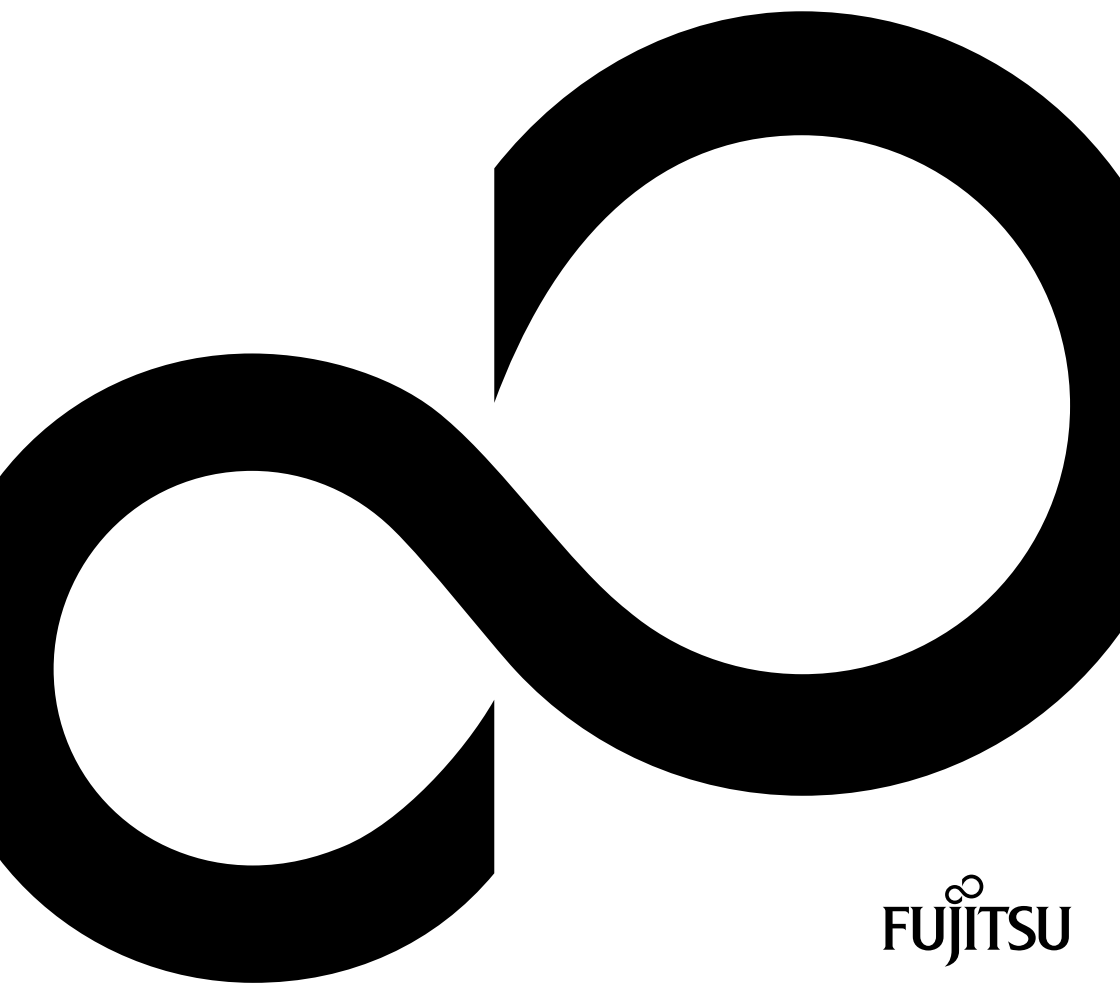


LIFEBOOK S761



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The latest information about our products, useful tips, updates etc. is available from our website: ["http://ts.fujitsu.com"](http://ts.fujitsu.com)

For automatic driver updates, go to: ["http://support.ts.fujitsu.com/com/support/index.html"](http://support.ts.fujitsu.com/com/support/index.html)

Should you have any technical questions, please contact:

- our Hotline/Service Desk (see Service Desk list or visit: ["http://ts.fujitsu.com/support/servicedesk.html"](http://ts.fujitsu.com/support/servicedesk.html))
- Your sales partner
- Your sales office

We hope you really enjoy using your new Fujitsu system.

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Fujitsu Technology Solutions GmbH
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LIFEBOOK S761

Operating Manual

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Innovative technology

... and ergonomic design make your device a reliable and convenient companion.

The device boots very quickly, is ready for immediate use and offers a particularly long operating time because of its high capacity battery.

With the user-friendly "BIOS Setup Utility" you can control your notebook's hardware and better protect your system against unauthorised access by using the powerful password properties.



Information on the connections and user components of your notebook can be found in ["Ports and controls", Page 9.](#)

Further information









The Windows drivers for your device can be found on our Internet site. The factory installation of your device does not support any other operating system. Fujitsu Technology Solutions accepts no liability whatsoever if any other operating system is used.

Software oriented components of these instructions refer to Microsoft products, if they come within the scope of the delivery.

If you install other software products, pay attention to the operating instructions of the manufacturer.

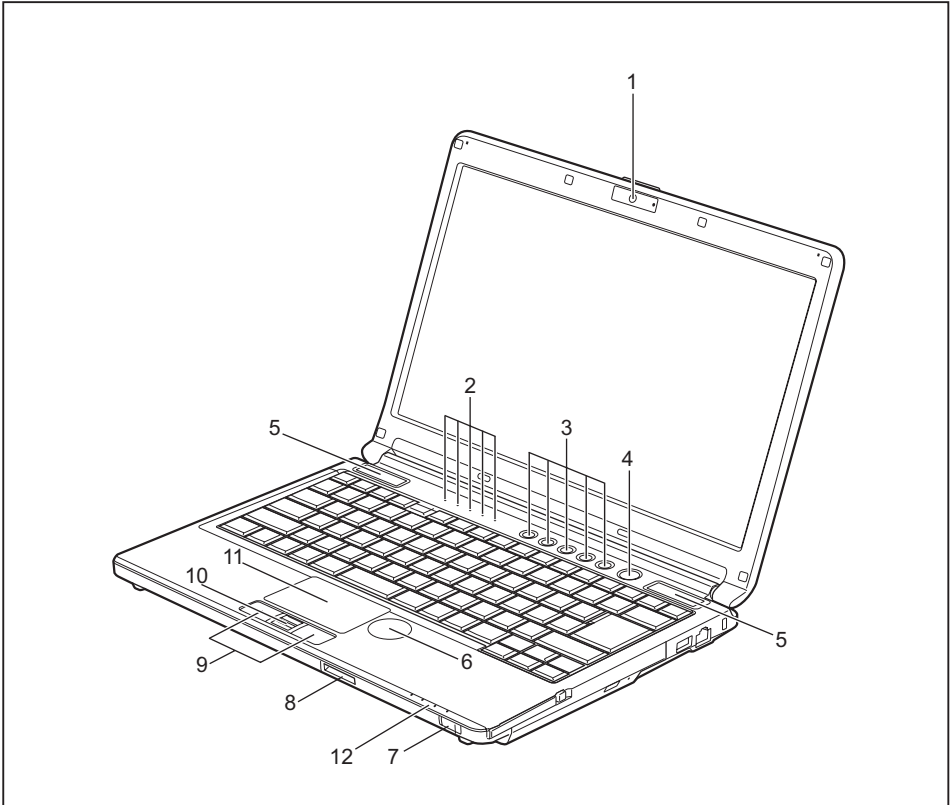
Notational conventions

| | |
|--|---|
|  | 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 |
| This font | indicates data entered using the keyboard in a program dialogue or at the command line, e.g. your password (Name123) or a command used to start a program (start.exe) |
| 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"> terms and texts used in a software interface, e.g.: Click on <i>Save</i> names of programs or files, e.g. <i>Windows</i> or <i>setup.exe</i>. |
| "This font" | indicates <ul style="list-style-type: none"> cross-references to another section, e.g. "Safety information" cross-references to an external source, e.g. a web address: For more information, go to "http://ts.fujitsu.com" Names of CDs, DVDs and titles or designations for other materials, e.g.: "CD/DVD Drivers & Utilities" or "Safety/Regulations" manual |
|  | indicates a key on the keyboard, e.g.  |
| This font | indicates terms and texts that are emphasised or highlighted, e.g.: Do not switch off the device |

Ports and controls

This chapter presents the individual hardware components of your device. It gives an overview of the displays and connections of the device. Please familiarise yourself with these components before you start to use the device.

Front



1 = WebCam (optional)

2 = Status indicators

3 = Application keys

4 = ON/OFF switch

5 = Speakers

6 = ScrollWheel

7 = Radio components ON/OFF switch

8 = Memory card slot

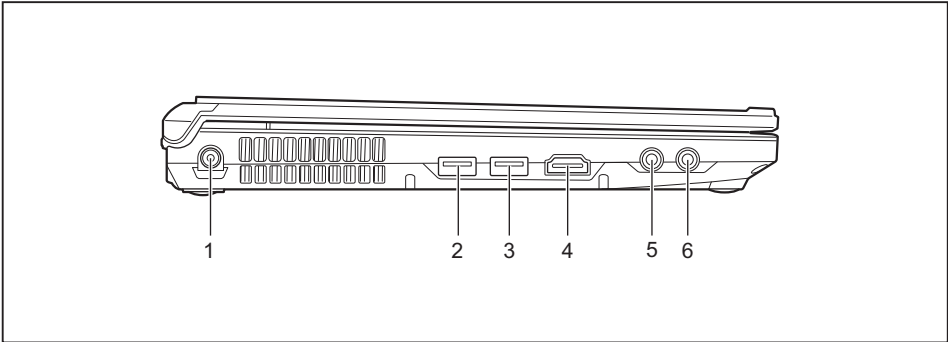
9 = Touchpad buttons

10 = Fingerprint sensor (optional)

11 = Touchpad

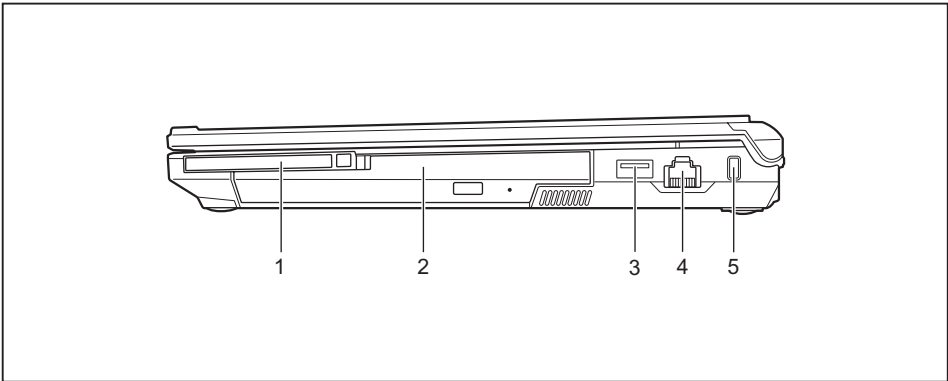
12 = Status indicators

Left side



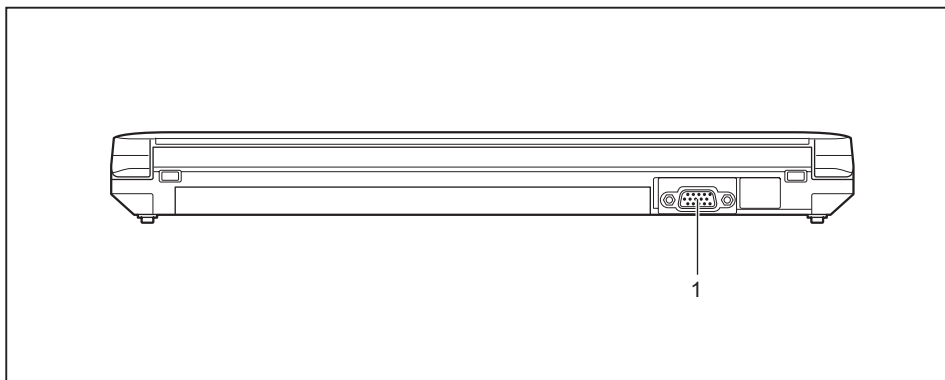
- | | |
|-------------------------------------|------------------------------|
| 1 = DC input connector (DC IN) | 4 = HDMI port |
| 2 = USB port | 5 = Headphones port/Line Out |
| 3 = USB port with charging function | 6 = Microphone port/Line In |

Right side



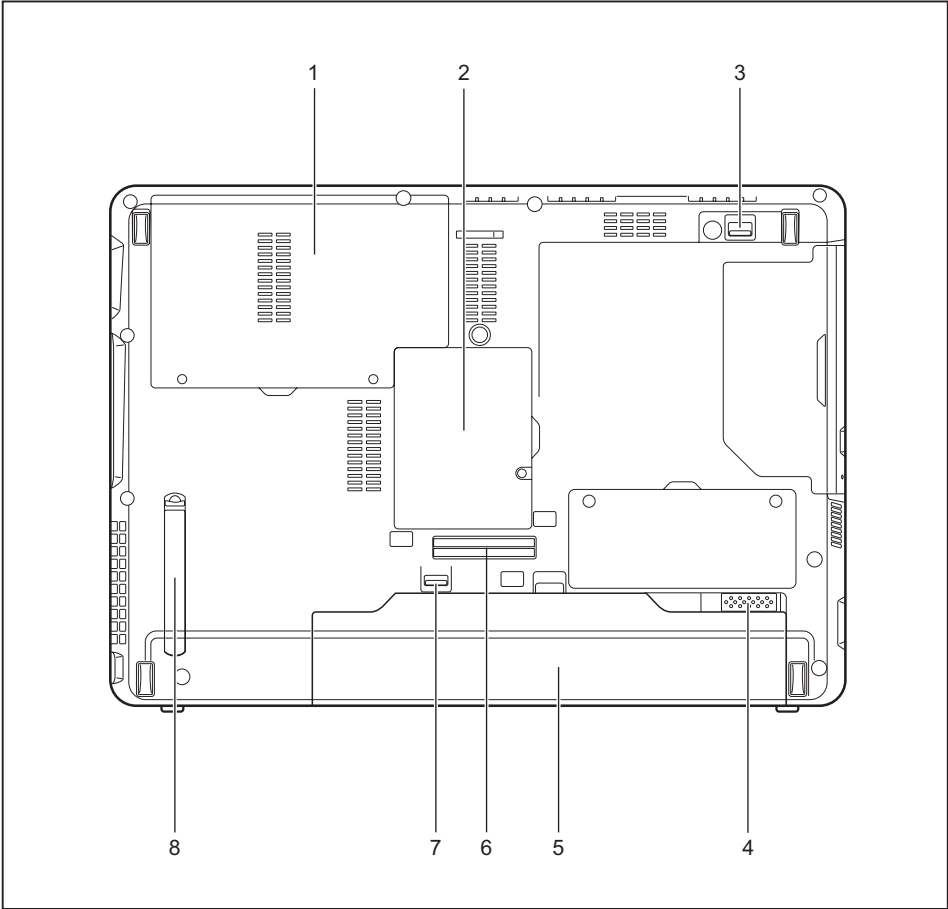
- | | |
|----------------------|---------------------|
| 1 = ExpressCard slot | 4 = LAN port |
| 2 = Optical drive | 5 = Kensington Lock |
| 3 = USB port | |

Rear



1 = VGA monitor port

Bottom



- 1 = Hard disk service compartment
- 2 = Hard disk service compartment
- 3 = Module release
- 4 = Battery release

- 5 = Rechargeable battery
- 6 = Port replicator port
- 7 = Battery release
- 8 = Vent cover

Important notes



This chapter contains essential safety information which must be followed when working with your notebook. Other notes also provide useful information which will help you with your notebook.

Safety notes



Please follow the safety notes provided in the "Safety/Regulations" manual as well as the safety notes given below.

Please pay special attention to the sections in the manual marked with the symbol on the left.

When connecting and disconnecting cables, observe the relevant notes in this operating manual.

Read the information on the ambient conditions in the ["Technical specifications", Page 84](#) and ["First-time setup of your device", Page 16](#) before preparing your notebook for use and switching it on for the first time.

When cleaning the device, please observe the relevant notes in the section ["Cleaning the notebook", Page 15](#).

Pay attention to the additional safety notes for devices with radio components provided in the "Safety/Regulations" manual.

Please refer to the notes in the chapter ["Removing and installing components during servicing", Page 67](#).

This notebook complies with the relevant safety regulations for data processing equipment. If you have questions about using your notebook in a particular area, please contact your sales outlet or our Hotline/Service Desk.

Additional safety notes for devices with radio components

If a radio component (Wireless LAN, Bluetooth, UMTS) is integrated in your notebook, you must be sure to observe the following safety notes when using your notebook:

- Switch off the radio components when you are in an aircraft or driving in a car.
- Switch off the radio components when you are in a hospital, an operating room or near a medical electronics system. The transmitted radio waves can impair the operation of medical devices.
- Switch off the radio components when you let the device get near flammable gases or into hazardous environments (e.g. petrol station, paintshops), as the transmitted radio waves can cause an explosion or a fire.



For information on how to switch radio components on and off, see chapter ["Switching the wireless components on and off", Page 47](#).

Energy saving

Switch the notebook off when it is not in use. Switch off external, connected devices if you are not using them. If you use the energy saving functions, the notebook uses less energy. You will then be able to work for longer before having to recharge the battery.



Energy efficiency is increased and the environmental impact is reduced. You save money while protecting the environment.

Energy saving under Windows

- ▶ Make use of the power management features (see ["Using the power-management features", Page 41"](#)).

Travelling with your notebook

Please observe the points listed below when travelling with your notebook.

