

# FUJITSU Desktop ESPRIMO D5xx / D7xx / D9xx

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# **FUJITSU Desktop**

## **ESPRIMO D5xx / D7xx / D9xx**

### **Operating Manual**

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# Your ESPRIMO

... is available with various configuration levels which differ in terms of hardware and software equipment. You can install additional drives (for example a DVD drive) and other boards.

This manual tells you how to start using your device and how to operate it in daily use. This manual applies for all configuration levels. Depending on the chosen configuration level, some of the hardware components described may not be available on your PC. Please also read the notes about your operating system.

Depending on the configuration selected, the operating system is preinstalled on your hard disk (e.g. Windows).

Further information on this device is provided:







- in the "Quick Start Guide" poster
- in the "Safety/regulations" manual
- in the "Warranty" manual
- in the "BIOS Setup" manual
- in the operating manual for the monitor
- in the manual for the mainboard
- in your operating system documentation
- in the information files (e.g. \*.PDF, \*.HTML, \*.DOC, \*.CHM, \*.TXT, \*.HLP)

## Validity of the Reference Manual

This Reference Manual is valid for the following systems:

- FUJITSU Desktop ESPRIMO D556
- FUJITSU Desktop ESPRIMO D756
- FUJITSU Desktop ESPRIMO D956, D956 LL

## Notational conventions

	Pay particular attention to text marked with this symbol. Failure to observe these warnings could pose a risk to health, damage the device or lead to loss of data. The warranty will be invalidated if the device becomes defective through failure to observe these warnings.
	Indicates important information for the proper use of the device.
	Indicates an activity that must be performed
	Indicates a result
<b>This font</b>	indicates data entered using the keyboard in a program dialogue or at the command line, e.g. your password ( <b>Name123</b> ) or a command used to start a program ( <b>start.exe</b> )
This font	indicates information that is displayed on the screen by a program, e.g.: Installation is complete.
<i>This font</i>	indicates <ul style="list-style-type: none"> <li>terms and texts used in a software interface, e.g.: Click on <i>Save</i></li> <li>names of programs or files, e.g. <i>Windows</i> or <i>setup.exe</i>.</li> </ul>
"This font"	indicates <ul style="list-style-type: none"> <li>cross-references to another section, e.g. "Safety information"</li> <li>cross-references to an external source, e.g. a web address: For more information, go to <a href="http://www.fujitsu.com/fts">"http://www.fujitsu.com/fts"</a></li> <li>Names of CDs, DVDs and titles or designations for other materials, e.g.: "CD/DVD Drivers &amp; Utilities" or "Safety/Regulations" manual</li> </ul>
	indicates a key on the keyboard, e.g. 
<b>This font</b>	indicates terms and texts that are emphasised or highlighted, e.g.: <b>Do not switch off the device</b>

# Ports and operating elements

This chapter presents the individual hardware components of your device. This will provide you with an overview of the ports and operating elements on the device. Please familiarise yourself with these components before starting to work with your device.

## Front

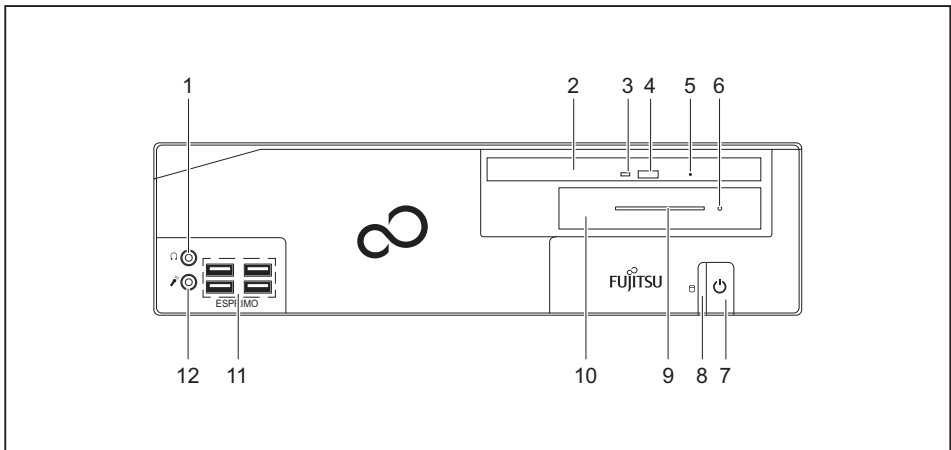
The device is available in 3 device variants:

- device variant with bays for a slimline drive and a 3½ inch drive
- device variant with bay for a slimline drive
- device variant with blanking plate

**i**

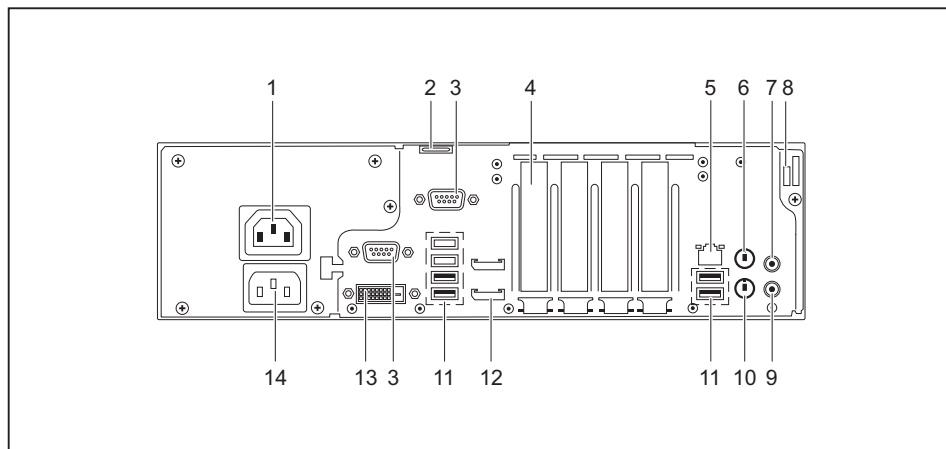
In the illustrations in the following chapter, the maximum configuration level is always shown, that is the device variant with a slimline drive and a 3½ inch drive. Any deviations between the individual device variants are separately indicated in the particular chapters.

### Device variant with bays for a slimline drive and a 3½ inch drive (maximum configuration level)



- |   |  |
|---|--|
| 1 = Headphone port  | 8 = Hard disk indicator  |
| 2 = Bay for slimline drive                                | 9 = Card slot on 3½ inch drive, e.g. SmartCard reader                              |
| 3 = Slimline drive status indicator                       | 10 = Bay for 3½ inch drive, e.g. SmartCard reader (external), hard disk (internal) |
| 4 = Slimline drive insert/eject button                    | 11 = USB ports   |
| 5 = Slimline drive emergency removal                      | 12 = Microphone port   |
| 6 = 3½ inch drive status indicator, e.g. SmartCard reader |  |
| 7 = ON/OFF switch with power indicator                    |  |

## Rear



- |  |  |
|--|--|
| 1 = Monitor socket (optional)  | 8 = Security lock device                 |
| 2 = Eye for lead-seal or padlock<br>(diameter 6 mm)                                  | 9 = Audio output (Line Out), light green |
| 3 = Serial port (optional, above: 2nd optional)                                      | 10 = PS/2 keyboard port                  |
| 4 = 4 slots for low-profile boards or port<br>expansions (VGA, parallel port, eSATA) | 11 = USB ports                           |
| 5 = LAN port   | 12 = Display ports (above: 2nd optional) |
| 6 = PS/2 mouse port  | 13 = DVI-D monitor port                  |
| 7 = Audio input (Line In), light blue  | 14 = Alternating voltage socket (AC IN)  |

# Important notes

In this chapter you will find information regarding safety which it is essential to take note of when working with your device.

## Safety information



Please note the information provided in the "Safety/regulations" manual and in the following safety notes.

When installing and operating the device, please observe the notes on environmental conditions in Chapter ["Technical specification", Page 76](#) as well as the instructions in Chapter ["Getting started", Page 15](#).

When setting up the device, make sure there is clearance all around it so that the casing receives enough ventilation. In order to avoid overheating, do not cover the ventilation areas of the monitor or the device.

You must only operate the device if the rated voltage used by the device is set to the local mains voltage.

The ON/OFF switch does not disconnect the device from the mains voltage. You must remove the mains plug from the mains socket to completely disconnect from the mains voltage.

Operate the device only with the casing closed.

Replace the lithium battery on the mainboard in accordance with the instructions in ["Replacing the lithium battery", Page 75](#).

Caution, components in the system can get very hot.

The activities described in these instructions must always be performed with the greatest care.

Repairs to the device must only be performed by qualified technicians. Incorrect repairs could put the user at great risk or cause serious damage to the equipment (electric shock, risk of fire).

## Transporting the device



Transport all parts separately in their original packaging or in a packaging which protects them from knocks and jolts, to the new site.

Do not unpack them until all transportation manoeuvres are completed.

If the device is brought from a cold environment into the room where it will be used, condensation may occur. Before operating the device, wait until it is absolutely dry and has reached approximately the same temperature as the installation site.

## Cleaning the device



Turn off all power and equipment switches and disconnect the power plug from the mains outlet.

Do not clean any interior parts yourself, leave this job to a service technician.

Do not use any cleaning agents that contain abrasives or may corrode plastic (alcohol, thinner or acetone).

Never clean the device with water! Water entering into the device could present a serious risk to users (e.g. electric shock).

Ensure that no liquid enters the system.

The surface can be cleaned with a dry cloth. If particularly dirty, use a cloth that has been moistened in mild domestic detergent and then carefully wrung out.

Use disinfectant wipes to clean the keyboard and the mouse.

## Energy saving, disposal and recycling

You can find information on these subjects in the "Environment and Energy Information" manual or on our website ("<http://www.fujitsu.com/fts/about/fts/environment-care/>").



# CE marking

The shipped version of this device complies with the requirements of EU directives 2004/108/EC "Electromagnetic compatibility", 2006/95/EC "Low voltage directive", 2011/65/EC "RoHS directive" and 2009/125/EC "codesign directive".

## CE marking for devices with radio component

This equipment complies with the requirements of Directive 1999/5/EC of the European Parliament and Commission from 9 March, 1999 governing Radio and Telecommunications Equipment and mutual recognition of conformity.

CE nnnn (!) ; nnnn: For digits and exclamation mark (!), see label on the product.

You can find more information and declarations of conformity on the Internet at:  
["http://globalsp.ts.fujitsu.com/sites/certificates"](http://globalsp.ts.fujitsu.com/sites/certificates).

This equipment can be used in the following countries:

Belgium	Bulgaria	Denmark	Germany
Estonia	Finland	France	Greece
UK	Ireland	Iceland	Italy
Croatia	Latvia	Liechtenstein	Lithuania
Luxembourg	Malta	Netherlands	Norway
Austria	Poland	Portugal	Rumania
Sweden	Switzerland	Slovakia	Slovenia
Spain	Turkey	Czech Republic	Hungary
Cyprus			

Contact the corresponding government office in the respective country for current information on possible operating restrictions. If your country is not included in the list, then please contact the corresponding supervisory authority as to whether the use of this product is permitted in your country.

## FCC Compliance Statement

If the device complies with the FCC regulations, the FCC sign can be found on the type rating plate.

### FCC Class B Compliance Statement

#### DOC (INDUSTRY CANADA) NOTICES

##### Notice to Users of Radios and Television :

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

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the accompanying documentation.

#### NOTE:

This equipment has been tested and found to comply with the limits for a "Class B" digital device, pursuant to Part 15 of the FCC rules and meets all requirements of the Canadian Interference-Causing Equipment Standard ICES-003 for digital apparatus. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in strict accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Fujitsu not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Fujitsu. The correction of interferences caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

### FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

The transmitters in this device must not be co-located or operated in conjunction with any other antenna or transmitter.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Users are not authorized to modify this product. Any modifications invalidate the warranty.

This equipment may not be modified, altered, or changed in any way without signed written permission from Fujitsu. Unauthorized modification will void the equipment authorization from the FCC and Industry Canada and the warranty.

# Getting started



Please observe the safety information in the ["Important notes", Page 11](#) chapter.

## Unpacking and checking the delivery

It is recommended not to throw away the original packaging material! It may be required for reshipment at some later date.

- ▶ Unpack all the individual parts.
- ▶ Check the contents of the package for any visible damage caused during transport.
- ▶ Check whether the delivery conforms to the details in the delivery note.
- ▶ Should you discover that the delivery does not correspond to the delivery note, notify your local sales outlet immediately.

## Steps for initial setup

Only a few steps are necessary to put your new device into operation for the first time:

- Select a location for device and set up device
- Connect external devices such as mouse, keyboard and monitor
- Check the voltage at the mains outlet and connect the device to an electrical outlet
- Switch the device on

You will learn more about the individual steps in the following sections.

### External devices



If you have received other external devices in addition to your own device (e.g. a printer), do not connect these until after the initial installation. The following sections describe how to connect these external devices.

### Drives and boards



If you have received drives or boards with your device, please do not install them until after first-time setup. How to install drives and boards is described in the ["System expansions", Page 34](#) chapter.

## Setting up the device



When setting up your device, please read the recommendations and safety notes in the "Safety/regulations" manual.

We recommend that you place your device on a surface with good anti-slip qualities. In view of the multitude of different finishes and varnishes used on furniture, it is possible that the rubber feet will mark the surface they stand on.

Depending on the location of your device, bothersome vibrations and noises may occur. To prevent this, a distance of at least 10 mm / 0.39 in should be maintained from other devices on casing sides without ventilation surfaces.

In order to avoid overheating, do not cover the ventilation areas on the monitor or the device.

A minimum distance of 200 mm / 7.87 in from the device must be observed for ventilation areas.

Do not stack several devices on top of each other.

Do not expose the device to extreme ambient conditions (see ["Technical specification", Page 76](#), "Ambient conditions"). Protect the device against dust, humidity and heat.

### Operating position

You can use the device in a vertical or horizontal operating position.

With the aid of suitable feet, it is possible to use the device in a vertical operating position (see ["Vertical operating position with feet \(optional\)", Page 16](#)).

### Vertical operating position with feet (optional)



Use the optional feet when you wish to use the device in the vertical operating position.

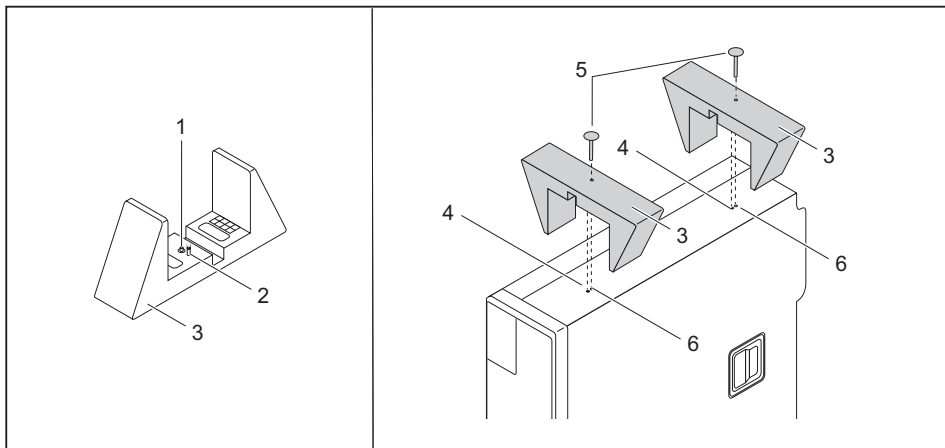
The set-up direction is compulsory: The ON/OFF switch must be at the top to ensure sufficient ventilation.



