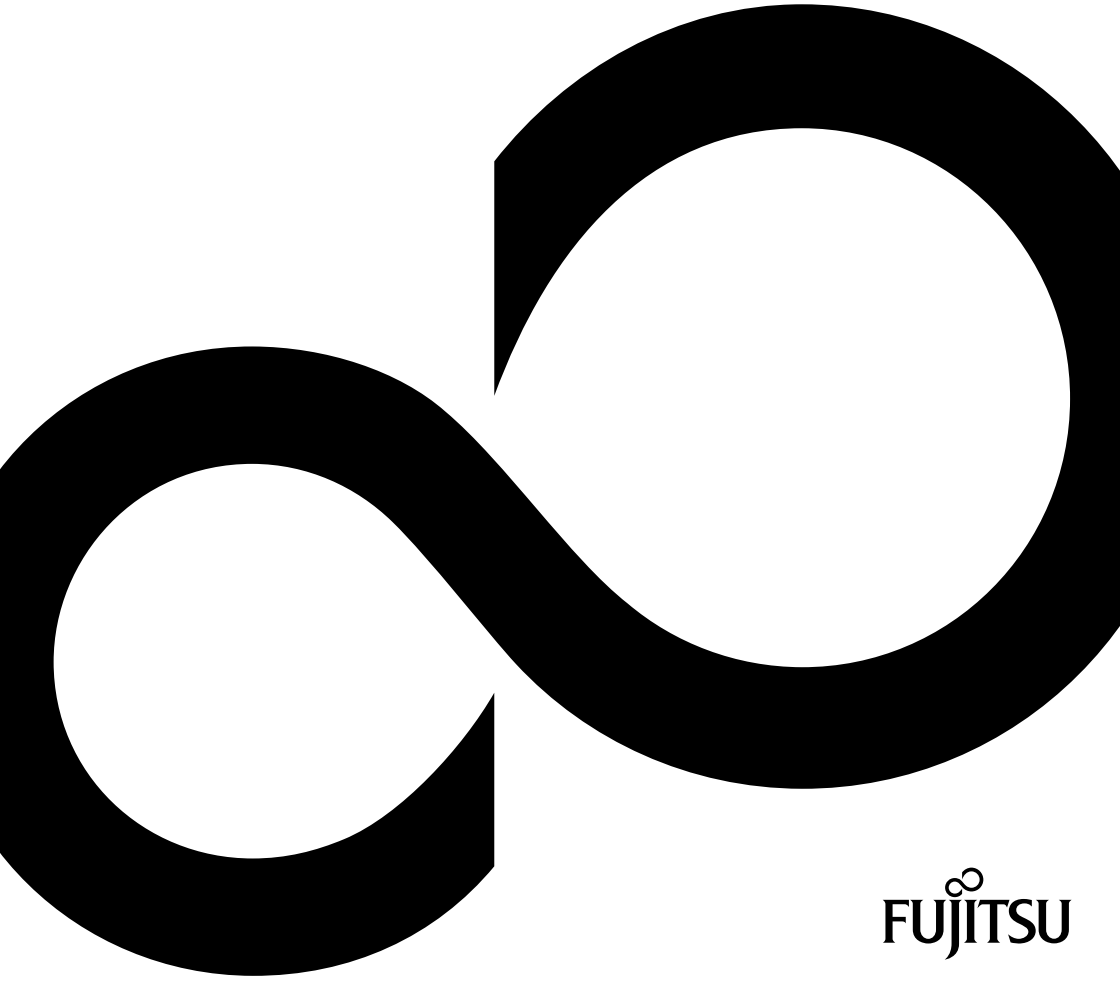
FUJITSU LIFEBOOK E734
FUJITSU LIFEBOOK E744
FUJITSU LIFEBOOK E754



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- our Hotline/Service Desk (see the Service Desk list or visit: "http://support.ts.fujitsu.com/contact/servicedesk")
- Your sales partner
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We hope you enjoy working with your new Fujitsu system!

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FUJITSU LIFEBOOK E734
FUJITSU LIFEBOOK E744
FUJITSU LIFEBOOK E754

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

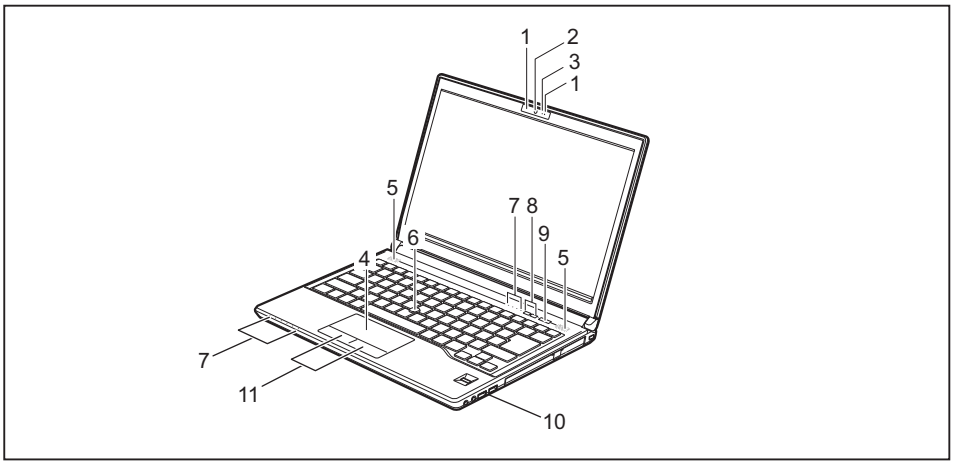
	Pay particular attention to text marked with this symbol. Failure to observe these warnings could pose a risk to health, damage the device or lead to loss of data. The warranty will be invalidated if the device becomes defective through failure to observe these warnings.
	Indicates important information 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.`
This font	Indicates • terms and texts used in a software interface, e.g.: Click on *Save* • names of programs or files, e.g. *Windows* or *setup.exe*.
"This font"	Indicates • 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://www.fujitsu.com/fts/" • Names of CDs, DVDs and titles or designations for other materials, e.g.: "CD/DVD Drivers & Utilities" or "Safety/Regulations" manual
Key	indicates a key on the keyboard, e.g: F10
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 indicators and ports of the device. Please familiarise yourself with these components before you start to work with the device.

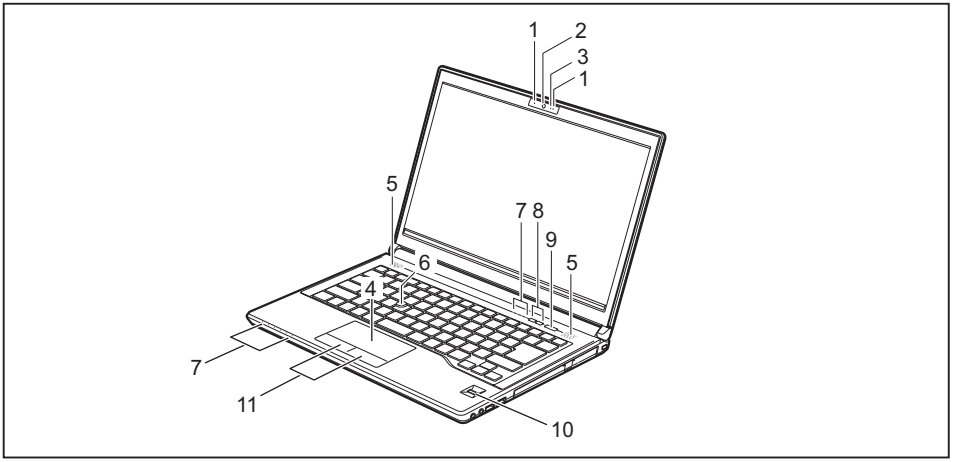
Front

LIFEBOOK E734:



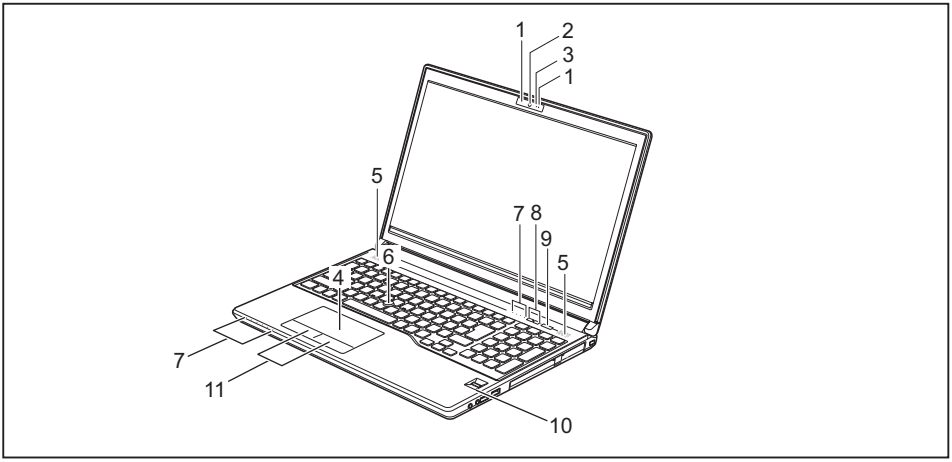
1 = Microphone (optional)
2 = WebCam (optional)
3 = WebCam LED (optional)
4 = Touchpad
5 = Loudspeakers
6 = TouchStick (optional)
7 = Status indicators
8 = Application keys
9 = ON/OFF switch
10 = Fingerprint sensor (optional)
11 = Touchpad buttons

LIFEBOOK E744:



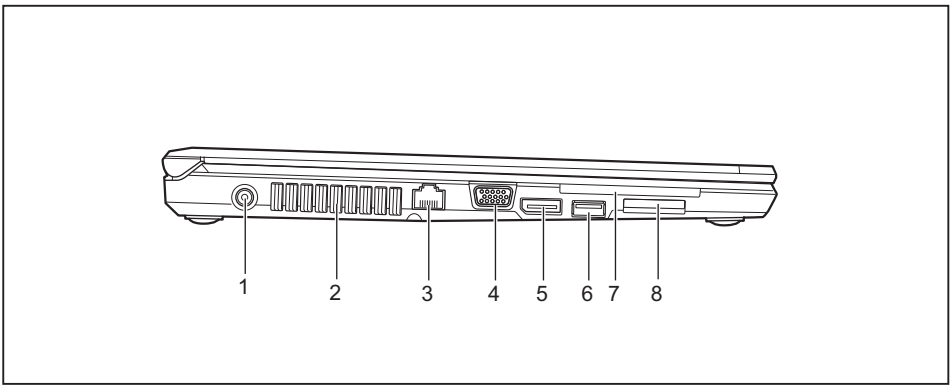
1 = Microphone (optional)
2 = WebCam (optional)
3 = WebCam LED (optional)
4 = Touchpad
5 = Loudspeakers
6 = TouchStick (optional)
7 = Status indicators
8 = Application keys
9 = ON/OFF switch
10 = Fingerprint sensor (optional)
11 = Touchpad buttons

LIFEBOOK E754:



