

CELSIUS H230 LIFEBOOK E8020 / LIFEBOOK C1320

EasyGuide



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SIEMENS

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... any technical problems or other questions which you would like to be clarified?

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- your sales outlet

Additional information is contained in the Help Desk list and the "Warranty" manual. The "Warranty" manual can be found on the "Drivers & Utilities" CD/DVD provided with your computer.

The latest information on our products, tips, updates, etc., can be found on the internet under:

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CELSIUS H230 LIFEBOOK E8020 LIFEBOOK C1320

Operating Manual

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July 2005 edition

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Innovative technology ...

and an ergonomic design make your notebook a reliable, convenient mobile PC.

This manual describes the CELSIUS H230 mobile workstation, the LIFEBOOK E8020 and the LIFEBOOK C1320. Most of the sections in this manual apply to all models – any differences are pointed out separately.

Your operating system is pre-installed on the hard disk to facilitate the procedure when you use your notebook for the first time (only with Windows operating systems).

Your notebook has 256 Mbyte - 2 Gbyte of main memory installed, depending on the upgrade level. Data is stored on a hard disk drive. A PC card slot (CardBus or PCMCIA) enables the notebook to operate one type I or type II PC card. An ExpressCard slot enables the operation of an ExpressCard/34 or ExpressCard/54. In addition, your notebook is equipped with an internal modem. In addition, your notebook is equipped with a S Video out socket to connect to a television. External devices such as digital audio/video devices or other high-speed devices can be connected to the FireWire port.

Your LIFEBOOK is also equipped with a multi-function slot. The following modules can be operated in the module bay of your notebook:

- Second battery
- second hard disk drive
- DVD-ROM drive
- Combo drive (CD-R/CD-RW/DVD)
- DVD±RW dual drive
- Multi-format DVD burner with double layer support
- Weight Saver
- Floppy disk drive (only on LIFEBOOK C1320)

Your notebook offers a Touchpad and a TouchStick (optional) for mouse control. Briefly touching the touchpad twice is all that is required, for example, to open an application.

A port replicator can be connected to your notebook. The port replicator has connectors for external devices such as external monitor, printer and mouse. The parallel port is designed for fast bi-directional data transfer. You can connect peripheral devices such as a scanner, loudspeakers, gamepads, keyboard, or mouse via the four USB ports.

An audio controller and two internal loudspeakers provide your notebook with an audio capability. You can also connect an external microphone and active loudspeakers.

The system settings of the notebook can be configured via the user-friendly *BIOS Setup* programme. Certain system settings (e.g. screen display, volume) can be modified via various key combinations while you are using the notebook.

Your notebook has a number of security functions to ensure that no unauthorised persons can access your data. For example, you can protect access to your data with the security functions in the *BIOS Setup* or with the security panel.

This operating manual tells you how to put your notebook into operation and how to operate it in daily use.

Further information on this notebook is provided:

- in the "Getting Started" manual
- in the "Safety" manual
- in the "Wireless LAN" manual
- in the documentation of the operating system
- in the information files (e.g. *.TXT, *.DOC, *.WRI, *.HLP, *.PDF)

Notational conventions

The following symbols are used in this manual:



Indicates information which is important for your health or for preventing physical damage. Failure to follow the instructions may lead to loss of data, invalidate your warranty, destroy the notebook, or endanger your life.



Indicates important information which is required to use the system properly.



Text which follows this symbol describes activities that must be performed in the order shown.

This font

indicates screen outputs.

This font

indicates programme names, commands, or menu items.

"Quotation marks"

indicate names of chapters, data carriers, and terms that are being emphasised.

Important notes

Here you will find essential safety information regarding your notebook. The other notes provide useful information on your notebook.

Safety notes



Pay attention to the information provided in the "Safety" manual and in the following safety notes.