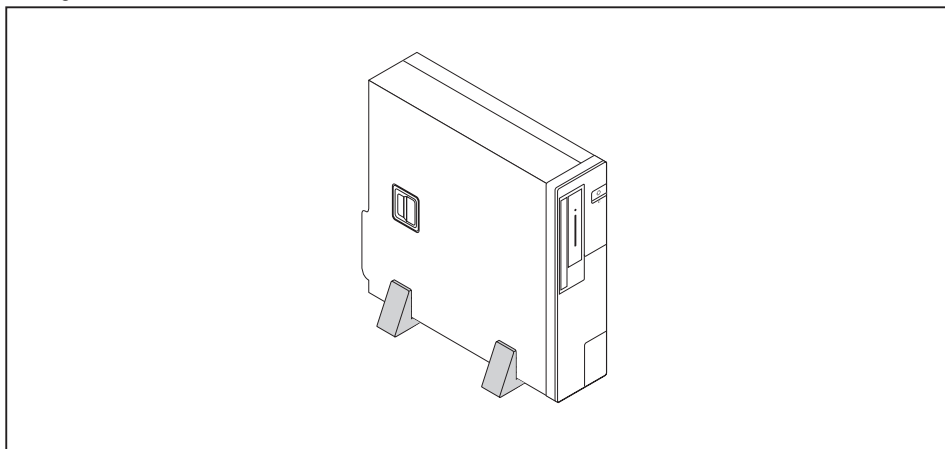
You must remove the feet again to be able to open the device.

Proceed as follows to operate the device in the vertical operating position with the feet:

- If necessary, disconnect the cables connected to the device.



- ▶ Place the device on the right side as shown.
- ↳ The screw holes (6) and guide openings (4) for securing the feet on the left side of the device point upwards.
- ▶ Place the feet (3) on the left side of the device so that the pins (2) enter into the corresponding guide openings (4) on the device and the screws rest against the screw holes (6).
- ▶ Tighten the screws to secure the feet.

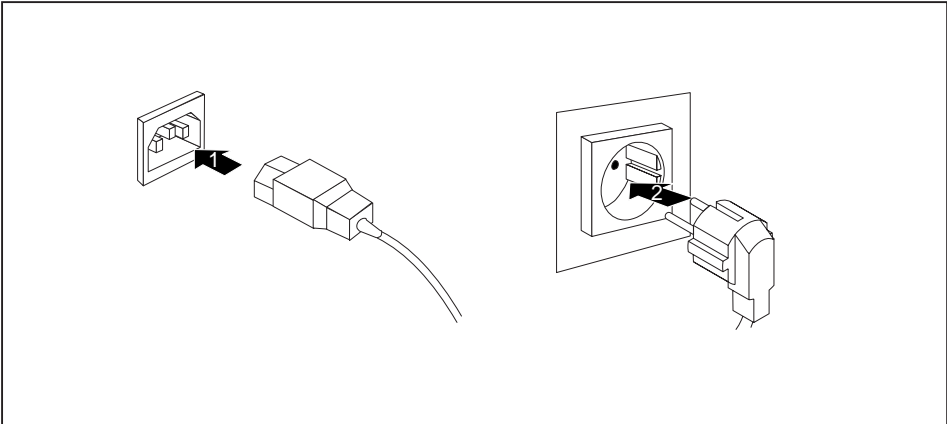


- ▶ Stand the device on the feet as shown.

# Connecting the device to the mains supply



Use the following table to check which mains plug applies for your country. The following illustration may be different from your country variant.



- Connect the power cable to the device (1).
- Plug the power plug into a grounded mains outlet (2).

Power connection	Country
	USA, Canada, Mexico, parts of South America, Japan, Korea, the Philippines, Taiwan
	Russia and the Commonwealth of Independent States (CIS), large parts of Europe, parts of South America, the Middle East, parts of Africa, Hong Kong, India, large parts of South Asia.
	UK, Ireland, Malaysia, Singapore, parts of Africa
	China, Australia, New Zealand

# Connecting external devices



Read the documentation on the external device before connecting it.













With the exception of USB devices, always remove all power plugs before connecting external devices!

Do not connect or disconnect cables during a thunderstorm.

Always take hold of the actual plug. Never unplug a cable by pulling the cable itself.

## Ports on the device

The ports are located on the front and back of the device. The ports available on your device depend on the configuration level you have selected. The standard ports are marked with the symbols shown below (or similar). Detailed information on the location of the ports is provided in the manual for the mainboard.

	Headphones, black or light green		Audio input (Line In), light blue
	Microphone port, black or pink		Audio output (Line Out), light green
	USB 3.0 - Universal Serial Bus, blue		USB 2.0 - Universal Serial Bus, black
	PS/2 mouse port, green		PS/2 keyboard port, purple
	DVI-D monitor port	DP	DisplayPort
	VGA monitor port, blue	LAN	LAN port
	Serial port		Parallel port



Some of the connected devices require special drivers (see the documentation for the connected device).

### Connecting a monitor

- ▶ Follow the instructions contained in the monitor manual to prepare the monitor for operation (e.g. connecting cables).
- ▶ Connect the data cable of the monitor into the required monitor port of your device.



The monitor connector on the device is only approved for use with monitors that have a rated current less than or equal to 1.0 A at 230 V or less than or equal to 2.0 A at 100 V. The values for the monitor current consumption can be found in the technical data for the monitor or in the operating manual for the monitor.

- ▶ Depending on the configuration level of your device, plug the monitor power cable into the grounded mains outlet.

### Connecting the mouse

You can connect a USB mouse or a PS/2 mouse to your device.

#### Connecting a USB mouse

- ▶ Connect the USB mouse to one of the USB ports on the device.

#### Connecting a PS/2 mouse



The PS/2 mouse is only detected by the device if you connect the mouse when the device is switched off and then switch the device on again.

- ▶ Connect the PS/2 mouse to the PS/2 mouse port of the device.
- ▶ Switch your device on again.



## Connecting the keyboard

You can connect a USB keyboard or a PS/2 keyboard to your device.

### Connecting a USB keyboard

Use the supplied keyboard cable only.

- ▶ Insert the flat rectangular USB plug of the keyboard cable into one of the device's USB ports.

### Connecting a PS/2 keyboard

Use the supplied keyboard cable only.



The PS/2 keyboard is only detected by the device if you connect the keyboard when the device is switched off and then switch the device on again.

- ▶ Switch your device off.
- ▶ Plug the round plug of the keyboard cable into the keyboard port on the device.
- ▶ Switch your device on again.

## Connecting external devices to the serial interface

External devices (e.g. a printer or scanner ) can be connected to the serial port.

- ▶ Connect the data cable to the external device.
- ▶ Connect the data cable to the corresponding serial interface.
- ↳ For an exact description of how to connect external devices to the corresponding port, please see the external device documentation.

### Port settings



You can change the port settings (e.g. address, interrupt) in the *BIOS Setup*.

### Device drivers



The devices connected to the serial interface require drivers. Your operating system already includes many drivers. If the required drive is missing, install it. The latest drivers are usually available on the Internet or will be supplied on a data carrier.

# Connecting external devices to the USB ports

You can connect a wide range of external devices to the USB ports (e.g. printer, scanner, mouse or keyboard).



USB devices are hot-pluggable. This means you can connect and disconnect USB cables while your device is switched on.

Additional information can be found in the documentation for the USB devices.

- ▶ Connect the data cable to the external device.
- ▶ Connect the data cable to one of the USB ports on your device.

## Device drivers



The external USB devices you connect to the USB ports usually require no driver of their own, as the required software is already included in the operating system. If the device requires separate software, please note the information in the manufacturer's manual.

# Switching on for the first time: installing the software



Once the installation has been started the device must not be switched off, unless the installation has been completed.

During installation, the device may only be rebooted when you are requested to do so!

The installation will otherwise not be carried out correctly and the contents of the hard disk must be completely restored.



If the device is integrated into a network, the user and server details as well as the network protocol are required during the software installation.

Contact your network administrator if you have any questions about these settings.

When you switch on the device for the first time, the supplied software is installed and configured. Plan a reasonable amount of time for this, as this process must not be interrupted.

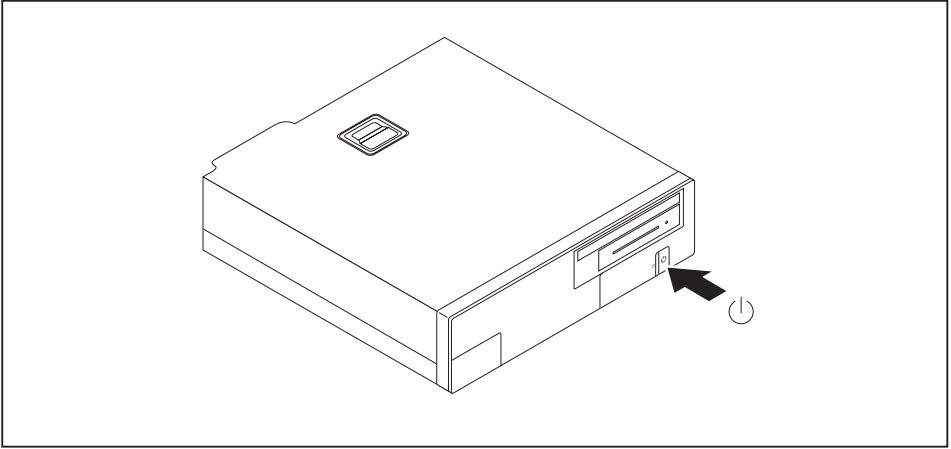
You may need the licence number for Windows during the installation. You can find the licence number as a label on your device (no longer applies to Windows 8 or higher).

## Switch on the monitor and the machine



In order to avoid overheating, do not cover the ventilation areas on the monitor or the device.

- Switch on the monitor (see operating instructions for the monitor).



- Press the on/off button on the front of the machine.
- ↳ The operational display will light up and the machine will start.

## Installing the software

- During installation, follow the on-screen instructions.
- If anything is unclear regarding the data you are asked to input, read the online Help in your operating system.



You will find more information on the system, as well as drivers, utilities and updates on the "Drivers & Utilities" DVD and on the Internet at ["http://www.fujitsu.com/fts/support"](http://www.fujitsu.com/fts/support).

You can find information and help on the Windows operating system functions on the Internet at ["http://windows.microsoft.com"](http://windows.microsoft.com).

# Operation

## Switch the device on

- ▶ If necessary, switch the monitor on (see the operating manual for the monitor).
- ▶ Press the ON/OFF switch on the front of the device.
- ↳ The power indicator glows and the device is started.

## Switching off the device



Switching the device off does not disconnect it from the mains voltage. To completely disconnect the mains voltage, remove the power plug from the power socket.

- ▶ Shut down the operating system in the proper way.
- ↳ The device switches to power saving mode automatically and switches off.

## Procedure in an emergency



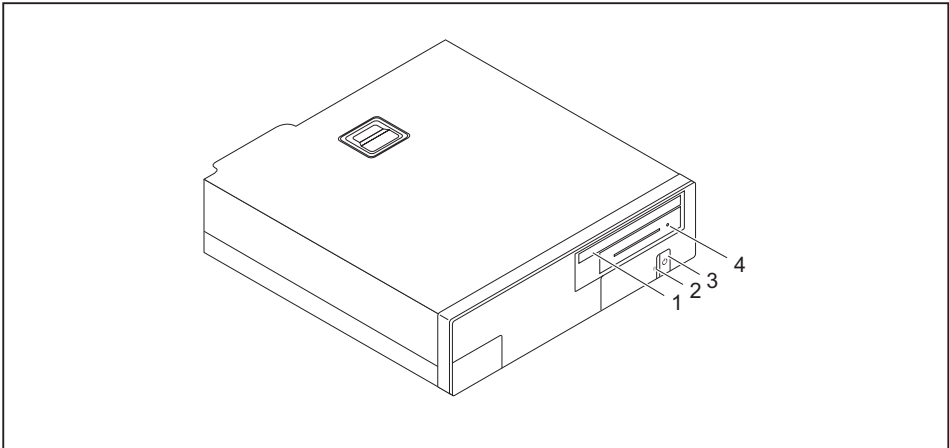
If the device cannot be switched off, you can force a shutdown by using the following emergency procedure.

Warning, this could lead to a loss of data!

- ▶ Press the ON/OFF switch for at least 4 seconds.
  - ↳ The device will switch off.
- When you next restart the device, error messages may be displayed due to the improper shutdown.

# Indicators on the device

The indicators are on the front of the casing. Which indicators are available on your device depends on the configuration level you have selected.

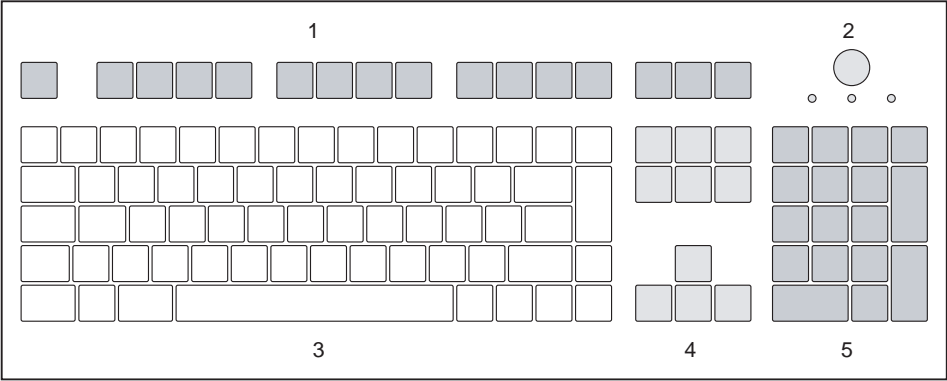


No.	Indicator	Description
1	Drive indicator (depending on device variant):	The indicator lights up when the CD-ROM or DVD drive in the device is accessed. Never under any circumstances remove the CD/DVD while the indicator is lit.
2	Hard disk indicator	The indicator lights up when the hard disk drive in the device is being accessed.
3	Power-on indicator	<p><b>Caution:</b> In energy-saving mode, the device must not be disconnected from the mains supply, as this could lead to loss of data.</p> <ul style="list-style-type: none"> <li>The indicator is illuminated: The device is switched on.</li> <li>The indicator is flashing: The device is in energy-saving mode. After being switched on with the ON/OFF switch, the device powers up or returns to the state it was in before it entered energy-saving mode.</li> <li>The indicator is not lit: The device is switched off.</li> </ul>
4	Indicator for optional components, e.g. SmartCard reader (depending on the device variant)	The indicator lights up when optional components, e.g. SmartCard reader, are accessed.

# Keyboard



The illustrated keyboard is an example and may differ from the model you use.














- 1 = Function keys
- 2 = On/off switch (optional)
- 3 = Alphanumeric keypad
- 4 = Cursor keys
- 5 = Numeric keypad (calculator keypad)

## Important keys and keyboard shortcuts

The description of the following keys and keyboard shortcuts applies to Microsoft operating systems. Details of other keys and keyboard shortcuts can be found in the documentation for the relevant application program.

