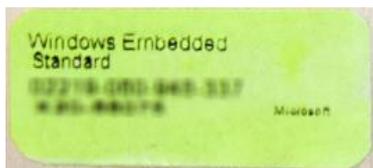
![Note icon] **Note**

When Windows 10 Enterprise is used, entering the product key or activating the Windows license is not required.

9.2.4   Partitioning

There are several possibilities to set up partitions:

❏   Set up a new drive completey as system drive

❏   Set up partitions on a new drive

❏   Install an operating system on a drive already used (Windows 10 Enterprise or Windows Server)

❏   Substitute the operating system on a drive already used (substitute Windows 10 Enterprise with Windows Server or vice versa)

Possibility 1: New drive
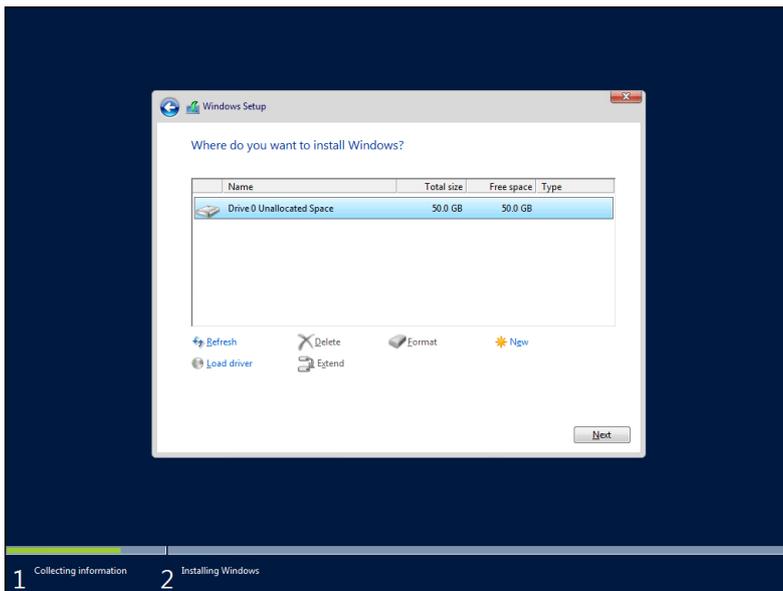
You use a new drive and want to use it completely as system drive.

Click <Next> and continue with chapter 9.2.5 „Completing installation".

Possibility 2: Partitioning the new drive
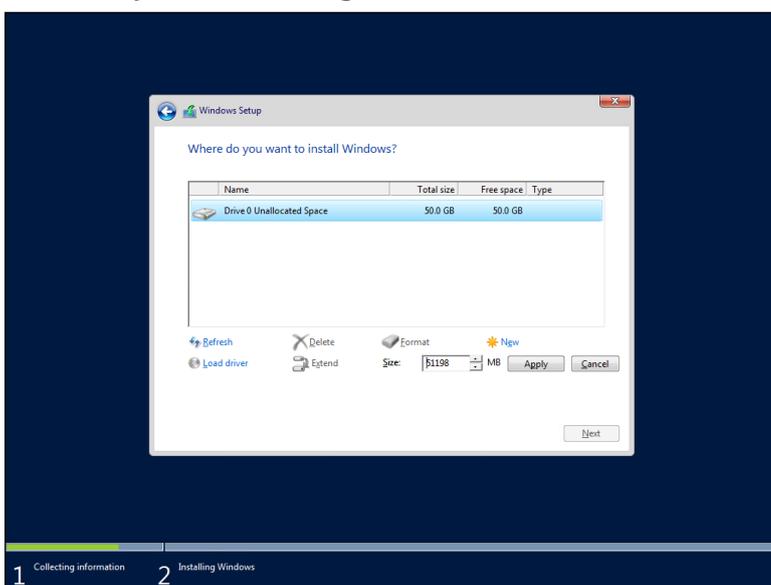
You use a new drive and want to set up partitions.