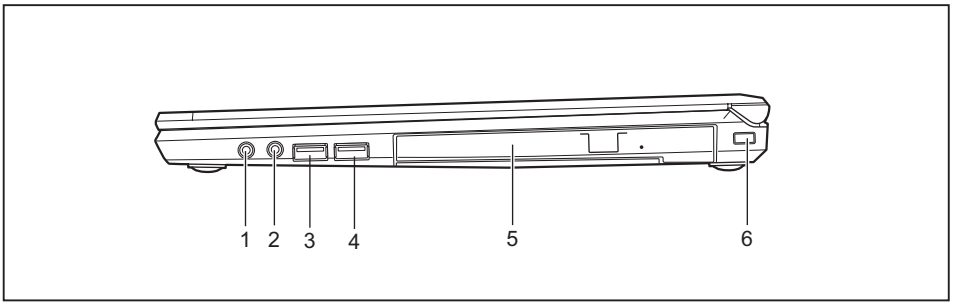
1 = Microphone (optional)
2 = WebCam (optional)
3 = WebCam LED (optional)
4 = Touchpad
5 = Loudspeakers
6 = TouchStick (optional)
7 = Status indicators
8 = Application keys
9 = ON/OFF switch
10 = Fingerprint sensor (optional)
11 = Touchpad buttons

Left side



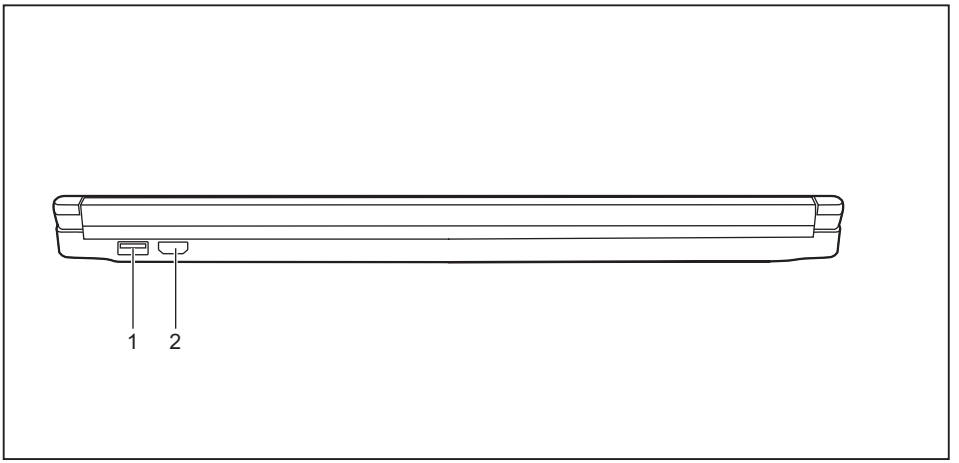
1 = DC input connector (DC IN)
2 = Ventilation slots
3 = LAN port
4 = Monitor port (VGA)
5 = DisplayPort
6 = USB port 3.0
7 = SmartCard reader (optional)
8 = Memory card slot

Right side



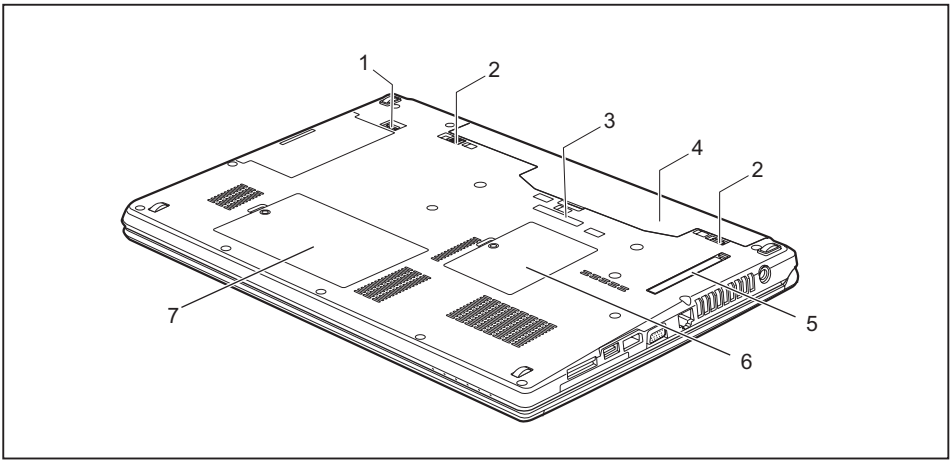
1 = Headphone port
2 = Microphone port
3 = USB port 3.0
4 = USB 3.0 port with charging function (Anytime USB charge)
5 = Module bay with optical drive
6 = Security Lock device

Rear



1 = USB port 2.0 (LIFEBOOK E744/E754 only)
2 = HDMI port (LIFEBOOK E754 only)

Bottom



1 = Module release
2 = Battery release
3 = Port replicator port
4 = Battery compartment (SIM card under the battery)
5 = Ventilation slot cover
6 = Memory service compartment
7 = Hard disk service compartment

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 data", Page 81 and "First-time setup of your device", Page 17 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 16.

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 63.

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, LTE) is incorporated into 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 45.

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 40).

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 83).

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 accidentially switching the device on, remove the power cable from the mains adaptor and remove the battery (see "Removing and installing the battery", Page 32).

↳ 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 14.

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 18. 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:

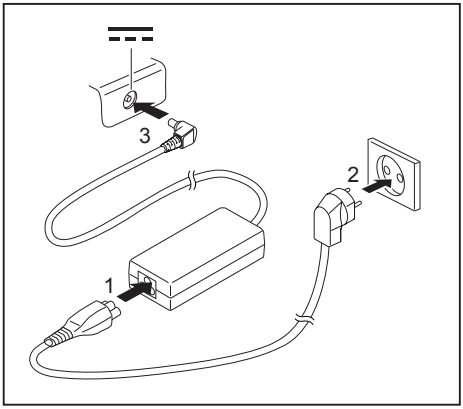
- Never place the device or the mains adapter on a heat-sensitive surface. The surface could be damaged as a result.
- Never place the device on a soft surface (e.g. carpeting, upholstered furniture, bed). This can block the air vents and cause overheating and damage.
- The underside of the device heats 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 / 3.97" 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.

When an approved 2-pin mains adapter is connected, you may feel a slight tingling when you touch the top of the aluminium housing. The combination of a mains adapter without protective earth and metallic housing parts causes a very weak electrical current. This effect is harmless. The device meets all relevant safety standards.



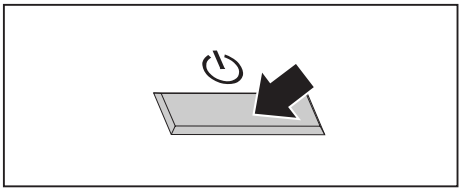
- ► Connect the power cable (1) to the mains adapter.
- ► Plug the mains cable (2) into a mains outlet.
- ► Connect the mains adapter cable (3) to the DC jack (DC IN) of the device.

Switching on the device for the first time

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 under "http://www.fujitsu.com/fts/support/".

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

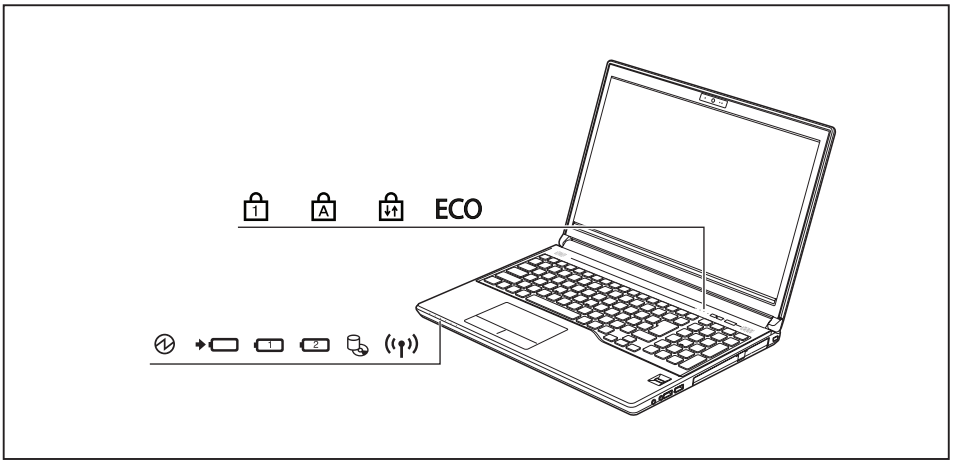
Working with the notebook

This chapter describes the basics for operating your notebook. Please read the chapter entitled "Connecting external devices", Page 57 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 14.

Status indicators

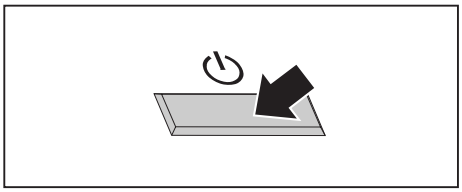
The status indicators provide information about the status of the power supply, the drives and the keyboard functions.



Key	Description
	Power-on indicator/Standby • Indicator is illuminated: The notebook is switched on. • Indicator flashes: The notebook is in standby mode. • Indicator is off: The notebook is switched off.
	Battery indicator • Indicator is illuminated (green): The battery is charged to between 50% and 100% of its maximum capacity. • The indicator lights up orange: The battery is charged to between 13% and 49% of its maximum capacity. • The indicator lights up red: The battery is charged to between 0% and 12% of its maximum capacity. • Indicator flashes red: An error has occured.

Key	Description
	Battery charging indicator (Battery 1/Battery 2)/Power supply The state of charge of the battery is shown by the battery indicator. • Indicator is illuminated (green): The battery is charged or no battery has been inserted. • The indicator lights up orange: the mains adapter is connected and the battery is being charged. • Indicator flashes orange: the mains adapter is connected but the battery cannot be charged as the battery is too hot or cold for charging. The charging process is continued as soon as the battery reaches a permissible temperature again. • Indicator flashes red: An error has occured. • The indicator is not illuminated: the mains adapter is not connected.
	Drive indicator Indicator is illuminated: One of the drives (e.g. hard disk, CD/DVD) is being accessed.
	Radio components indicator • Indicator is illuminated: The wireless components are switched on. • Indicator is off: The wireless components are switched off.
	Num Lock indicator Indicator is illuminated: 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.
	Caps Lock indicator Indicator is illuminated: 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.
	Scroll Lock indicator Indicator is illuminated: the key combination Fn + Scr has been pressed. The effect that this key has varies between applications.
	Energy saving functions indicator • Indicator is illuminated: None of the energy saving functions have been activated. • The indicator is not illuminated: The energy saving functions have been deactivated.

Switching on the notebook



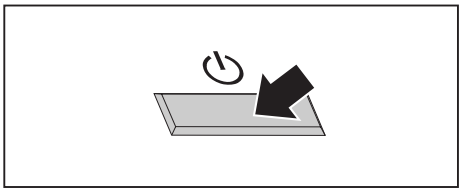
↳ The power-on indicator is lit.

► 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 correctly.

► If the notebook is not switched off automatically, press the ON/OFF switch for approx. five seconds.