Observe 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.
- When cleaning the device, please observe the relevant notes in the "Cleaning the notebook" paragraph.
- Only use batteries designed for this notebook.
Do not store batteries for longer periods in the notebook.
Take care not to drop the batteries or otherwise damage their casing (fire risk).
If the rechargeable batteries develop a fault please stop using them immediately.
Do not touch the contacts of the batteries.
Never interconnect the positive and negative terminals of a battery.
Batteries are harmful to the environment. You should dispose of them following guidance from your local District Council.
- If a lithium battery (button cell) is installed in the notebook for real-time buffering, please note that:
The lithium battery should only be replaced by an authorised technician. Incorrect handling may lead to a risk of explosion.
The lithium battery may be replaced only with an identical battery or with a type recommended by the manufacturer.
Batteries are harmful to the environment. You should dispose of the lithium battery following guidance from your local District Council.
- Your notebook is equipped with numerous security functions that offer you a high level of security according to a multi-level concept. Detailed information can be found in "Security functions" chapter.
- If you have a device with a wireless LAN/ Bluetooth, also observe the information in the "Additional safety precautions for devices with wireless LAN/ Bluetooth" section.

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/Help Desk.

Additional safety precautions for devices with wireless LAN/Bluetooth

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

- The transmitted radio waves can cause an unpleasant humming in hearing aids.
- Switch off the radio component (the ON/OFF switch must be in the "OFF" position) when you are at an airport or driving in a car.
- Switch off the radio component (the ON/OFF switch must be in the "OFF" position) when you are in a hospital, an operating room or near a medical electronics system. The transmitted radio waves can impair the operation of the medical devices.
- Keep the notebook at least 20 cm from a pacemaker, as otherwise the proper operation of the pacemaker may be impaired by radio waves.
- Switch off the radio component (the ON/OFF switch must be in the "OFF" position), 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.
- With data traffic via a wireless connection, it is also possible for unauthorised third parties to receive data.

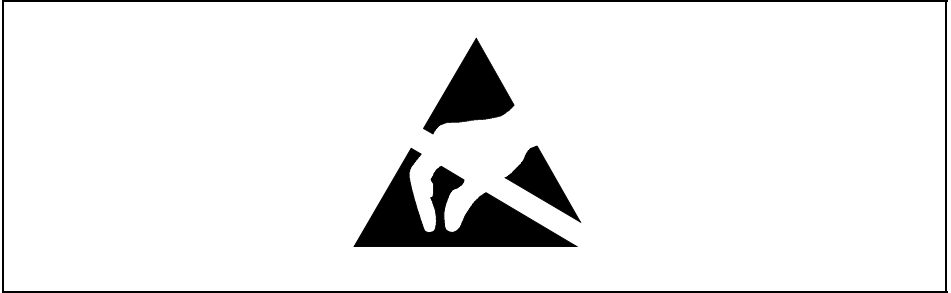
The company Fujitsu Siemens Computers GmbH cannot be held responsible for radio or television faults arising from unauthorised changes made to this device. Fujitsu Siemens Computers GmbH is, furthermore, not responsible for replacing and / or exchanging connector cables and devices which have not been specified by Fujitsu Siemens Computers GmbH. The user is solely responsible for repairing faults arising from such unauthorised changes made to a device and for replacing and/or exchanging devices.

Notes on installing and removing boards and components



Only qualified technicians should repair the device. Unqualified users who open the notebook's case expose themselves to electric shock and fire hazards.

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



When you handle boards fitted with ESDs, you must, under all circumstances, observe the following points:

- You must statically discharge yourself before working with boards (e.g. by touching a grounded object).
- The equipment and tools you use must be free of static charges.
- Pull out the power connector and remove the battery before you install or remove boards.
- Always hold boards with ESDs by their edges.
- Never touch pins or conductors on boards fitted with ESDs.

Energy saving

If you will not be using your notebook, switch it off.

Make use of the device's energy saving functions (see "Using your notebook"). If you use the possible energy saving functions, the notebook uses less energy. You will then be able to work for longer before having to recharge the battery.

The *Screen Saver* tab allows you to set energy-saving functions for your screen. Select the following item in the start menu: *(Settings) - Control Panel - Display - Display Properties - Screen Saver - Energy saving functions for the display*. You can set additional energy saving functions in the start menu by selecting the following item: *(Settings) - Control Panel - Energy - Extended*.

Travelling with your notebook

Please follow these guidelines when travelling with your notebook.

Before you travel

- Back up important data stored on your hard disk.
- Switch off the radio component (Wireless LAN/ Bluetooth) for security reasons when you cannot exclude that the transmitted radio waves can negatively affect electrical and electronic devices in your surrounding area.
- If you wish to use your notebook during a flight, first check with the flight attendants if it is OK to do so.
- 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!
- Make sure that the rated current of the mains adapter is not higher than that of the power system to which you connect the mains adapter (see technical data of the mains adapter).