Key / key combination	Description
	<b>On/off switch (optional)</b>  Depending on the setting in the <i>BIOS Setup</i> , the device can be switched on or off with this switch. Some operating systems allow you to configure additional functions of the ON/OFF switch in the Control Panel.  With some keyboards the ON/OFF switch can only be used with an ACPI (Advanced Configuration and Power Management Interface). Otherwise the key is inoperative. The mainboard must support this function.
	<b>Enter key</b>  confirms the highlighted selection. The Enter key is also referred to as the "Return" key.

Key / key combination	Description
	<b>Windows key (device-dependent: variant 1)</b> calls up the Windows <i>Start</i> menu.
	<b>Menu key (device-dependent: variant 1)</b> calls up the menu for the marked item (Windows).
	<b>Windows key (device-dependent: variant 2)</b> Switches between the start screen and the last used application.
	<b>Menu key (device-dependent: variant 2)</b> Opens the menu for the active application.
	<b>Shift key</b> enables upper-case letters and the upper key symbols to be displayed.
	<b>Alt Gr key (country-dependent)</b> produces a character shown on the bottom right of a key (e.g. the @ sign on the  key).
	<b>Num Lock key</b> By pressing the Num Lock key you switch between the upper- and lower-case levels of the calculator keypad.  When the Num Lock indicator is lit the numeric keypad and arithmetic keys are active.  When the Num Lock indicator is not lit the cursor control functions on the Numeric keypad are active.
	<b>Ctrl key</b> performs a special operation when pressed in conjunction with another key. The  key is also called the "Control" or "Control key".
	<b>Windows Security/Task Manager</b> This key combination opens the Windows Security/Task Manager window.

## Settings in BIOS Setup

In *BIOS Setup*, you can set the system functions and the hardware configuration of the device. When the PC is delivered, the default entries are valid (see "BIOS Setup" manual or manual for the mainboard). You can customise these settings to your requirements in the *BIOS Setup*.

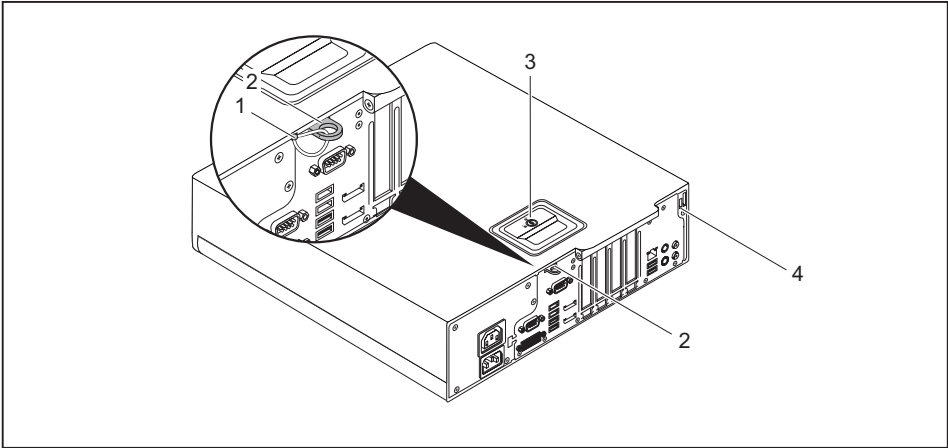
# Property and data protection

Software functions and mechanical locking offer a broad range of functions for protecting your device and your personal data against theft and unauthorised access. You can also combine these functions.

## Mechanically protecting and locking the casing

Your device has provision for a security lock (4). Using the security lock provision and the Kensington Lock cable (steel cable, accessory) you can protect your device against theft. Please consult the manual for your Kensington Lock.



To prevent unauthorised persons from opening the casing, the casing can be sealed (1) or it can be secured with a padlock. To do this, feed the sealing chain through the eye (2) and seal the chain with the lead seal. Alternatively, pass a suitable padlock through the eye (2).




- |   |                                 |
|---|---------------------------------|
| 1 = Lead seal                                   | 3 = Casing lock (optional)      |
| 2 = Eye for padlock / lead seal (diameter 6 mm) | 4 = Provision for security lock |

With the casing lock (3) you can mechanically lock the casing to prevent unauthorised persons from opening it. The keys can be found at the rear of your device.




- In addition to the casing lock, an open  and a closed lock  are also illustrated.
- Key turned towards the closed lock: The device is locked.
  - Key turned towards the open lock: The device is not locked.

## Locking the casing

- Turn the key towards the closed lock .



## Unlocking the casing

- Turn the key towards the open lock  .

## BIOS setup security functions

The *Security* menu in *BIOS Setup* offers you various options for protecting your personal data against unauthorized access, e.g.:

- Prevent unauthorized access to *BIOS Setup*
- Prevent unauthorised system access
- Prevent unauthorised access to the settings of boards with their own BIOS
- Activate virus warnings
- Protect BIOS from overwriting
- Protect the device from being switched on by an external device

You can also combine these functions.

You will find a detailed description of the *Security* menus and how to assign passwords in the manual for the mainboard or in the "BIOS Setup" manual.

## Access authorisation via SmartCard

In systems equipped with a SmartCard reader, access can be restricted to those users who have a corresponding SmartCard.

## Operating the SmartCard reader (optional)



Operation of a SmartCard reader with a RFID reader is not permitted in Taiwan.

- Connect the external SmartCard reader to your system as described in the instructions for the SmartCard reader.
- ↳ After the device is switched on, you will be prompted to insert your SmartCard.

# Problem solutions and tips



Refer to the safety notes in the "Safety/regulations" manual and in the ["Getting started", Page 15](#) chapter when connecting or disconnecting cables.

If a fault occurs, try to rectify it in accordance with the measures described in the following documents:

- in this chapter
- in the documentation relating to the peripheral devices
- in the Help sections for the individual programs
- in the documentation for the operating system in use.

## Help if problems occur

Should you encounter a problem with your computer that you cannot resolve yourself:

- ▶ Note the ID number of your device. The ID number is found on the type rating plate on the back, the underside or the top of the casing.
- ▶ For further clarification of the problem, contact the Service Desk for your country (see the Service Desk list or visit the Internet at "<http://support.ts.fujitsu.com/contact/servicedesk>"). When you do this, please have ready the identity number and serial number of your system.

## Troubleshooting

### Power-on indicator remains unlit after you have switched on your device

Cause	Troubleshooting
The mains voltage supply is faulty.	<ul style="list-style-type: none"><li>▶ Check whether the power cable is plugged properly into the device and a grounded mains outlet.</li></ul>
Internal power supply overloaded.	<ul style="list-style-type: none"><li>▶ Pull the power plug of the device out of the mains outlet.</li><li>▶ Wait approx. 3 min.</li><li>▶ Plug the power plug into a properly grounded mains outlet again.</li><li>▶ Switch the device on.</li></ul>

## The device cannot be switched off with the ON/OFF switch.

Cause	Remedy
System crash	<ul style="list-style-type: none"> <li>▶ Keep the on/off switch pressed for at least 4 seconds until the machine switches off.</li> </ul> <p>Caution: This can lead to a loss of data!</p> <p>This procedure does not allow the operating system to shut down in an orderly way. The next time the system is started there may well be error messages.</p>

## Monitor remains blank

Cause	Remedy
Monitor is switched off	<ul style="list-style-type: none"> <li>▶ Switch your monitor on.</li> </ul>
Power saving has been activated (screen is blank)	<ul style="list-style-type: none"> <li>▶ Press any key on the keyboard.</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▶ Deactivate the screen saver. If necessary, enter the appropriate password.</li> </ul>
Brightness control is set to dark	<ul style="list-style-type: none"> <li>▶ Adjust the brightness control. For detailed information, please refer to the operating manual supplied with your monitor.</li> </ul>
Power cable not connected	<ul style="list-style-type: none"> <li>▶ Switch off the monitor and the device.</li> <li>▶ Check that the monitor power cable is properly connected to the monitor and to a grounded mains outlet or to the monitor socket of the device.</li> <li>▶ Check that the device power cable is properly plugged into the device and a grounded mains outlet.</li> <li>▶ Switch on the monitor and the device.</li> </ul>
Monitor cable not connected	<ul style="list-style-type: none"> <li>▶ Switch off the monitor and the device.</li> <li>▶ Check that the monitor cable is properly connected to the device and monitor.</li> <li>▶ Switch on the monitor and the device.</li> </ul>
Incorrect setting for the monitor	<ul style="list-style-type: none"> <li>▶ Restart the system.</li> <li>▶ Press <b>[F8]</b> while the system is booting.</li> <li>▶ Start the system in Safe Mode.</li> <li>▶ Set up the monitor as described in the documentation for your operating system and monitor.</li> </ul>

## No mouse pointer displayed on the screen

Cause	Remedy
The mouse is not correctly connected.	<ul style="list-style-type: none"> <li>▶ Shut down your operating system in the proper manner, for instance using <b>Ctrl</b> + <b>Alt</b> + <b>Del</b>.</li> <li>▶ Switch the device off.</li> <li>▶ Check that the mouse cable is properly connected to the system unit. If you use an adapter or extension lead with the mouse cable, check the connections.</li> <li>▶ Make sure that only one mouse is connected.</li> <li>▶ Switch the device on.</li> </ul>
Disabled USB ports	<ul style="list-style-type: none"> <li>▶ In the <i>BIOS Setup</i>, check whether the USB ports are <i>Enabled</i> (see the "BIOS Setup" manual or the mainboard manual)</li> </ul>

## Time and/or date is not correct

Cause	Remedy
Time and date are incorrect.	<ul style="list-style-type: none"> <li>▶ Set the correct time and date within the operating system you are using.</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▶ Set the correct time and/or date in the <i>BIOS Setup</i>.</li> </ul>
The lithium battery is discharged.	<ul style="list-style-type: none"> <li>▶ If the time and date are repeatedly wrong when you switch on your device, replace the lithium battery (see <a href="#">"Replacing the lithium battery", Page 75</a>).</li> </ul>

## SmartCard reader is not recognised.

Cause	Troubleshooting
Chip card inserted incorrectly.	<ul style="list-style-type: none"> <li>▶ Make sure you have inserted your SmartCard into the SmartCard reader with the chip facing upwards.</li> <li>▶ Check whether the SmartCard you are using is supported. Your SmartCard must comply with the ISO standard 7816-1, -2, -3 and -4.</li> </ul>

## SmartCard PIN forgotten

Cause	Troubleshooting
PIN forgotten	► If you are working in a network, contact your system administrator, who can unlock your system with a Supervisor PIN.

## Error messages on the screen

Error messages and their explanations are provided:

- in the technical manual for the mainboard
- in the documentation for the programs used

## Installing new software

When installing programs or drivers, important files may be overwritten and modified. To be able to access the original data in the event of any problems following installation, you should backup your hard disk prior to installation.

## Restoring the hard disk contents

You will find the instructions for restoring the contents of the hard disk in the "Recovery Guide" manual.

## Tips

Topic	Tip
Out of system resources	► Close unnecessary applications.  or ► Run the applications in a different order.
Other manuals	Further manuals are provided as PDF files on the "Drivers & Utilities" DVD.

# System expansions



Repairs to the device must only be performed by qualified technicians. Incorrect repairs may greatly endanger the user (electric shock, fire risk) and will invalidate your warranty.

After consulting the Hotline/Help Desk, you may remove and install the components described in this manual yourself.



As the device has to be shut down in order to install/deinstall system hardware components, it is a good idea to print out the relevant sections of this chapter beforehand.

The following illustrations may differ slightly from your device, depending on its configuration level.

If further documentation was delivered with your device, please also read this through carefully.

In addition, before removing or installing system components, please pay attention to the following:



The device must be switched off when installing/removing the system expansions and may not be in energy-saving mode.

Remove the power plug before opening the device.

Be careful that no wires become trapped when removing or installing components.

When installing components that become very hot, make sure that the maximum permissible temperature of the components in operation is not exceeded.



An update of the BIOS may be required for a system expansion or hardware upgrade. Further information can be found in the BIOS help section or if necessary in the Technical Manual for the mainboard.

## Information about boards

Take care with the locking mechanisms (catches and centring pins) when you are replacing boards or components on boards.

Note that some components on the mainboard may be very hot if the device was in use shortly before the casing was removed.

To prevent damage to the board or the components and conductors on it, please take care when you insert or remove boards. Make sure expansion boards are inserted straightly.

Never use sharp objects (screwdrivers) for leverage.



Boards with electrostatic sensitive devices (ESD) are identifiable by the label shown.

When handling boards fitted with ESDs, you must always observe the following points:

- You must always discharge static build up (e.g. by touching a grounded object) before working.
- The equipment and tools you use must be free of static charges.
- Only touch or hold the boards by the edge or, if present, at the areas marked green (Touch Points).
- Never touch pins or conductors on boards fitted with ESDs.

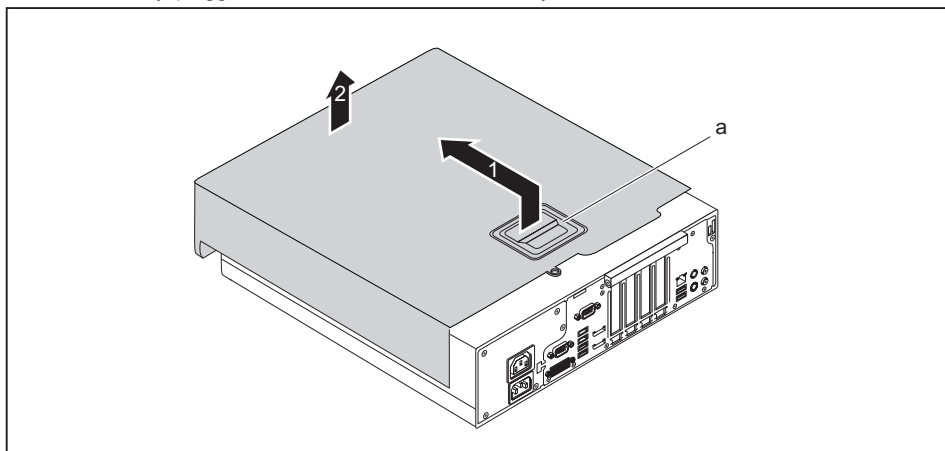
## Removing the casing cover

- ▶ Switch the device off.



The device must not be in the energy-saving mode!

- ▶ If there is a foot installed, remove it.
- ▶ Remove any plugged-in wires which are in the way.



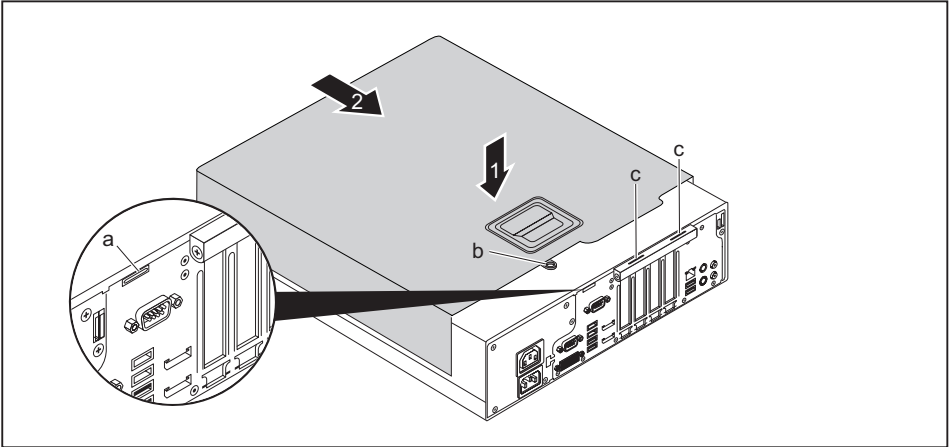
- ▶ Raise the clip (a), hold it in this position and pull the casing cover in the direction of the arrow (1).
- ▶ Lift the casing cover off the casing (2).