► Close the LCD screen.

Keyboard

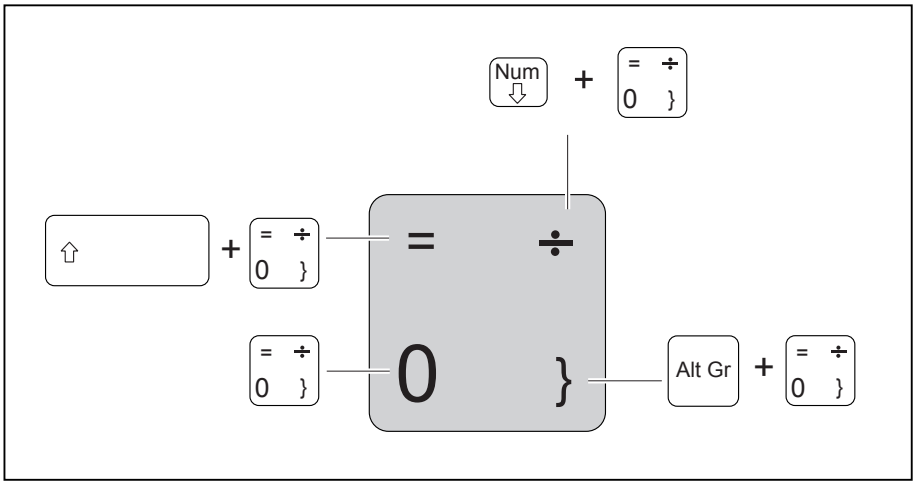
The keyboard of your notebook is subject to continuous wear through normal use. The key markings are especially prone to wear. The key markings are liable to wear away over the life of the notebook.

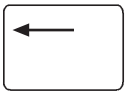
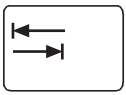
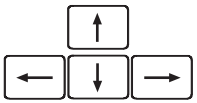
The keyboard has been designed to provide all the functions of an enhanced keyboard. Some enhanced keyboard functions are mapped with key combinations.

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.



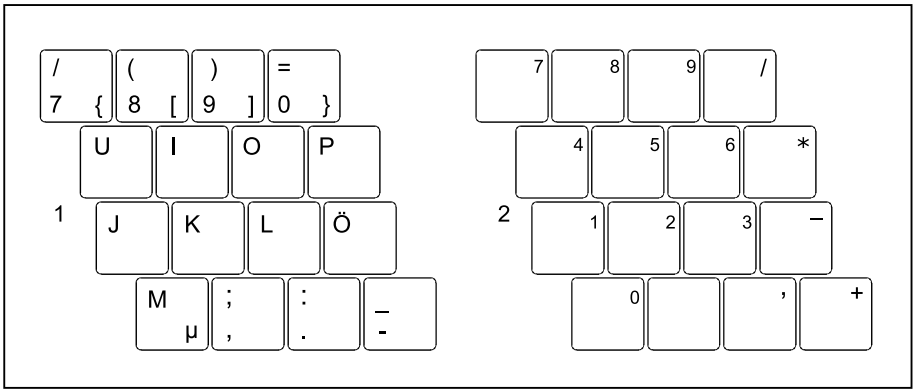
Key	Description
	**Backspace key** The Backspace key deletes the character to the left of the cursor.
	**Tab key** The Tab key moves the cursor to the next tab stop.
	Enter key (return) The Enter key terminates a command line. The command you have entered is executed when you press this key.
	Caps Lock 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.
	Windows key The Windows key switches between the start screen and the last used application.
	Menu key The Menu key opens the menu for the active application.

Virtual numeric keypad

LIFEBOOK E734 and LIFEBOOK E744 have virtual number blocks, LIFEBOOK E754 has a separate number block.

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.

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



1 = Valid characters when the Num key is not activated

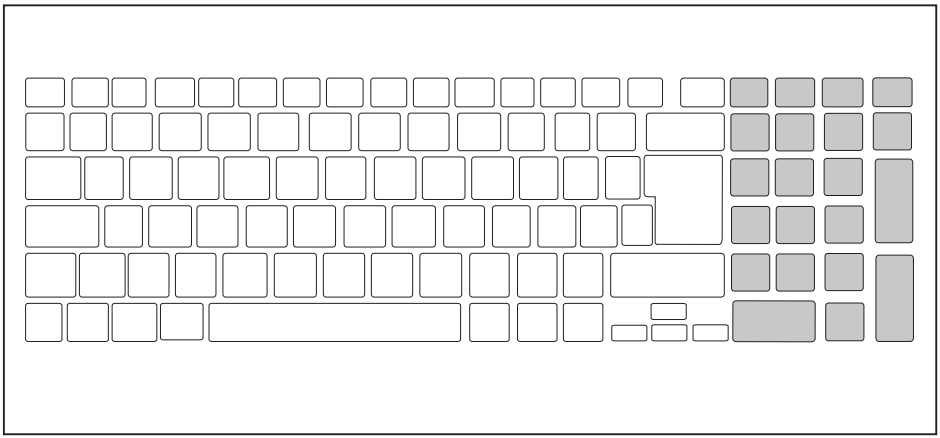
2 = Valid characters when the Num key is activated

Further information about the status indicators can be found in chapter "Status indicators", Page 20.

Separate number block

LIFEBOOK E734 and LIFEBOOK E744 have virtual number blocks, LIFEBOOK E754 has a separate number block.

The keyboard of your notebook has a separate number block on the far right.



Key combinations

The following description of key combinations applies to Windows operating systems. Some of the following key combinations may not function in other operating systems or with certain device drivers.

Other key combinations are described in the relevant manuals supplied with your application programs.

Key combinations are entered as follows:

- ► Press the first key in the combination and keep it pressed.
- ► While holding the first key down, press the other key or keys in the combination.

Combination	Description
Fn + F2	**Activate/deactivate keyboard backlight (optional)** On backlit keyboards, this key combination activates or deactivates the backlight.
Fn + F3	**Switching the loudspeakers on and off** This key combination switches your notebook's loudspeakers off and on.

Combination	Description
Fn + F4	**Switching the touchpad and touchpad buttons on/off** This key combination switches the touchpad and the touchpad buttons on or off.
Fn + F6	**Decrease screen brightness** This key combination decreases the brightness of the screen.
Fn + F7	**Increase screen brightness** This key combination increases the brightness of the screen.
Fn + F8	**Decrease volume** This key combination reduces the volume of the internal loudspeakers.
Fn + F9	**Increase volume** This key combination increases the volume of the internal loudspeakers.
Fn + F10	**Toggle output screen** Use this key combination to select which screen(s) is/are used for display if an external monitor is connected. Screen output is possible: • only on the notebook's LCD screen • on the LCD screen of the notebook and the external monitor at the same time • only on the external monitor This setting is useful if you would like a high resolution and a high refresh rate on an external monitor.
Alt + ⇤⇥	**Switch between open applications** Use this key combination to switch between several open applications.
Ctrl + Alt + Del	**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 tab stop.

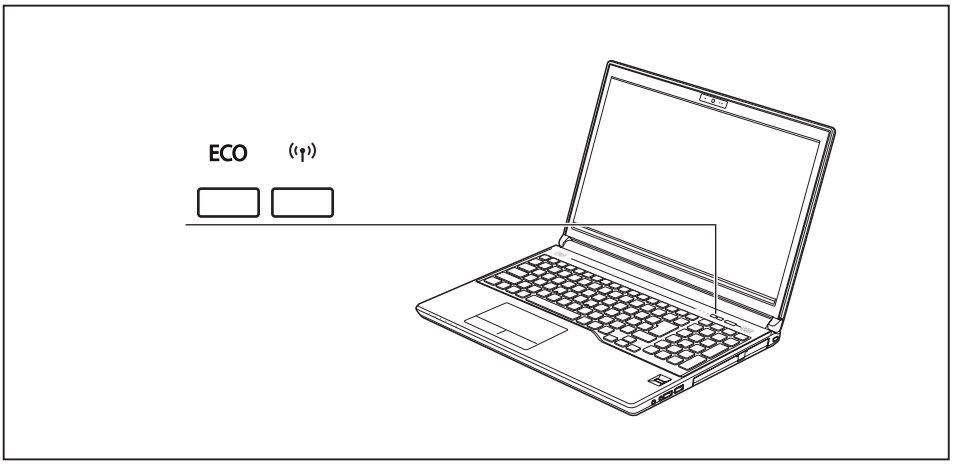
Key combinations using the Windows keys are detailed in the manual for your operating system.

Country and keyboard settings

► Change the country and keyboard settings as described in the documentation for your operating system.

Application keys

Your notebook is equipped with two application buttons.



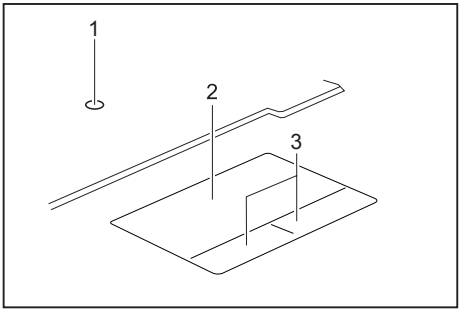
Button	Description
ECO	**Eco button (E key)** The E key is a simple way of activating and deactivating power management functions (e.g. reduce screen brightness), see "Using the power-management features", Page 40.
((ı))	**Wireless Components key** This application key is used to start the *WirelessSelector* software. The wireless components that have been activated in the *BIOS Setup* can be switched on and off individually.

Touchpad and touchpad buttons

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

Never use the touchpad if your fingers are dirty.

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



1 = TouchStick (optional)

2 = Touchpad

3 = Touchpad buttons

You can move the cursor using the touchpad.

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

You can also deactivate the touchpad using a keyboard shortcut, so that you cannot move the cursor unintentionally (see chapter "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, with your finger on the touchpad, drag the item to the desired position.

↳ The item will be moved.

LCD screen

High-quality LCD screens (TFT) are installed in Fujitsu notebooks. For technical reasons, these screens are manufactured for a particular resolution. An optimum and sharp image can only be ensured with the resolution intended for the particular screen. A screen resolution which differs from the specification can result in an unclear image.

The resolution of your notebook's screen is set to the optimum at the factory.

Current production technology cannot guarantee an absolutely fault-free screen display. A few isolated constantly lit or unlit pixels (picture elements) may be present. The maximum permitted number of such faulty pixels is specified in the international standard ISO 9241-307 (Class II).

Example:

A screen with a resolution of 1280 x 800 has 1280 x 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 9241-307 (class II), a maximum of 2 light and 2 dark pixels and in addition 5 light or 10 dark subpixels or an equivalent mix (1 light subpixel counts as 2 dark subpixels) are allowed to be defective.

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

LCD screens 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 screen 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 WebCam has its own status indicator. The indicator lights up when the WebCam is switched on.

- 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 would like to perform a function test of your web cam, there is suitable test software available at "http://www.fujitsu.com/fts/support/index.html".

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 / 41°F and max. 35°C / 95°F.

You can charge the battery by connecting the notebook to the mains adapter (see "Mains adapter connecting", Page 18).