Before you travel

- ▶ Back up important data stored on your hard disk.
- ▶ Switch off the radio component for data security reasons. With data traffic via a wireless connection, it is also possible for unauthorised third parties to receive data.



Information on activating data encryption is provided in the documentation for your radio component.

- ▶ If you wish to use your notebook during a flight, first check with the flight attendants if it is OK to do so.

When travelling in other countries

- ▶ If you are travelling abroad, check that the mains adapter can be operated with the local mains voltage. If this is not the case, obtain the appropriate mains adapter for your notebook. Do not use any other voltage converter!
- ▶ Check whether the local mains voltage and the power cable are compatible. If this is not the case, buy a power cable that matches the local conditions.
- ▶ Enquire with the corresponding government office of the country you will be travelling in as to whether you may operate the radio component integrated in your notebook there (see also ["CE marking", Page 87"](#)).

Notebook: transporting



Protect the notebook from severe shocks and extreme temperatures (e.g. direct sunlight in a car).

- ▶ If your device has an optical drive, remove all data media (e.g. CD, DVD) from the drives.
- ▶ Switch the notebook off.
- ▶ Unplug the mains adapter and all external devices from the power socket.
- ▶ Disconnect the mains adapter cable and the data cables for all external devices.
- ▶ Close the LCD screen.
- ▶ To protect against damaging jolts and bumps, use a notebook carrying case to transport your notebook.

Cleaning the notebook



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

Only use cleaning products designed for computers. Normal household cleaners and polishes can damage the markings on the keyboard and the device, the paintwork or the notebook itself.

Ensure that no liquid enters the notebook.

The LCD screen very sensitive to scratches. Only clean the display surface with a very soft, slightly damp cloth.

- ▶ Switch the notebook off.
- ▶ In order to prevent accidentally switching the device on, remove the power cable from the mains adaptor and remove the battery (see ["Removing and installing the battery", Page 34](#)).
- ↳ The surface can be cleaned with a dry cloth. If particularly dirty, use a cloth which has been moistened in mild domestic detergent and then carefully wrung out.
To clean the keyboard and the touchpad, if available, you can use disinfectant wipes.
Ensure that no liquid enters the device.

First-time setup of your device



Please read the chapter ["Important notes", Page 13](#).

If your device is equipped with a Windows operating system, the necessary hardware drivers and supplied software are already pre-installed.

Before you switch on the device for the first time, connect it to the mains voltage using the mains adapter, see ["Mains adapter connecting", Page 17](#). The mains adapter must be connected during the entire installation process.

A system test is performed when your device is first switched on. Various messages can appear. The display may remain dark for a short time or may flicker.

Please follow the instructions on the screen.

NEVER switch off your device during the first-time setup process.

On delivery, the battery can be found in the battery compartment or in the accessories kit. The battery must be charged if you want to operate your device using the battery.

When used on the move, the built-in battery provides the device with the necessary power. You can increase the operating time by using the available energy-saving functions.

For instructions on how to connect external devices (e.g. mouse, printer) to your device, please refer to the operating manual for your device.

Unpacking and checking the device



Should you discover any damage that occurred during transportation, notify your local sales outlet immediately!

- ▶ Unpack all the individual parts.
- ▶ Check your device for any visible damage which may have occurred during transportation.



You may need the packaging in the future, if you need to transport your device.

Selecting a location



Select a suitable location for the device before setting it up. Follow the instructions below when doing so:

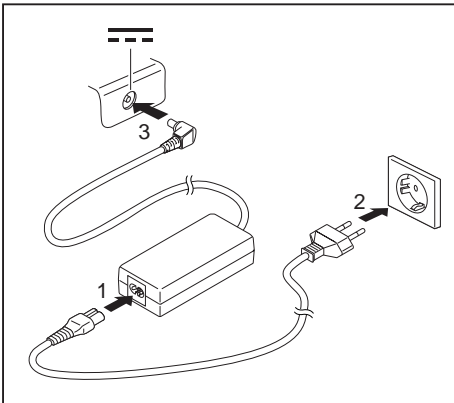
- Never place the device or the mains adapter on a heat-sensitive surface. The surface could be damaged as a result.
- Never place the device on a soft surface (e.g. carpeting, upholstered furniture, bed). This can block the air vents and cause overheating and damage.
- The underside of the device heats up during normal operation. Prolonged contact with the skin may become unpleasant or even result in burns.
- Place the device on a stable, flat, non-slippery surface. Please note that the rubber feet of the device may mark certain types of delicate surfaces.
- Keep other objects at least 100 mm away from the device and its mains adapter to ensure adequate ventilation.
- Never cover the ventilation slots of the device.
- Do not expose the device to extreme environmental conditions. Protect the device from dust, humidity, and heat.

Mains adapter connecting



Observe the safety notes in the enclosed "Safety/Regulations" manual.

The supplied power cable conforms to the requirements of the country in which you purchased your device. Make sure that the power cable is approved for use in the country in which you intend to use it.



- Connect the power cable (1) to the mains adapter.
- Plug the mains cable (2) into a mains outlet.
- Connect the mains adapter cable (3) to the DC jack (DC IN) of the device.

Switching on the device for the first time

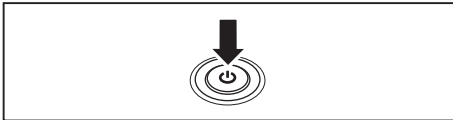


On devices with ON/OFF switch for wireless components: Slide the ON/OFF switch for wireless components to the ON position before switching on the device.

When you switch on the device for the first time, the supplied software is installed and configured. Because this procedure must not be interrupted, you should set aside enough time for it to be fully completed and connect the device to the mains using the mains adapter.

During the installation process, DO NOT restart the device unless you are requested to do so!

To make it easier to use your device for the first time, the operating system is pre-installed on the hard disk.



► Switch on your device.

► During installation, follow the instructions on screen.



If a Windows operating system is installed on your device, you will find more information on the system and drivers, help programmes, updates, manuals etc. on the device or on the Internet at ["http://ts.fujitsu.com/support"](http://ts.fujitsu.com/support).

Working with the notebook

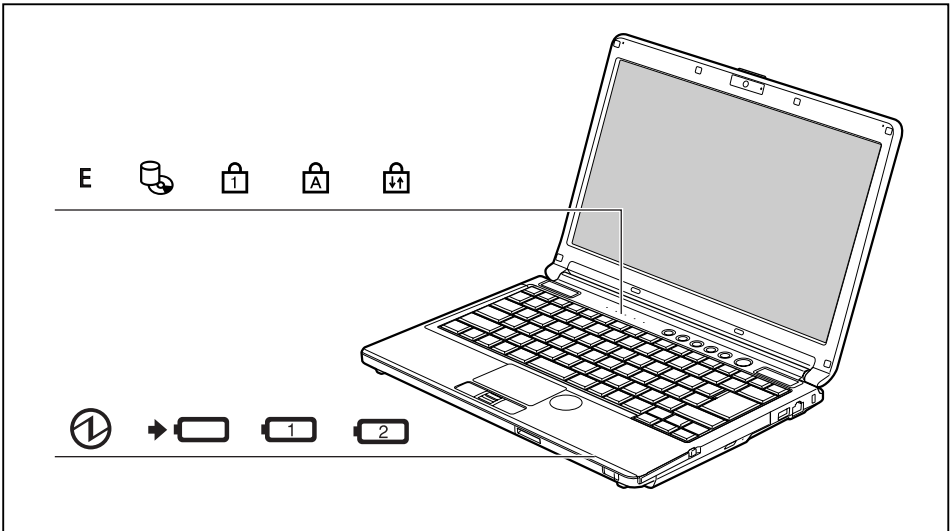
This chapter describes the basics for operating your notebook. Please read the chapter entitled ["Connecting external devices", Page 60](#) for instructions on how to connect devices such as a mouse and a printer to the notebook.



Please refer to the notes in ["Important notes", Page 13](#).


Status indicators


The status indicators provide information about the status of the power supply, the drives and the keyboard functions.



Power-on indicator

| | |
|-----------------------|--|
| Indicator is lit | The notebook is switched on. |
| Indicator is flashing | The notebook is in power saving mode. |
| Indicator is not lit | The notebook is switched off or is in Save-to-Disk mode. |

|  Battery charging indicator | | |
|---|-------------------------------------|--|
| Indicator is lit | Green: | The mains adapter is connected and the battery or batteries installed is/are fully charged. |
| | Orange: | The mains adapter is connected and the battery or batteries installed is/are being charged. |
| Indicator is flashing | Orange: | The mains adapter is connected and the battery or batteries installed cannot be charged (the battery is too hot for charging). |
| Indicator is not lit | The mains adapter is not connected. | |

|  First battery indicator | | |
|--|-------------------------------------|---|
| Indicator is lit | Green: | The mains adapter is connected and the first battery is being charged. The first battery is charged to between 50% and 100% of maximum capacity. |
| | Amber: | The mains adapter is connected and the first battery is being charged. The first battery is charged to between 13% and 49% of maximum capacity. |
| | Red: | The mains adapter is connected and the first battery is being charged. The first battery is charged to between 0% and 12% of maximum capacity. |
| Indicator flashing quickly (1s on / 1 s off) | Red: | The first battery is faulty. |
| Indicator flashing slowly (1s on / 5 s off) | Green: | The notebook is in suspend mode and power is being supplied by the first battery. The first battery is charged to between 50% and 100% of maximum capacity. |
| | Amber: | The notebook is in suspend mode and power is being supplied by the first battery. The first battery is charged to between 13% and 49% of maximum capacity. |
| | Red: | The notebook is in suspend mode and power is being supplied by the first battery. The first battery is charged to between 0% and 12% of maximum capacity. |
| Indicator is not lit | The first battery is not installed. | |

**Second battery indicator**

| | | |
|--|--------------------------------------|---|
| Indicator is lit | Green: | The mains adapter is connected and the second battery is being charged. The second battery is charged to between 50% and 100% of maximum capacity. |
| | Amber: | The mains adapter is connected and the second battery is being charged. The second battery is charged to between 13% and 49% of maximum capacity. |
| | Red: | The mains adapter is connected and the second battery is being charged. The second battery is charged to between 0% and 12% of maximum capacity. |
| Indicator flashing quickly (1s on / 1 s off) | Red: | The second battery is faulty. |
| Indicator flashing slowly (1s on / 5 s off) | Green: | The notebook is in suspend mode and power is being supplied by the second battery. The second battery is charged to between 50% and 100% of maximum capacity. |
| | Amber: | The notebook is in suspend mode and power is being supplied by the second battery. The second battery is charged to between 13% and 49% of maximum capacity. |
| | Red: | The notebook is in suspend mode and power is being supplied by the second battery. The second battery is charged to between 0% and 12% of maximum capacity. |
| Indicator is not lit | The second battery is not installed. | |

**Energy saving function indicator**


| | |
|----------------------|--|
| Indicator is lit | The energy saving functions are enabled (e.g. reduced screen brightness) |
| Indicator is not lit | The energy saving functions are disabled. |


**Drive indicator**

| | |
|----------------------|---|
| Indicator is lit | The hard disk drive or the CD/DVD in the optical drive of the notebook is being accessed. |
| Indicator is not lit | The hard disk drive or the CD/DVD in the optical drive of the notebook is not currently being accessed. |

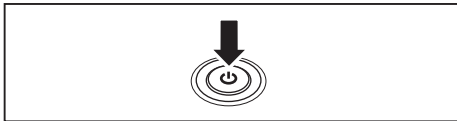
**Num Lock indicator**

| | |
|----------------------|---|
| Indicator is lit | The [Num] key has been pressed. The virtual numerical keypad is activated. You can output the characters indicated on the upper right of the keys. |
| Indicator is not lit | The [Num] key has not been pressed. The virtual numerical keypad is not active. |

| | |
|--|--|
|  Caps Lock indicator | |
| Indicator is lit | The Caps Lock key has been pressed. All the characters you type will appear in upper case. In the case of overlay keys, the character printed on the upper left of the key will appear when that key is pressed. |
| Indicator is not lit | The Caps Lock function is not activated. |

| | |
|--|---|
|  Scroll Lock indicator | |
| Indicator is lit | The key combination [Fn] + [Scr] has been pressed. The effect of this varies between applications. |
| Indicator is not lit | The key combination [Fn] + [Scr] has not been pressed. |

Switching on the notebook



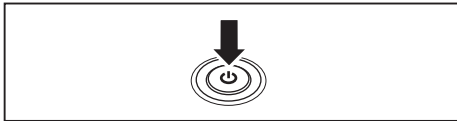
↳ The power-on indicator is lit.

- ▶ Open the LCD screen.
- ▶ Press the ON/OFF switch for about one second to switch the notebook on.

Notebook: switching off



Back up your data and close all applications before you switch off your device. Otherwise data might be lost.



- ▶ Shut down the operating system properly (e. g. from the Windows *Start* menu, by clicking on *Start – Shut Down – OK*).
- ▶ If the notebook is not switched off automatically, press the ON/OFF switch for approx. five seconds.
- ▶ Close the LCD screen.

Keyboard



The keyboard of your notebook is subject to continuous wear through normal use. The key markings are especially prone to wear. The key markings are liable to wear away over the life of the notebook.

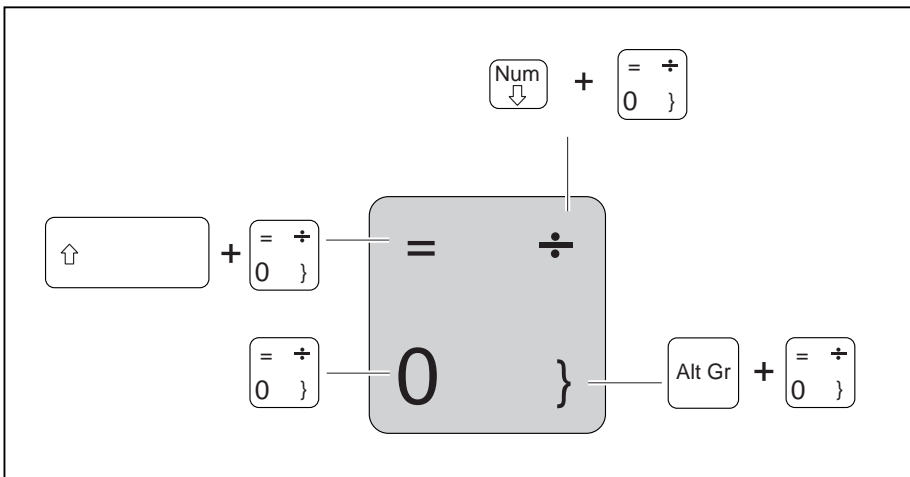
The keyboard has been designed to provide all the functions of an enhanced keyboard. Some enhanced keyboard functions are mapped with key combinations.







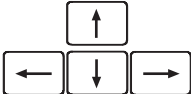


The following description of keys refers to Windows. Additional functions supported by the keys are described in the relevant manuals supplied with your application programs.

The figure below shows how to access the different characters on keys with overlaid functions. The example applies when the Caps Lock key has not been activated.



The illustrations shown below may differ from your actual device.



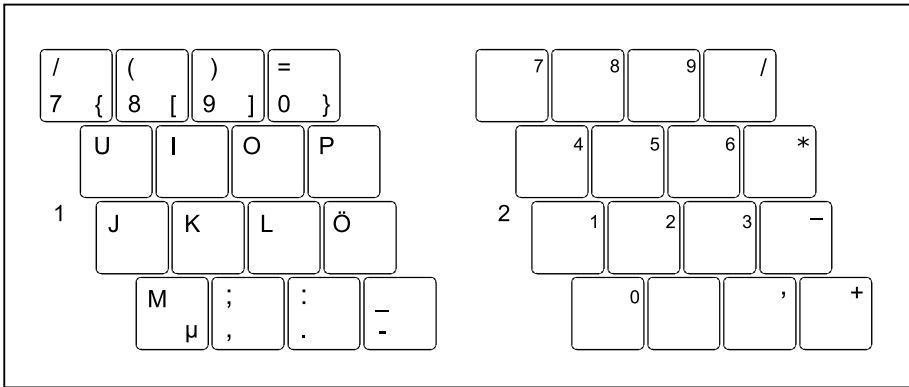
| Key | Description |
|--|--|
|  | Backspace key The Backspace key deletes the character to the left of the cursor. |
|  | Tab key The Tab key moves the cursor to the next tab stop. |
|  | Enter key (return) The Enter key terminates a command line. The command you have entered is executed when you press this key. |
|  | Caps Lock key The Caps Lock key activates the Caps Lock mode, and the corresponding icon is displayed in the Windows information area. In Caps Lock mode, all of the characters you type appear in upper case. In the case of overlay keys, the character printed on the upper left of the key will appear when that key is pressed. To cancel the Caps Lock function, simply press the Caps Lock key again. |
|  | Shift key The Shift key causes uppercase characters to appear. In the case of overlay keys, the character printed on the upper left of the key appears when that key is pressed. |
|  | Fn button The [Fn] key enables the special functions indicated on overlay keys (see "Key combinations", Page 26). |
|  | Cursor keys The cursor keys move the cursor in the direction of the arrow, i.e. up, down, left, or right. |
|  | Start key The Start key opens the Windows Start menu. |
|  | Menu key The Menu key invokes the menu for the marked item. |

Virtual numeric keypad

To provide the convenience of a numeric keypad, your keyboard is equipped with a virtual numeric keypad. The special keys of the virtual numeric keypad are recognisable by the numbers and symbols printed in the upper right corner of each key. If you have switched on the virtual numeric keypad, you can output the characters shown on the upper right of the keys.

i

The keyboard layout shown below may differ from your actual device.