When travelling in other countries

- Check whether the local power supply and the specifications of the power cable are compatible. If this is not the case, buy a power cable that matches the local conditions. Do not use a connection adapter for electrical devices to connect the notebook.
- 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 (also see "Manufacturer's notes").
- If you use the modem, incompatibilities with the local telecommunications system may result. This may result in poor performance, or the modem will not work at all. You may require a country-specific telephone adapter (available as an accessory).

Transporting the notebook

- Remove all data carriers (e.g. CD) from the drives.
- Switch off the notebook with the Suspend/Resume button (see "Switching off the notebook").
- Unplug the mains adapter and all external devices from the mains outlet.
- Disconnect the mains adapter cable and the data cables for all external devices.
- Close the connector covers.
- Close the LCD screen so that it locks into place.
- If the device needs to be shipped, use the original packaging or other suitable packaging to protect it from damage caused by mishandling.

- To protect against damaging jolts and bumps, use a notebook carrying case to transport your notebook.
Fujitsu Siemens Computers offers a number of solutions for transporting your notebook. The current offering can be viewed on the Internet at www.e-shop2.com.
- Protect the notebook from severe shocks and extreme temperatures (e.g. direct sunlight in a car).

Cleaning the notebook

- ▶ Switch the notebook off.
- ▶ Pull the power plug of the network adapter out of the mains outlet.
- ▶ Remove the battery.



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

Do not use any cleaning agents that contain abrasives or may corrode plastic. The use of improper cleaning agents can damage the markings on the keyboard and the notebook, the paintwork of the device or the device itself.

Ensure that no liquid enters the notebook.

Wipe the casing with a dry cloth.

If particularly dirty, use a cloth that has been moistened in mild domestic detergent and then carefully wrung out.

To clean the touchpad, you can use disinfectant wipes.

Wipe the LCD screen with a soft, moistened cloth.

Connections and operating elements

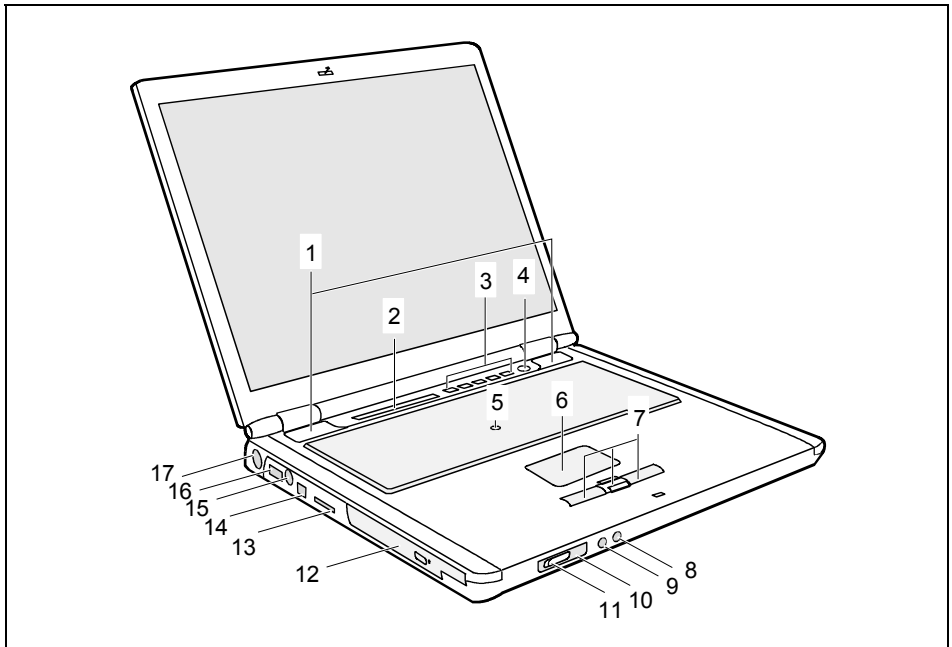
This chapter presents the individual hardware components of your notebook. You can obtain an overview of the connections and operating elements of the notebook.