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

Store battery packs in a dry environment at a temperature between 0°C / 32°F and 30°C / 86°F. 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 batteries approved by Fujitsu for your notebook.

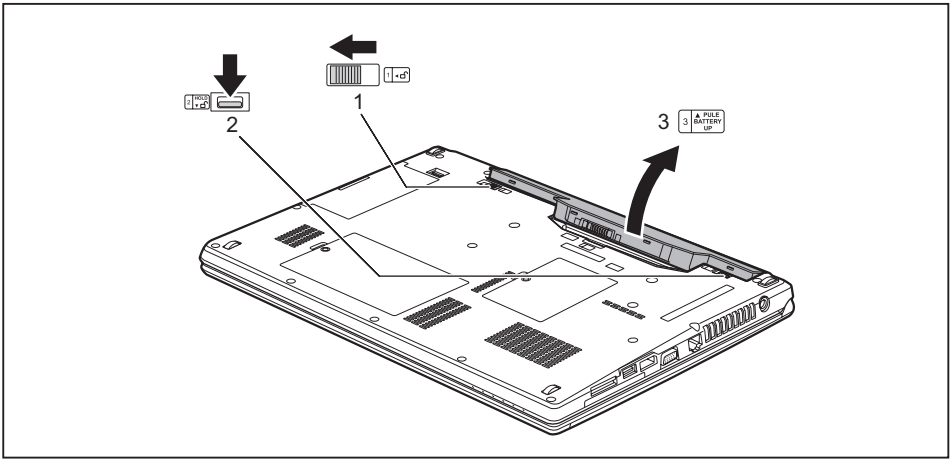
Never use force when fitting or removing a battery.

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

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

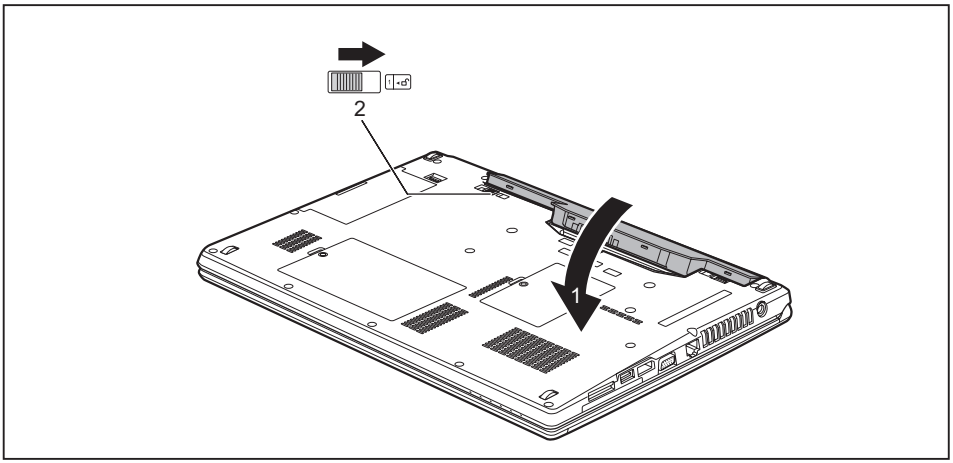
Removing a battery

► Prepare for removal, see chapter "Preparing to remove components", Page 64.



► Slide the release button in the direction of the arrow (1).
► Slide the release button in the direction of the arrow (2) and hold it in place.
► 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 70.

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
- Second hard disk drive
- DVD RW drive
- Blu-ray BD-W drive
- Weight Saver
- LIFEBOOK Bay Projector

Only use modules designed for your notebook.

Do not use force when installing or removing the module.

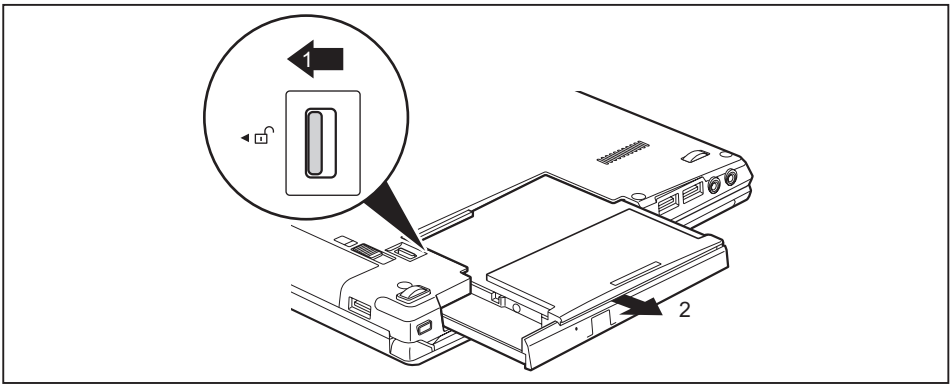
Make sure that no foreign objects enter the module bay.

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

Log off the module via the corresponding symbol in the task bar.

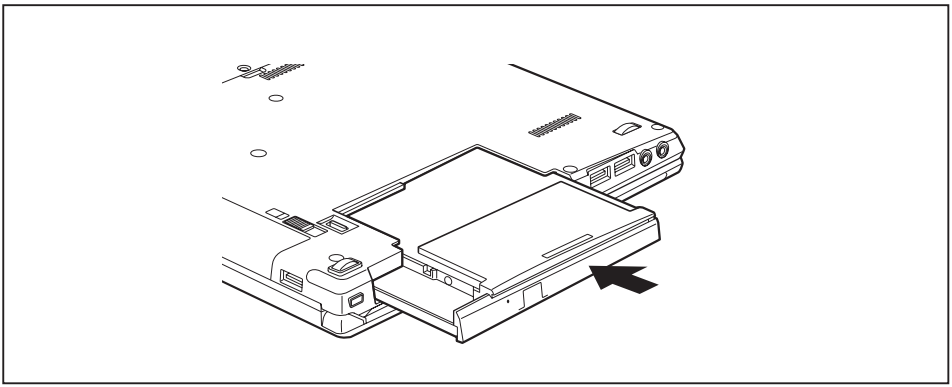
The module can now be removed without any further actions being necessary.

Removing a module



► Slide the release mechanism (1) in the direction of the arrow and hold.
► 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, classification according to IEC 60825 1:2007: 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 can use data carriers with a diameter of 8 cm / 3.15" or 12 cm / 4.7" in the drive.

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

CD/DVD indicator

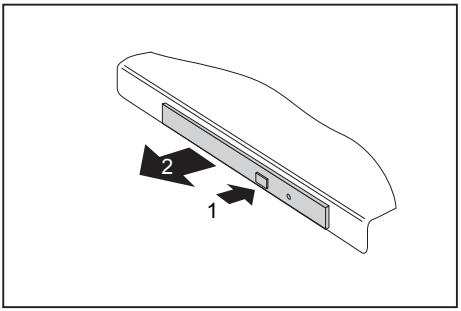
The CD/DVD indicator flashes when a data carrier is inserted. The indicator goes out when the drive is ready for reading. The indicator lights up when the drive is being accessed. You may only remove the data carrier when the indicator is unlit.

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.

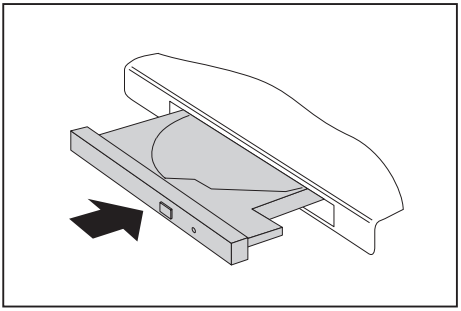
Either the data carrier is damaged or dirty or you are using a data carrier that the drive cannot read.

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.



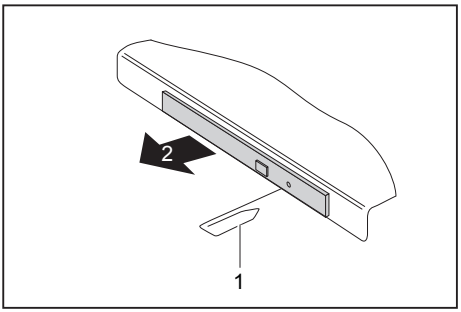
► Place the data carrier in the drive tray with the printed side facing upwards.

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.

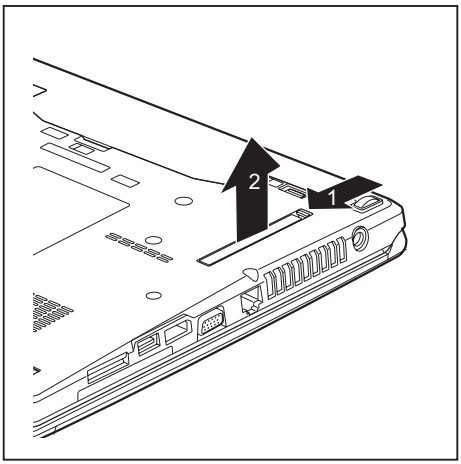
This ensures optimum fan performance. You can achieve the best cleaning results with a small hand-held vacuum cleaner.

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.

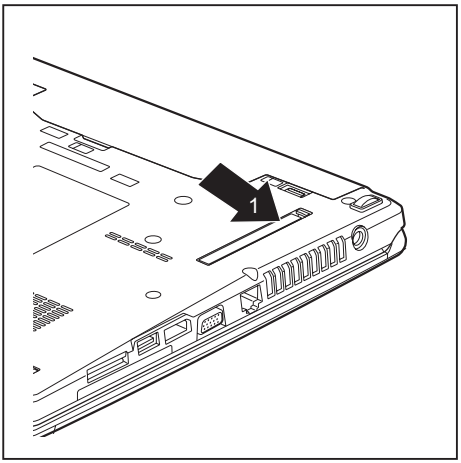
To avoid overheating of the device, do not remove the ventilation slot cover when the device is switched on.

► Prepare for removal, see chapter "Preparing to remove components", Page 64.



► Press and hold the lock of the ventilation slot cover (1) and remove it from its slot (2).

► Clean the dust chamber.



- ► 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 70.

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.

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

or

- ► Right-click on the desktop. Activate the screen saver by clicking on *Personalize – 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.

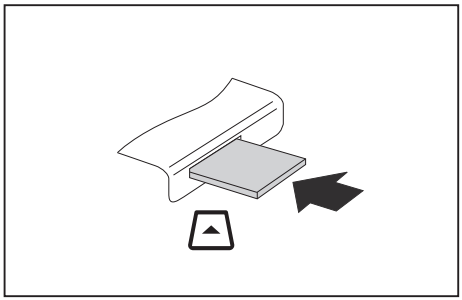
Observe the manufacturer's instructions when handling the memory cards.

Supported formats

Your notebook supports the following format:

- Secure Digital (SD™ card)

Inserting the memory card

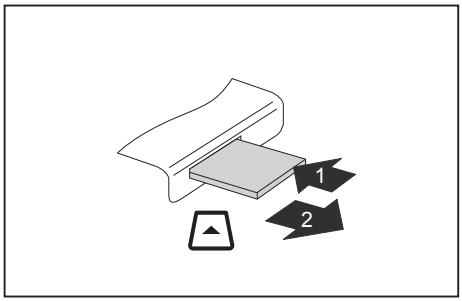


► Carefully slide the memory card into the slot. The label should be facing upward. Do not apply excessive force, as otherwise the delicate contact surfaces could be damaged.