1 = Valid characters when the ☐ Num key is not activated

2 = Valid characters when the ☐ Num is activated

Further information about the status indicators can be found in chapter ["Status indicators", Page 19.](#)

Key combinations

















The following description of key combinations refers to functions when using Microsoft Windows. Some of the following key combinations may not function in other operating systems and with some device drivers.






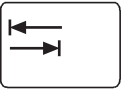





Key combinations are entered as follows:

- ▶ Press and hold the first key in the combination.
- ▶ While holding the first key down, press the other key or keys in the combination.



The key combination **Ctrl** + **Alt Gr** or **Ctrl** + **Alt** can be used on external keyboards that do not feature a **Fn** key.

| Combination | Description |
|--|--|
|  +  | Sleep mode This key combination is used to activate the suspend mode (S3). |
|  +  | Enable/disable loudspeakers This key combination switches your notebook's loudspeakers off and on. |
|  +  | Switching the touchpad on/off This key combination enables and disables the touchpad. |
|  +  | Enlarge display This key combination enlarges the screen to the full-screen mode or switches it back to the normal mode. |
|  +  | Decrease screen brightness This key combination decreases the brightness of the screen. |
|  +  | Increase screen brightness This key combination increases the brightness of the screen. |
|  +  | Decrease volume This key combination reduces the volume of the integrated loudspeakers. |
|  +  | Volume increase This key combination raises the volume of the integrated loudspeakers. |

| Combination | Description |
|---|--|
|  +  | Toggle output screen If an external monitor is connected, the monitor on which the output is to be displayed can be selected with this key combination. You can opt to use: <ul style="list-style-type: none"> • just the notebook's LCD screen • just the external monitor • both the LCD screen and the external monitor |
|  +  | Halt current operation This key combination can be used to halt an operation instantly without clearing the keyboard buffer. |
|  +  | Switch between open applications With this key combination you can switch between several open applications. |
|  +  +  | Windows Security/Task Manager This key combination opens the Windows Security/Task Manager window. |
|  +  | Back tab This key combination moves the cursor back to the previous tabular stop. |



Key combinations using the Windows keys are detailed in the manual for your operating system.

Country and keyboard settings

If you want to change the country and keyboard settings, proceed as follows:

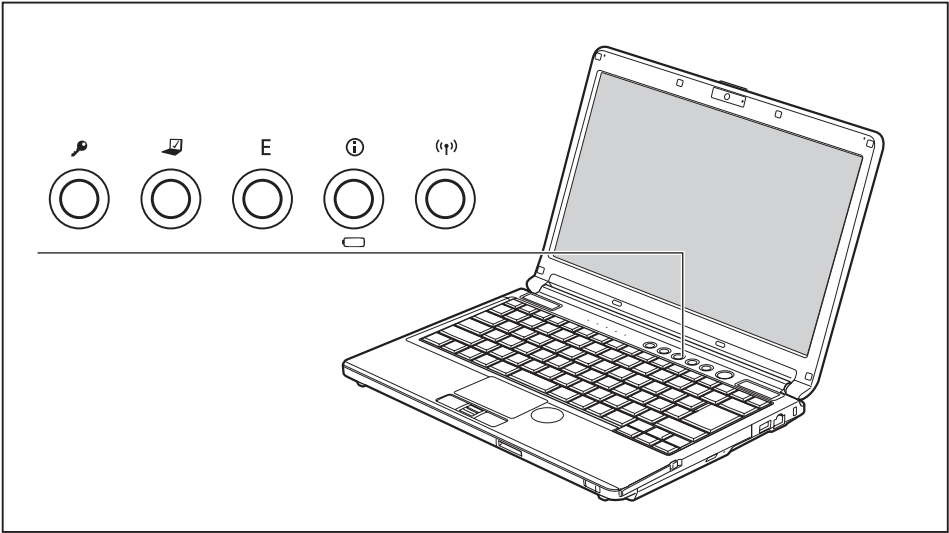
- Enter the settings by clicking *Start – (Settings) – Control Panel – Time, Regional and Language Options*.




Application keys

Your notebook is equipped with five application keys.



All application buttons are freely programmable, see ["Programming the application keys", Page 29](#).



| Button | Description |
|--|--|
|  | Lock Workstation key This key allows you to lock your workstation. |
|  | Mobility Center key This button starts the Mobility Center. |
| E | E key The E key is a simple way of activating and deactivating power management functions (e.g. reduce screen brightness), see "Using the power-management features", Page 41. |
|  | I key With the I key, you can obtain further information about your notebook. Press this button while in S5 mode to display the remaining battery power indicator: <ul style="list-style-type: none">• Red: Minimum battery power• Amber: Medium battery power• Green: Medium to full battery power |
| (⇧) | Wireless Components key This application key is used to start the <i>WirelessSelector</i> software. The wireless components that have been activated in the <i>BIOS Setup</i> can be switched on and off individually. |

Programming the application keys

With the *Application Panel* you can assign various functions to the application keys.

Windows XP

You will find the *Application Panel* under *Start - (Settings) - Control Panel - Additional Control Panel Options - Application Panel*.

Windows Vista and Windows 7:

You will find the *Application Panel* under *Start symbol - Programs - Lifebook Application Panel*.

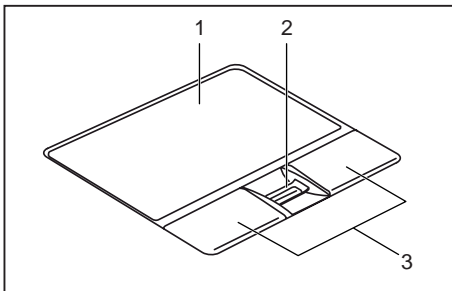
Touchpad and touchpad buttons



Keep the touchpad clean. Protect it from dirt, liquids and grease.

Do not use the touchpad if your fingers are dirty.

Do not rest heavy objects (e.g. books) on the touchpad or the touchpad buttons.



1 = Touchpad

2 = Fingerprint sensor (optional)

3 = Touchpad buttons

The touchpad enables you to move the mouse pointer on the screen.

The touchpad buttons allow you to select and execute commands. They correspond to the buttons on a conventional mouse.



You can use a key combination to disable the touchpad, to avoid accidentally moving the pointer on the screen (see also ["Key combinations", Page 26](#)).

Moving the pointer

► Move your finger on the touchpad.

↳ The pointer will move.

Selecting an item

- ▶ Move the pointer to the item you wish to select.
- ▶ Tap the touchpad once or press the left button once.
- ↳ The item is selected.

Executing commands

- ▶ Move the pointer to the field you wish to select.
- ▶ Tap the touchpad twice or press the left button twice.
- ↳ The command is executed.

Dragging items

- ▶ Select the desired item.
- ▶ Press and hold the left button and drag the item to the desired position with the finger on the touchpad.
- ↳ The item will be moved.

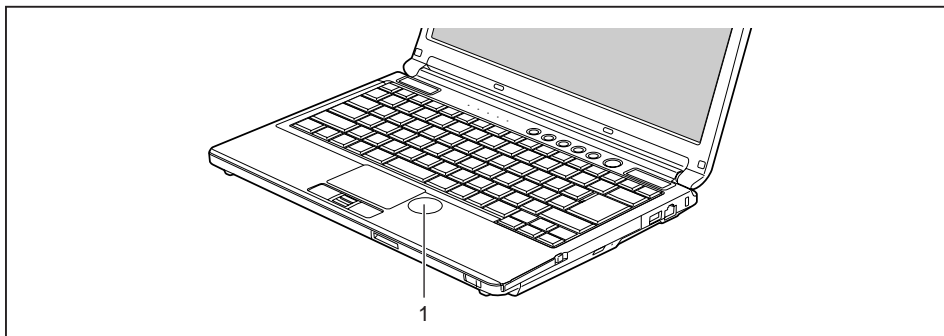
Switching the Touchpad on and off



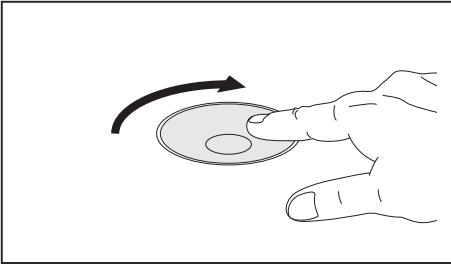
You can switch the Touchpad on and off using a key combination, see ["Key combinations", Page 26](#).

ScrollWheel

The ScrollWheel (1) is an innovative and extremely convenient control. The ScrollWheel allows you to scroll up or down in the active window (e.g. on a website) or forwards and backwards in a document with a single finger movement. It makes it very easy for you to display and read websites, documents and the content of windows.

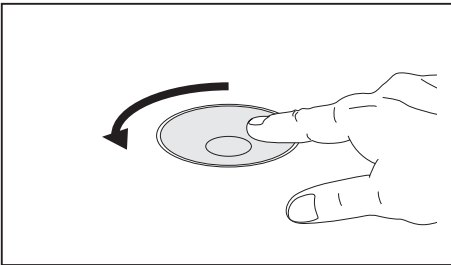


Scrolling downwards or forwards



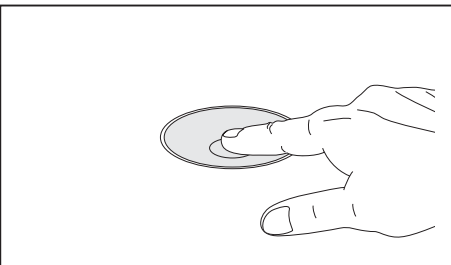
- ▶ Move the cursor to the window you wish to select.
- ▶ Move your finger clockwise on the ScrollWheel.
- ↳ You will scroll downwards or forwards.

Scrolling upwards or backwards



- ▶ Move the cursor to the window you wish to select.
- ▶ Move your finger anticlockwise on the ScrollWheel.
- ↳ You will scroll upwards or backwards.

Back one page in Web browser



- ▶ Tap the centre of the ScrollWheel.
- ↳ The Web browser returns to the previous page displayed.

LCD screen

High-quality TFT displays are installed in notebooks from Fujitsu Technology Solutions GmbH. For technical reasons, TFT monitors are manufactured for a specific resolution. An optimal, clear picture can only be ensured with the correct resolution intended for the relevant TFT monitor. A monitor resolution which differs from the specification can result in an unclear picture.

The screen resolution of the LCD monitor of your notebook is optimally set at the factory.

The standard of production techniques today cannot guarantee an absolutely fault-free screen display. A few isolated constant lit or unlit pixels (picture elements) may be present. The maximum permitted number of pixels faults is stipulated in the international standard ISO 9241-3 (Class II).

Example:

A monitor with a resolution of 1280 x 800 has $1280 \times 800 = 1024000$ pixels. Each pixel consists of three subpixels (red, green and blue), so there are almost 3 million subpixels in total. According to ISO 9241-3 (class II), a maximum of 2 light and 2 dark pixels and an additional 5 light or 10 dark subpixels or a corresponding mix may be defective (1 light subpixel counts as 2 dark subpixels).

| | |
|----------|--|
| Pixel | A pixel consists of 3 subpixels, normally red, green and blue. A pixel is the smallest element that can be generated by complete functionality of the display. |
| Subpixel | A subpixel is a separately addressable internal structure within a pixel that enhances the pixel function. |
| Cluster | A cluster contains two or more defective pixels or subpixels in a 5 x 5 pixel block. |

Background lighting

TFT monitors are operated with background lighting. The luminosity of the background lighting can decrease during the period of use of the notebook. However, you can set the brightness of your monitor individually.

Synchronising the display on the LCD screen and an external monitor

For more information, please refer to the chapter ["Key combinations", Page 26](#) under "Display output, switch between".

Webcam



Depending on the device variant, a WebCam may be integrated in your notebook.

Depending on the software used, you can use your Webcam to take pictures, record video clips or take part in web chats.

- The picture quality depends on the lighting conditions and the software being used.
- You can only operate the webcam with a particular application (e.g. an Internet telephony program or a video conferencing program which supports a webcam).
- When using the webcam the notebook support must not wobble.
- The webcam automatically adjusts itself to the current light level. For this reason the LCD screen may flicker while the light level is adjusted.



Further information on using the webcam and on the additional settings which are possible for your webcam can be found in the help function of the program which uses the webcam.

If you wish to carry out a function test with your webcam, you can use the corresponding test software available at ["http://ts.fujitsu.com/support/"](http://ts.fujitsu.com/support/).

Rechargeable battery

When not plugged into a mains socket, the notebook runs on its built-in battery. You can increase the life of the battery by caring for the battery properly. The average battery life is around 500 charge/discharge cycles.

You can extend the battery life by taking advantage of the available energy saving functions.

Charging, caring for and maintaining the battery

The notebook battery can only be charged, when the ambient temperature is between 5°C and max. 35°C.

You can charge the battery by connecting the notebook to the mains adapter (see ["Mains adapter connecting", Page 17](#)).

If the battery is running low you will hear a warning alarm. If you do not connect the mains adapter within five minutes of the warning alarm described above, your notebook will automatically switch off.

monitoring the battery charging level

Windows also has a "Battery status meter" in the taskbar for monitoring the battery capacity. When you place the mouse pointer on the battery symbol, the system displays the battery status.

Battery storage

Keep the battery pack between 0°C and +30°C. The lower the temperature at which the batteries are stored, the lower the rate of self-discharge.



If you will be storing batteries for a longer period (longer than two months), the battery charge level should be approx. 30 %. To prevent exhaustive discharge which would permanently damage the battery, check the level of charge of the battery at regular intervals.

To be able to make use of the optimal charging capacity of the batteries, the battery should be completely discharged and then fully recharged.



If you do not use the batteries for long periods, remove them from the notebook. Never store the batteries in the device.

Removing and installing the battery



Only use rechargeable batteries approved by Fujitsu Technology Solutions for your notebook.

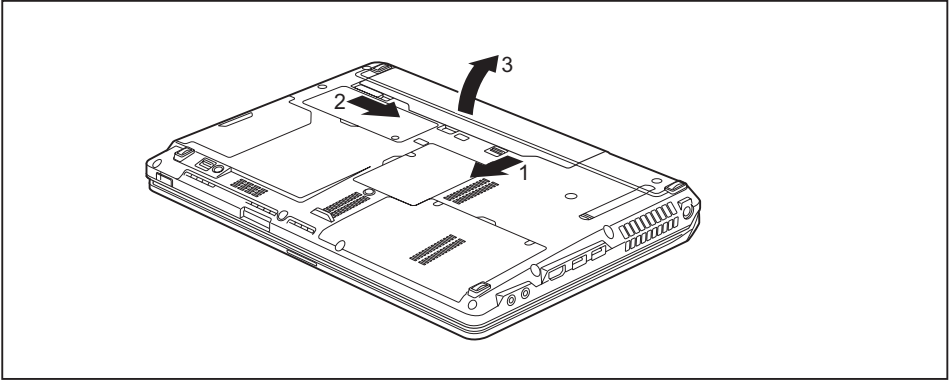
Never use force when fitting or removing a battery.

Make sure that no foreign bodies get into the battery connections.

Never store a battery for longer periods in the discharged state. This can make it impossible to recharge.

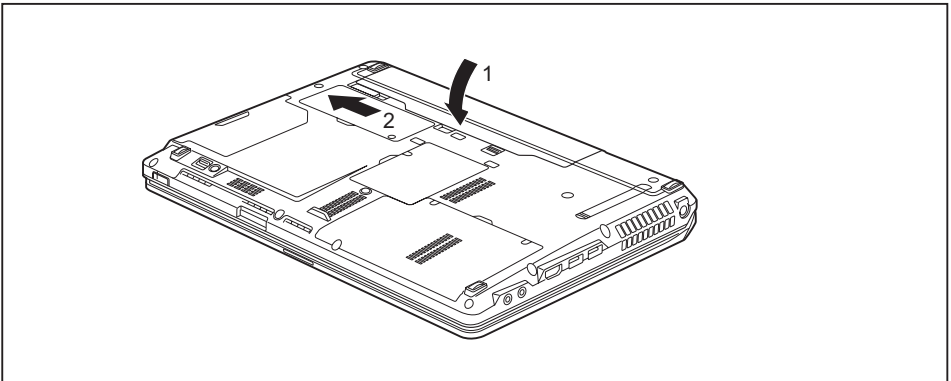
Removing a battery

- ▶ Prepare for removal, see chapter ["Preparing to remove components", Page 68.](#)



- ▶ Slide the release button in the direction of the arrow (1) and hold it in place.
- ▶ Slide the release button in direction of the arrow (2).
- ▶ Remove the battery from the battery compartment (3).

Installing a battery



- ▶ Position the battery at the edge.
- ▶ Insert the battery into the battery compartment until it engages positively (1).
- ▶ Slide the release button in the direction of the arrow (2).
- ▶ Complete the removal, see chapter ["Finishing component removal", Page 73.](#)

Module

The design of your notebook enables the flexible use of notebook batteries and drives. The following modules can be operated in the module bay of your notebook:

- Second battery
- Optical drive
- Empty plug-in unit (save weight)



Only use modules designed for your notebook.

Do not use force when installing or removing the module.

Make sure that no foreign objects enter the module bay.