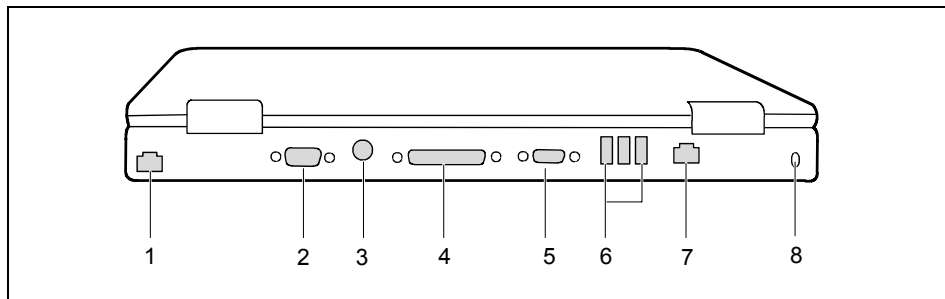
Please note that the connections and operating elements are laid out differently depending on the device. The illustrations later in the manual show only one device as an example, and are only schematic representations.

Familiarise yourself with the connections and operating elements of your notebook before working with the notebook.

CELSIUS H230/LIFEBOOK E8020



- | | |
|--|--|
| 1 = Loudspeakers | 9 = Headphone port/SPDIF |
| 2 = Status display | 10 = Infrared interface |
| 3 = Easy Launch keys | 11 = ON/OFF switch for radio component |
| 4 = Suspend/Resume button | 12 = Module bay |
| 5 = TouchStick (optional) | 13 = Memory card slot |
| 6 = Touchpad | 14 = FireWire port |
| 7 = Touchpad keys with touchpad scroll key | 15 = S Video out socket (video output) |
| 8 = Microphone jack | 16 = USB port |
| | 17 = DC jack (DC IN) |



1 = Modem port

2 = Serial port

3 = PS/2 port (for keyboard or mouse)