1. Click <Drive Options (advanced)>

2. Click <New>

3. Enter the partition size

4. Confirm with <Apply>

5. Mark the partition, where the operating system should be installed

6. Click <Next> and continue with chapter 9.2.5 „Completing installation".

Possibility 3: Restoring or replacing the operating system
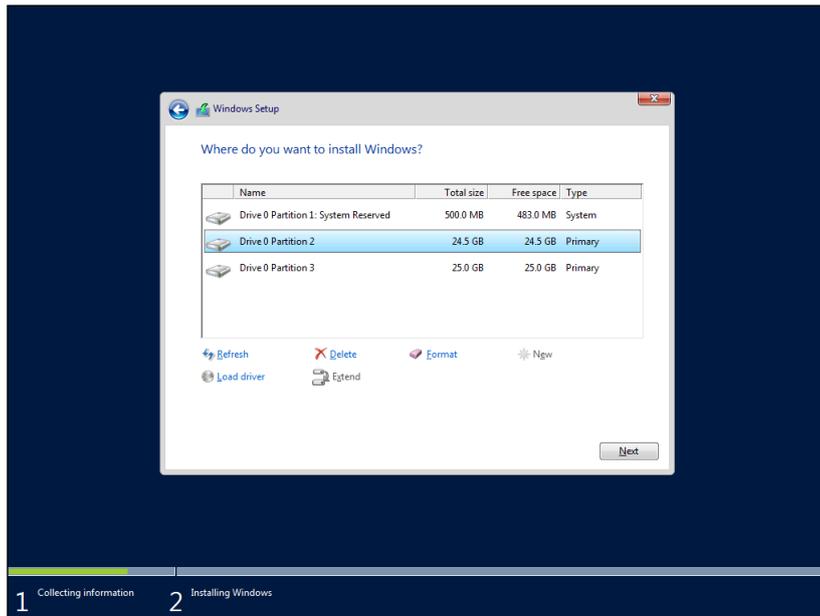
The drive is already in use and you want to install the operating system.

1. Mark the system partition (usually 500 MB in size)

2. Click <Format>

3. Confirm with <OK>

4. Mark the primary partition (normally the smaller one)

5. Click <Format>

6. Confirm with <OK>

7. Click <Next> and continue with chapter 9.2.5 „Completing installation".

9.2.5 Completing installation

The system files are copied to the drive and additional software is installed.

The computer will restart twice.

The procedure takes 30-40 min. depending on the hardware.

9.3 Windows Updates

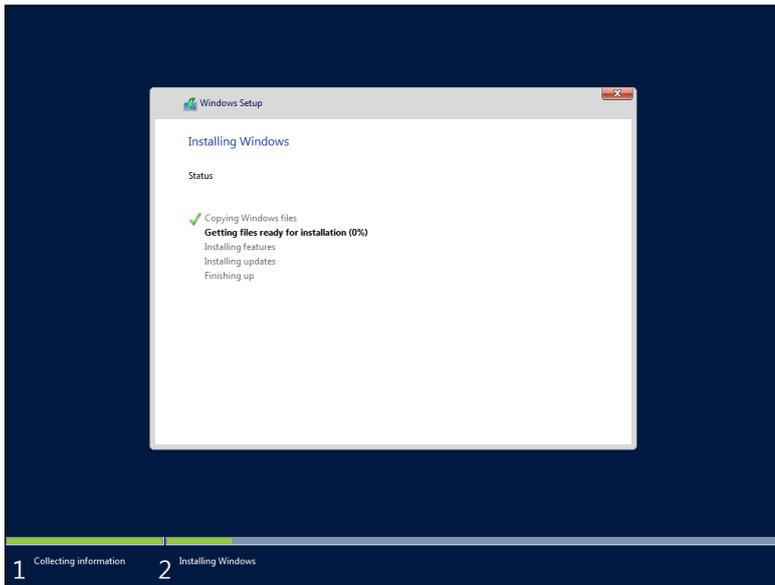The automatic search for updates is deactivated by default on iba systems, as iba does not know which Windows update policies apply in your company.

Please adjust the settings according to the update policies in your company. Consult your IT department if necessary.

9.4 Antivirus Software

There is no antivirus software installed on iba systems in delivery state.

Please install the antivirus software package which is used in your company by default. Consult your IT department if necessary.

9.5 Installing iba software

The installation of iba software is described in the manuals included in delivery.

10   Technical data

10.1   Main data

Manufacturer	iba AG, Germany
Working temperature range	32 °F to 131 °F (0 ˚C to 55 ˚C)
Storage temperature range	-13 °F to 158 °F (-25 ˚C to 70 ˚C)
Transport temperature range	-13 °F to 158 °F (-25 ˚C to 70 ˚C)
Cooling	Fan cooling
Fan current	40 mA to 400 mA
Assembly	Tower
Humidity class	F, no condensation
Protection class	IP20
Power supply	
ibaDeskline SAS standard	AC 100 V to 240 V; DC 90 V to 120 V 6 A/3 A; 5 A/4 A 47 Hz to 63 Hz
Power output ibaDeskline SAS standard	Max. 400 W
ibaDeskline SAS RAID	100 V to 240 V AC 8 A/4 A 47 Hz to 63 Hz
Power output ibaDeskline SAS RAID	1 x redundant 500 W
Mechanical data	
Dimensions (Height x Width x Depth)	18.1 in x 8.1 in x 19.3 in (460 mm x 205 mm x 490 mm)
Weight (incl. packaging and documentation) Standard system RAID 1 system RAID 6 system	Approx. 35.3 lb (16 kg) Approx. 41.9 lb (19 kg) Approx. 44.1 lb (20 kg)