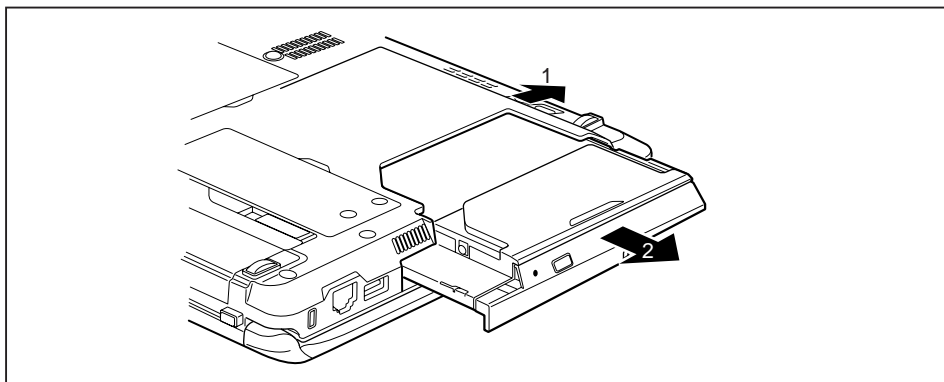


You can swap modules during operation. This means you do not need to switch off the notebook.

To replace a module, simply click on the corresponding icon in the task bar and then on *Exit* or *Select - Exit*.

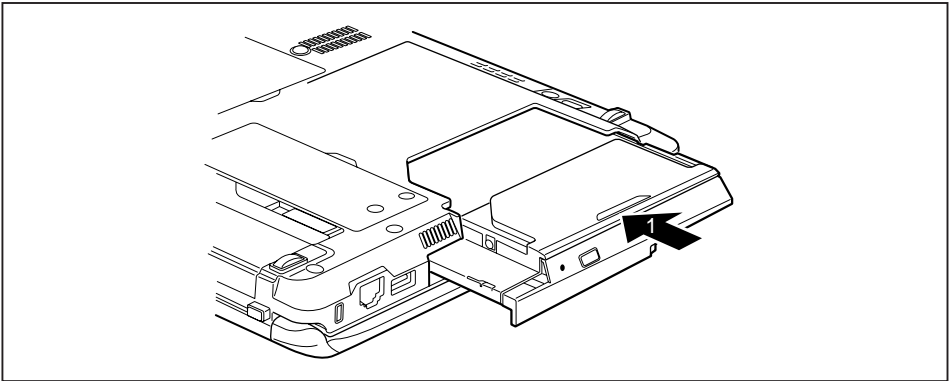
The module can now be removed without any further actions being necessary.

Removing a module



- ▶ Slide the release mechanism (1) in the direction of the arrow and hold.
- ▶ Now pull the module (2) out of the module bay.

Installing a module



- ▶ Place the module into the module bay so that the contacts enter first.
- ▶ Push the module into the module bay until you feel it locking into place.

Optical drive



This product contains a light emitting diode, classified in accordance with IEC 8251:1993: LASER CLASS 1, and must therefore not be opened.

Handling data carriers

Observe the following guidelines when handling data carriers:

- Avoid touching the surface of a data carrier. Only handle data carriers by their edges.
- Always store data carriers in their cases. This will protect the data carrier against being covered in dust, scratched or damaged in any other way.
- Protect your data carriers against dust, mechanical vibrations and direct sunlight.
- Avoid storing a data carrier in areas subject to high temperatures or humidity.

You may use both 8-cm and 12-cm data carriers in the optical drive.

When using a data carrier of lesser quality, vibrations and reading errors may occur.

CD/DVD indicator

The CD/DVD indicator flashes when a data carrier is inserted. The indicator goes out when the drive is ready for reading. The indicator lights up when the drive is being accessed. You may only remove the data carrier when the indicator is unlit.

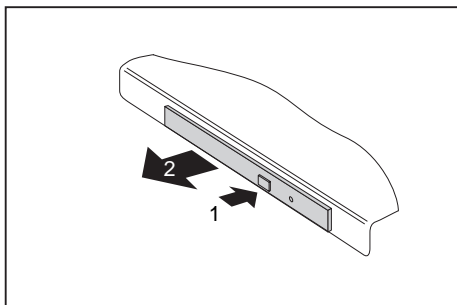


If the CD/DVD indicator does not go out after a data carrier has been inserted, but instead continues to flash, this means that the drive cannot access the data carrier.

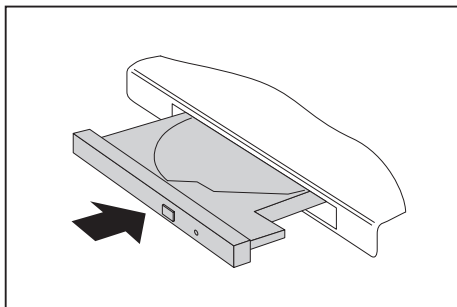
Either the data carrier is damaged or dirty or you are using a data carrier that the drive cannot read.

Inserting or removing a data carrier

The notebook must be switched on.



- ▶ Push the insert/eject button (1).
- ↳ The drive tray will open.
- ▶ Gently pull the drive tray (2) completely out.



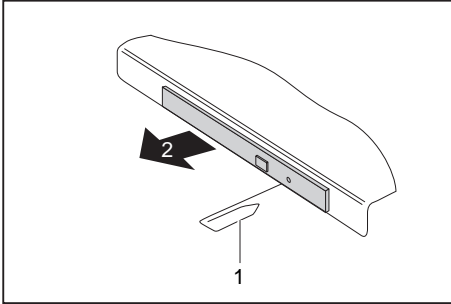
- ▶ Place the data carrier in the drive tray with the printed side facing upwards.

or

- ▶ Remove a data carrier that has been inserted.
- ▶ Push in the drive tray until you feel it lock into place.

Manual removal (emergency removal)

In the event of a power failure or damage to the drive, you can remove the data carrier manually.



- ▶ Switch your notebook off.
- ▶ Push a pen or a piece of wire (such as a paperclip) firmly into the opening (1).
- ↳ The drive tray is ejected. You can now pull the drive tray (2) out of the drive.

Removing and fitting the dust removal cover (ventilation slot cover)



In order to ensure optimum cooling of the components in your notebook, you should periodically clean the ventilation slot of the heatsink.

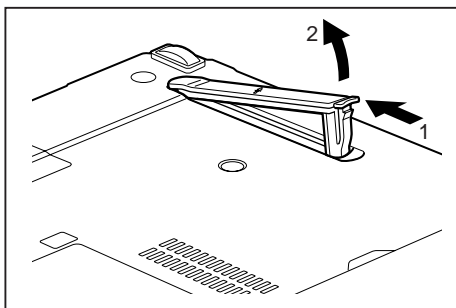
This ensures optimum fan performance. You can achieve the best cleaning results with a small hand-held vacuum cleaner.

If necessary, you can also use a dry brush to release dust from the ventilation slots.

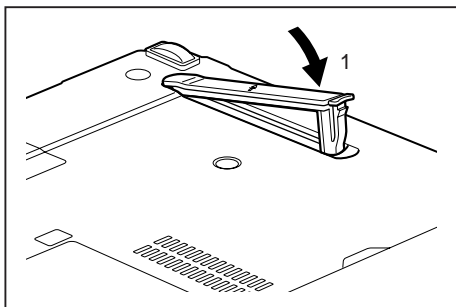
Do not use any cleaning liquids! Ensure that no liquid enters the device.

To avoid overheating of the device, do not remove the ventilation slot cover when the device is switched on.

- Prepare for removal, see chapter ["Preparing to remove components", Page 68](#).



- Press and hold the lock of the ventilation slot cover (1) and remove it from its slot (2).
- Clean the dust chamber with a dry brush.



- Insert the ventilation slot cover into the slot (1) at an angle as shown, and ensure that you feel it click into place.
- Complete the removal, see chapter ["Finishing component removal", Page 73](#).

Using the power-management features

The notebook uses less power when the available power-management features are used. You will then be able to work longer when using the battery before having to recharge it.



Power efficiency is increased and environmental pollution reduced. By choosing the best power options, you can make significant savings and at the same time help protect the environment.

When you close the LCD screen, depending on the setting in Windows, the notebook automatically enters a power saving mode.

We recommend the following settings:

| Function | On external power | On battery power |
|-----------------------|-------------------|------------------|
| Turn off monitor | After 10 minutes | After 5 minutes |
| Turn off hard disk(s) | After 15 minutes | After 10 minutes |
| Energy saving (S3) | After 20 minutes | After 15 minutes |
| Hibernate mode (S4) | After 1 hour | After 30 minutes |

- ▶ Select the power management functions in your Control Panel.
- ▶ Select the Screen Saver in your Control Panel.

or

- ▶ Right-click on the desktop. Switch on the screen saver by clicking *Personalization – Change screen saver*.



If you need further information about an option, you can get help with most settings by pressing **F1** to open the Microsoft Help.

When the notebook is in power-saving mode, the following must be remembered:



During power saving mode, open files are held in the main memory or in a swap file on the hard disk.

Never turn off your notebook while it is in a power saving mode. If the built-in battery is nearly empty, close the open files and do not go into power saving mode.

If you do not intend to use your notebook for a long period of time:

- ▶ Exit power saving mode if necessary via the mouse or keyboard or by switching on the notebook.
- ▶ Close all opened programs and completely shut down the notebook.

Memory cards

Your notebook is equipped with an integrated memory card reader.



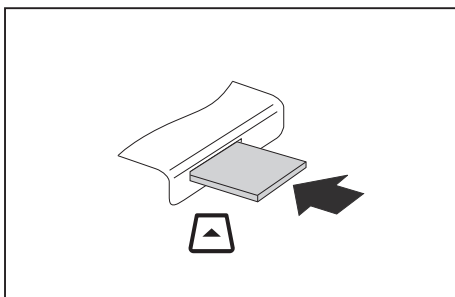
Observe the manufacturer's instructions when handling the memory cards.

Supported formats

Your notebook supports the following format:

- SD Memory card

Inserting the memory card



- ▶ Carefully slide the memory card into the slot. The label should be facing upward. Do not apply excessive force, as otherwise the delicate contact surfaces could be damaged.
- ↳ Depending on the particular type used, the memory card may protrude slightly from the slot.

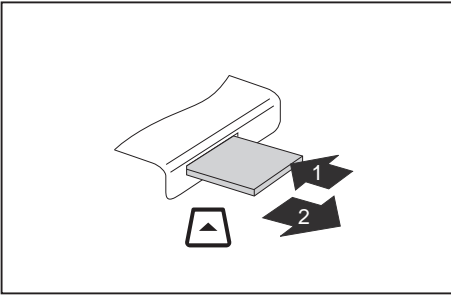
Removing the memory card



In order to protect your data, always follow the correct procedure for removing the card outlined below.

You can stop the memory card via the corresponding icon in the task bar:

- ▶ Left-click on the icon.
 - ▶ Select the card you want to stop and remove.
 - ▶ Press the Enter key.
 - ↳ Wait for the dialogue box which tells you that it is now safe to remove the memory card.
- ▶ On devices with card locking: Press on the storage card (1).
 - ↳ The storage card is released and can now be removed.
 - ▶ Pull the storage card out of the slot (2).



ExpressCards

An ExpressCard slot enables operation of an ExpressCard/34 or ExpressCard/54.



Consult the documentation supplied by the ExpressCard's manufacturer and follow the instructions provided.

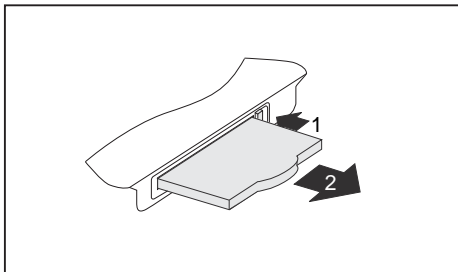
Never use force when installing or removing an ExpressCard.

Make sure that no foreign objects enter the ExpressCard slot.

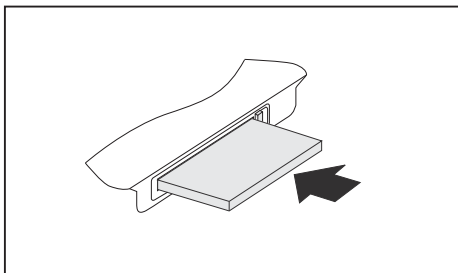
Inserting the card



Keep the placeholder for the slot in a safe place. When you remove the card again you must reinstall the placeholder. This prevents foreign bodies from getting into the slot.



- ▶ If the eject button (1) is recessed, press it once so that it disengages. Now press the eject button again so that the placeholder protrudes slightly from the notebook.
- ▶ Pull the card placeholder out of the slot (2).



- ▶ Insert the card into the slot guide with the connection contacts first.
- ▶ Gently push the card into the slot either until it will go no further or you feel it engage. Do not use excessive force. Depending on the type, the card may protrude slightly from the slot.



Please see the documentation relating to the card for driver installation instructions.

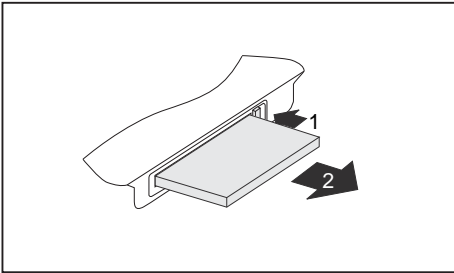
Removing the card



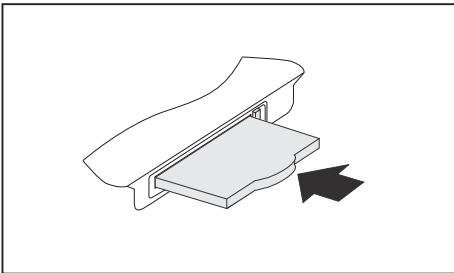
Always remove the card according to the rules described below, to ensure that none of your data is lost.

You can stop the card using the corresponding icon in the task bar:

- ▶ Left click on the icon to safely remove hardware, located in the taskbar.
- ▶ Select the card you want to stop and remove.
- ▶ Press the "Enter" key.
- ↳ Wait for the dialog box which tells you that it is now safe to remove the card.



- ▶ If the eject button is lowered, you must first cause the eject button to release from the notebook casing. To do this, press the eject button (1) so that the card protrudes a little from the notebook.
- ▶ Pull the card out of the slot (2).



- ▶ Insert the card placeholder into the slot guide.
- ▶ Carefully slide the placeholder for the card as far as it will go into the slot. Do not use excessive force.

Loudspeakers and microphones

Information on the exact position of the speakers and microphone can be found in ["Ports and controls", Page 9](#).

Please refer to chapter ["Key combinations", Page 26](#) for information on setting the volume and also enabling/disabling the loudspeakers using key combinations.



If you attach an external microphone, the built-in microphone is disabled.

When you connect headphones or external speakers, the built-in speakers are disabled.

Information on connecting headphones and a microphone can be found in ["Connecting external devices", Page 60](#).

SIM card



Whether or not your device has a SIM card slot depends on whether or not you have ordered UMTS functionality.

A SIM Card (Subscriber Identity Module) is a chip card which is inserted in a mobile telephone or notebook to enable access to a mobile radio network in conjunction with an installed UMTS module.

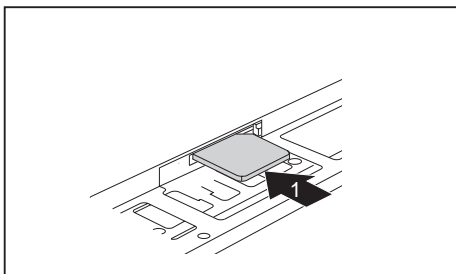


Follow the instructions supplied by the provider of the SIM card.

The SIM card slot is located in the battery compartment and can only be accessed when the battery is removed.

Inserting the SIM card

- Prepare for installation of the SIM card, see chapter ["Preparing to remove components", Page 68.](#)

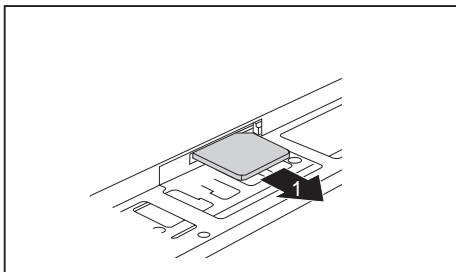


- Slide the SIM card into the slot (1) until it is felt to engage, as shown in the battery compartment.

- Complete the installation, see chapter ["Finishing component removal", Page 73.](#)

Removing the SIM card

- Prepare for removal of the SIM card, see chapter ["Preparing to remove components", Page 68.](#)



- Press on the edge of the SIM card so that it jumps up slightly out of the slot.
- Pull the SIM card out of the slot in the direction of the arrow (1).

- Complete the removal, see chapter ["Finishing component removal", Page 73.](#)

Optional wireless components Wireless LAN / BlueTooth / UMTS



The installation of radio components not approved by Fujitsu Technology Solutions will invalidate the certifications issued for this device.

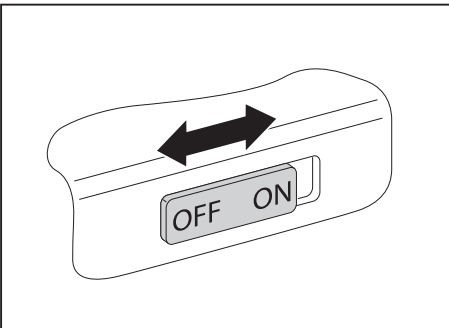


Depending on the device configuration you ordered, your device will be equipped with Wireless LAN, Bluetooth and / or UMTS.

Switching the wireless components on and off



Before you switch on your device for the first time, the ON/OFF switch for wireless components must be in the "ON" position.



- ▶ Slide the ON/OFF switch into the "ON" position to activate the radio components.
- or
- ▶ Slide the ON/OFF switch to the "OFF" position to switch off the wireless components.



The Bluetooth and UMTS modules and the wireless LAN transmission unit (antenna) will all be switched off when you switch off the wireless components.

You can also deactivate wireless components individually in the *BIOS Setup*. This presupposes that you have either not assigned a supervisor password or, if a supervisor password has been assigned, that you know what this password is.

Pay attention to the additional safety notes for devices with radio components provided in the "Safety/Regulations" manual.