## Reattaching the casing cover.



In order to make it easier to put on the casing cover, there are two reference lines (c) imprinted on the board clip, which will assist you when positioning.



- ▶ Place the casing cover onto the casing (1) using the reference lines (c) for positioning and slide the casing cover in the direction of the arrow (2) until it reaches a stop. When doing so, make sure that the eye (b) fits into the opening (a).
- ↳ The casing cover will click into place automatically, without any need to move the retaining mechanism.
- ▶ Connect the cables to the device.

# Overview of drive bays and drives in your device

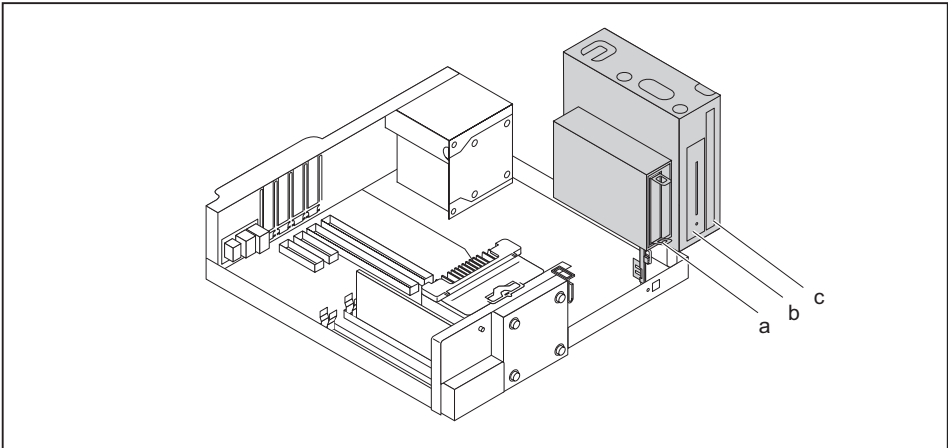
Depending on the device variant, the casing offers space for accessible and non-accessible drives in the 3 bays.

*i*

Examples of accessible drives are DVD or CD ROM drives, into which a data medium can be inserted from the outside. Examples of non-accessible drives are hard disk drives.

Furthermore, the installation options depend on the particular drive cover being used, see ["Changing the drive cover", Page 39](#).

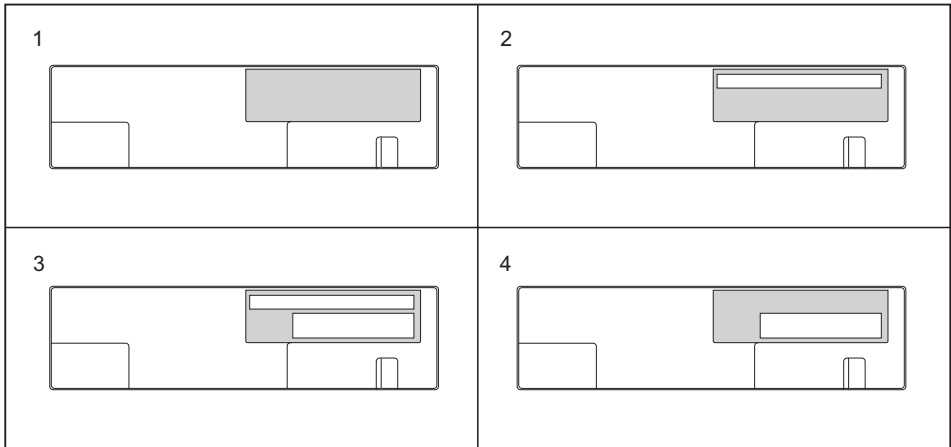
Casing with drive cover removed and drive cage opened:



No.	Bay	Fixing	Installation options in bay
a	Lower bay for non-accessible 3½ inch drives or 2½ inch drives	EasyChange rails or screw fastening	<ul style="list-style-type: none"><li>• 1 x non-accessible 3½ inch drive, EasyChange</li><li>• 2 x non-accessible 2½ inch drives with 3½ inch adapter, EasyChange</li><li>• 1 x non-accessible 2½ inch drive, screw fastening</li></ul>
b	Middle bay for 3½ inch drives or non-accessible 2½ inch drives with 3½ inch adapter	Screw fastening	<ul style="list-style-type: none"><li>• 1 x accessible 3½ inch drive</li><li>• 1 x non-accessible 3½ inch drive</li><li>• 2 x non-accessible 2½ inch drives, with 3½ inch adapter</li></ul>
c	Upper bay for an accessible slimline drive	Drive plate (screwless)	1 x slimline drive

## Changing the drive cover

Depending on the desired drive configuration level of your device, there are 4 different drive covers available: When an accessible drive is ordered, the required drive covers will be supplied with it.



1 = No slimline drive can be installed, non-accessible drives possible under the cover

2 = Slimline drive can be installed, non-accessible drives possible under the cover

3 = Slimline drive and accessible 3½ inch drive can be installed

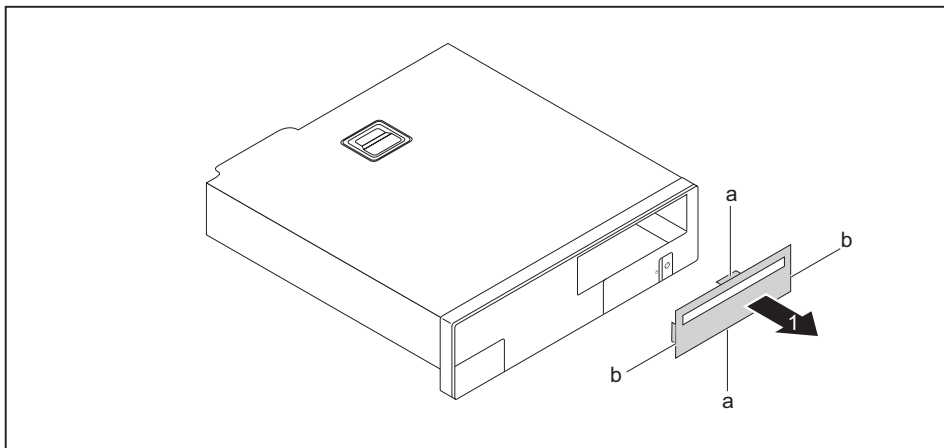
4 = Accessible 3½ inch drive can be installed

Proceed as follows to replace a drive cover with another drive cover:

- Remove the casing cover (see chapter ["Removing the casing cover", Page 36](#)).



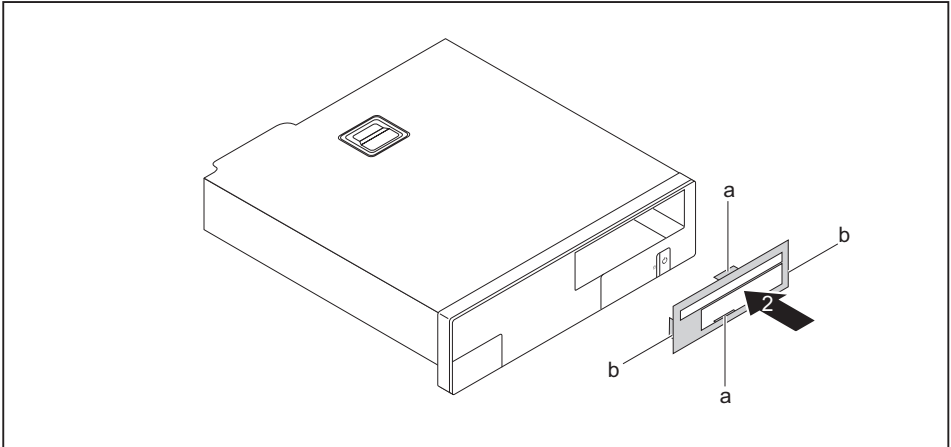
The catches of the drive cover are on the inside.



- First release the two middle catches (a).
- Then release the two side catches (b).
- Remove the drive cover towards the front (1).



Do not discard the filler panel. Depending on the desired configuration level, you must reinstall the filler panel for cooling, protection against fire and in order to comply with EMC (electromagnetic compatibility) regulations (see ["Removing a slimline drive", Page 45](#)).



- ▶ Insert the new drive cover into the casing cover from the front. In doing so, make sure that all the inner catches that are present engage (a, b).
- ▶ Change the desired drives as required, as described in the corresponding chapter.
- ▶ Fit the casing cover onto the casing again (see chapter ["Reattaching the casing cover.", Page 37](#)).

## Installing and removing an accessible slimline drive in the upper bay (optional)

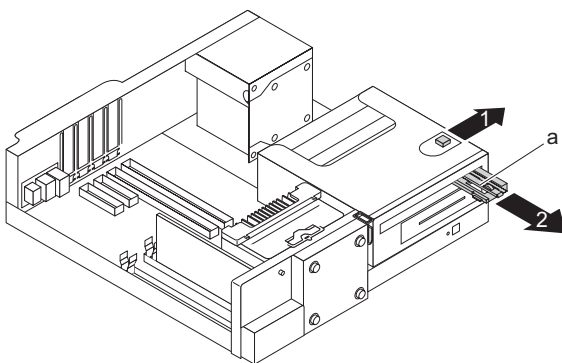
### Installing the drive plate for the slimline drive

To use the locking function of the accessible slimline drive, you must fit the associated drive plate on the slimline drive before installing the drive in the casing. Proceed as follows:

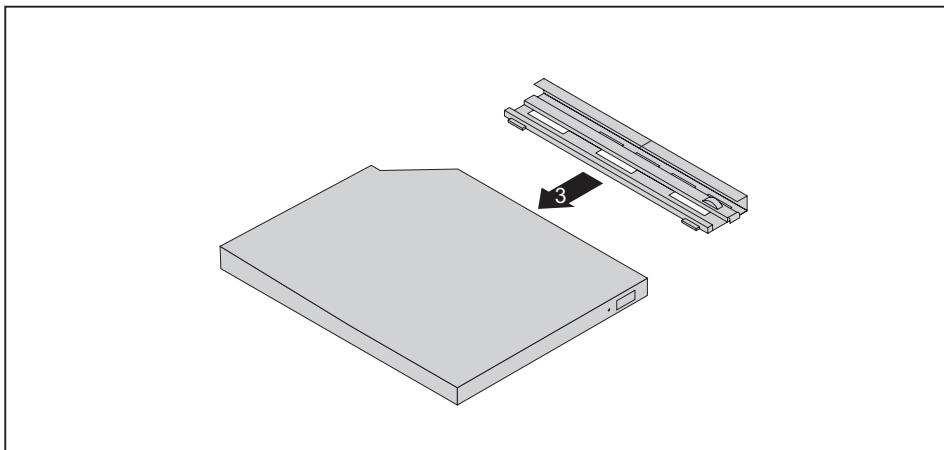


The drive plate is located in the upper bay for the slimline drive.

- Remove the casing cover (see Chapter ["Removing the casing cover", Page 36](#)).



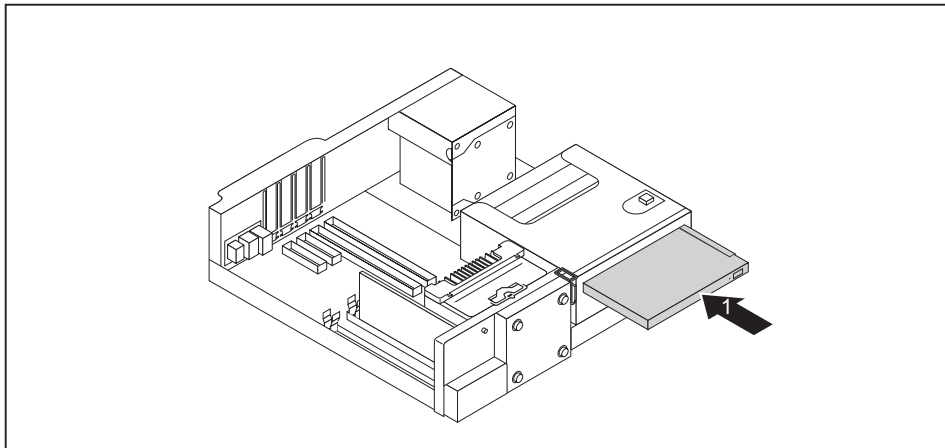
- Press the clip in the direction of the arrow (1).
- Remove the drive plate (a) from the upper bay (2).



- Secure the drive plate on the slimline drive as shown (3).

### Installing a slimline drive

- The drive plate is attached to the slimline drive (see chapter ["Installing the drive plate for the slimline drive", Page 42](#)).
- A suitable drive cover is mounted (see chapter ["Changing the drive cover", Page 39](#)).



- ▶ Slide the slimline drive into its bay in the direction of the arrow (1) until it engages in place.
- ▶ Connect the cables to the slimline drive and to the mainboard. Make sure the polarity is correct.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 37](#)).

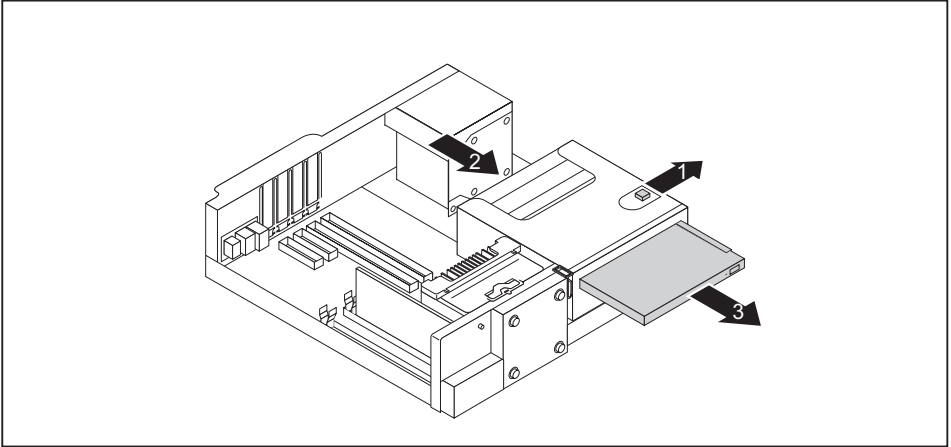


If necessary, you must adjust the entry for the drive accordingly in the *BIOS Setup*.