↳ 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 (see the documentation for your operating system).



► 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).

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 57.

SIM card

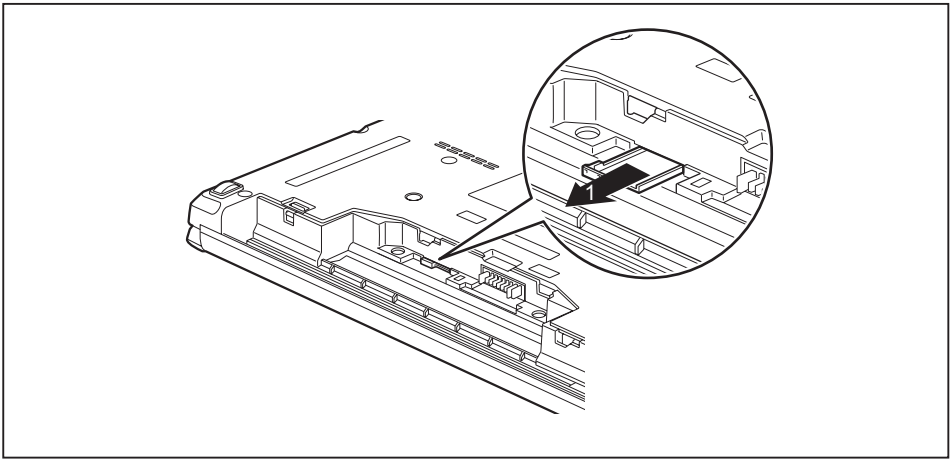
A SIM Card (Subscriber Identity Module) is a chip card which is inserted in a mobile telephone or notebook to enable access to a mobile radio network in conjunction with an installed UMTS module.

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

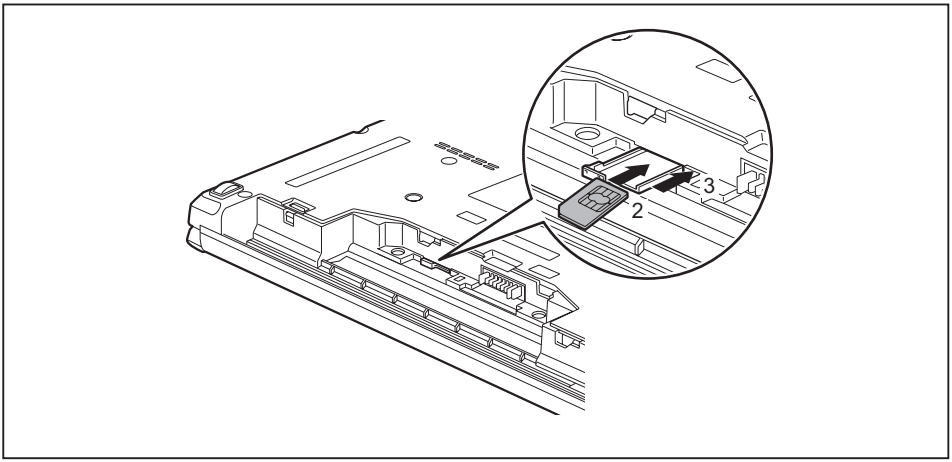
The SIM card slot is located in the battery compartment and can only be accessed when the battery is removed.

Inserting the SIM card

► Prepare for installation of the SIM card, see chapter "Preparing to remove components", Page 64.
► Remove the battery, see chapter "Removing a battery", Page 33.



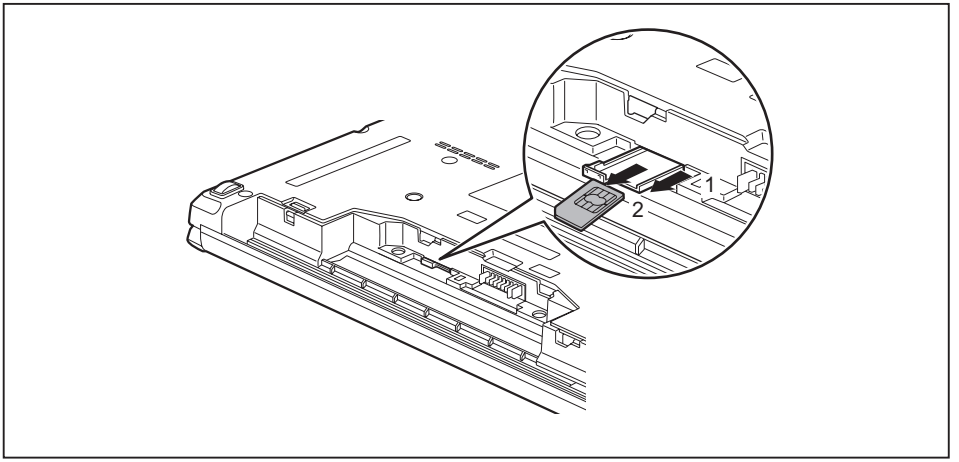
► Pull the SIM card holder out of the slot (1).



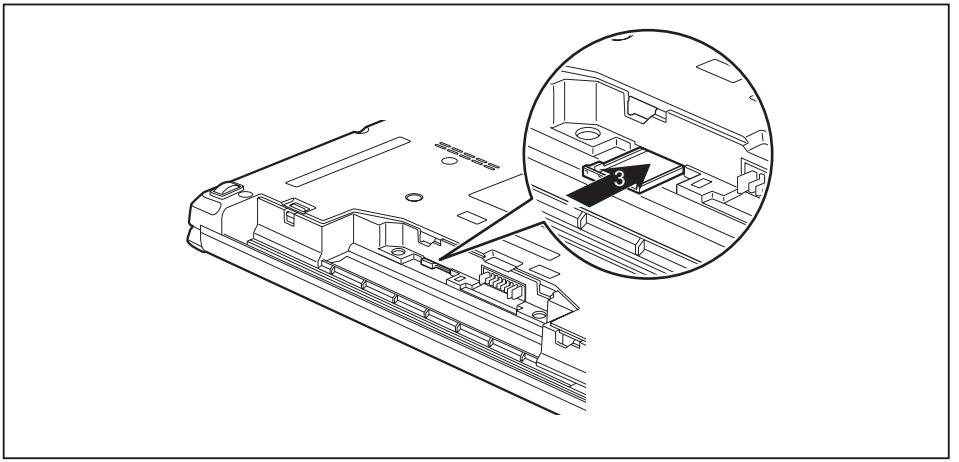
► Insert the SIM card (2) into the SIM card holder as shown in the diagram on the SIM card holder.
► Push the SIM card holder back into the slot (3).
► Install the battery again, see "Installing a battery", Page 34.
► Complete the installation, see chapter "Finishing component removal", Page 70.

Removing the SIM card

► Prepare for removal of the SIM card, see chapter "Preparing to remove components", Page 64.
► Remove the battery, see chapter "Removing a battery", Page 33.



► Pull the SIM card holder out of the slot (1).
► Remove the SIM card from the SIM card holder (2).



► Push the SIM card holder back into the slot (3).
► Install the battery again, see "Installing a battery", Page 34.
► Complete the removal, see chapter "Finishing component removal", Page 70.

Wireless LAN/Bluetooth/UMTS/LTE radio components

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

Switching the wireless components on and off

► Press the button to start the *WirelessSelector*.

↳ The radio component indicator will be illuminated when one or more radio components is switched on.

If you switch off the radio components, the wireless LAN antenna and the Bluetooth and UMTS/LTE module will also be switched off.

You can enable and disable the installed radio components individually using the *WirelessSelector* programme

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

Details on using 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 / LTE from your service provider.

Setting up WLAN access

- Requirement: A WLAN must be available and you must have the corresponding access information.

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

Access via UMTS/LTE

You can purchase the accessories for UMTS/LTE reception from your retailer or your Fujitsu Technology Solutions dealer.

If you have ordered a UMTS/LTE module, your device will already be prepared when you receive it.

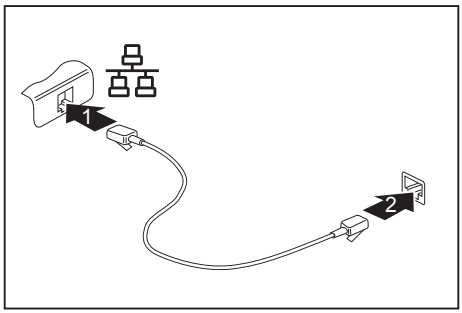
You will find information on establishing the connection with the UMTS/LTE network in the documentation for the hardware you plan to use.

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

- USB dongle
  a USB stick with your mobile phone provider's SIM card
- a mobile end-device (e.g. mobile phone) with Bluetooth connection
- a mobile end-device (e.g. mobile phone) with data cable

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.

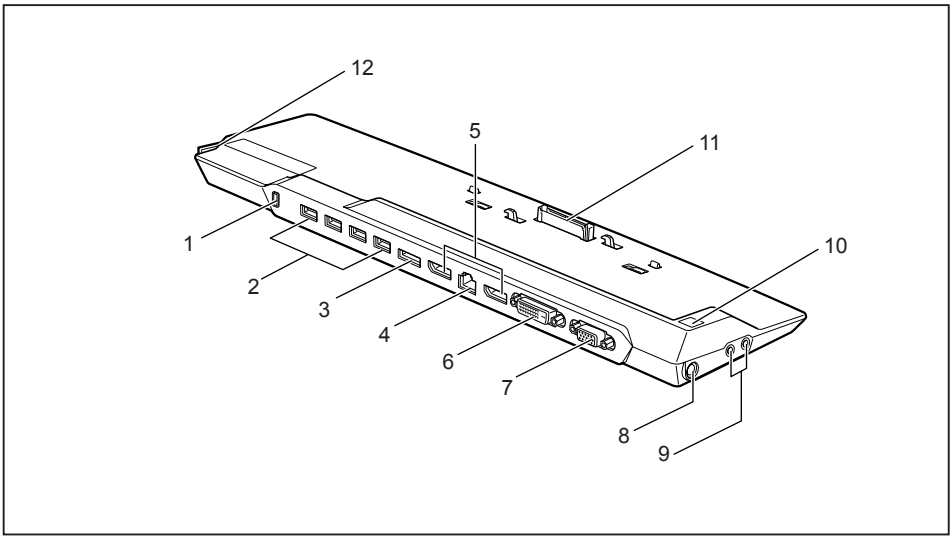
Your Port Replicator

The Port Replicator is a device that helps you to quickly connect your notebook to your peripheral devices, 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 work with your peripheral devices.

Ports on the Port Replicator



1 = Security Lock device
2 = USB ports (USB 3.0)
3 = eSATA port
4 = LAN port
5 = DisplayPort
6 = DVI-D monitor port
7 = VGA monitor port
8 = DC jack socket (DC IN)
9 = Headphone and microphone port
10 = ON/OFF button
11 = Connector on the port replicator for the docking port on the bottom of the notebook
12 = Release

The DVI port and DisplayPort cannot be used at the same time.