Details on using a wireless LAN can be found in the online help system included in the wireless LAN software.

You can find more information on how to use Bluetooth on the CD you received with your Bluetooth software.

You can obtain more information on UMTS from your service provider.

Configuring WLAN access

- Requirement: WLAN is available and you have the necessary access data to hand.



Information on configuring WLAN access can be found in the documentation for your operating system.

Access via UMTS

If you ordered an integrated UMTS module with your system, you can enjoy optimum reception and maximum energy efficiency without awkward cables or antennas. The optional UMTS module is ready for use straight away.

If you did not order a UMTS module, you can purchase the accessories required to receive UMTS signals from your Fujitsu Technology Solutions dealer or other specialist dealer.

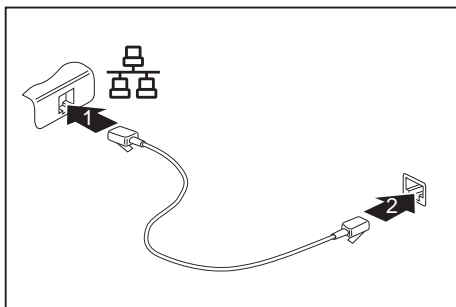
You will find information on establishing the connection with the UMTS network in the documentation for the hardware you plan to use.

Your device can connect with the Internet via UMTS. To do this, use one of the following types of connection:

- Integrated UMTS module (availability dependent on model variant)
- USB dongle (a USB stick containing a SIM card from your mobile phone provider)
- UMTS ExpressCard (fits into the ExpressCard slot on your device)
- A mobile end-device (e.g. mobile phone with Bluetooth or cable connection)

Ethernet and LAN

The internal network module of your notebook supports Ethernet LAN. You can use it to establish a connection to a local network (LAN = Local Area Network).



- ▶ Connect the network cable to the LAN port of the notebook (1).
- ▶ Connect the network cable to your network connection (2).



Your network administrator can help you to configure and use the LAN connections.

The network cable is not included in the delivery scope. This type of cable can be obtained from a specialist dealer.

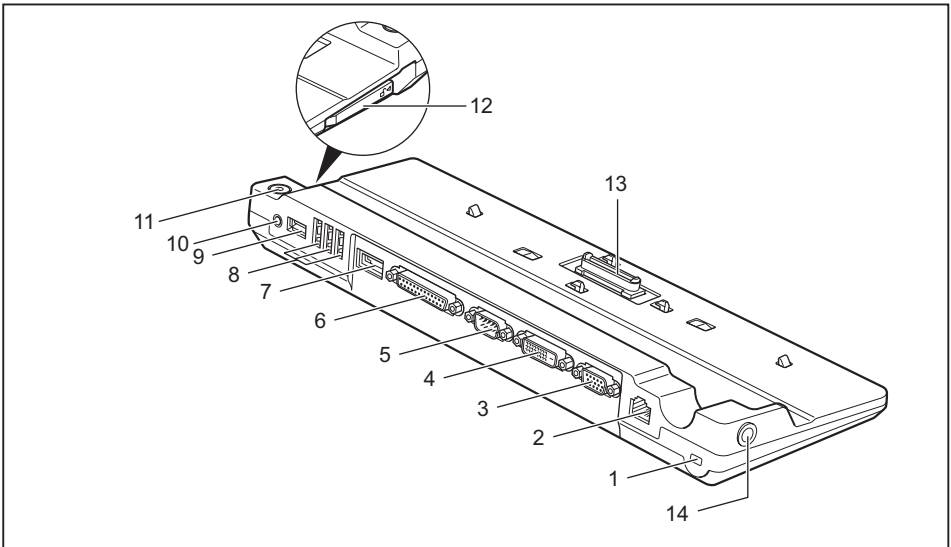
Your Port Replicator (optional)

Your Port Replicator is a device that enables you to quickly connect your notebook to your peripherals, such as a monitor, printer etc.

The features offered by the Port Replicator include standard ports for monitor, audio, mouse and keyboard.

You need only dock the notebook in order to use your peripheral devices.

Ports on the Port Replicator



- 1 = Kensington Lock
- 2 = LAN port
- 3 = VGA monitor port
- 4 = DVI port
- 5 = Serial interface
- 6 = Parallel port
- 7 = eSATA port
- 8 = USB ports

- 9 = USB port
- 10 = Headphones port/Line Out
- 11 = ON/OFF switch
- 12 = Unlocking lever
- 13 = Connector on the Port Replicator for the docking port on the bottom of the notebook
- 14 = DC input connector (DC IN)

Connecting the notebook to the Port Replicator



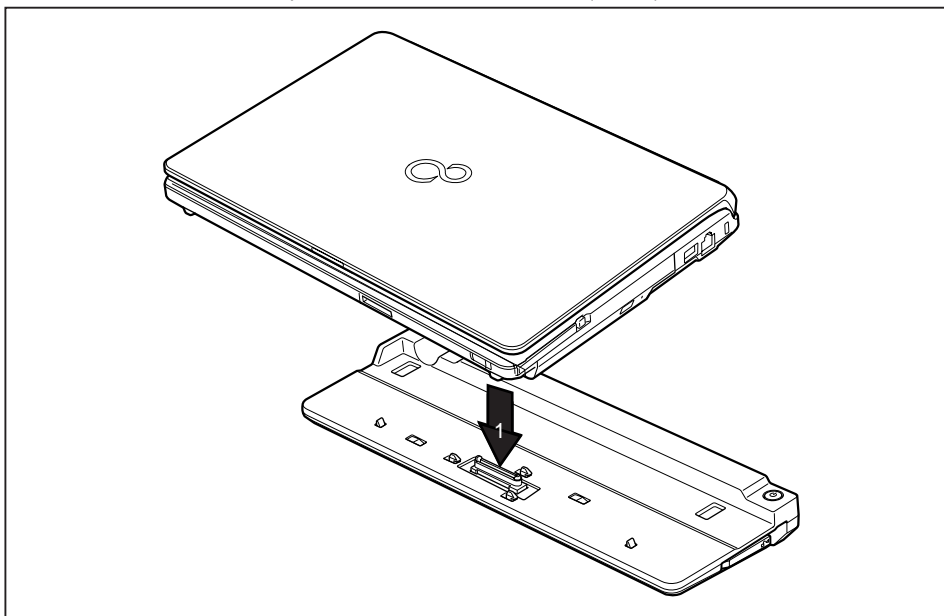
If you connect the notebook to the Port Replicator during operation, problems can occur. We recommend that you switch off the notebook beforehand.



The mains adapter must be connected to the Port Replicator when the notebook is connected to the Port Replicator.

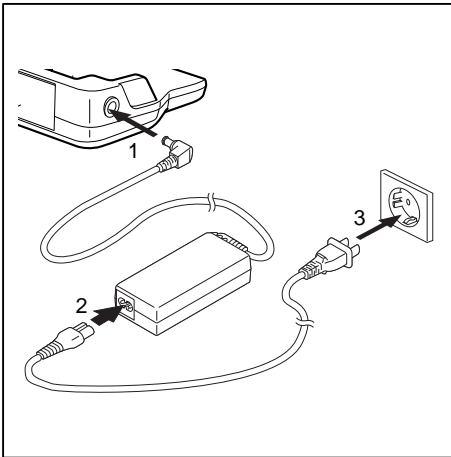
We recommend that the notebook is not operated with the LCD screen closed when the notebook is connected to the Port Replicator. The resulting overheating can cause reduced performance and increased activity of the integrated fan.

- ▶ Switch the notebook off.
- ▶ Remove the mains plug for the mains adapter from the mains socket.
- ▶ Disconnect the mains adapter cable from the DC socket (DC IN) of the notebook.



- ▶ Position the notebook so that it is in line with the back edge of the Port Replicator.
- ▶ Place the notebook onto the Port Replicator (1) and ensure that it locks into place correctly.

Connecting the mains adapter to the Port Replicator

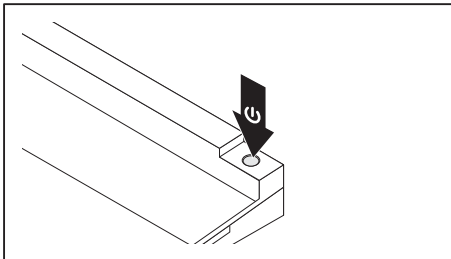


- ▶ Connect the mains adapter cable to the DC jack (DC IN) of the Port Replicator (1).
- ▶ Connect the power cable to the mains adapter (2).
- ▶ Plug the power cable into the mains socket (3).



When the notebook is connected to a Port Replicator, the operating system creates a hardware profile for the "Docked" mode. In this profile, for example, the setting is saved as to which monitor was last used for output. This profile will be loaded, as soon as the notebook is connected to a Port Replicator of the same type.

Switching on the notebook via the port replicator



- ▶ Press the ON/OFF switch on the port replicator to switch the notebook on.
- ↳ The power-on indicator of the Port Replicator lights up.

Switching off notebook via Port Replicator

- ▶ Close all applications and shut down your operating system (please refer to the manual for the operating system).



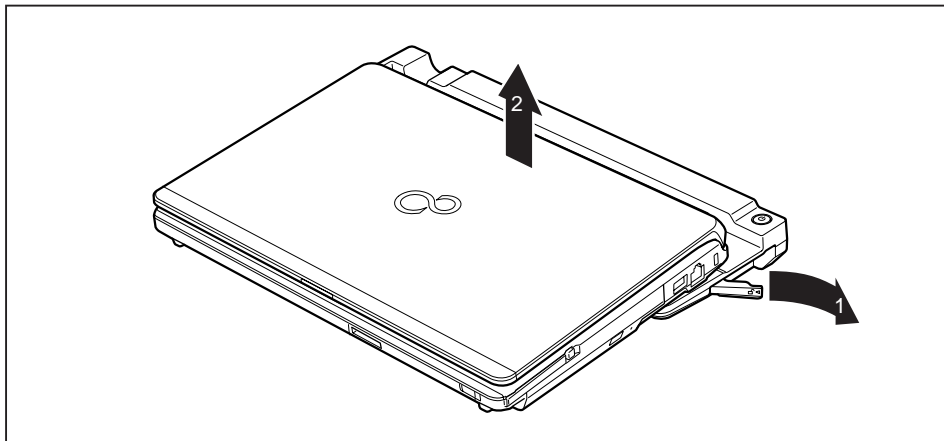
If the notebook cannot be shut down properly, press the ON/OFF button on the Port Replicator for approx. four seconds. The notebook will switch off. Any unsaved data may however be lost.

Disconnecting the notebook from the Port Replicator



Problems may occur if the notebook is removed from the Port Replicator during operation. We recommend that the notebook is switched off or that the appropriate undocking function provided by the operating system is executed.

- Switch the notebook off.



- Pull the unlocking lever in the direction of the arrow (1), until you hear the notebook unlatch.
- Lift off the notebook (2).

Security functions

Your notebook has several security features that you can use to secure your system from unauthorised access.

This chapter explains how to use each function, and what the benefits are.



Please remember that in some cases, for example, forgetting your password, you may be locked out and unable to access your data. Therefore, please note the following information:

- Make regular backups to external data carriers such as external hard drives, CDs, DVDs or Blu-ray Discs.
- Some security functions need you to choose passwords. Make a note of the passwords and keep them in a safe place.

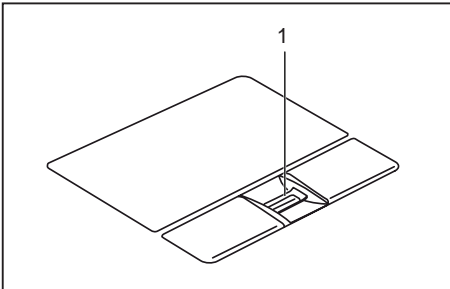
If you forget your passwords you will need to contact the our Service Desk. Deletion or resetting of passwords is not covered by your warranty and a charge will be made for assistance.

Configuring the fingerprint sensor



Whether or not your device has a fingerprint sensor depends on the device configuration you have ordered.

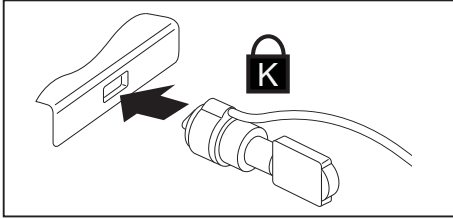
The fingerprint sensor can record an image of a fingerprint. With additional fingerprint software, this image can be processed and used instead of a password.



- You must install the fingerprint software in order to be able to use the fingerprint sensor (1).

Use Kensington Lock

Your device comes with a Kensington Lock device for the Kensington MicroSaver. With the Kensington MicroSaver, a sturdy steel cable, you can help protect your notebook from theft. The Kensington MicroSaver is available as an accessory.



- Fit the Kensington MicroSaver on the device on your notebook.



Connect another Kensington MicroSaver to your port replicator in order to secure your port replicator against theft.

Configuring password protection in BIOS Setup Utility



Before using the various options for password protection in the *BIOS Setup utility* to increase data security, please observe the following:

Make a note of the passwords and keep them in a safe place. If you forget your supervisor password you will not be able to access your notebook. Passwords are not covered by your warranty and a charge will be made for assistance.



Your password can be up to eight characters long and contain letters and numbers. No distinction is made between uppercase and lowercase.

Protecting BIOS Setup Utility (supervisor and user password)



If you have opened these operating instructions on the screen, we recommend that you print out the following instructions. Because you cannot call the instructions onto the screen while you are setting up the password.

You prevent unauthorised use of the *BIOS Setup Utility* with both the supervisor and the user password. The supervisor password gives you access to all functions of the *BIOS Setup Utility*, while the user password only provides some of the functions. You can only set a user password if a supervisor password has already been assigned.



Please refer to the [""Settings in BIOS Setup Utility", Page 74](#) section for a description of how to call up and operate the *BIOS Setup Utility*.

Setting supervisor and user password

- ▶ Start the *BIOS Setup Utility* and go to the *Security* menu.
- ▶ Select the *Set Supervisor Password* field and press the Enter key.
 - ↳ With *Enter new Password*: you are asked to enter a password.
- ▶ Enter the password and press the Enter key.
 - ↳ *Confirm new Password* requires you to confirm the password.
- ▶ Enter the password again and press the Enter key.
 - ↳ *Changes have been saved* is a confirmation that the new password has been saved.
- ▶ To set the user password, select *Set User Password* and proceed exactly as when configuring the supervisor password.
 - ↳ If you do not want to change any other settings, you can exit *BIOS Setup Utility*.
- ▶ In the *Exit* menu, select the option *Save Changes & Exit*.
- ▶ Select *Yes* and press the Enter key.
- ↳ The notebook will be rebooted and the new password will come into effect. It will now be necessary to first enter your supervisor or user password in order to open the *BIOS Setup Utility*. Please note that the user password only provides access to a few of the BIOS settings.

Changing the supervisor or user password

You can only change the supervisor password when you have logged into the *BIOS Setup Utility* with the supervisor password.

- ▶ Call the *BIOS Setup Utility* and go to the *Security* menu.
- ▶ When changing the password, proceed exactly as for password assignment.

Removing passwords

To remove a password (without setting a new password) perform the following steps:

- ▶ Start the *BIOS Setup Utility* and go to the *Security* menu.
 - ▶ Highlight the *Set Supervisor Password* or *Set User Password* field and press the Enter key.
 - ↳ You will be requested to enter the current password by the *Enter Current Password* prompt. You will be requested to enter a new password by the *Enter New Password* prompt.
 - ▶ Press the Enter key twice.
 - ▶ In the *Exit* menu, select the option *Save Changes & Exit*.
 - ▶ Select *Yes* and press the Enter key.
 - ↳ The notebook will now reboot with the password removed.
- Removing the supervisor password simultaneously deactivates the user password.

Password protection for booting of the operating system



With the supervisor password you have set in the *BIOS Setup Utility* (see section ["Setting supervisor and user password", Page 55](#)), you can also prevent booting of the operating system.

Activating system protection

- ▶ Start the *BIOS Setup Utility* and go to the *Security* menu.
- ▶ Select the *Password on Boot* option and press the Enter key.
- ▶ Select the desired option (*Disabled*, *First Boot* or *Every Boot*) and press the Enter key
- ▶ Select the *Save Changes & Exit* option under *Exit*.
- ↳ The notebook will reboot. You will be prompted to enter your password (the supervisor password).

Deactivating system protection

- ▶ Start the *BIOS Setup Utility* and go to the *Security* menu.
- ▶ Select the *Password on Boot* option and press the Enter key.
- ▶ Select the *Disabled* option and press the Enter key.
- ↳ If you do not want to change any other settings, you can exit *BIOS Setup Utility*.
- ▶ Select the *Save Changes & Exit* option under *Exit*.
- ↳ The notebook will reboot. The system is no longer password-protected.

Password protection for the hard disk



The hard disk password prevents unauthorised access to the hard disk drives and is checked internally each time the system is booted. The condition for this is that you have assigned at least the supervisor password.

Activating hard disk protection

- ▶ Call up the *BIOS Setup* and select the *Security* menu.
- ↳ If you have not assigned BIOS passwords yet, define the supervisor and the user password now, if desired (see ["Security functions", Page 53](#)).
- ▶ Mark the *Hard Disk Security* field and press the Enter key.
- ▶ In the *Drive0* area mark the *Set Master Password* field and press the Enter key.
- ↳ *Enter new Password* then appears and you are asked to enter a password.
- ▶ Enter the password and press the Enter key.
- ↳ *Confirm new Password* requires you to confirm the password.
- ▶ Enter the password again and press the Enter key.
- ↳ *Setup Notice: Changes have been saved* is displayed to confirm that the new password has been saved.
- ▶ To assign the password for the second hard disk (*Drive1*), go to the *Drive1* area and select the field *Set Master Password*, then proceed in exactly the same way as for setting up the password for the first hard disk (*Drive0*).
- ↳ The field *Password Entry on Boot* is set to *Enabled* by default. You can exit the *BIOS Setup* once you have finished changing the settings.
- ▶ From the *Exit* menu, choose the option *Exit Saving Changes*.
- ▶ Press the Enter key and select *Yes*.
- ↳ The notebook reboots and your hard disk is now protected with a password. The system will ask you to enter the password when the notebook is restarted again.