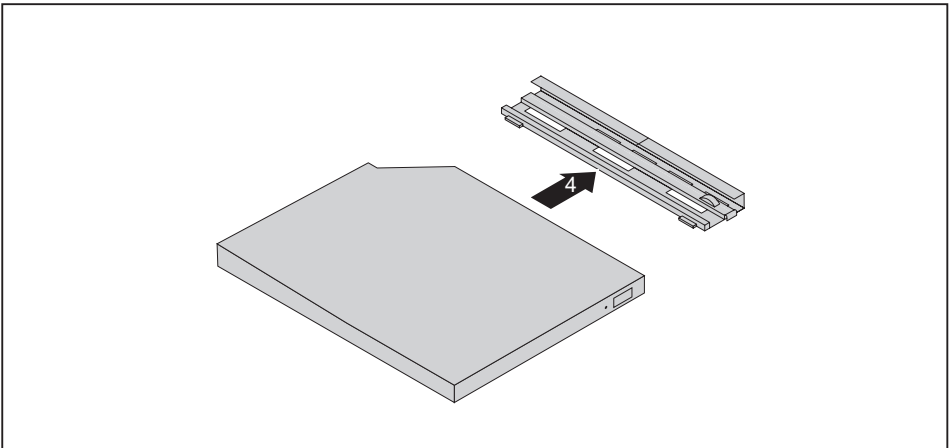


## Removing a slimline drive

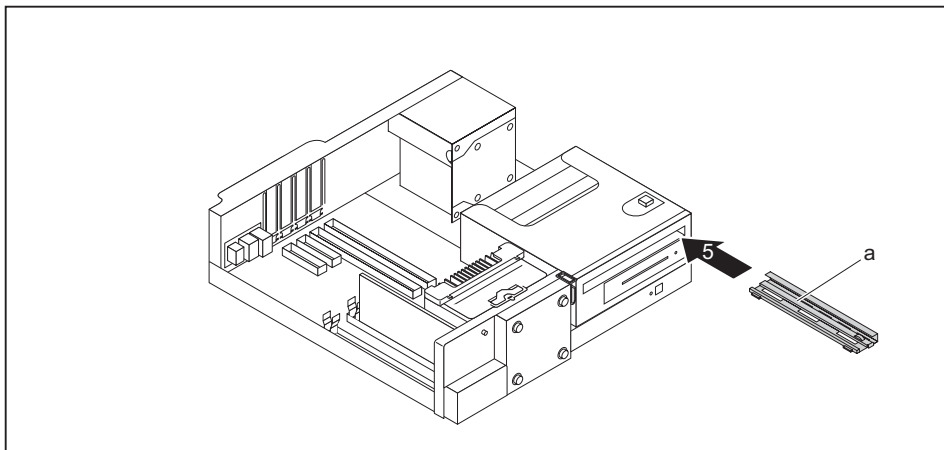
- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 36](#)).
- ▶ Disconnect the cables connected to the slimline drive.



- ▶ Press the clip in the direction of the arrow (1).
- ▶ Push the slimline drive a few centimetres out of the bay in the direction of the arrow (2).
- ▶ Pull the slimline drive completely out of the bay in the direction of the arrow (3).



- ▶ Detach the drive plate from the slimline drive (4).



- Slide the drive plate (a) into the upper bay (5) again as shown, until it engages.



It is essential to ensure that the drive plate is installed in the correct installation direction (see illustration).

- If you are not installing a new slimline drive, change the drive cover (see chapter ["Changing the drive cover", Page 39](#)).
- Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 37](#)).



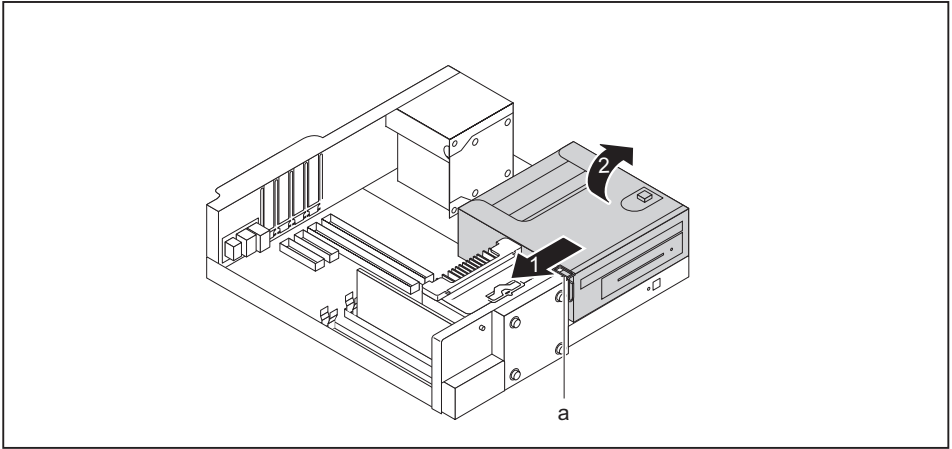
If necessary, you must adjust the entry for the drive accordingly in the *BIOS Setup*.

## Opening and closing the drive cage

To be able to install and remove drives in the middle and lower bays, it is necessary to fold the drive cage upwards.

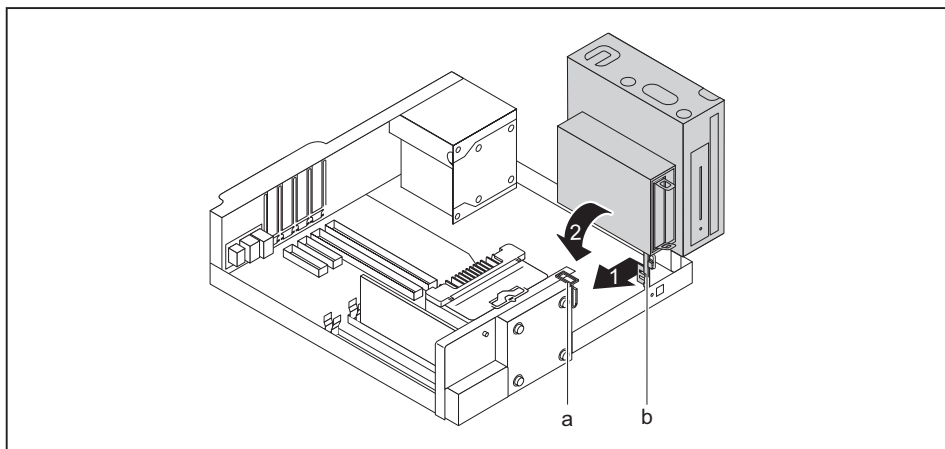
### Opening the drive cage

- Remove the casing cover (see chapter ["Removing the casing cover", Page 36](#)).



- Press the release (a) in the direction of the arrow (1).
- Fold the drive cage fully open (2) until it locks in place.

## Closing the drive cage



- ▶ Gently press the upright bracket (b) of the drive cage in the direction of the arrow (1) until you can move the drive cage.



When closing the drive cage, take care that no cables become trapped and that the release catch (a) of the drive cage engages again.

- ▶ Fold the drive cage in the direction of the arrow (2).
- ▶ Fit the casing cover onto the casing again (see chapter ["Reattaching the casing cover.", Page 37](#)).

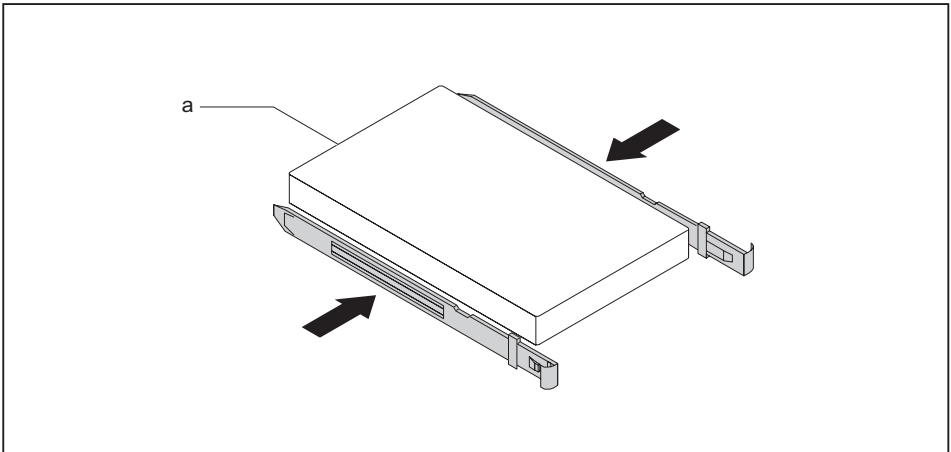
## Installing and removing 2½ inch drives in a 3½ inch adapter

You can install two non-accessible 2½ inch drives with a 3½ inch adapter in the lower and middle bays.

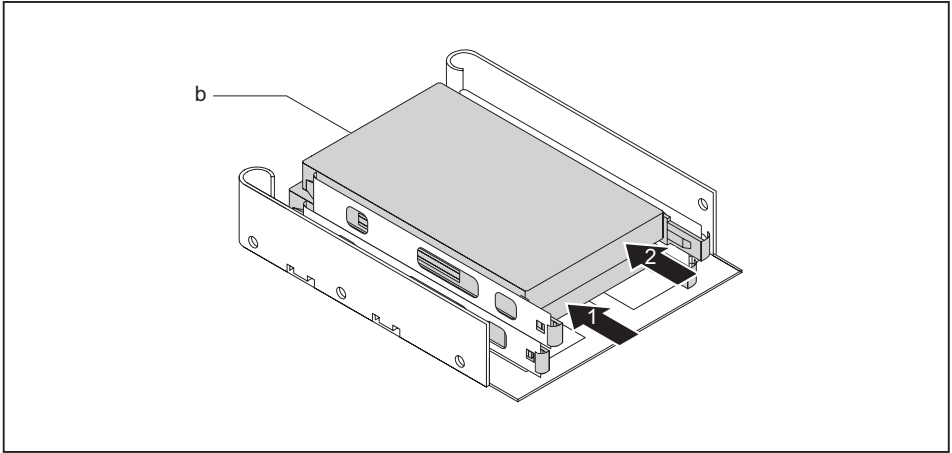
### Installing 2½ inch drives in a 3½ inch adapter



EasyChange rails for both drives are in the adapter.

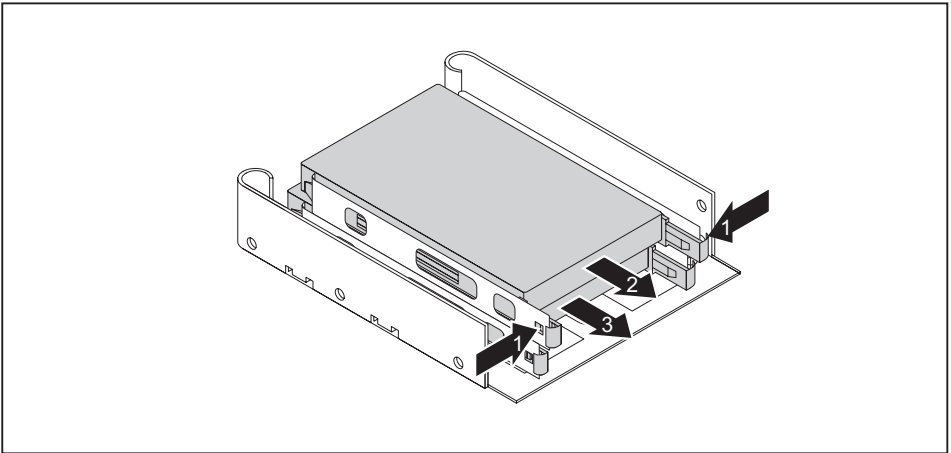


- Fasten the EasyChange rails to the side of the first drive by inserting each pin of the EasyChange rail in the corresponding holes on the drive. In doing so, make sure that the ports on the drive are located at the rear as shown (a).
- Repeat the step for the second drive.

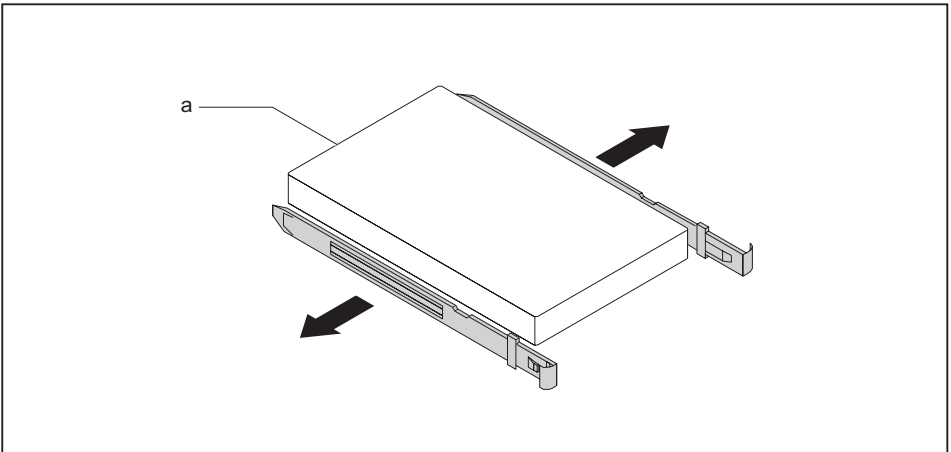


- Slide the drives with the EasyChange rails one after the other into the adapter (1, 2). In doing so, make sure that the component side of the drives point down towards the adapter and the ports on the drives are located at the rear as shown (b).

## Removing 2½ inch drives from a 3½ inch adapter



- Press the EasyChange rails on the drives slightly together (1) and pull the drives with the EasyChange rails one after the other out of the adapter (2, 3).



- Pull the EasyChange rails off the first drive.
- Repeat the step for the second drive.
- If you no longer need the EasyChange rails, secure them again at their location in the adapter.

## Installing and removing drives in the lower bay (optional)

In the lower bay you can install a non-accessible 3½ inch drive, two non-accessible 2½ inch drives with a 3½ inch adapter or a non-accessible 2½ inch drive.

Depending on the type of drive, fixing to the casing is either by EasyChange rails or by screw fastening.

### Installing and removing a 3½ inch drive or a 3½ inch adapter

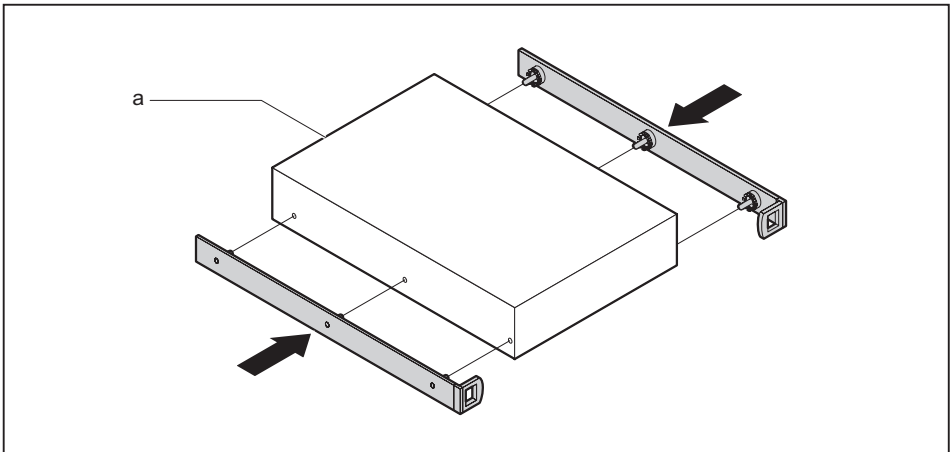
The following procedure describes installation and removal using the example of a 3½ inch drive. The approach is the same for all variants. Any differences are indicated accordingly.

#### Installing a drive

- Remove the casing cover (see Chapter ["Removing the casing cover", Page 36](#)).
- Fold out the drive cage (see chapter ["Opening the drive cage", Page 47](#)).