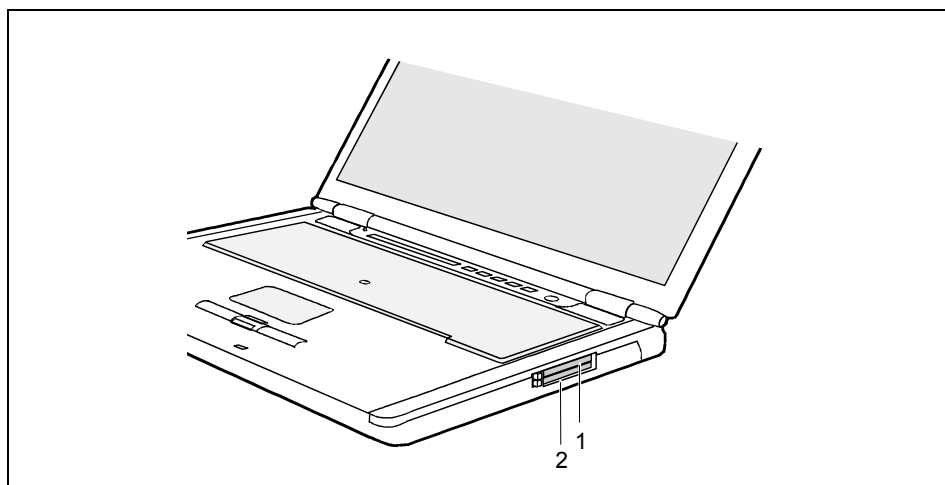
4 = Parallel port

5 = Monitor port

6 = USB ports

7 = LAN port

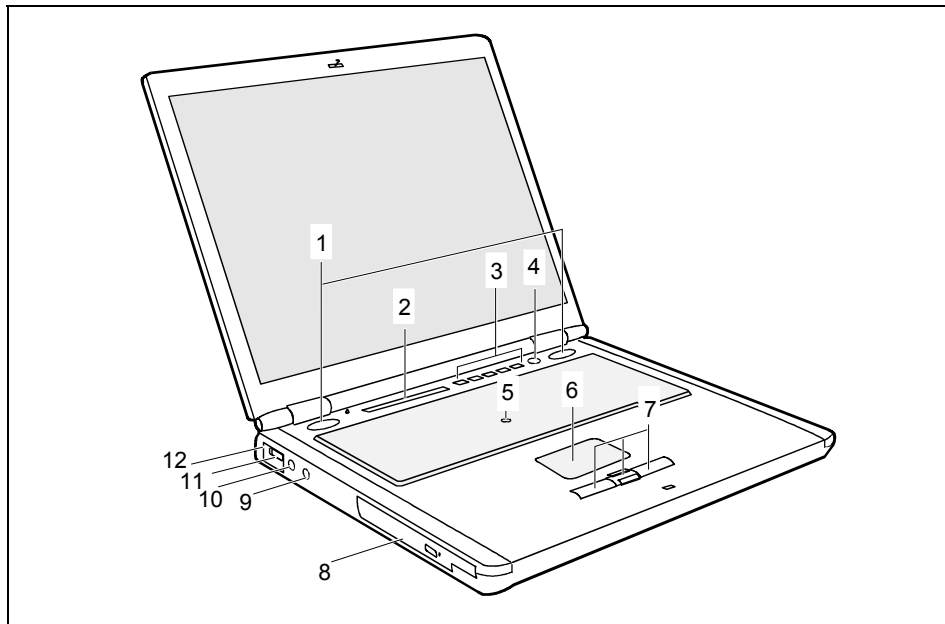
8 = Kensington Lock



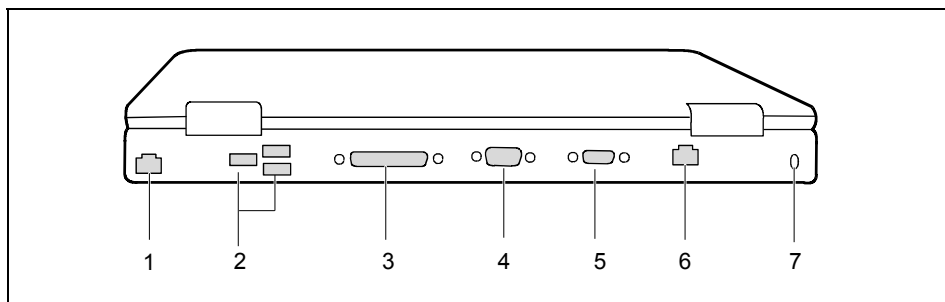
1 = ExpressCard slot

2 = PC card slot

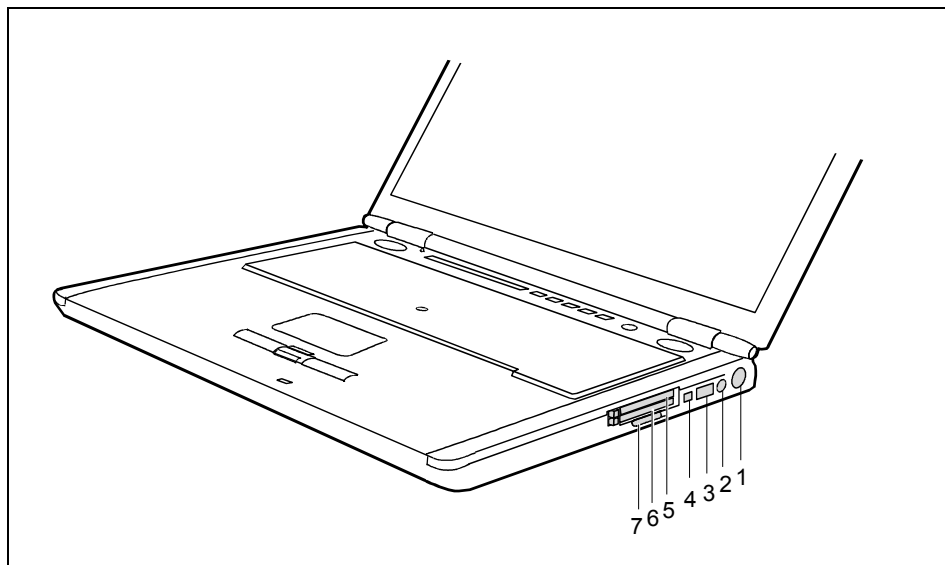
LIFEBOOK C1320



- | | |
|--------------------------------|--|
| 1 = Loudspeakers | 7 = Touchpad keys with touchpad scroll key |
| 2 = Status display | 8 = Module bay |
| 3 = Application/player buttons | 9 = Microphone port (Line In) |
| 4 = Suspend/Resume button | 10 = Headphones port (Line Out) |
| 5 = TouchStick (optional) | 11 = ON/OFF switch for radio component |
| 6 = Touchpad | 12 = Infrared interface |