Deactivating hard disk protection

To cancel a password without setting a new one, proceed as follows:

- ▶ Call up the *BIOS Setup* and select the *Security* menu.
- ▶ Mark the *Hard Disk Security* field and press the Enter key.
- ▶ In the *Drive0* area mark the *Set Master Password* field and press the Enter key.
- ↳ You will be initially requested to enter the old password by the *Enter current Password* prompt. You will then be requested to enter a new password by the *Enter new Password* prompt.
- ▶ After entering the password, press the Enter key three times.
- ▶ From the *Exit* menu, choose the option *Exit Saving Changes*.
- ▶ Press the Enter key and select *Yes*.
- ↳ The notebook reboots, and password protection for the hard disk is cancelled.
- ▶ To cancel the password for the second hard disk (*Drive1*), go to the *Drive1* area and select the field *Set Master Password*, then proceed in exactly the same way as for cancelling the password for the first hard disk (*Drive0*).

Boot from Removable Media

With this BIOS feature, you can manage/control unauthorised booting of an operating system from external media (e.g. USB stick, USB CD-ROM drive etc.) We recommend that you configure the hard disk as the first boot medium in order to prevent access to your system by boot CDs and bootable media.



The condition for this BIOS feature is that you have assigned at least the supervisor password.

- ▶ Call up the BIOS Setup and select the *Security* menu.
- ▶ Highlight the *Boot from Removable Media* field and press the Enter key.
- ▶ Select the entry *All* (if you want everyone to be allowed to boot) or *Supervisor Only* (if you only want the supervisor to be authorised to do this) and press the Enter key.
- ↳ If you do not want to change any other settings you can exit the BIOS Setup.
- ▶ From the *Exit* menu, choose the option *Exit Saving Changes*.
- ▶ Press the Enter key and select *Yes*.
- ↳ The notebook will restart and the settings will be adopted.

Owner Information (device-dependent)

The BIOS feature *Owner Information* enables you to enter up to 80 characters of text which is displayed in the bottom left corner of the screen before the operating system boots up. You could use this feature for example to put your name and telephone number on the notebook in case it is lost or stolen.



Requirements:

- You have been assigned at least the supervisor password.
- In the *BOOT* menu, the *Boot time diagnostic screen* option is set to *enabled*.

- ▶ Call up the BIOS Setup and select the *Security* menu.
- ▶ Highlight the *Owner Information* field and press the Enter key.
- ▶ Add the text you would like to enter under *Set Owner Information*.
- ↳ *Setup Notice: Changes have been saved* is displayed to confirm that the text has been saved.
- ▶ From the *Exit* menu, choose the option *Exit Saving Changes*.
- ▶ Press the Enter key and select *Yes*.
- ↳ The notebook will restart and the Owner Information will be adopted.

Trusted Platform Module (TPM) (device-dependent)

To use the TPM, you **must** activate the TPM in the *BIOS Setup* before the software is installed. The condition for this is that you have assigned at least the supervisor password (see ["Security functions", Page 53](#)).

Enabling TPM

- Requirement: You have assigned a supervisor password, see ["Security functions", Page 53](#).
- ▶ Call up the BIOS Setup and select the *Security* menu.
- ▶ Mark the *TPM Security Chip Setting* field and press the Enter key.
- ▶ Select *Enabled* to activate the TPM.
- ↳ Once you have activated the TPM the *Clear Security Chip* option appears.
Select *Clear Security Chip* to delete the holder in the TPM. By clicking on *Enabled*, all secret keys (e.g. SRK - Storage Root Keys, AIK - Attestation Identity Keys etc.) generated by applications are deleted.

Please note that you will then no longer be able to access the data you have encrypted with the keys based on that holder.
- ▶ Select the *Exit Saving Changes* option in the Exit menu.
- ▶ Press the Enter key and select *Yes*.
- ↳ The notebook will restart, and TPM will be enabled after the reboot.

Disabling TPM

- Requirement: You have assigned a supervisor password, see ["Security functions", Page 53](#).
- ▶ Call up the BIOS Setup and select the *Security* menu.
- ▶ Mark the *TPM Security Chip Setting* field and press the Enter key.
- ▶ Select *Disabled* to deactivate the TPM.
- ▶ From the *Exit* menu, choose the option *Exit Saving Changes*.
- ▶ Press the Enter key and select *Yes*.
- ↳ Your notebook will now restart and TPM will be disabled.

Connecting external devices



Always refer to the safety information provided in ["Important notes", Page 13](#) before connecting or disconnecting any devices to or from your notebook.

Always read the documentation supplied with the device you wish to connect.

Never connect or disconnect cables during a thunderstorm.

Never pull at a cable when disconnecting it. Always grasp the plug.

Follow the steps below in order, when connecting or disconnecting devices to your notebook:



With some devices such as USB devices, it is not necessary to switch off the notebook and the device before connecting/disconnecting. For more information about whether or not devices need to be switched off, please refer to the documentation supplied with the external device.

Some of the external devices require special drivers (see the operating system and external device documentation).

Connecting devices to the notebook

1. Turn off your notebook and all external devices.
2. Unplug your notebook and all devices from the mains sockets.
3. Connect the cables for your external devices following the instructions.
4. Plug all power cables into the mains sockets.

Disconnecting devices from the notebook

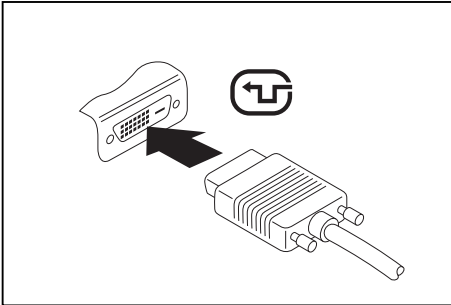
1. Turn off your notebook and all external devices.
2. Unplug your notebook and all devices from the mains sockets.
3. Disconnect the cables for your external devices following the instructions.

Connecting an external monitor

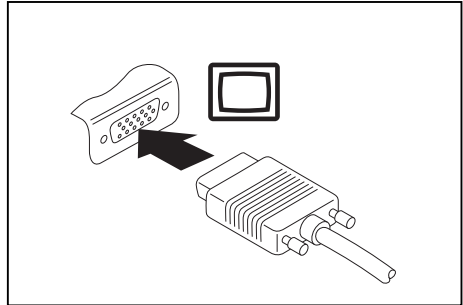


The notebook itself does not have a DVI port. The optional Port Replicator available for your notebook provides this port.

An analogue monitor is connected to the analogue VGA monitor port, a digital monitor to the DVI monitor port. Screen output is limited to a maximum of two screens at any one time (see ["Key combinations", Page 26](#), section "Toggle output screen").



Digital DVI monitor port



Analogue VGA monitor port

- ▶ Switch off the notebook and the external monitor.
- ▶ Plug the data cable of the external monitor into the monitor port.
- ▶ First switch on the external monitor and then the notebook.

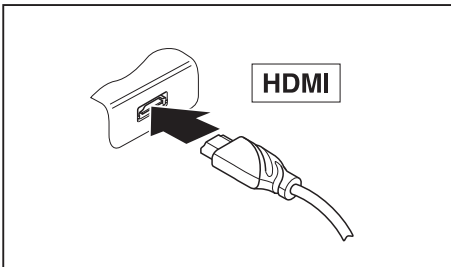


You can also switch back and forth between the external monitor and the notebook's LCD monitor, see chapter ["Key combinations", Page 26](#).

You can display the same picture on the external monitor and the notebook LCD screen simultaneously.

HDMI port

The HDMI port on your notebook can be used to connect an external amplifier, LCD TV or a plasma TV with an HDMI connection.



- ▶ Connect the data cable to the external device.
- ▶ Connect the data cable to the HDMI port of the notebook.

Connecting external devices to the parallel or serial port



If you wish to operate devices at a serial or parallel port, use the optional Port Replicator available for your notebook.

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

- ▶ Connect the data cable to the external device.
- ▶ Depending on the device, connect the data cable to the parallel port or the serial port.
- ↳ 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 parallel or serial port require drivers. Your operating system already includes many drivers. If the required drive is missing, install it. Current drivers are usually available on the Internet or will be supplied on a data medium.

Connecting USB devices

On the USB ports, you can connect external devices that also have a USB port (e.g. a DVD drive, a printer, a scanner or a modem).

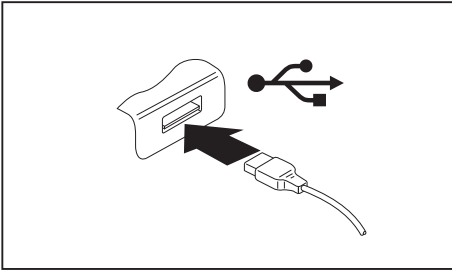


USB devices are hot-pluggable. This means you can connect and disconnect devices while your operating system is running.

USB 1.x has a maximum data transfer rate of 12 Mbit/s.

USB 2.x has a data transfer rate of up to 480 Mbit/s.

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 a USB port of the notebook.



Device drivers

USB devices will be automatically recognised and installed by your operating system.

USB port with charging function

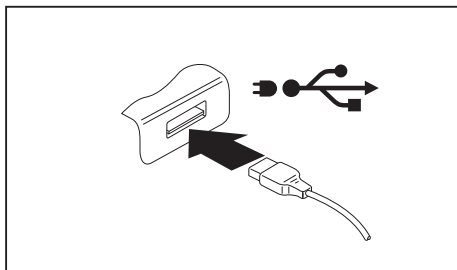


It is recommended that the notebook be operated with the power supply connected whenever the USB port with charging function is in use, as this function will drain the battery more quickly if an external USB device is being charged.

The power supply unit must already be connected when the notebook is switched off, as otherwise the USB charging function will be disabled and the connected USB devices will not be charged.



Some USB devices (e.g. mobile telephones) require a driver in order to utilise the USB charging function. In this case the USB charging function will not work when the notebook is switched off, as no drivers are active when the notebook is switched off.



You can use this USB port to charge or supply power to a USB device (e.g. to charge a PDA or a mobile phone or to connect a USB lamp), even if the notebook is switched off.

Connecting an external SATA hard disk (eSATA)



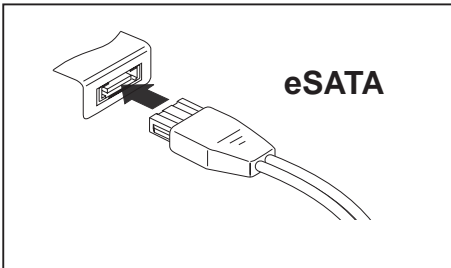
The notebook itself does not have an eSATA port. The optional Port Replicator available for your notebook provides this port.

An external SATA hard disk can be connected at the eSATA port. This allows you to expand the internal hard disk capacity as you wish.



The length of the eSATA cable must not exceed 2 metres. Consult a specialist dealer for advice on which eSATA data cable is suitable for your external eSATA hard disk. Make sure that the hard disk has its own external power supply.

The data transfer rate is up to 2,400 Mbit/s.



- ▶ Connect the data cable to the external device.
- ▶ Connect the data cable to the eSATA port.



Device drivers

The eSATA hard disk is automatically recognised by your operating system and installed.

You will find more information in the documentation for the external SATA hard disk and the operating system.

Safe removal of eSATA and USB devices



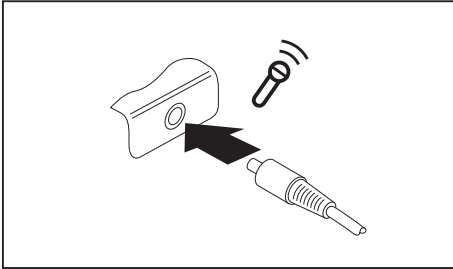
Always correctly remove the device according to the rules described below, to ensure that none of your data is lost.

- ▶ Left-click on the symbol to remove hardware safely.
- ▶ Select the device you wish to shut down and remove.
- ▶ Press the "Enter" key.
- ↳ Wait for the dialogue box which tells you that it is now safe to remove the device.

Connecting external audio devices

Microphone port/Line In

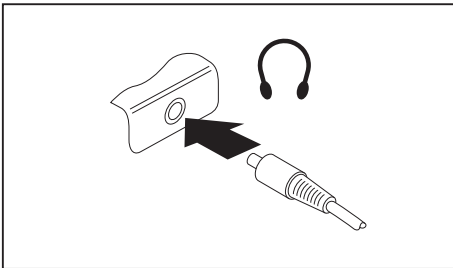
The microphone port/Line In allows you to connect an external microphone, a MiniDisc player, MP3 player, CD player or a tape deck to your notebook.



- ▶ Connect the audio cable to the external device.
- ▶ Connect the audio cable to the microphone port/Line In of the notebook.

Headphones port/Line Out

Headphones or external loudspeakers can be connected to your notebook via the headphones port.



- ▶ Connect the data cable to the external device.
- ▶ Connect the signal cable to the headphones/Line Out port on the notebook.



When you connect headphones or external loudspeakers, the built-in loudspeakers are disabled.

If you purchase a cable from a retailer, please note the following:

If you want to connect headphones or a speaker you will need a "3.5 mm jack plug".

Removing and installing components during servicing



Only qualified technicians should repair your notebook. Unauthorised opening or incorrect repair may greatly endanger the user (electric shock, fire risk) and will invalidate your warranty.

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



If you remove and install components without consulting the Hotline/Service Desk, then the warranty of your notebook will be voided.

Notes on installing and removing boards and components

- Switch the notebook off and pull the power plug out of the mains socket.
- Always remove the battery.
- Take care when you use the locking mechanisms on the battery and any other component.
- Never use sharp objects such as screwdrivers, scissors or knives as leverage to remove covers.



Boards with electrostatic sensitive devices (ESD) are marked with 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.
- Remove the power plug from the mains supply before inserting or removing boards containing ESDs.
- Always hold boards with ESDs by their edges.
- Never touch pins or conductors on boards fitted with ESDs.

Preparing to remove components

If you are going to remove or change system components, prepare for the removal as follows:



Please observe the safety information in chapter ["Important notes", Page 13](#).

Remove the power plug from the mains outlet !

- Switch the device off.



The device must not be in energy-saving mode !

- Close the LCD screen.
- Remove all the cables from the device.
- Turn the device over and place it on a stable, flat and clean surface. If necessary, lay an anti-slip cloth on this surface to prevent the device from being scratched.
- Remove the battery (see ["Removing a battery", Page 35](#)).

Installing and removing memory expansion

If you are asked by the Hotline/Service Desk to remove and install the memory expansion yourself, proceed as follows:



Please observe the safety information in chapter ["Important notes", Page 13](#).

When installing/removing memory modules, the battery must be removed from the notebook and the notebook must not be connected to the power supply, see ["Preparing to remove components", Page 68](#).

Only use memory expansion modules that have been approved for your notebook (see ["Technical specifications", Page 84](#)).

Never use force when installing or removing a memory extension.

Make sure that foreign objects do not fall into the memory extension compartment.

You must open the service compartment to remove or install a memory module. On some devices, opening the compartment may expose other components. These components should be removed and replaced only by authorised specialists. Therefore, be sure to observe the following:

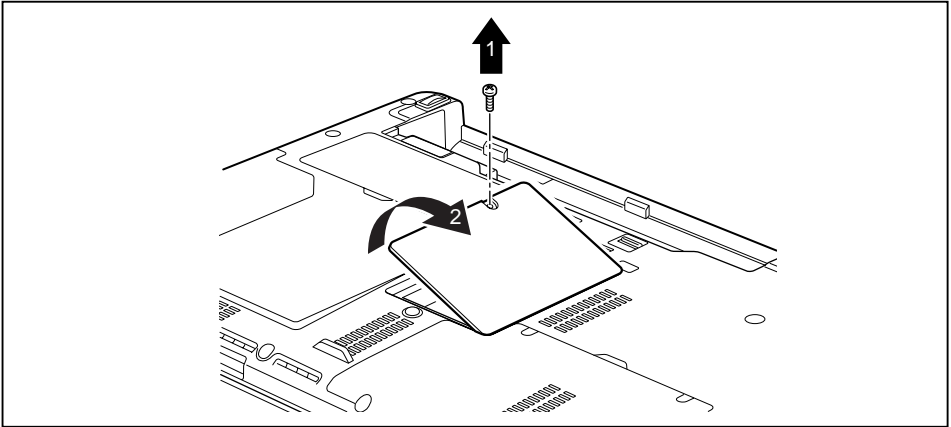


Individual components can become very hot during operation. Therefore, we recommend that you wait one hour after switching off the notebook before removing or installing memory modules. Otherwise, there is a risk of suffering burns!

As some components are exposed that are sensitive to static electricity, please take note of chapter ["Notes on installing and removing boards and components", Page 67](#).