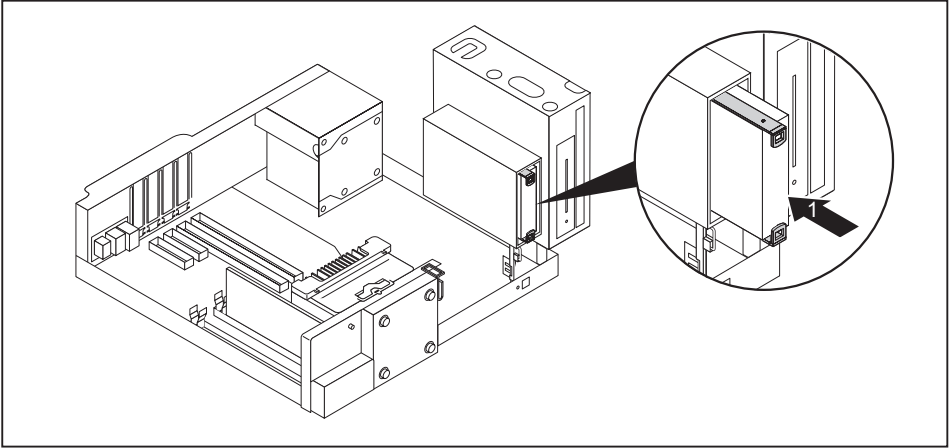


EasyChange rails for the drive are located in the lower bay.



- Fasten the EasyChange rails to the side of the drive or adapter by inserting each pin of the EasyChange rail in the corresponding holes on the drive. In doing so, make sure that the ports on the drive are located at the rear as shown (a).





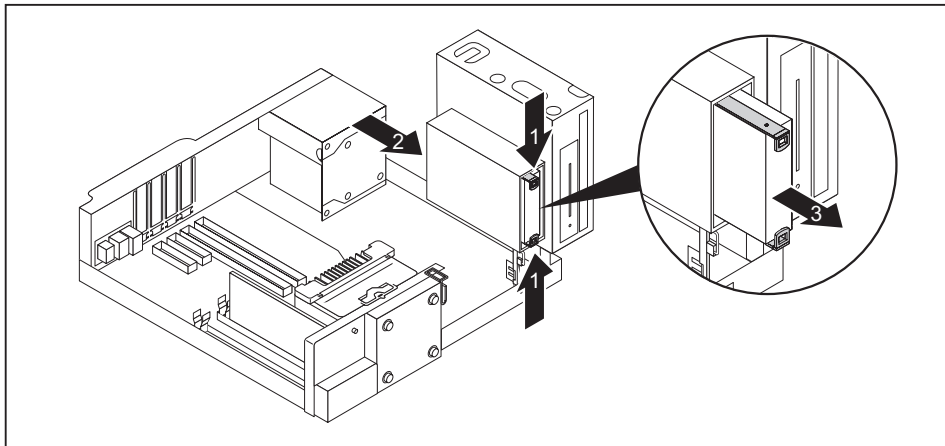
- ▶ Slide the drive with the EasyChange rails into the bay (1). Check that the component side of the drive faces downwards towards the base of the casing (with the drive cage closed).
- ▶ Connect the cables at the drive and at the mainboard. Make sure the polarity is correct.
- ▶ Fold the drive cage into the closed position again (see chapter ["Closing the drive cage", Page 48](#)).
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 37](#)).



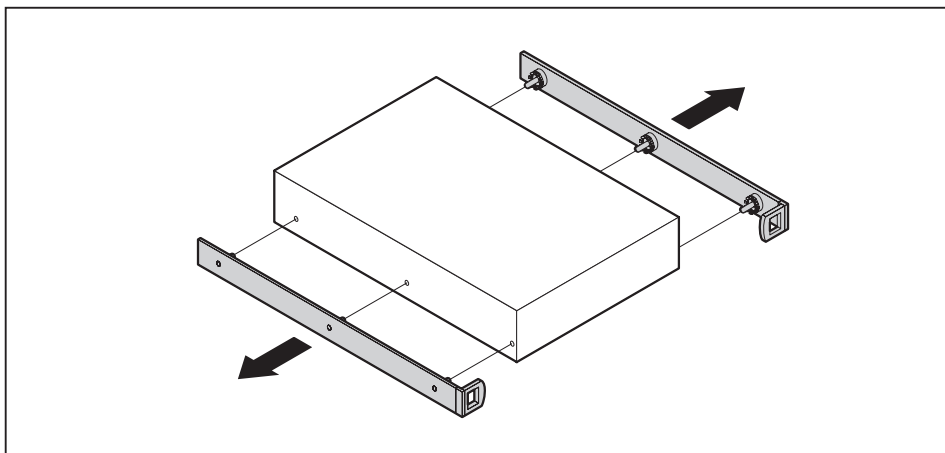
If necessary, you must adjust the entry for the drive accordingly in the *BIOS Setup*.

### Removing a drive

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 36](#)).
- ▶ Fold out the drive cage (see chapter ["Opening the drive cage", Page 47](#)).
- ▶ Disconnect any cables connected to the drive.



- ▶ Slightly press together the EasyChange rails on the drive (1).
- ▶ Push the drive a few centimetres out of the bay in the direction of the arrow (2).
- ▶ Pull the drive completely out of the bay in the direction of the arrow (3).



- ▶ Pull the EasyChange rails off the drive.
- ▶ If you no longer need the EasyChange rails, secure them again in the lower bay.
- ▶ Fold the drive cage into the closed position again (see chapter ["Closing the drive cage", Page 48](#)).
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 37](#)).

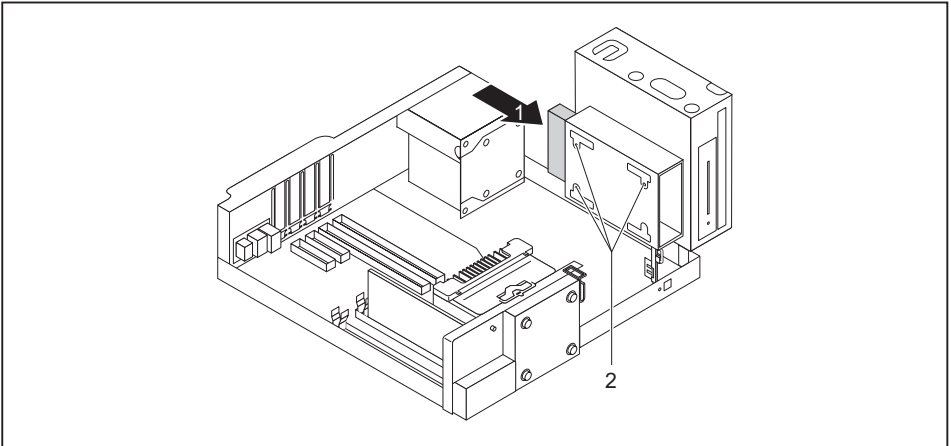


It may be necessary to modify the entry for the drive in the *BIOS Setup*.

## Installing and removing a 2½ inch drive (screw fastened)

### Installing a drive

- ▶ Remove the casing cover (see chapter ["Removing the casing cover", Page 36](#)).
- ▶ Fold out the drive cage (see chapter ["Opening the drive cage", Page 47](#)).



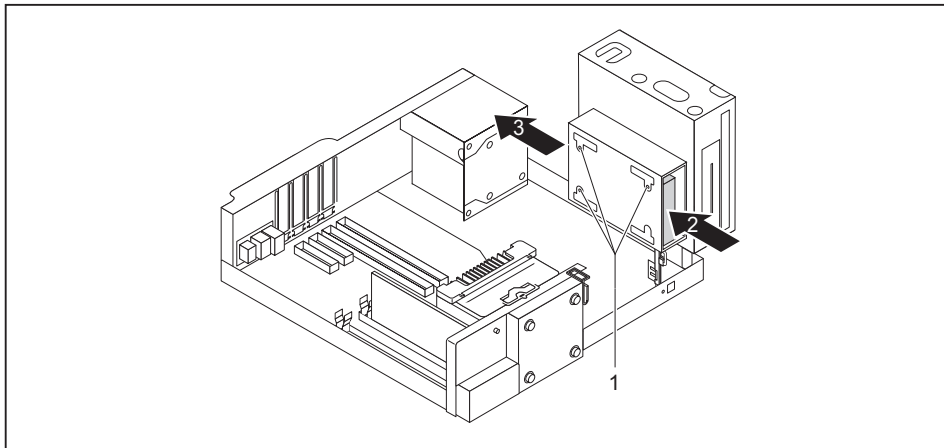
- ▶ Slide the drive into the bay (1).
- ▶ Secure the drive with the screws (2).
- ▶ Connect the cables at the drive and at the mainboard. Make sure the polarity is correct.
- ▶ Fold the drive cage into the closed position again (see chapter ["Closing the drive cage", Page 48](#)).
- ▶ Fit the casing cover onto the casing again (see chapter ["Reattaching the casing cover.", Page 37](#)).



If necessary, you must adjust the entry for the drive accordingly in the *BIOS Setup*.

### Removing a drive

- ▶ Remove the casing cover (see chapter ["Removing the casing cover", Page 36](#)).
- ▶ Fold out the drive cage (see chapter ["Opening the drive cage", Page 47](#)).
- ▶ Disconnect any cables that are connected to the drive.



- ▶ Undo the screws (1).
- ▶ Push the drive a few centimetres out of the bay in the direction of the arrow (2).
- ▶ Pull the drive completely out of the bay in the direction of the arrow (3).
- ▶ Fold the drive cage into the closed position again (see chapter ["Closing the drive cage", Page 48](#)).
- ▶ Fit the casing cover onto the casing again (see chapter ["Reattaching the casing cover.", Page 37](#)).



If necessary, you must adjust the entry for the drive accordingly in the *BIOS Setup*.

## Installing and removing drives in the middle bay (optional)

In the middle bay you can either install one 3½ inch or two 2½ inch drives using a 3½ inch adapter. Accessible drives here are for example SmartCard or Multicard readers. Non-accessible drives are hard disks or SSDs.

Fixture in the casing is always using screws.

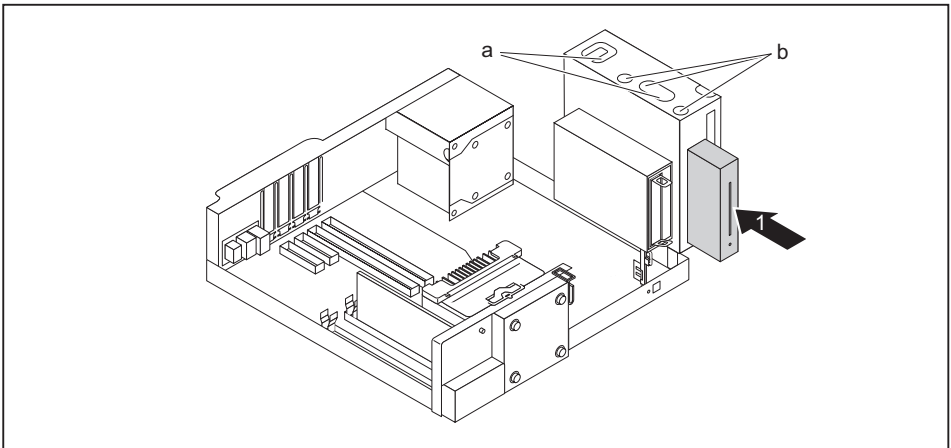


Operation of a SmartCard reader with a RFID reader is not permitted in Taiwan.

The following procedure describes installation and removal using the example of a Multicard reader. The approach is the same for all variants. Any differences are indicated accordingly.

### Installing a 3½ inch drive

- The casing cover is removed (see chapter ["Removing the casing cover", Page 36](#)).
- A suitable drive cover is mounted (see chapter ["Changing the drive cover", Page 39](#)).
- ▶ Fold out the drive cage (see chapter ["Opening the drive cage", Page 47](#)).



- ▶ When installing 2.5" HDDs/SSDs or a SmartCard reader: Connect the cables to the drive before you slide it into the bay.



On the multicard reader, one end of the cable is already fixed to the reader.

- ▶ Slide the drive into the bay (1).



The screw positions are different for non-accessible drives and accessible drives:

- sheet metal stamping 1 (in illustration: b) valid for accessible drives (Multicard/SmartCard reader).
- sheet metal stamping 2 (in illustration a) valid for non-accessible drives (HDDn/SSDn, also in adapter).

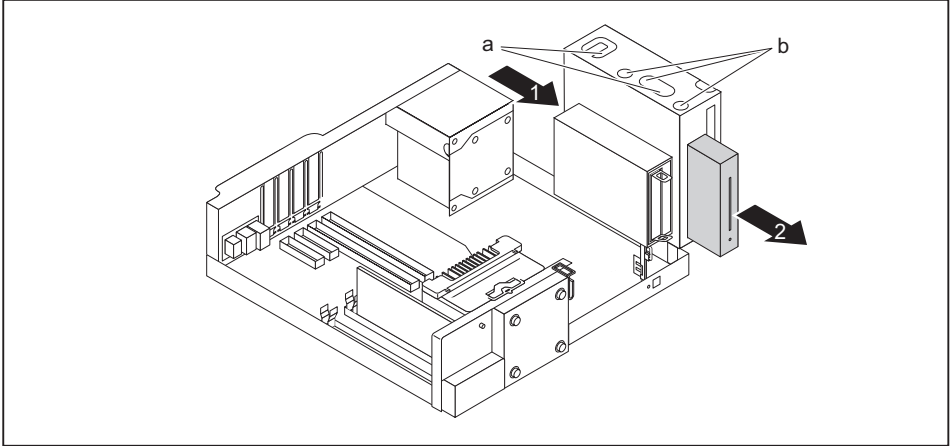
- ▶ Secure the drive with the screws (a or b, depending on the type of drive).
- ▶ When installing a 3½ inch hard disk: Connect the cables to the drive. Make sure the polarity is correct.
- ▶ Connect the other end of the cable to the corresponding USB port or SATA port of the mainboard.
- ▶ Fold the drive cage into the closed position again (see chapter "[Closing the drive cage](#)", [Page 48](#)).
- ▶ Fit the casing cover onto the casing again (see chapter "[Reattaching the casing cover](#)", [Page 37](#)).



If necessary, you must adjust the entry for the drive accordingly in the *BIOS Setup*.

## Removing a 3½ inch drive

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 36](#)).
- ▶ Fold out the drive cage (see Chapter ["Opening the drive cage", Page 47](#)).
- ▶ Disconnect any cables connected to the drive.



- ▶ Undo the screws (a or b, depending on the type of drive).
- ▶ Push the drive a few centimetres out of the bay in the direction of the arrow (1).
- ▶ Pull the drive completely out of the bay in the direction of the arrow (2).
- ▶ If you are not installing a new drive, change the drive cover if necessary (see chapter ["Changing the drive cover", Page 39](#)).
- ▶ Fold the drive cage into the closed position again (see chapter ["Closing the drive cage", Page 48](#)).
- ▶ Fit the casing cover onto the casing again (see chapter ["Reattaching the casing cover.", Page 37](#)).

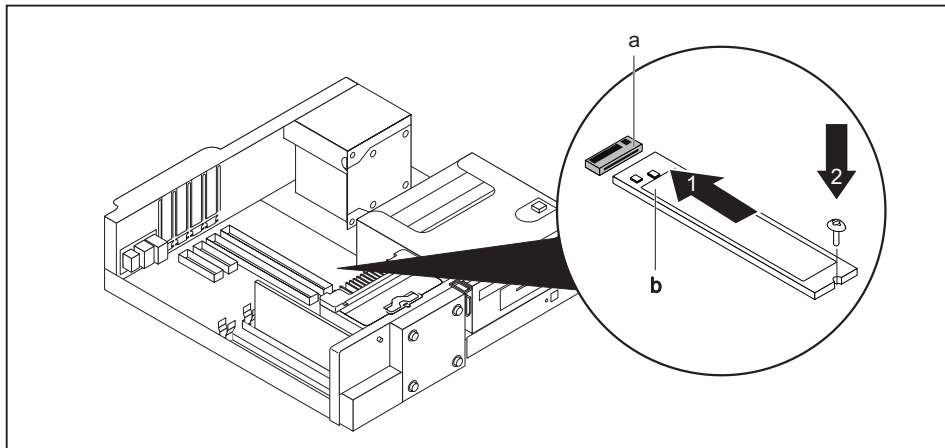


If necessary, you must adjust the entry for the drive accordingly in the *BIOS Setup*.