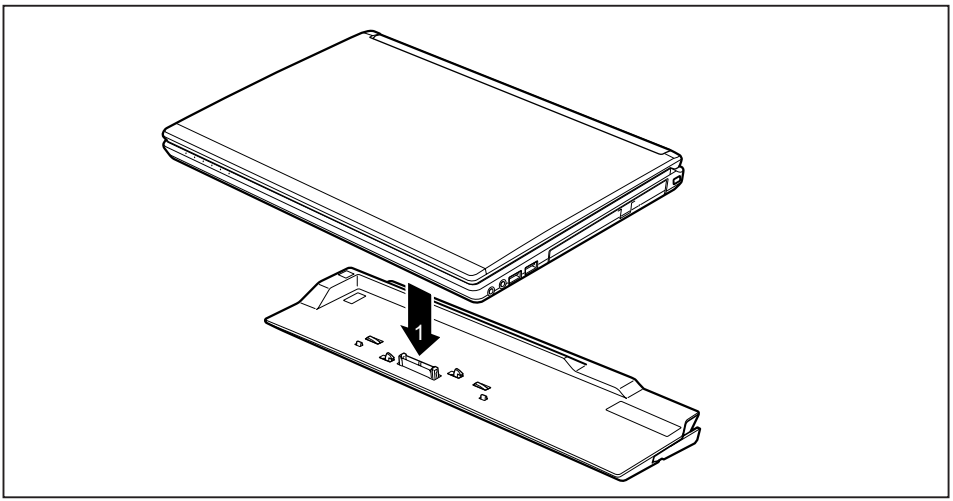
Connecting the notebook to the Port Replicator

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.

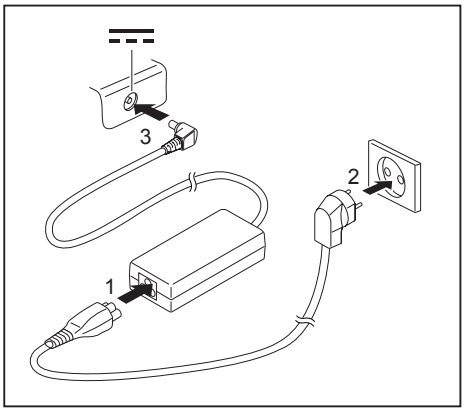
We recommend that the notebook is not operated with the LCD screen closed when the notebook is connected to the Port Replicator. The resulting overheating can cause reduced performance and increased activity of the integrated fan.

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

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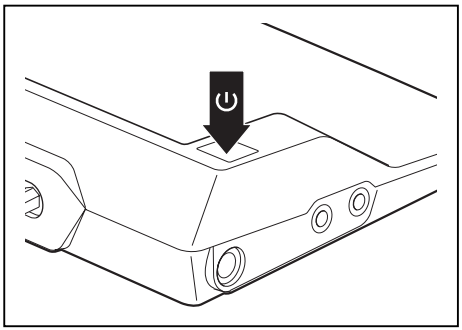
When the notebook is connected to a Port Replicator, the operating system creates a hardware profile for the "Docked" mode. In this profile, for example, the setting is saved as to which monitor was last used for output. This profile will be loaded, as soon as the notebook is connected to a Port Replicator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

Switching on the notebook via the port replicator

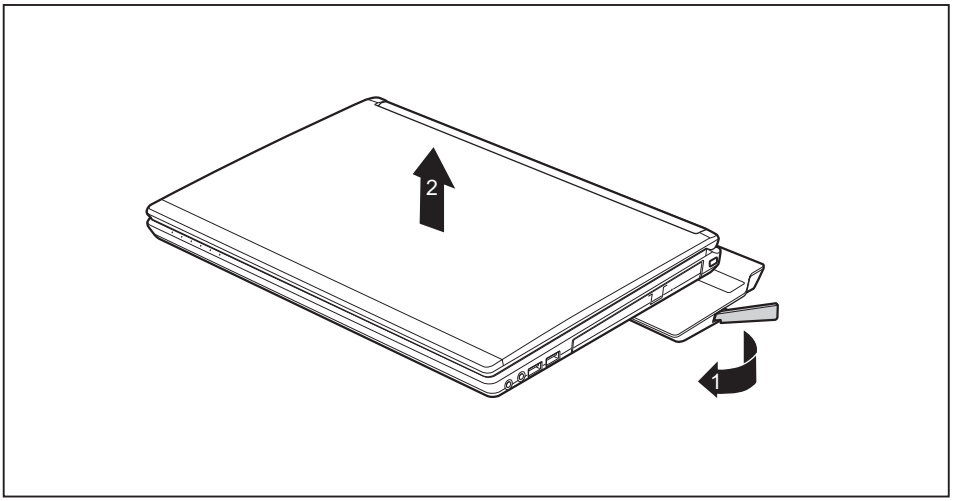


- ► Press the ON/OFF switch on the port replicator to switch the notebook on.
- ↳ The power-on indicator of the Port Replicator lights up.

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:

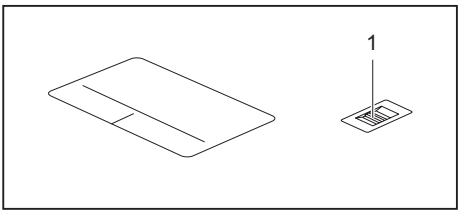
- Make regular backups to external data carriers such as external hard drives, CDs, DVDs or Blu-ray Discs.
- Some security functions need you to choose passwords. Make a note of the passwords and keep them in a safe place.

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.

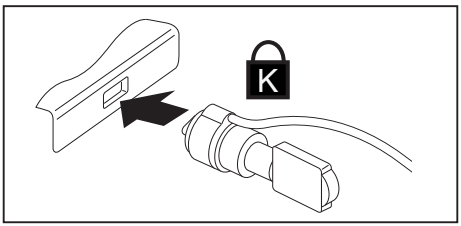


► You must install the fingerprint software in order to be able to use the fingerprint sensor (1).

Using the Security Lock

Your device comes with a Security Lock mechanism for the Kensington Lock Cable. You can use the Kensington Lock Cable, a sturdy steel cable, to help protect your notebook from theft. The Kensington Lock Cable is available as an accessory.

Fujitsu recommends the use of a combination lock.



► Fit the Kensington Lock Cable to the mechanism on your notebook.

Attach another Kensington Lock Cable to your Port Replicator to protect your Port Replicator from theft as well.

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 HDD 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 the BIOS Setup Utility (supervisor and user HDD passwords)

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

The supervisor and user HDD passwords both prevent unauthorised use of the *BIOS Setup Utility*. With the aid of the supervisor HDD password you can access all of the functions of the *BIOS Setup Utility*, while the user HDD password will only give you access to some of the functions. You can only set a user HDD password if a supervisor HDD password has already been set.

Please refer to section "Settings in BIOS Setup Utility", Page 71 for a description of how to call up and operate the *BIOS-Setup-Utility*.

Setting the supervisor and user HDD passwords

- ► 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 HDD password, select *Set User Password* and proceed exactly as when configuring the supervisor HDD 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 is then rebooted and the new password comes into effect. It will now be necessary to first enter your supervisor or user HDD password in order to open the *BIOS Setup Utility*. Please note that the user HDD password only provides access to a few of the BIOS settings.

Changing the supervisor or user HDD password

You can only change the supervisor HDD password if you have logged into the *BIOS Setup Utility* with the supervisor HDD 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.
With the supervisor HDD password you simultaneously deactivate the user password.

Password protection for booting of the operating system

With the supervisor HDD password that you set in the *BIOS Setup Utility* (see section "Setting the supervisor and user HDD passwords", Page 53), 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 reboots. You are prompted to enter your password (the supervisor HDD 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.

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 HDD password (see "Security functions", Page 51).

Enabling TPM

- Requirement: You have set a supervisor HDD password, see "Security functions", Page 51.

► Call up the BIOS Setup and select the *Security* menu.

► Mark the *TPM (Security Chip) Setting* field and press the Enter key

► Select the *"Security Chip" "Enabled"* entry to activate the TPM

↳ Once you have activated the TPM through a reboot, the *Clear Security Chip* menu option appears.

With *Clear Security Chip*, you can delete the owner in the TPM, if the TPM has already been used. With *Enabled*, all secret keys generated by applications (e.g. SRK - Storage Root Keys, AIK - Attestation Identity Keys, etc.) 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 set a supervisor HDD password, see "Security functions", Page 51.

► Call up the BIOS Setup and select the *Security* menu.

► Mark the *TPM (Security Chip) Setting* field and press the Enter key.

► Select the *"Security Chip" "Disabled"* entry 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.

SmartCard reader

Depending on the device configuration level, your notebook is equipped with a SmartCard reader.

SmartCards are not supplied as standard equipment. You can use all SmartCards that comply with the ISO standard 7816-1, -2 or -3. These SmartCards are available from various manufacturers.

With the appropriate software you can use your SmartCard as an alternative to password protection, but also as a digital signature, for encrypting your e-mails or for home banking.

We recommend that you always use two SmartCards. Always keep one of the SmartCards in a safe place if you are carrying the other SmartCard with you.

In order to be able to take advantage of all the security features of your notebook, you will need a CardOS SmartCard from Fujitsu.

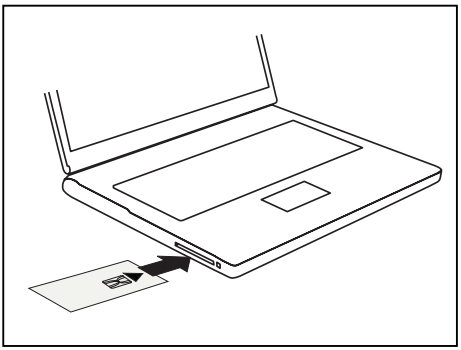
The SmartCard can only be used with a PIN, offering maximum protection even if you lose the SmartCard. In order to maximise your security, the CardOS SmartCard is disabled if three incorrect attempts are made to enter the PIN.

When you use the CardOS SmartCard for the first time, you will either need to enter the preset PIN "12345678" or the PIN given to you by your systems administrator.

Inserting the SmartCard

Do not use force when inserting and removing the SmartCard.

Make sure that foreign objects do not fall into the SmartCard reader.



► Slide the SmartCard into the SmartCard reader with the chip facing upwards (on some variants it faces down) and to the front.

Connecting external devices

Always refer to the safety information provided in "Important notes", Page 14 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

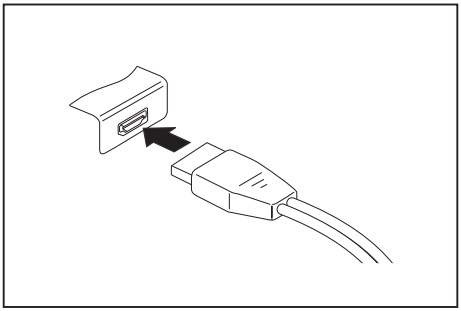
1. Turn off your notebook and all external devices.
2. Unplug your notebook and all devices from the mains sockets.
3. Connect the cables for your external devices following the instructions.
4. Plug all power cables into the mains sockets.