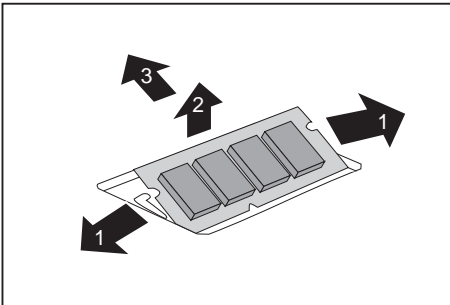
Removing the cover

- Prepare for memory extension, see ["Preparing to remove components", Page 68.](#)



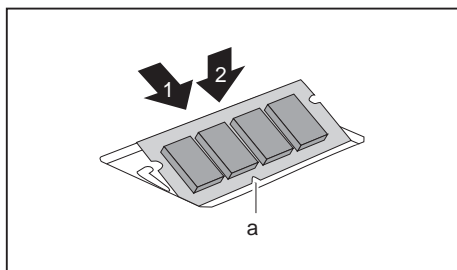
- Remove the screw (1).
- Lift the cover off the notebook (2).

Removing memory modules



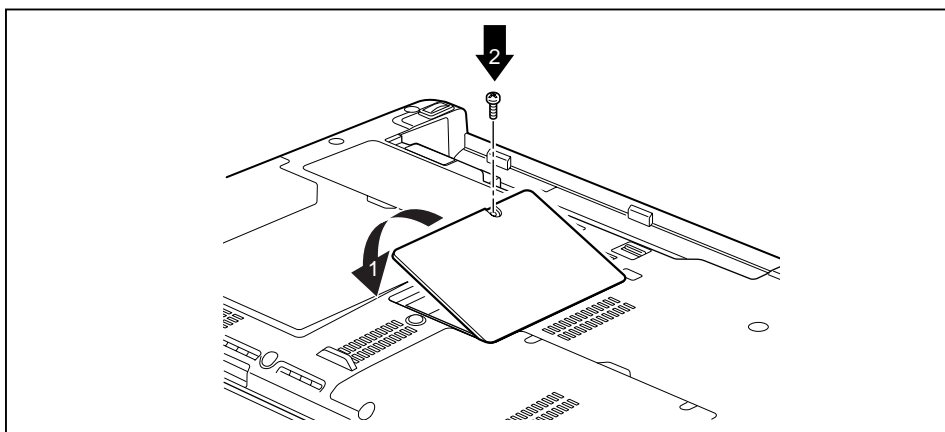
- Carefully push the two mounting clips outwards (1).
- ↳ The memory module snaps upwards (2).
- Pull the memory module out of its slot in the direction of the arrow (3).

Installing a memory module



- ▶ Insert the memory module with the contacts and the recess (a) facing the slot (1).
- ▶ Carefully push the memory module downwards until you feel it click into place (2).

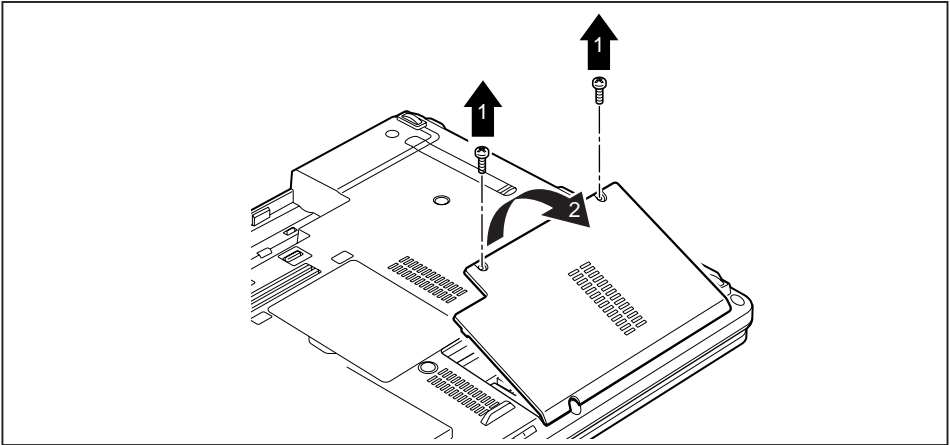
Attaching the cover



- ▶ Place the cover into position, following the direction of the arrow (1).
- ▶ Fasten the cover in place with the screw (2).
- ▶ Complete the memory extension, see ["Finishing component removal", Page 73](#).

Removing and installing the hard disk

Removing a cover



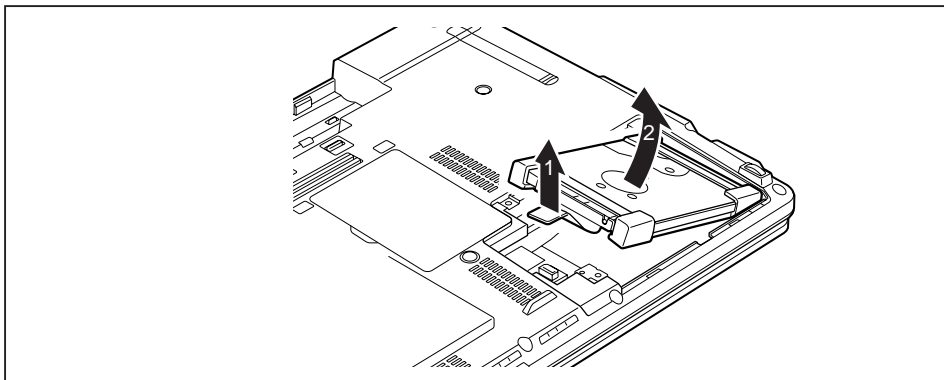
- Remove the screws (1).



Keep the screws in a safe place. If you are removing more than one component at the same time, store the screws for the individual components separate from each other. If you install the wrong screws, components may be damaged.

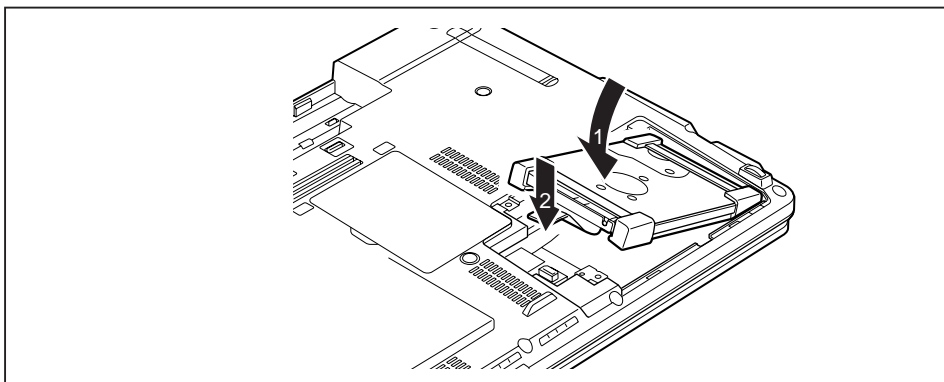
- Lift the cover off the notebook (2).

Removing a hard disk



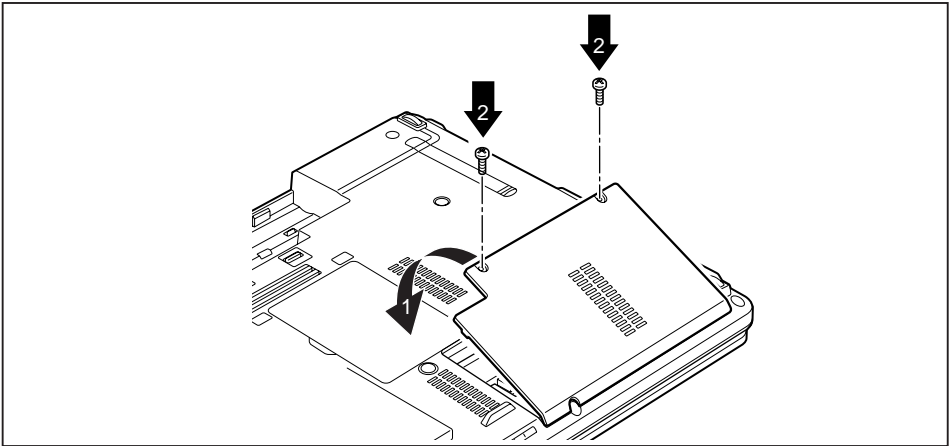
- ▶ Remove hard disk fixture (1).
- ▶ Lift the hard disk out of the hard disk compartment (2).

Installing a hard disk



- ▶ Insert the hard disk into the hard disk compartment (1). Ensure that the contacts engage.
- ▶ Re-attach the hard disk fixture (2).

Attaching the cover



- ▶ Place the cover in the correct mounting position (1).
- ▶ Fasten the screws (2).

Finishing component removal

After you have removed or changed the system components as you required, please prepare your device for operation again as follows:

- ▶ Install the battery again (see ["Installing a battery", Page 35](#)).
- ▶ Turn the notebook the right way up again and place it on a flat surface.
- ▶ Reconnect the cables that you disconnected before.

Settings in BIOS Setup Utility

The *BIOS Setup Utility* allows you to set the system functions and the hardware configuration for the notebook.

When it is delivered, the notebook is set to factory default settings. You can change these settings in *BIOS Setup Utility*. Any changes you make take effect as soon as you save and exit the *BIOS Setup Utility*.

The *BIOS Setup Utility* program contains the following menus:

| | |
|-----------------|--|
| <i>About</i> | Displays information relating to the BIOS, processor and notebook |
| <i>System</i> | Advanced system settings |
| <i>Advanced</i> | Configuration of various hardware components, such as mouse, keyboard, processor |
| <i>Security</i> | Password settings and security functions |
| <i>Boot</i> | Configuration of the start-up sequence |
| <i>Exit</i> | Exits the <i>BIOS Setup Utility</i> |

Starting the BIOS Setup Utility

- ▶ Reboot the notebook (switch off/on or reboot the operating system).
- ▶ Press and hold function key **F2**.
- ▶ If a password has been assigned, enter the password and press the Enter key.



If you have forgotten the password, contact your system administrator or contact our customer service centre.

The *BIOS Setup Utility* starts.

Operating BIOS Setup Utility



Press the **F1** key to display help on the operation of *BIOS Setup Utility*. The description of the individual settings is shown in the right-hand window of the *BIOS Setup Utility*.

With the **F9** key you can load the default settings of the *BIOS Setup Utility*.

- ▶ Use the cursor keys **←** or **→** to select the menu you wish to access to make changes.
↳ The menu is displayed on the screen.
- ▶ Select the option you want to change with the cursor keys **↑** or **↓**.
- ▶ Press the Enter key.
- ▶ Press the **ESC** key to exit the selected menu.
- ▶ For future reference, make a note of the changes you have made (for example, in this manual).

Exiting BIOS Setup Utility

You need to select the desired option in the *Exit* menu and activate it by pressing the Enter key:

Exit Saving Changes - save changes and exit BIOS Setup Utility

- ▶ To save the current menu settings and exit the *BIOS Setup Utility*, select *Exit Saving Changes* and *Yes*.
- ↳ The notebook is rebooted and the new settings come into effect.

Exit Discarding Changes – Discard changes and exit BIOS Setup Utility

- ▶ To discard the changes, select *Exit Discarding Changes* and *Yes*.
- ↳ The settings in place when *BIOS Setup Utility* was called remain effective. *BIOS Setup Utility* is terminated and the notebook is rebooted.

Load Setup Defaults – Copy Standard Entries

- ▶ To copy the standard entries for all menus of the *BIOS Setup Utility*, choose *Load Setup Defaults* and *Yes*.

Discard Changes – Discard changes without exiting the BIOS Setup Utility

- ▶ To discard the changes you have made, select *Discard Changes* and *Yes*.
- ↳ The settings in place when *BIOS Setup Utility* was called remain effective. You can now make additional settings in the *BIOS Setup Utility*.
- ▶ If you want to exit *BIOS Setup Utility* with these settings, select *Exit Saving Changes* and *Yes*.

Save Changes - save changes without exiting the BIOS Setup Utility

- ▶ To save the changes, select *Save Changes* and *Yes*.
- ↳ The changes are saved. You can now make additional settings in the BIOS Setup Utility.
- ▶ If you want to exit BIOS Setup Utility with these settings, choose *Exit Saving Changes* and *Yes*.

Save Changes and Power Off

- ▶ To save the changes and switch off your device, select *Save Changes and Power Off* and *Yes*.
- ↳ The changes are saved. Your device is shut down.

Troubleshooting and tips



Follow the safety notes in the "Safety/Regulations" manual when connecting or disconnecting cables.

If a fault occurs, try to correct it as described. If you fail to correct the problem, proceed as follows:

- ▶ Make a note of the steps and the circumstances that led to the fault. Also make a note of any error messages displayed.
- ▶ Switch the notebook off.
- ▶ Please contact the Hotline/Service Desk.



You can find the telephone numbers in the service desk list. Please have the following information ready when you call:

- The model name and serial number of the notebook. The serial number is located on a sticker on the underside of the notebook.
- Notes of any messages that appear on the screen and information on acoustic signals.
- Any changes you have made to the hardware or software since receiving the notebook.
- Any changes you have made to the *BIOS Setup* settings since receiving the notebook.
- Your system configuration and all peripheral devices connected to your system.
- Your sales contract.



Our notebooks have been designed primarily with mobile applications in mind. This means that considerable effort has been made to optimise components and equipment in terms of weight, space and energy requirements. Depending on the particular configuration you have purchased, it is possible that functionality may be slightly reduced compared to a desktop PC if you are running processor-intensive gaming software, e.g. games with intensive 3D graphics. Updating your hardware with drivers which have not been approved by Fujitsu Technology Solutions may result in performance losses, data losses or malfunction of the equipment. A list of approved drivers and current BIOS versions can be downloaded from: ["http://ts.fujitsu.com/support/downloads.html"](http://ts.fujitsu.com/support/downloads.html)

Help if problems occur

Should you at any time have a problem with your computer that you can't solve yourself, in many cases you can quickly solve it by using the *SystemDiagnostics* program which is pre-installed on your computer.



The *SystemDiagnostics* program is already installed on devices which were delivered with a Windows operating system.

- ▶ To start the *SystemDiagnostics* program, click on *Startsymbol - Program - Fujitsu - SystemDiagnostics*.
- ▶ If a problem is found during a test run, the *SystemDiagnostics* program outputs a code (e.g. DIFS-Code YXXX123456789123).
- ▶ Make a note of the output DIFS code and the identity number of your device. The identity number can be found on the type rating plate on the back 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://ts.fujitsu.com/support/serviceDesk.html"](http://ts.fujitsu.com/support/serviceDesk.html)). When you do this, please have ready the identity number and serial number of your system and the DIFS code.

Restoring the hard disk contents under Windows

You can use the "Windows Recovery CD" (optionally available) and the "Drivers & Utilities CD/DVD" to reinstall the operating system.

The instructions are provided on the case of the Recovery CD.



During the reinstall process your personal files and any installed programs will be deleted. We advise you to backup your files to an external hard drive, or CD / DVD disk before you start.

- ▶ Switch the notebook on.
 - ↳ The following display briefly appears on the screen during start-up:
`<ESC>Diagnostic screen <F12>Boot Menu <F2>BIOS Setup`
 - ▶ When this message appears, press the function key **[F12]**.
 - ▶ Insert the "Windows Recovery CD" into the optical drive.
 - ▶ Select *CD-ROM* and press the Enter key.
 - ▶ Follow the instructions on the screen.
- After the installation you must install all the drivers again. Some installed hardware components will not be correctly supported until this has been done.
- ▶ Insert the "Drivers & Utilities" CD/DVD into the optical drive. The CD starts automatically.
 - ▶ Click on the *Desk Update* button.
 - ▶ Select *Automatic driver installation (Express)* and click on *Start installation*.
 - ▶ Follow the instructions on the screen.
 - ▶ Restart your notebook when the driver installation is completed.