## Installing and removing an M.2 module

### Installing an M.2 module

- ▶ Remove the casing cover (see chapter ["Removing the casing cover", Page 36](#)).
- ▶ Fold out the drive cage (see chapter ["Opening the drive cage", Page 47](#)).



- ▶ Insert the M.2 module (b) at a slight angle in the direction of the arrow (1) into the slot (a) on the mainboard.
- ▶ Secure the M.2 module on the mainboard with the screw (2).
- ▶ Fold the drive cage into the closed position again (see chapter ["Closing the drive cage", Page 48](#)).
- ▶ Fit the casing cover onto the casing again (see chapter ["Reattaching the casing cover.", Page 37](#)).

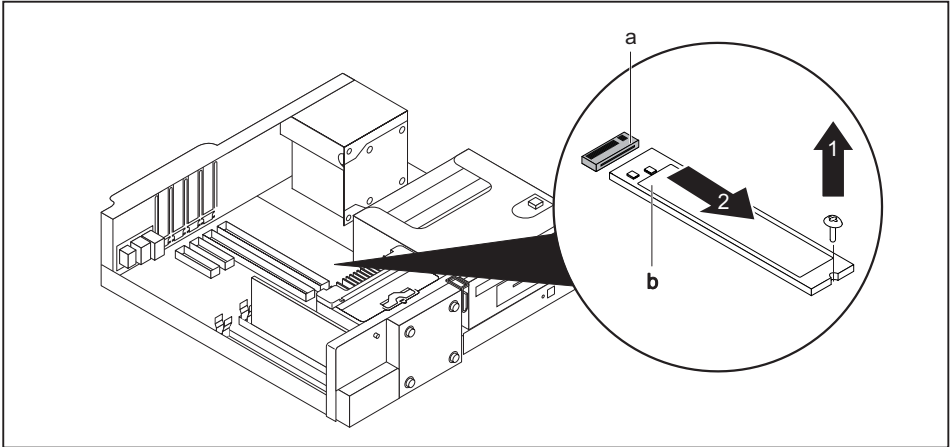


If necessary, you must adjust the entry for the M.2 module accordingly in the *BIOS Setup*.



## Removing an M.2 module

- ▶ Remove the casing cover (see chapter ["Removing the casing cover", Page 36](#)).
- ▶ Fold out the drive cage (see chapter ["Opening the drive cage", Page 47](#)).



- ▶ Undo the screw (1).
- ▶ Pull the M.2 module (b) slightly at an angle in the direction of the arrow (2) and out of the slot (a) on the mainboard and remove it from the casing.
- ▶ Fold the drive cage into the closed position again (see chapter ["Closing the drive cage", Page 48](#)).
- ▶ Fit the casing cover onto the casing again (see chapter ["Reattaching the casing cover.", Page 37](#)).



If necessary, you must adjust the entry for the M.2 module accordingly in the *BIOS Setup*.

## Installing and removing low-profile boards

The four slots for the boards are protected by a board clip. An additional slot cover exists for each individual slot. If no board is installed in the slot, the slot cover protects the slot.

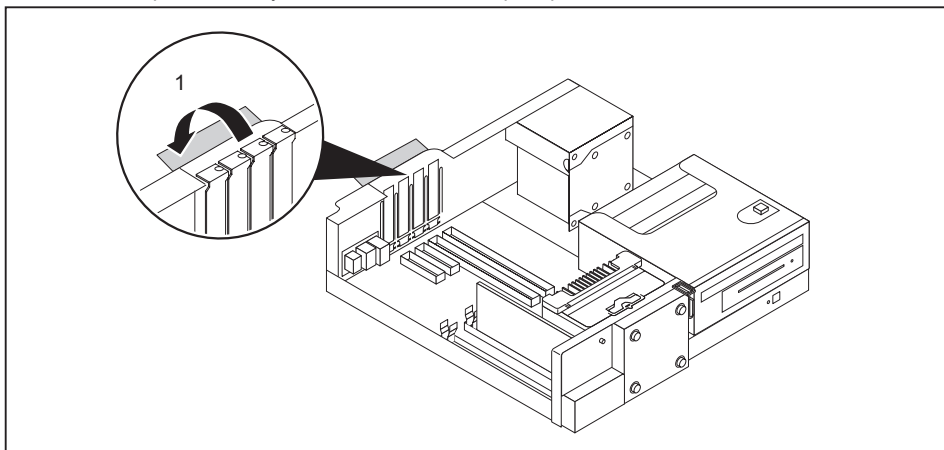


When you install a board, do not discard the corresponding slot cover.

For cooling, protection against fire and in order to comply with EMC regulations, you must refit the slot cover if you remove the board.

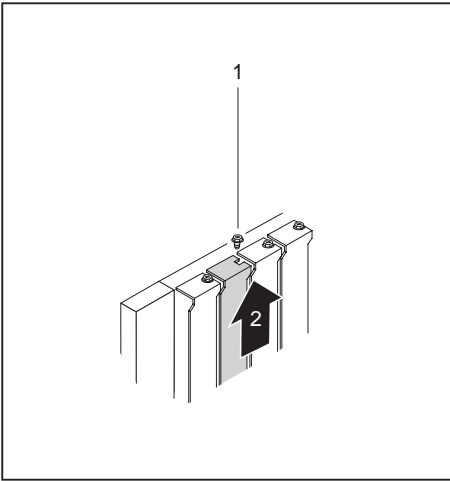
### Opening the board retaining mechanism

- Remove the casing cover (see Chapter ["Removing the casing cover", Page 36](#)).
- Undo the optional safety screw of the board clip, if present.



- Fold out the board retaining mechanism (1).

## Removing a slot cover.

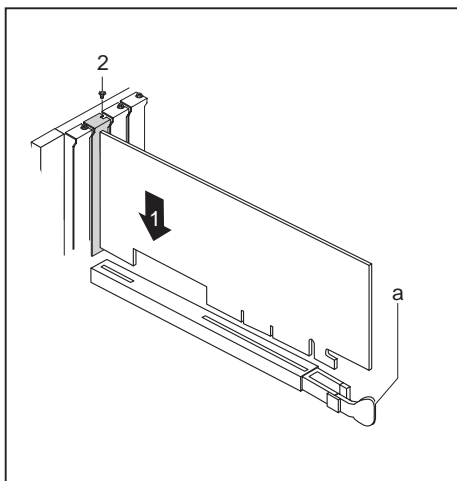


- ▶ Undo the screw (1, optional).
- ▶ Pull the slot cover out of the slot (2).



Do not throw away the slot cover. For cooling, protection against fire and in order to comply with EMC regulations, you must refit the slot cover if you remove the board.

## Installing a board



- ▶ Push the board into the slot (1) until it engages.
- ↳ If present, the additional board retaining clip (a) engages.
- ▶ Tighten the screw (2, optional).

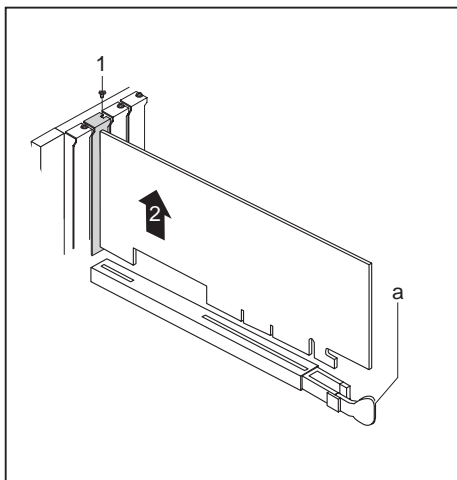
- ▶ If necessary, connect the cables to the board.



If you have installed or removed a board, please check the relevant PCI slot settings in the *BIOS Setup*. If necessary, change the settings. Further information is provided in the PCI board documentation.

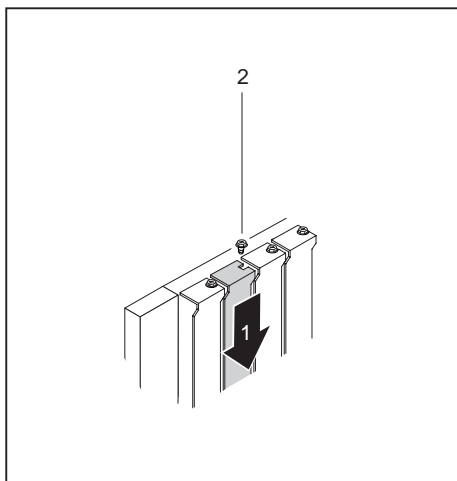
## Removing boards

- ▶ If necessary, disconnect the cables which are connected to the board.



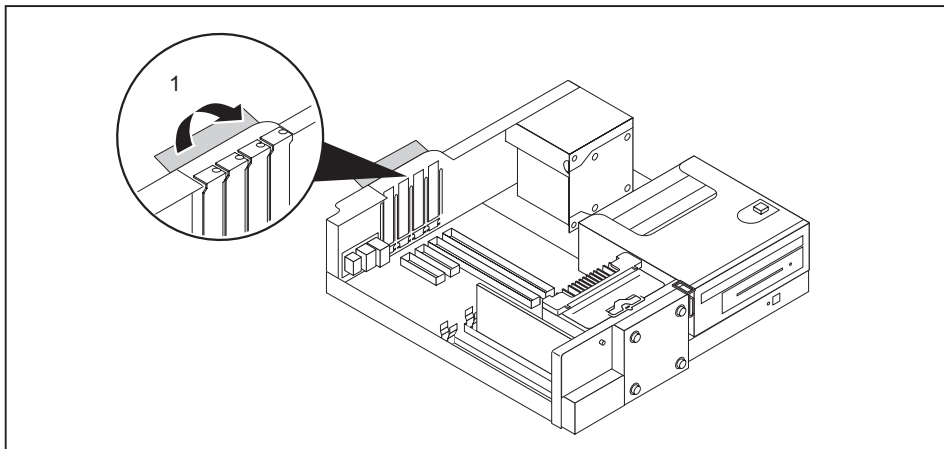
- ▶ Undo the screw (1, optional).
- ▶ Release the board retaining clip (a) where applicable.
- ▶ Pull the board out of the slot (2).
- ▶ Place the board in suitable packaging.

## Reinstalling a slot cover



- ▶ Push the slot cover into the slot (1).
- ▶ Tighten the screw (2, optional).

## Closing the board retaining mechanism



- ▶ Fold the board retaining mechanism to the closed position (1).
- ▶ If necessary, also secure the board clip with the optional safety screw when present.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover."](#), Page 37).



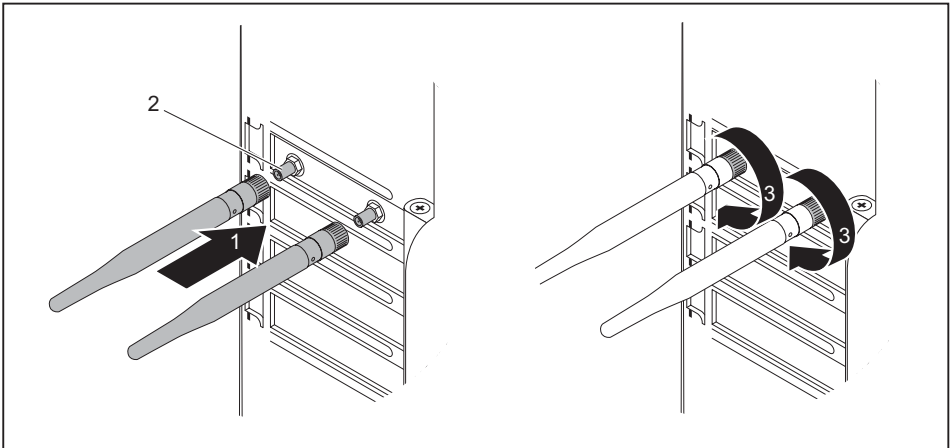
If you have installed or removed a board, please check the relevant PCI slot settings in the *BIOS Setup*. If necessary, change the settings. Further information is provided in the PCI board documentation.

## Installing and removing WLAN antennas

If you have installed a suitable low-profile board, you can install and remove the associated WLAN antennas as described below.

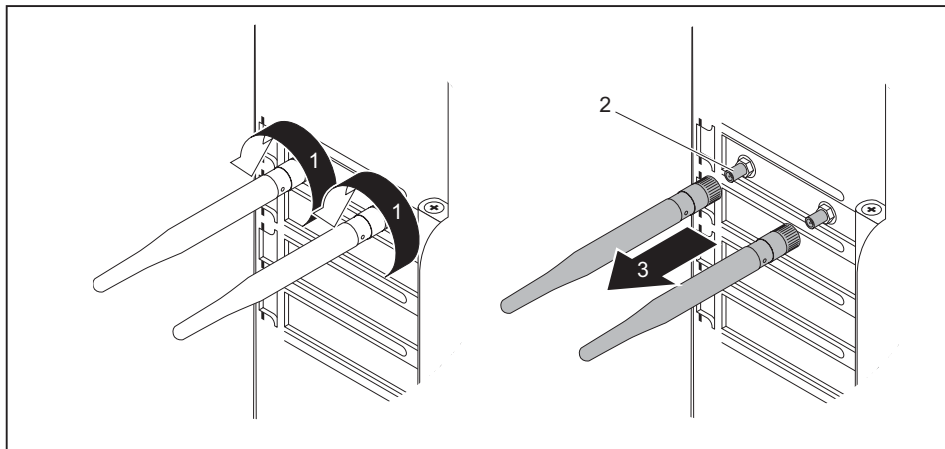
### Installing WLAN antennas

- A suitable low-profile board is installed (see chapter ["Installing and removing low-profile boards"](#), Page 62).



- ▶ Working in the direction of the arrow (1), place the WLAN antennas onto the plug-in positions of the board (2).
- ▶ Secure the WLAN antennas by turning in the direction of the arrow (3).
- ▶ Align the WLAN antennas as required.

## Removing WLAN antennas



- ▶ Undo the WLAN antennas by turning in the direction of the arrow (1).
- ▶ Pull the WLAN antennas in the direction of the arrow (3) and away from the plug-in positions of the board (2).



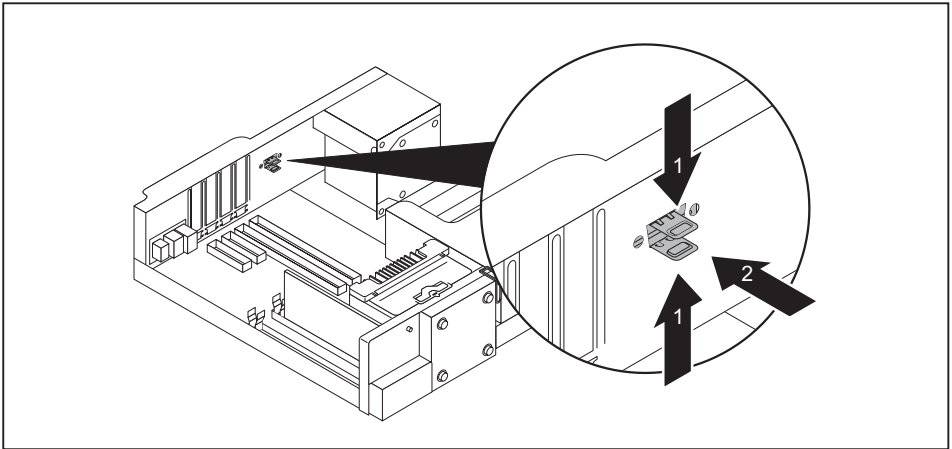
## Installing a serial port

Depending on the configuration level of your device, there may be a second installation opening intended for a serial port on the rear panel of the device. As a result, no board slot is occupied.