Disconnecting devices from the notebook

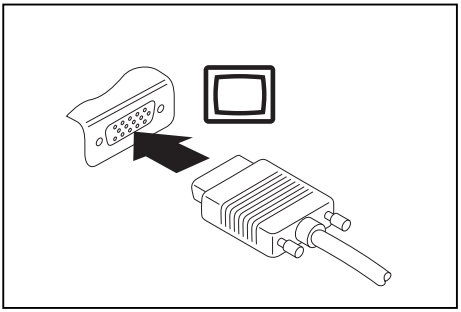
1. Turn off your notebook and all external devices.
2. Unplug your notebook and all devices from the mains sockets.
3. Disconnect the cables for your external devices following the instructions.

Connecting an external monitor

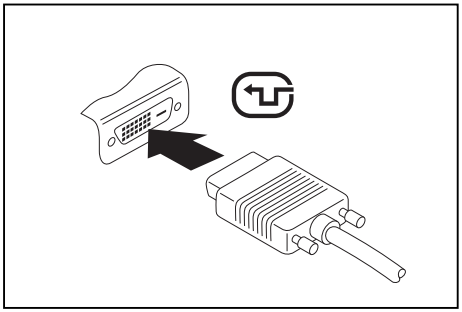
An analogue monitor is connected to the analogue VGA monitor port, a digital monitor to the DisplayPort or to the DVI-D monitor port on the optional Port Replicator. Monitor output is limited to a maximum of two monitors at any one time (see "Key combinations", Page 26, section "Toggle output monitor").



Digital DisplayPort



Analogue VGA monitor port



Digital DVI-D monitor port (on the optional Port Replicator)

- ► 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 between the external monitor and the LCD monitor of the notebook, see chapter "Key combinations", Page 26.

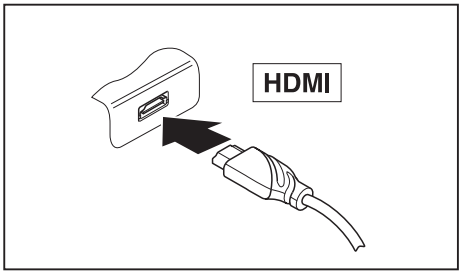
You can display the same picture on the external monitor and the notebook LCD monitor simultaneously.

If you wish to operate the monitor via a DVI port, use the optional Port Replicator available for your notebook.

HDMI port

Depending on the device variant, your device may include an integral HDMI port (LIFEBOOK E754).

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 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).

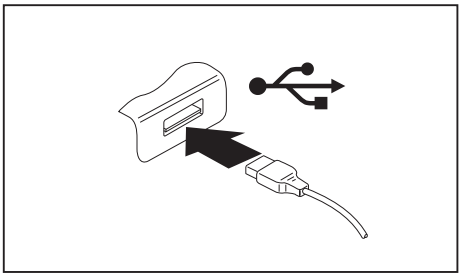
USB devices are hot-pluggable. This means you can connect and disconnect devices while your operating system is running.

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

USB 2.0 has a data transfer rate of up to 480 Mbit/s.

USB 3.0 has a data transfer rate of up to 5 Gbit/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

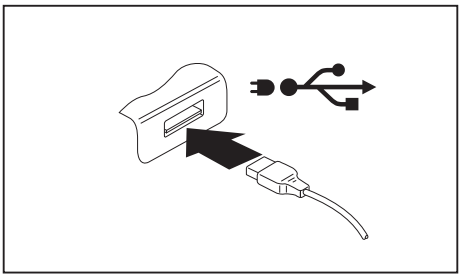
USB devices will be automatically recognised and installed by your operating system.

USB port with charging function (Anytime USB charge)

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.

How to remove USB devices correctly

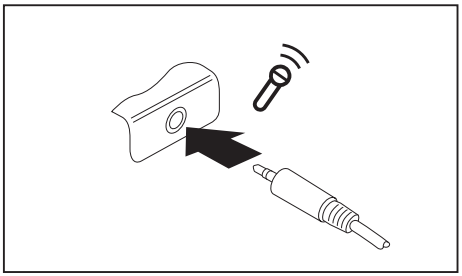
Always correctly remove the device according to the rules described below, to ensure that none of your data is lost.

- ► Left click on the icon to safely remove hardware, located in the taskbar.
- ► Select the device which you want 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

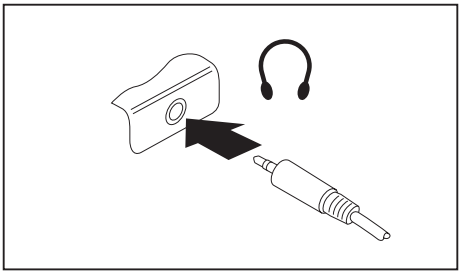
The microphone port/Line In allows you to connect an external microphone, a MiniDisc player, MP3 player, CD player or a tape deck to your notebook.



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

Headphone port

You can connect headphones or external loudspeakers to your notebook via the headphone port.



- ► Connect the audio cable to the external device.
- ► Connect the audio cable to the headphone port of the notebook.
- ↳ The internal loudspeakers are disabled.

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

The headphone port on your notebook is a "3.5 mm jack socket".

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 14.

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 33).

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 14.

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 64.

Only use memory expansion modules that have been approved for your notebook (see "Technical data", Page 81).

Never use force when installing or removing a memory extension.

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

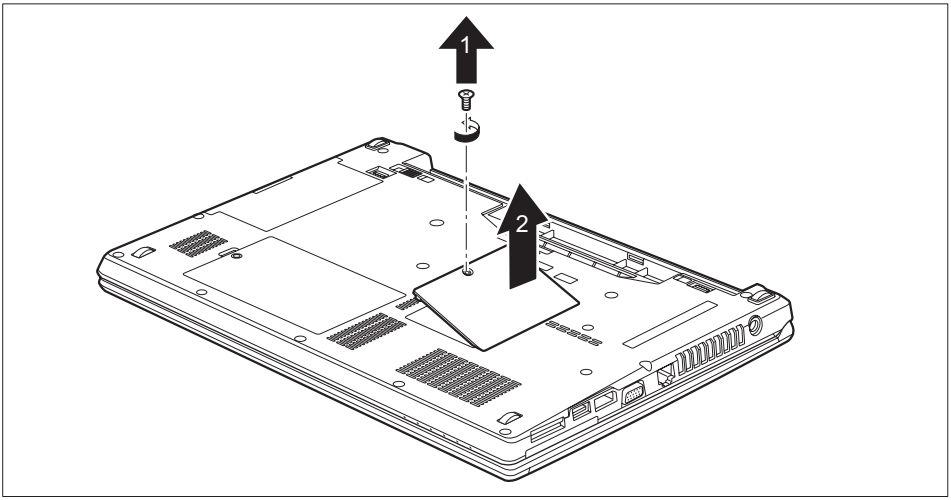
You must open the service compartment to remove or install a memory module. On some devices, opening the compartment may expose other components. These components should be removed and replaced only by authorised specialists. Therefore, be sure to observe the following:

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 63.

Removing a cover

► Prepare for removal, see "Preparing to remove components", Page 64.

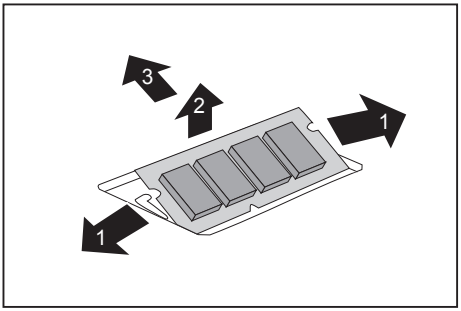


► Remove the screw (1).

Keep the screw in a safe place.

► Lift the cover off the notebook (2).

Removing memory modules

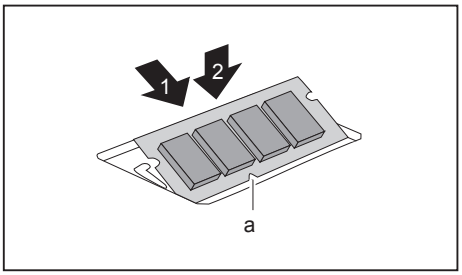


► Carefully push the two mounting clips outwards (1).

↳ The memory module snaps upwards (2).

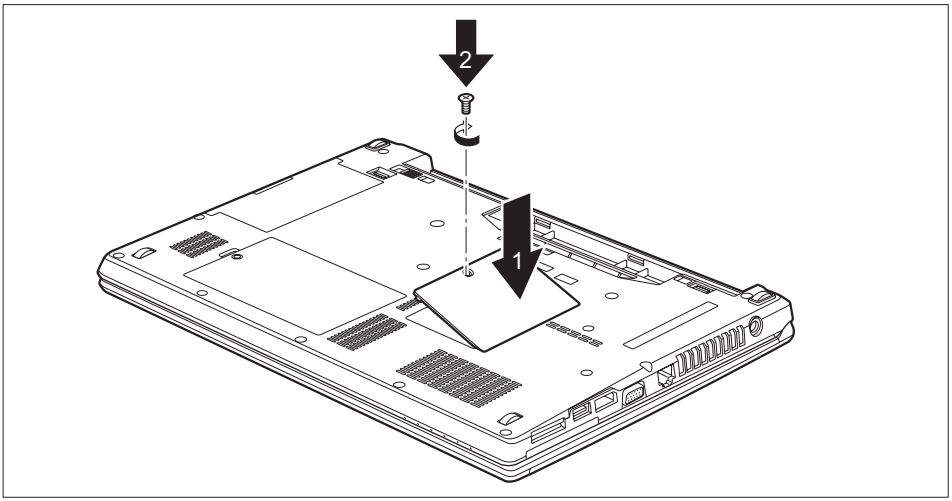
► Pull the memory module out of its slot in the direction of the arrow (3).

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).

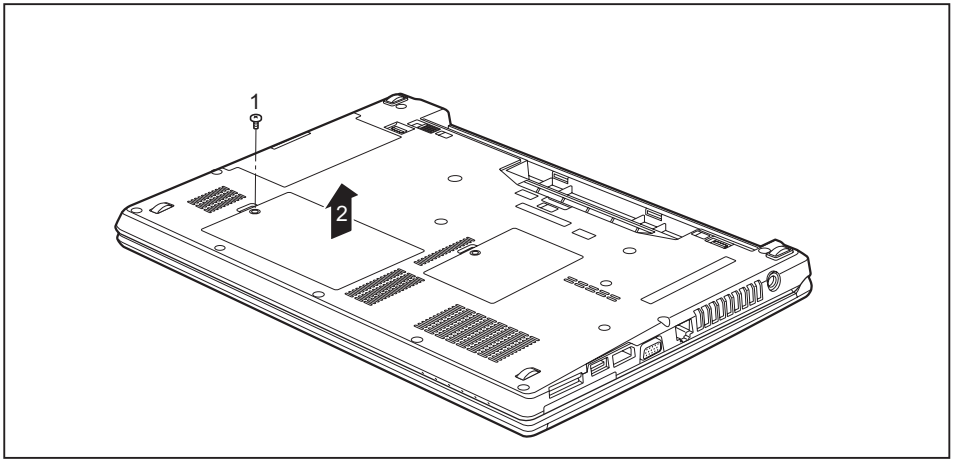
Attaching the cover



- ► Place the cover in the correct mounting position (1).
- ► Tighten the screw (2).
- ► Complete the installation, see "Finishing component removal", Page 70.