10.2   Electronic components and interfaces

Processor	Intel® Xeon E 2146G, 3.5 GHz
Motherboard	Industrial mainboard with C246 chipset and LGA1151 socket
Integrated battery	Lithium button cell CR2032
Graphics on board	Integrated Intel UHD graphics
Ethernet on board	2x 10 Mbps/100 Mbps/1000 Mbps
HD audio on board	Realtek ALC892
Main memory	32 GB DDR4
PCI Express x16: SAS controller	ibaDeskline Standard: SAS controller for single drive ibaDeskline RAID1: SAS controller for RAID1 ibaDeskline RAID6: SAS controller for RAID6
PCI Express, free	5x for iba measuring cards
PCI, free	1x
M.2	1x M-Key (2242/2260/2280), PCI-e 4 1x A-Key (2230), supports WiFi module
USB 2.0 USB 3.0	2x frontside (1x dongle, 1x frontside) 8x rear side
LAN	2x rear side
Graphic	1x VGA, 1x HDMI, 1x DP
Hard disk	1 x 600 GB SAS HDD
Drive frame	ibaDeskline Standard: 1 x 4x SAS 2,5" HDD ibaDeskline RAID1: 1 x 4x SAS 2,5" HDD ibaDeskline RAID6: 2 x 4x SAS 2,5" HDD

10.3　Products

PC systems	Order number
ibaDeskline SAS, XEON E, Win10	40.002006
ibaDeskline SAS, XEON E, Win10, SSD	40.002016
Enhancement options	
Upgrade kit to RAID 1 system (1 hard disk, 1 redundant power supply unit)	43.000370
Upgrade kit to RAID 6 system (7 hard disks, 1 redundancy power supply, 1x hard disk mounting frame 4x 2.5" HDD, RAID6 controller)	43.000371
HD 600 GB to 1200 GB Upgrade SAS	43.000420
HD 600 GB to 1800 GB Upgrade SAS	43.000421
HD 600 GB to 2400 GB Upgrade SAS	43.000422
On request:	
Hard disk SSD SAS 800 GB ENTERPRISE	43.000349
Upgrade to RAID1 system, for SSD-PC	43.000374
Accessories	
Hard disk 600 GB SAS	43.000326
Hard disk 1200 GB SAS	43.000329
Hard disk 1800 GB SAS	43.000328
Hard disk 2400 GB SAS	43.000330
RAID Controller Upgrade (R1 -> R5/R6)	43.000379
ATX Power supply	43.000571
Redundancy Power Supply	43.000581
DVD drive (R/W) external via USB	43.000631
ibaOut-Temp	11.110001
ibaOut-State	11.110002

10.4   Device dimensions

205 mm

490 mm

460 mm
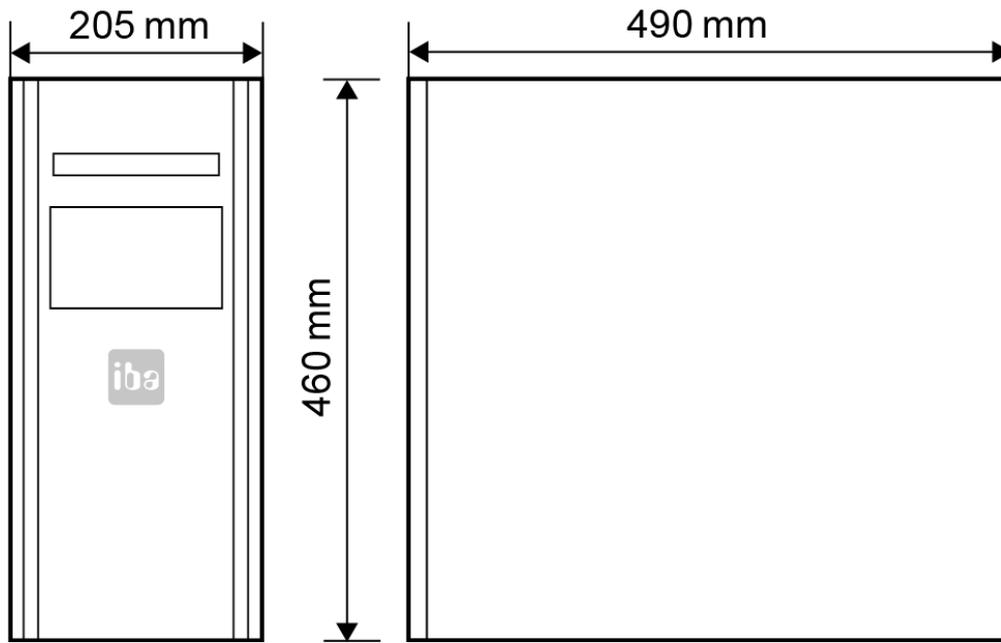
(dimensions in mm)

11   Support and contact

Support

Phone: +49 911 97282-14

Fax: +49 911 97282-33

E-Mail: support@iba-ag.com

Note

If you require support, specify the serial number (iba-S/N) of the product.

Contact

Headquarters

iba AG

Koenigswarterstrasse 44
D-90762 Fuerth
Germany

Phone.:   +49 911 97282-0
Fax: +49 911 97282-33
E-mail: iba@iba-ag.com

Mailing address

iba AG
Postbox 1828
D-90708 Fuerth
Germany

Delivery address

iba AG
Gebhardtstrasse 10
DE-90762 Fuerth
Germany

Regional and Worldwide

For contact data of your regional iba office or representative please refer to our web site

www.iba-ag.com.