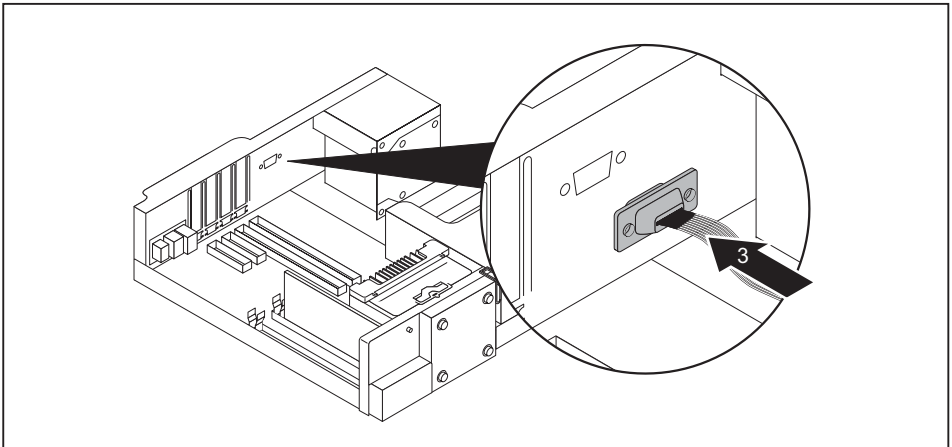
- Remove the casing cover (see chapter ["Removing the casing cover", Page 36](#)).

**i**

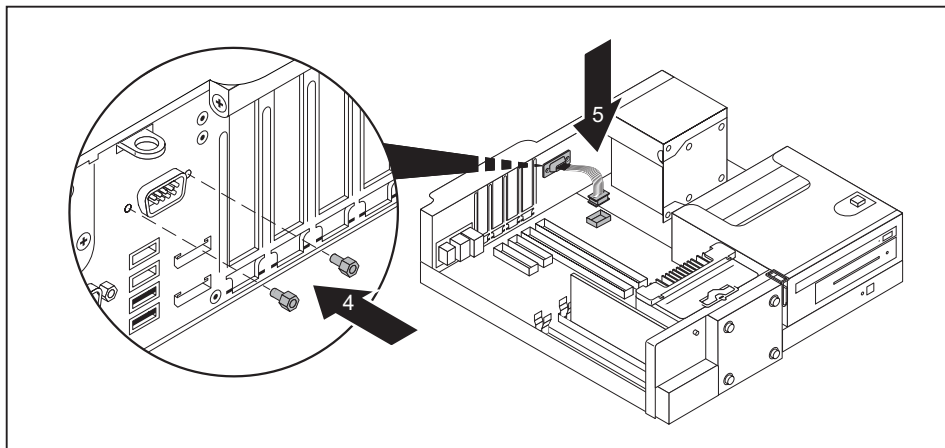
If there is no port already installed, the installation opening is closed off by a sheet metal plate. Do not discard the sheet metal plate. In order to comply with the electromagnetic compatibility (EMC) regulations, you must refit the sheet metal plate if you remove the serial port again.



- Keep the clips (1) pressed and push the sheet metal plate out of the casing from the inside (2).



- Position the serial port on the inside of the device at the appropriate place (3).



- Fasten the serial port with the screws (4).
- Connect the cable to the mainboard (5).
- Fit the casing cover onto the casing again (see chapter ["Reattaching the casing cover.", Page 37](#)).

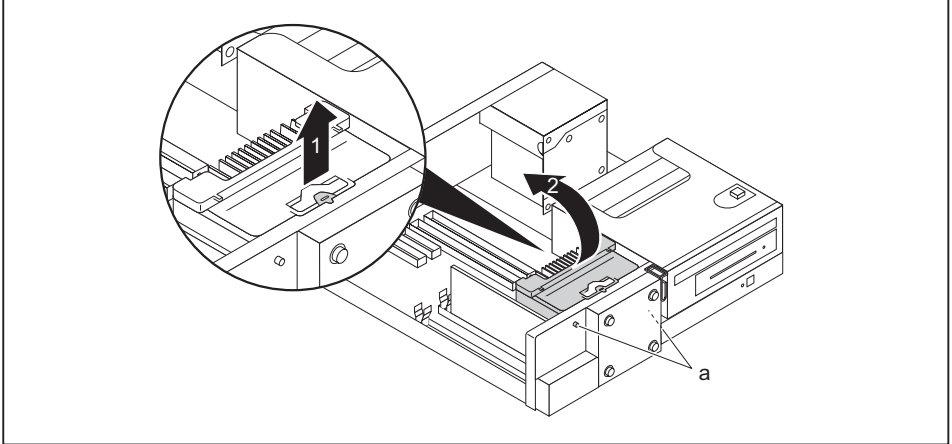


To remove, carry out the above steps in reverse order. To comply with the electromagnetic compatibility (EMC) regulations, secure the sheet metal plate again at the installation opening.

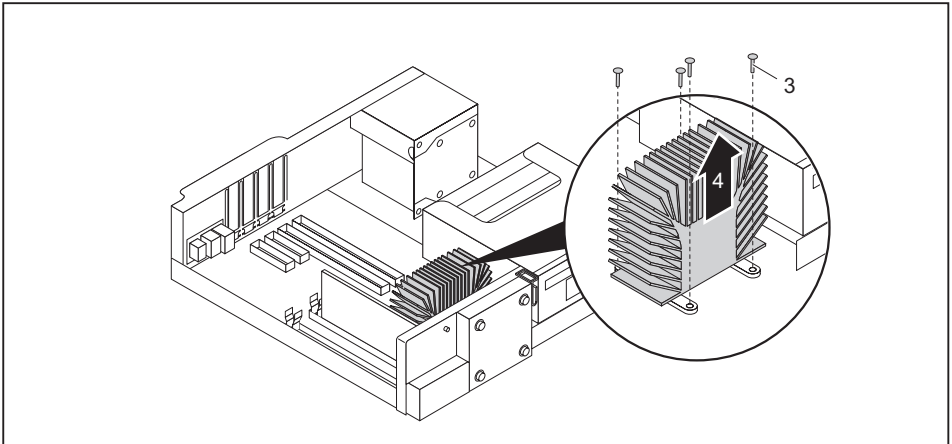
# Installing and removing heat sinks

## Removing the heat sink

- Remove the casing cover (see Chapter ["Removing the casing cover", Page 36](#)).



- Pull the catch of the hood in the direction of the arrow (1) (identified with the label "PULL").
- Slightly tilt the cowl and lift it out of the casing (2). In doing so, take care that the pins (a) release from the openings on the casing.

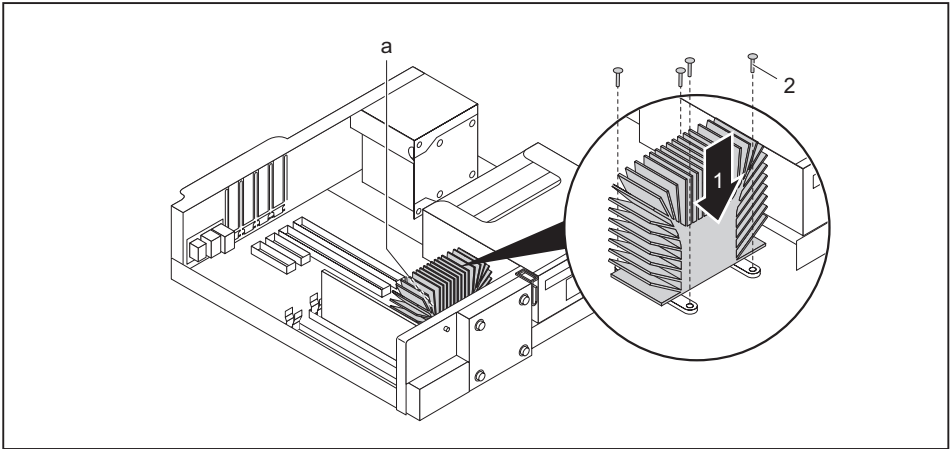


- Undo the screws on the heat sink (3).
- Lift the heat sink out of the casing (4).

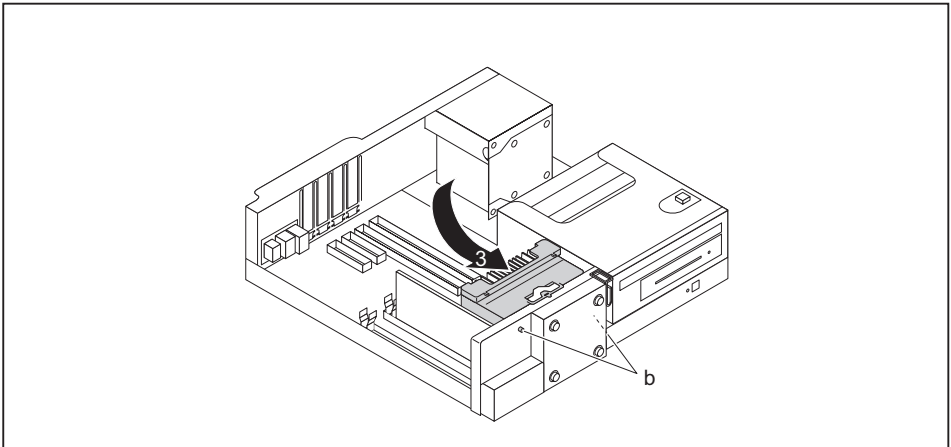


Never operate the device without the heat sink fitted! Reinstall the heat sink before switching on the device.

## Installing the heat sink



- Insert the heat sink into the casing (1): in doing so, align the screw holes on the heat sink correctly together with the screw holes on the mainboard and pay attention to the sticker (a) on the heat sink. This must point towards the inside of the casing / away from the front of the casing.
- Tighten the screws (2) in a crosswise fashion.



- Place the cowl in the casing (3) at a slight angle and pay attention that the pins (b) fit into the openings on the casing as shown.
- ↳ The cowl engages at the location marked "PULL".
- Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover."](#), Page 37).

# Mainboard expansions

Details on how to upgrade the main memory or the processor of your device can be found in the manual for the mainboard.

## Upgrading main memory

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 36](#)).
- ▶ Upgrade the memory according to the description in the manual for the mainboard.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 37](#)).

## Processor, replacing

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 36](#)).
- ▶ Remove the heat sink (see ["Removing the heat sink", Page 71](#)).
- ▶ Upgrade the processor according to the description in the manual for the mainboard.
- ▶ Reinstall the heat sink (see ["Installing the heat sink", Page 73](#)).
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 37](#)).

## Replacing the lithium battery

In order to permanently save the system information, a lithium battery is installed to provide the CMOS-memory with a current. A corresponding error message notifies the user when the charge is too low or the battery is empty. The lithium battery must then be replaced.



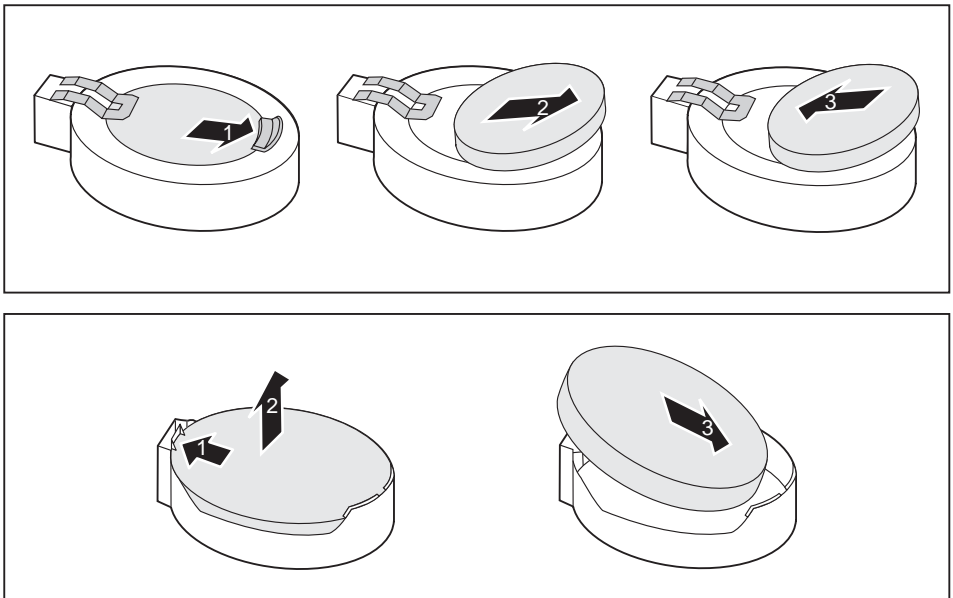
Incorrect replacement of the lithium battery may lead to a risk of explosion!

The lithium battery may be replaced only with an identical battery or with a type recommended by the manufacturer.

Do not dispose of lithium batteries with household waste. They must be disposed of in accordance with local regulations concerning special waste.

Make sure that you observe the correct polarity when replacing the lithium battery. The plus pole must be on the top!

The lithium battery holder exists in different designs that function in the same way.



- ▶ Press the catch in the direction of the arrow (1).
- ↳ The battery jumps out of the holder slightly.
- ▶ Remove the battery (2).
- ▶ Push the new lithium battery of the identical type into the holder (3) and press it down until it engages.

# Technical specification

<b>Electrical data</b>	
Safety standards complied with:	IEC 60950-1, CSA 60950-1, UL 60950-1, EN 55022 class B, EN 55024, EN 61000-3-2/-3-3
Protection class:	I
Rated voltage range:	100-240V
Rated frequency:	50-60Hz
Max. rated current:	
Device with monitor socket:	5.3-3.5A
of which Value for monitor socket:	2.0-1.0A
Device without monitor socket:	3.0-2.0A
<b>Dimensions</b>	
Width/depth/height:	332 mm x 338 mm x 89 mm / 13.07 in x 13.31 in x 3.50 in
<b>Weight</b>	
In basic configuration:	approx. 8 kg / 17.64 lbs
<b>Environmental conditions</b>	
Environment class (3K2):	DIN IEC 721 part 3-3
Environment class (2K2):	DIN IEC 721 part 3-2
Temperature:	
Operating (3K2):	<ul style="list-style-type: none"><li>• ESPRIMO D556/D756/D956: 10°C ... 35°C /50°F ... 95°F</li><li>• ESPRIMO D956 LL: 5°C ... 40°C /41°F ... 104°F</li></ul>
Transportation (2K2):	−25°C to 60°C /−13°F ... 140°F
The formation of condensation is not permitted while the device is in operation !	
Clearance required to ensure adequate ventilation:	
Without air vents	min. 10 mm / 0.39 in
With air vents	min. 200 mm / 7.87 in



The data sheet for this device provides further technical data. The data sheet can be found on our website ["http://fujitsu.com/fts/"](http://fujitsu.com/fts/).



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