Removing and installing the hard disk

Removing a cover



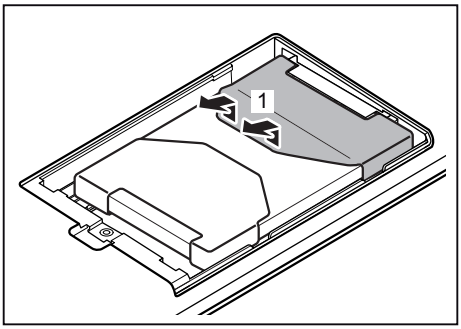
► Remove the screw (1).

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 separately from each other. If you install the wrong screws, components may be damaged.

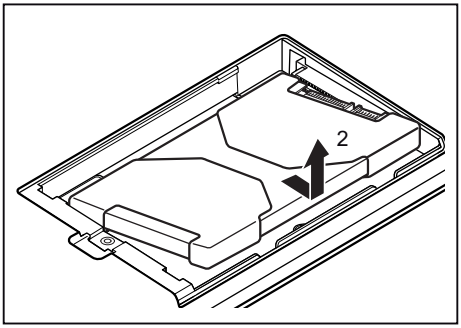
The screws are not all the same length and when the cover is installed, the correct screws must be used.

► Lift the cover off the notebook (2).

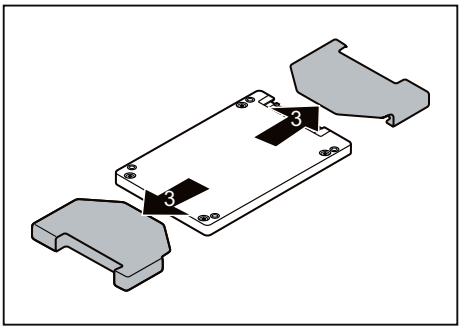
Removing a hard disk



► To release the hard disk from the contacts, pull the hard disk in the direction of the arrow (1).

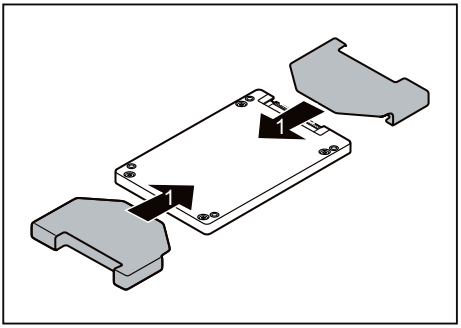


► Remove the hard disk from the hard disk compartment (2).

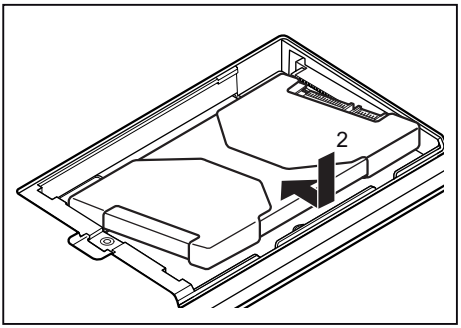


► Pull off the hard disk carriers (3).

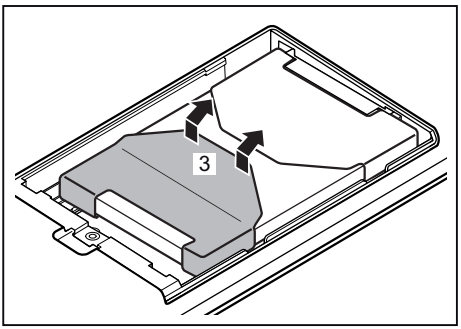
Installing a hard disk



► Attach the hard disk carriers to the hard disk (1).

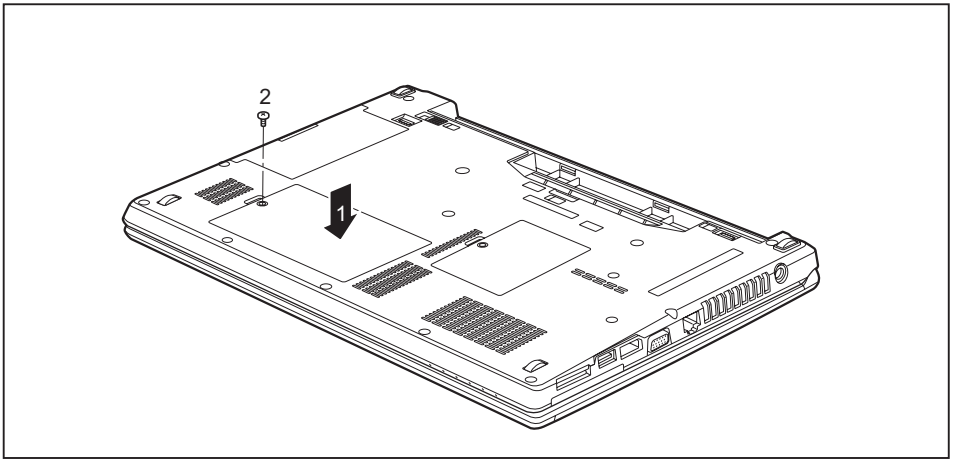


► Place the hard disk into the hard disk compartment (2).



► Pull the hard disk in the direction of the arrow (3) until it engages in the contacts.

Attaching the cover



► Place the cover in the correct mounting position (1).
► Tighten the screw (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 34).
► 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:

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

Starting the BIOS Setup Utility

► Reboot the device (switch off/on or reboot the operating system).

↳ The following or a similar display appears on the screen at start-up:

```
<F2> BIOS Setup <F12> Boot Menu
```

► Press the 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 the *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://support.ts.fujitsu.com/Download/Index.asp"

Help if problems occur

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

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

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 *BIOS-Setup-Utility*, you can set the date and time in the *main* 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 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.	► 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.	► 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.	► Check whether the battery is installed correctly in its compartment. ► Switch the notebook on.
The battery is dead.	► Charge the battery. **or** ► Insert a charged battery. **or** ► Connect the mains adapter to the notebook.
The power adapter is not connected correctly.	► 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.	► Leave energy saving mode.
An application programme has caused the malfunction.	► 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.	► Charge the battery. **or** ► Insert a charged battery. **or** ► Connect the mains adapter to the notebook.

The printer does not print

Cause	Troubleshooting
The printer is not switched on.	► 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.	► 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.	► 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.	► Switch the radio component on (see "Switching the wireless components on and off", Page 45).
The wireless component is enabled. Despite this, the wireless connection to a network does not work.	► 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
A beep sounds every few seconds. The battery is almost flat.	► Charge the battery.

SmartCard reader is not recognised.

Cause	Troubleshooting
Chip card inserted incorrectly.	► Make sure you have inserted your SmartCard into the SmartCard reader with the chip facing upwards. ► Check whether the SmartCard you are using is supported. Your SmartCard must comply with the ISO standard 7816-1, -2, -3 and -4.

SmartCard PIN forgotten

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

SmartCard lost

Cause	Troubleshooting
SmartCard lost	► If you are working in a network, contact your system administrator, who can boot up your notebook with a Supervisor SmartCard.

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.	► Contact your sales outlet or our customer service centre.
System CMOS checksum bad - default configuration used The system configuration information is incorrect.	► Switch the notebook off. ► Switch the notebook on. ► Press the function key F2 to access the *BIOS Setup*. ► In the *BIOS Setup*, select the *Exit* menu. ► Select the entry *Load Setup Defaults*. ► Select *OK* 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.	► Check whether the additional memory module has been inserted correctly.
Failure Fixed Disk n The settings of the hard disk drive are incorrect.	► Start the *BIOS Setup* (*Primary Master* submenu) and select the correct settings.
Keyboard controller error	► 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: ► Check the connection and reboot the notebook.
nn Stuck key	► Make sure that no key is pressed.
Operating system not found	► Check in the *BIOS Setup* 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.	► Press the F1 function key to start the operating system. ► Press the function key F2 to access the *BIOS Setup*.

Error message/cause	Resolution
Previous boot incomplete - Default configuration used 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.
Real time clock error	► Contact your sales outlet or our customer service centre.
nnnnK Shadow RAM failed at offset: xxxx Failing Bits: zzzz	► Contact your sales outlet or our customer service centre.
System battery is dead - Replace and run SETUP	► Contact your sales outlet or our customer service centre.
System cache error - Cache disabled	► Contact your sales outlet or our customer service centre.
System timer error	► Contact your sales outlet or our customer service centre.

Technical data

LIFEBOOK

	LIFEBOOK E734	LIFEBOOK E744	LIFEBOOK 754
Ambient conditions			
Operating temperature	5 °C – 35 °C		
Temperature in transit	-15 °C ... 60 °C		
Dimensions			
Width x depth x height	321 mm x 228 mm x 20.6–26.9 mm	338 mm x 231 mm x 20.6–26.9 mm	374 mm x 250 mm x 19.7–26.9 mm
Weight (w/o optical disk drive)	Approx. 1.6 kg	Approx. 1.7 kg	Approx. 1.9 kg
Main memory			
Slots	2 slots 204-pin DDR3L-1600 SO-DIMM with a total of max. 16 Gbyte RAM		
Approved memory modules	2 Gbyte, 4 Gbyte or 8 Gbyte DDR3L-1600 SO-DIMM		

The data sheet for the device provides further technical data. You will find the data sheet on your device or on the Internet at "http://www.fujitsu.com/fts/support/".

Rechargeable battery

You can find information on the batteries used in your device on the Internet at "http://www.fujitsu.com/fts/support/".

	6-cell rechargeable battery 1	6-cell rechargeable battery 2	6-cell rechargeable battery 3 (Bay Battery module compartment)
Rated voltage	10.8 V	10.8 V	10.8 V
Rated capacity	6700 mAh	5800 mAh	2600 mAh

Mains adapter

Electrical data	
Primary	65 W / 80 W / 90 W
Rated voltage	100 V – 240 V (automatic)
Rated frequency	50 Hz – 60 Hz (automatic)
Secondary	
Rated voltage	19 V
Max. rated current	3.42 A / 4.22 A / 4.74 A

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

Manufacturer’s notes

Disposal and recycling

You can find information on this subject on your notebook or on our website ("http://www.fujitsu.com/fts/about/fts/environment-care/").

Declarations of Conformity

The "Declarations of Conformity" for the device can be found on the Internet at: "http://globalsp.ts.fujitsu.com/sites/certificates/default.aspx".

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 device, in the version delivered, complies with the requirements of Directive 2009/125/EC on "Ecodesign" as well as the requirements of R&TTE Directive 199/5/EC of the European Parliament and Council dated 9 March 1999 governing radio and telecommunications terminal equipment and mutual recognition of conformity.

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

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

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	Croatia
Turkey			

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.

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