- | | |
|------------------------|---------------------|
| 1 = Modem port | 5 = Serial port |
| 2 = USB ports | 6 = LAN port |
| 3 = Parallel port | 7 = Kensington Lock |
| 4 = Monitor port (VGA) | |



- 1 = DC jack (DC IN)
- 2 = S Video out socket
- 3 = USB port
- 4 = FireWire port

- 5 = ExpressCard slot
- 6 = PC card slot
- 7 = Memory card slot

Preparing the notebook for use



Observe the relevant notes in the "Important notes" chapter and in the manual about your radio component.

You must charge the battery and install the application programmes before you can work with the notebook. The operating system and drivers required are preinstalled (only with Windows operating systems).

When not plugged into a mains outlet, the notebook runs on its built-in battery. You can increase the battery's life by enabling the system's energy saving functions.

If you use the notebook in a normal office situation, run it from the mains using the mains adapter.

Please see the "Connecting external devices" chapter for instructions on how to connect devices such as a mouse and a printer to the notebook.

Unpacking and checking the delivery

- ▶ Unpack all the individual parts.
- ▶ Check the delivery for damage incurred during transportation.
- ▶ Check whether the delivery agrees with the details in the inventory.



Should you discover that the delivery does not correspond to the inventory, notify your local sales outlet immediately.

Do not discard the original packing material of the devices. You may need the packaging in the future if you need to transport your device.

Selecting a location



Select a suitable location for the notebook before setting it up. Consider the following points when looking for a location:

- Never place the notebook on a soft surface (e.g. carpeting, upholstered furniture, bed). This can block the air vents and cause overheating and damage.
- Do not place the notebook on your legs for a longer period of time. The underside of the notebook heats up during normal operation. Longer contact with the skin can become unpleasant or even result in burns.
- Place the notebook on a stable, flat, nonslippery surface. In view of the multitude of different finishes used on furniture, it is possible that the rubber feet of the notebook will mark the surface they stand on.
- Never place the notebook and the mains adapter on a heat-sensitive surface.
- The notebook and the mains adapter should be at least 200 mm apart.
- Keep other objects 100 mm away from the notebook and its mains adapter to ensure adequate ventilation.
- Never cover the fan intake or exhaust openings of the notebook or the mains adapter.
- Do not expose the notebook to extreme environmental conditions. Protect the notebook from dust, humidity, and heat.

Connecting the mains adapter



Please take note of the information in the section "Selecting a location".

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

Do not use the mains adapter for other notebooks or devices.

Do not use a mains adapter that is not specially intended for this notebook.

Make sure that the rated current of the mains adapter is not higher than that of the power system to which you connect the mains adapter (see technical data of the mains adapter).