The notebook's date or time is incorrect

| Cause | Troubleshooting |
|---|---|
| Time and date are incorrect. | ▶ With the <i>BIOS-Setup-Utility</i> , you can set the date and time in the <i>main</i> menu. |
| If the time and date are still set incorrectly after switching on the notebook. | ▶ Please contact your sales outlet or our Hotline/Service Desk. |

When certain characters are entered on the keyboard, only numerals are written

| Cause | Troubleshooting |
|---|------------------------------------|
| The virtual numeric keypad of your device is activated, see "Virtual numeric keypad", Page 25 | ▶ Press the [Num Lock] key. |

The notebook's LCD screen remains blank

| Cause | Troubleshooting |
|---|--|
| Monitor is switched off. | ▶ Press a key or touch the touchpad. |
| External monitor or television set connected. | ▶ Press the key combination to switch the screen output, see "Key combinations", Page 26 . |

The LCD screen is difficult to read

| Cause | Troubleshooting |
|-----------------|--|
| Reflected glare | ▶ Turn the notebook or alter the tilt of the LCD screen. ▶ Increase the brightness of the screen. |

The external monitor remains blank

| Cause | Troubleshooting |
|---|--|
| Monitor is switched off. | ► Switch the external monitor on. |
| Power saving has been activated (monitor is blank). | ► Press any key to continue. |
| Brightness is set to dark. | ► Adjust the brightness of the monitor. |
| Screen output is set to the notebook's LCD screen | ► Press the key combination to switch the screen output, see "Key combinations", Page 26 . |
| The external monitor's power cable or data cable is not connected properly. | <ul style="list-style-type: none"> ► Switch off the external monitor and the notebook. ► Check whether the power cable is plugged properly into the external monitor and into the power socket. ► Check whether the data cable is properly connected to the notebook and the external monitor (if it is plugged in with a connector). ► Switch on the external monitor and the notebook. |

The external monitor is blank or the image is unstable

| Cause | Troubleshooting |
|---|--|
| The wrong external monitor has been selected or the wrong screen resolution has been set for the application program. | <ul style="list-style-type: none"> ► Terminate the application program in Windows by pressing [Alt] + [F4]. If the fault persists after closing the program, use the key combination for switching the screen output (see "Key combinations", Page 26) to switch over to the notebook's LCD screen. Change the following setting: ► Set the screen resolution: Set the screen resolution as described in the documentation for your operating system. ► Select monitor: Select monitor 1 or 2 as described in the documentation for your operating system. |

The notebook cannot be started

| Cause | Troubleshooting |
|---|--|
| The battery is not installed correctly. | <ul style="list-style-type: none"> ▶ Check whether the battery is installed correctly in its compartment. ▶ Switch the notebook on. |
| The battery is dead. | <ul style="list-style-type: none"> ▶ Charge the battery. <p>or</p> <ul style="list-style-type: none"> ▶ Insert a charged battery. <p>or</p> <ul style="list-style-type: none"> ▶ Connect the mains adapter to the notebook. |
| The power adapter is not connected correctly. | <ul style="list-style-type: none"> ▶ Check whether the mains adapter is connected correctly to the notebook. ▶ Switch the notebook on. |

The notebook stops working

| Cause | Troubleshooting |
|--|--|
| Notebook is in energy saving mode. | <ul style="list-style-type: none"> ▶ Leave energy saving mode. |
| An application programme has caused the malfunction. | <ul style="list-style-type: none"> ▶ Close the application program or restart the notebook (by restarting the operating system or switching the device off and back on again). |
| The battery is dead. | <ul style="list-style-type: none"> ▶ Charge the battery. <p>or</p> <ul style="list-style-type: none"> ▶ Insert a charged battery. <p>or</p> <ul style="list-style-type: none"> ▶ Connect the mains adapter to the notebook. |

The printer does not print

| Cause | Troubleshooting |
|---|---|
| The printer is not switched on. | <ul style="list-style-type: none"> ▶ Make sure that the printer is switched on and ready for operation (refer to the documentation supplied with the printer). |
| The printer is not connected correctly. | <ul style="list-style-type: none"> ▶ Check that the data cable connecting the notebook to the printer is properly connected. |
| The printer driver is faulty or not correctly installed, or it is the wrong printer driver. | <ul style="list-style-type: none"> ▶ Check that the data cable connecting the notebook to the printer is properly connected. ▶ Check whether the correct printer driver is loaded (refer to the printer documentation). |

The radio connection to a network does not work

| Cause | Troubleshooting |
|--|---|
| The wireless component is disabled. | <ul style="list-style-type: none"> ▶ Switch the radio component on (see "Switching the wireless components on and off", Page 47). |
| The wireless component is enabled. Despite this, the wireless connection to a network does not work. | <ul style="list-style-type: none"> ▶ Check whether the radio connection is switched on via the software. ▶ Further information on using the radio component can be found in the help files. |

Acoustic warnings

| Cause | Troubleshooting |
|--|---|
| <p>A beep sounds every few seconds.</p> <p>The battery is almost flat.</p> | <ul style="list-style-type: none"> ▶ Charge the battery. |

Error messages on the screen

This section describes the error messages generated by the BIOS Setup. Error messages displayed by the operating system or programmes are described in the relevant documentation.



If the error message appears repeatedly, despite troubleshooting measures, please contact the place of purchase or our customer service centre.

| Error message/cause | Resolution |
|--|---|
| CMOS battery bad If the error message occurs repeatedly, the buffer battery in the notebook is flat. | <ul style="list-style-type: none"> ► Contact your sales outlet or our customer service centre. |
| System CMOS checksum bad - default configuration used The system configuration information is incorrect. | <ul style="list-style-type: none"> ► Switch the notebook off. ► Switch the notebook on. ► Press the function key [F2] to access the <i>BIOS Setup</i>. ► In the <i>BIOS Setup</i>, select the <i>Exit</i> menu. ► Select the entry <i>Load Setup Defaults</i>. ► Select <i>OK</i> and press the Enter key. |
| Extended memory failed at offset: xxxx Failing Bits: zzzz zzzz When testing the extended memory an error has resulted at the address xxxx. | <ul style="list-style-type: none"> ► Check whether the additional memory module has been inserted correctly. |
| Failure Fixed Disk n The settings of the hard disk drive are incorrect. | <ul style="list-style-type: none"> ► Start the <i>BIOS Setup</i> (<i>Primary Master</i> submenu) and select the correct settings. |
| Keyboard controller error | <ul style="list-style-type: none"> ► Switch the notebook off with the ON/OFF switch. ► Wait 3 - 5 seconds and switch on the notebook again. |
| Keyboard error | If you are using an external keyboard: <ul style="list-style-type: none"> ► Check the connection and reboot the notebook. |
| nn Stuck key | <ul style="list-style-type: none"> ► Make sure that no key is pressed. |
| Operating system not found | <ul style="list-style-type: none"> ► Check in the <i>BIOS Setup</i> whether your hard disk has been set correctly. ► Make sure that the operating system is installed on the corresponding drive. |
| Press <F1> to resume, <F2> to SETUP This error message appears if an error occurs during the self-test before starting the operating system. | <ul style="list-style-type: none"> ► Press the [F1] function key to start the operating system. ► Press the function key [F2] to access the <i>BIOS Setup</i>. |

| Error message/cause | Resolution |
|--|---|
| <i>Previous boot incomplete - Default configuration used</i> Due to an error during the previous system boot, default values were used for certain settings. Check the settings in the BIOS Setup. | ► Press the F1 function key when prompted to do so. |
| <i>Real time clock error</i> | ► Contact your sales outlet or our customer service centre. |
| <i>nnmK Shadow RAM failed at offset: xxxx Failing Bits: zzzz</i> | ► Contact your sales outlet or our customer service centre. |
| <i>System battery is dead - Replace and run SETUP</i> | ► Contact your sales outlet or our customer service centre. |
| <i>System cache error - Cache disabled</i> | ► Contact your sales outlet or our customer service centre. |
| <i>System timer error</i> | ► Contact your sales outlet or our customer service centre. |

Technical specifications

LIFEBOOK

| Ambient conditions | |
|--|--|
| Operating temperature | 5 °C–35 °C |
| Dimensions | |
| Width x depth x height | 321 mm x 228.5 mm x 24.2–32.3 mm (excl. rubber feet) |
| Weight (including 6-cell rechargeable battery) | Standard: approx. 1.9 kg T&L: approx. 1.66 kg |
| Main memory | |
| Slots | 2 x 204-pin DDR3 SO-DIMM slots, max. 8 GB DDR3 |
| Approved memory modules | Max. 4 GB DDR3 SO-DIMM per slot |



The data sheet for the device provides further technical data. You will find the data sheet on your device or on the Internet under ["http://ts.fujitsu.com/support"](http://ts.fujitsu.com/support).

Port replicator (optional)

| Electrical data | |
|---|-------------------------|
| Safety regulations complied with | CE, CB |
| Protection class | II |
| Maximum power draw (with the notebook switched on and the battery charging) | Approx. 80 W |
| Dimensions/weight | |
| Width x depth x height | 360 mm x 110 mm x 30 mm |
| Weight | Approx. 0.6 kg |
| Ambient conditions | |
| Environment class DIN IEC 721 | 3K2 |
| Mechanism class DIN IEC 721 | 7M2 |
| Temperature: | |
| Operation | 5 °C ... 35 °C |
| Transportation | -15 °C ... 60 °C |

Rechargeable battery



You will find further information about the batteries used in your device on the Internet under ["http://ts.fujitsu.com/support"](http://ts.fujitsu.com/support).

| | |
|----------------|----------|
| Rated voltage | 10.8 V |
| Rated capacity | 5200 mAh |

Mains adapter

| Electrical data | |
|--------------------|---------------------------|
| Primary | |
| Rated voltage | 100 V – 240 V (automatic) |
| Rated frequency | 50 Hz – 60 Hz (automatic) |
| Secondary | |
| Rated voltage | 19 V |
| Max. rated current | 4.22 A |

An additional mains adapter or power cable can be ordered at any time.

Manufacturer's notes

Energy Star



Products which are Energy Star certificated and labelled always meet the full requirements of the standard when shipped. Please note that installation of after-market hardware and software, changes to the BIOS or to the power options may affect power consumption. The properties guaranteed by the Energy Star label can then no longer be guaranteed.



Devices which are certified according to the Energy Star environmental mark help to save money and reduce the emission of greenhouse gases.

Power Management settings on delivery:

- Monitor switched off after < 15 minutes of inactivity
- Automatic activation of energy saving mode (ACPI S3): < 30 minutes of inactivity

Detailed information about the requirements of the "Energy Star" environmental mark and the products which satisfy these requirements can be found on the Internet at ["https://www.energystar.gov/"](https://www.energystar.gov/).

Disposal and recycling

Information about this subject can be found on your notebook or on our Internet pages.

Declarations of Conformity

The "Declarations of Conformity" for the device can be found at our Internet address under: ["http://ts.fujitsu.com/ce"](http://ts.fujitsu.com/ce).

Fujitsu Technology Solutions hereby declares that your device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

CE marking



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.

This equipment can be used in the following countries:

| | | | |
|----------------|-----------------|-----------|------------|
| Belgium | Bulgaria | Denmark | Germany |
| Estonia | Finland | France | Greece |
| UK | Ireland | Iceland | Italy |
| Latvia | Liechtenstein | Lithuania | Luxembourg |
| Malta | The Netherlands | Norway | Austria |
| Poland | Portugal | Rumania | Sweden |
| Switzerland | Slovakia | Slovenia | Spain |
| 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.

Regulatory notices



If there is no FCC logo and also no FCC ID on the device then this device is not approved by the Federal Communications Commission (FCC) of the USA. Although it is not explicitly forbidden to travel in the US trading area carrying this device, to avoid trouble at customs clearance, Fujitsu Technology Solutions GmbH recommends not to bring this device into the US trading area.

Regulatory information for notebooks without radio device

NOTICE:

Changes or modifications not expressly approved by Fujitsu Technology Solutions could void this user's authority to operate the equipment.

Notice to Users of Radios and Television

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 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 the equipment and receiver.
- Connect the equipment into an outlet that is on a different circuit than the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Notice to Users of the US Telephone Network

Your notebook may be supplied with an internal modem which complies with Part 68 of the FCC rules. On this notebook is a label that contains the FCC Registration Number and the Ringer Equivalence Number (REN) for this equipment among other information. If requested, the user must provide their telephone company with the following information:

1. The telephone number to which the notebook is connected.
2. The Ringer Equivalence Number (REN) for this equipment.
3. The equipment requires a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant.
4. The FCC Registration Number.

This equipment is designed to be connected to the telephone network or premises wiring using a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant and a line cord between the modem and the telephone network with a minimum of 26AWG.

The REN is used to determine the number of devices that you may connect to your telephone line and still have all of those devices ring when your number is called. Too many devices on one line may result in failure to ring in response to an incoming call. In most, but not all, areas the sum of the RENs of all of the devices should not exceed five (5). To be certain of the number of devices you may connect to your line, as determined by the RENs, contact your local telephone company. If this equipment causes harm to the telephone network, your telephone company may discontinue your service temporarily. If possible, they will notify you in advance. If advance notice is not practical they will notify you as soon as possible. You will also be advised of your right to file a complaint with the FCC.

This fax modem also complies with fax branding requirements per FCC Part 68.

Your telephone company will probably ask you to disconnect this equipment from the telephone network until the problem is corrected and you are sure that the equipment is not malfunctioning. This equipment may not be used on coin-operated telephones provided by your telephone company. Connection to party lines is subject to state tariffs. Contact your state's public utility commission, public service commission or corporation commission for more information.

This equipment includes automatic dialing capability. When programming and/or making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in off-peak hours, such as early morning or late evening.

FCC rules prohibit the use of non-hearing aid compatible telephones in the following locations or applications:

- All public or semi-public coin-operated or credit card telephones.
- Elevators, highways, tunnels (automobile, subway, railroad or pedestrian) where a person with impaired hearing might be isolated in an emergency.
- Places where telephones are specifically installed to alert emergency authorities such as fire, police or medical assistance personnel.
- Hospital rooms, residential health care facilities, convalescent homes and prisons.
- Hotel, motel or apartment lobbies.
- Stores where telephones are used by patrons to order merchandise.
- Public transportation terminals where telephones are used to call taxis or to reserve lodging or rental cars.
- In hotel and motel rooms as at least ten percent of the rooms must contain hearing aid-compatible telephones or jacks for plug-in hearing aid compatible telephones which will be provided to hearing impaired customers on request.

DOC (Industry CANADA) notices

Notice to Users of Radios and Television

This Class B digital apparatus meets all requirements of Canadian Interference-Causing Equipment Regulations.

CET appareil numérique de la class B respecte toutes les exigence du Règlement sur le matériel brouilleur du Canada.

Notice to Users of the Canadian Telephone Network

NOTICE:

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment. Before connecting this equipment to a telephone line the user should ensure that it is permissible to connect this equipment to the local telecommunication facilities. The user should be aware that compliance with the certification standards does not prevent service degradation in some situations.

Repairs to telecommunication equipment should be made by a Canadian authorised maintenance facility. Any repairs or alterations not expressly approved by Fujitsu or

any equipment failures may give the telecommunication company cause to request the user to disconnect the equipment from the telephone line.

NOTICE:

The Ringer Equivalence Number (REN) for this terminal equipment is 0.0. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.



CAUTION:

For safety, users should ensure that the electrical ground of the power utility, the telephone lines and the metallic water pipes are connected together. Users should NOT attempt to make such connections themselves but should contact the appropriate electric inspection authority or electrician. This may be particularly important in rural areas.

Avis Aux Utilisateurs Du Réseau Téléphonique Canadien

AVIS : Le présent matériel est conforme aux spécifications techniques d'Industrie Canada applicables au matériel terminal. Cette conformité est confirmée par le numéro d'enregistrement. Le sigle IC, placé devant le numéro d'enregistrement, signifie que l'enregistrement s'est effectué conformément à une déclaration de conformité et indique que les spécifications techniques d'Industrie Canada ont été respectées. Il n'implique pas qu'Industrie Canada a approuvé le matériel.

Avant de connecter cet équipement à une ligne téléphonique, l'utilisateur doit vérifier s'il est permis de connecter cet équipement aux installations de télécommunications locales. L'utilisateur est averti que même la conformité aux normes de certification ne peut dans certains cas empêcher la dégradation du service.

Les réparations de l'équipement de télécommunications doivent être effectuées par un service de maintenance agréé au Canada. Toute réparation ou modification, qui n'est pas expressément approuvée par Fujitsu, ou toute défaillance de l'équipement peut entraîner la compagnie de télécommunications à exiger que l'utilisateur déconnecte l'équipement de la ligne téléphonique.

AVIS : L'indice d'équivalence de la sonnerie (IES) du présent matériel est de 0.0. L'IES assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.



AVERTISSEMENT:

Pour assurer la sécurité, les utilisateurs doivent vérifier que la prise de terre du service d'électricité, les lignes téléphoniques et les conduites d'eau métalliques sont connectées ensemble. Les utilisateurs NE doivent PAS tenter d'établir ces connexions eux-mêmes, mais doivent contacter les services d'inspection d'installations électriques appropriés ou un électricien. Ceci peut être particulièrement important en régions rurales.

UL Notice

This unit requires an AC adapter to operate. Only use a UL Listed Class 2 adapter. The correct output rating is indicated on the AC adapter label. Refer to the illustration below for the correct AC Adapter output polarity:



CAUTION:

To reduce the risk of fire, use only 26AWG or larger telecommunications line cord.

For Authorized Repair Technicians Only



CAUTION:

For continued protection against risk of fire, replace only with the same type and rating fuse.



WARNING:

Danger of explosion if Lithium (CMOS) battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.

FCC regulatory information for notebooks with radio device

Federal Communications Commission statement

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of this device.

FCC Interference Statement

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. 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. If not installed and used in accordance with the instructions, it 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:

1. Reorient or relocate the receiving antenna.
2. Increase the distance between the equipment and the receiver.
3. Connect the equipment to an outlet on a circuit different from the one the receiver is connected to.
4. Consult the dealer or an experienced radio/TV technician for help.

Please note the following regulatory information related to the optional radio device.

FCC Radio Frequency Exposure statement

This radio device has been evaluated under FCC Bulletin OET 65C and found compliant with the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) addressing RF

Exposure from radio frequency devices. The radiated output power of this radio device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation is minimized. When using this device, a certain separation distance between antenna and nearby persons must be maintained to ensure RF exposure compliance. In order to comply with RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than 20 cm (8 inches).

Regulatory Notes and Statements

Radio device, health and authorisation for use

Radio-frequency electromagnetic energy is emitted from the wireless devices. The energy levels of these emissions, however, are far much less than the electromagnetic energy emissions from wireless devices such as mobile phones. Radio devices are safe for use by consumers because they operate within the guidelines found in radio frequency safety standards and recommendations.

The use of the radio devices may be restricted in some situations or environments, such as:

- on board an airplane, or
- in an explosive environment, or
- in situations where the interference risk to other devices or services is perceived or identified as harmful.

In cases in which the policy regarding use of radio devices in specific environments is not clear (e.g., airports, hospitals, chemical/oil/gas industrial plants, private buildings), obtain authorization to use these devices prior to operating the equipment.

Regulatory Information/Disclaimers

Installation and use of this radio device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution or attachment of connecting cables and equipment other than those specified by the manufacturer. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. The manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failure to comply with these guidelines.

Export restrictions

This product or software contains encryption code which may not be exported or transferred from the US or Canada without an approved US Department of Commerce export license. This device complies with Part 15 of FCC Rules, as well as ICES 003 B / NMB 003 B. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesirable operation.

Modifications not expressly authorised by Fujitsu Technology Solutions may invalidate the user's right to operate this equipment.

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