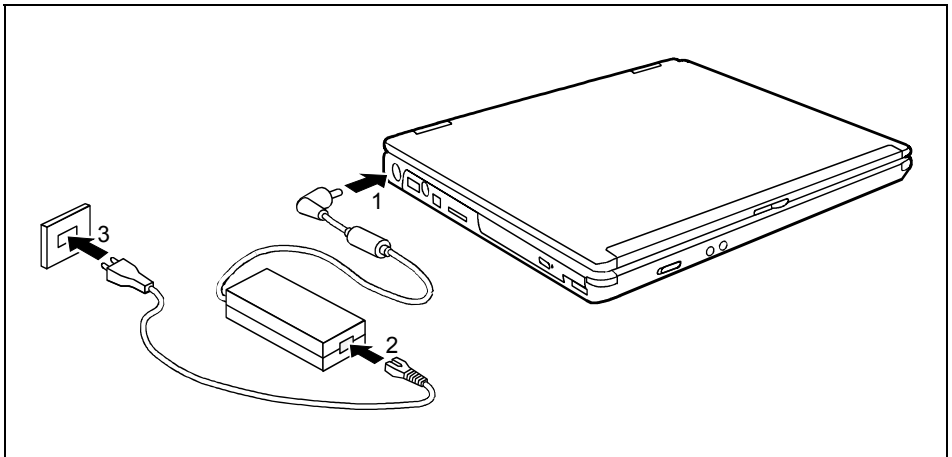
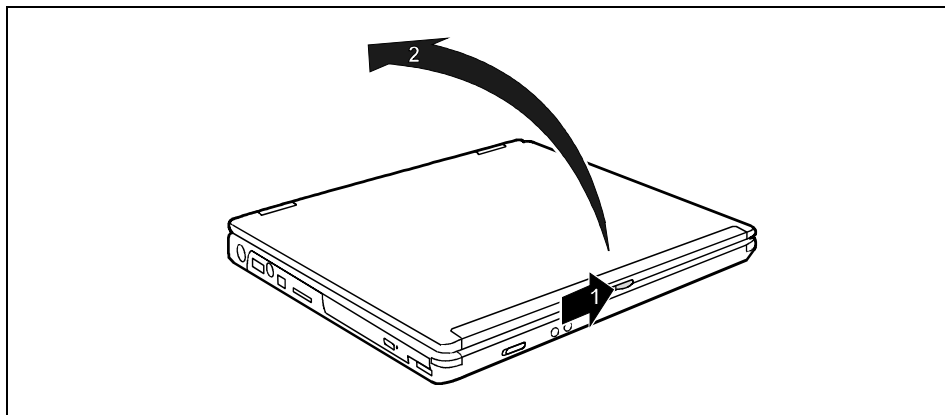
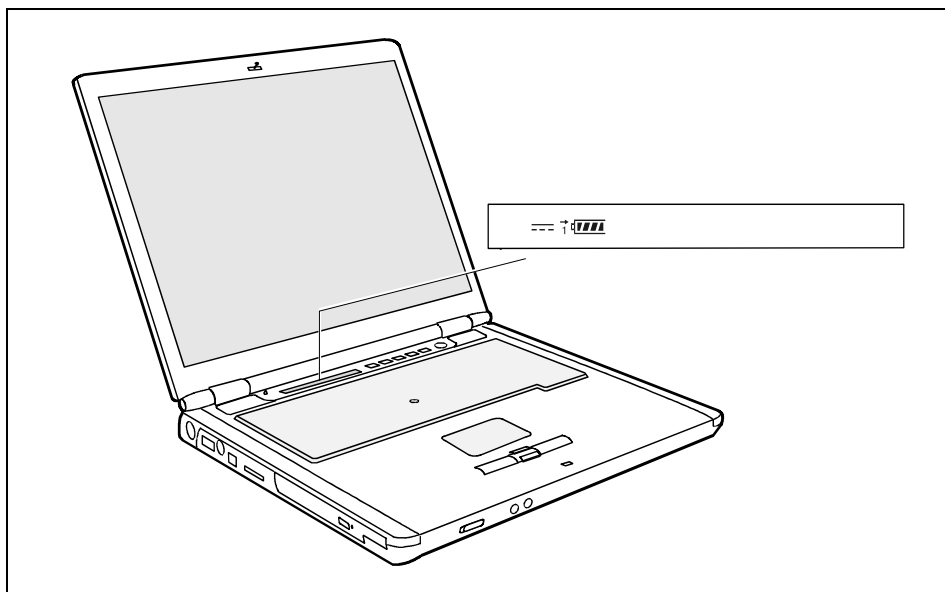


Illustration showing example of LIFEBOOK E8020/CELSIUS H230. For the position of the connections and operating elements on the LIFEBOOK C1320, see "Connections and operating elements" – "LIFEBOOK C1320".



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



- ▶ Slide the release button in direction of the arrow (1) and open the LCD screen (2).



The power indicator  of the notebook appears in the status indicator panel.

The battery will charge. The charging indicator  and the battery indicator  appear in the status indicator panel.



The meaning of the various displays can be found under "Indicators".

Switching on the notebook for the first time



When you switch on your notebook for the first time, the supplied software is installed and configured. Due to the fact that this installation must not be interrupted, you should set aside enough time for it to be fully completed and connect the notebook to the mains outlet using the mains adapter.

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

- ▶ Switch the notebook on (see "Switching on the notebook").
- ▶ During installation, follow the instructions on screen.

Consult the operating system manual if there is anything unclear about the requested input data.



If there is a Windows operating system installed on your notebook the "Drivers & Utilities" CD/DVD is included in the delivery scope. You will find further information on the system, drivers, utilities, updates, manuals etc. on this "Drivers & Utilities" CD/DVD.

Using your notebook

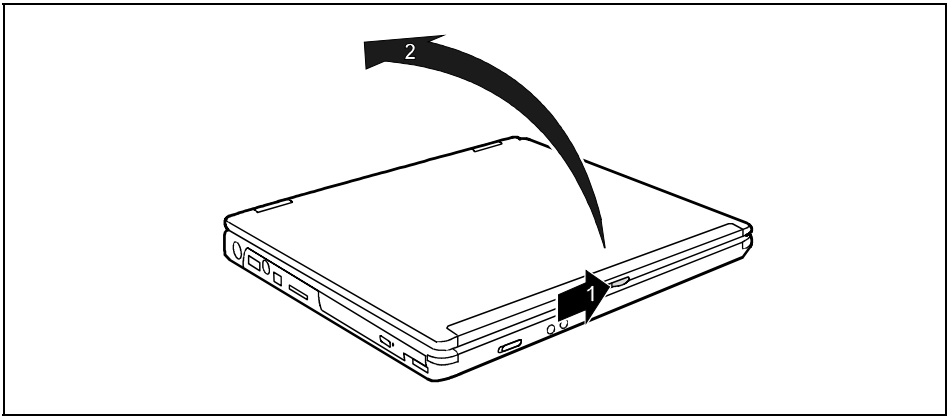
This chapter describes the basics for operating your notebook.

Please see the "Connecting external devices" chapter for instructions on how to connect devices such as a mouse and a printer to the notebook.

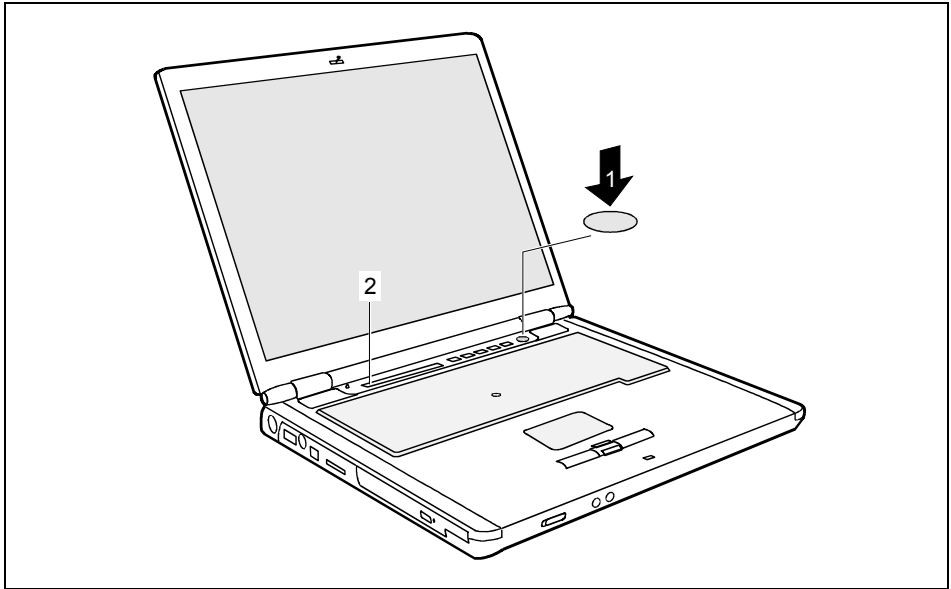


Please take note of the information in the "Important notes" chapter.

Switching on the notebook



- ▶ Slide the release button in direction of the arrow (1) and open the LCD screen (2).



- ▶ Press the Suspend/Resume button (1) to switch on the notebook.

The power-on indicator (1) of the notebook appears in the status indicator panel (2).



After switch-on a self-test (POST, Power On Self Test) is automatically carried out. Never switch the notebook off during the self-test.



You can configure the Suspend/Resume button under *Start - (Settings) - Control Panel - Power Options - Advanced*.

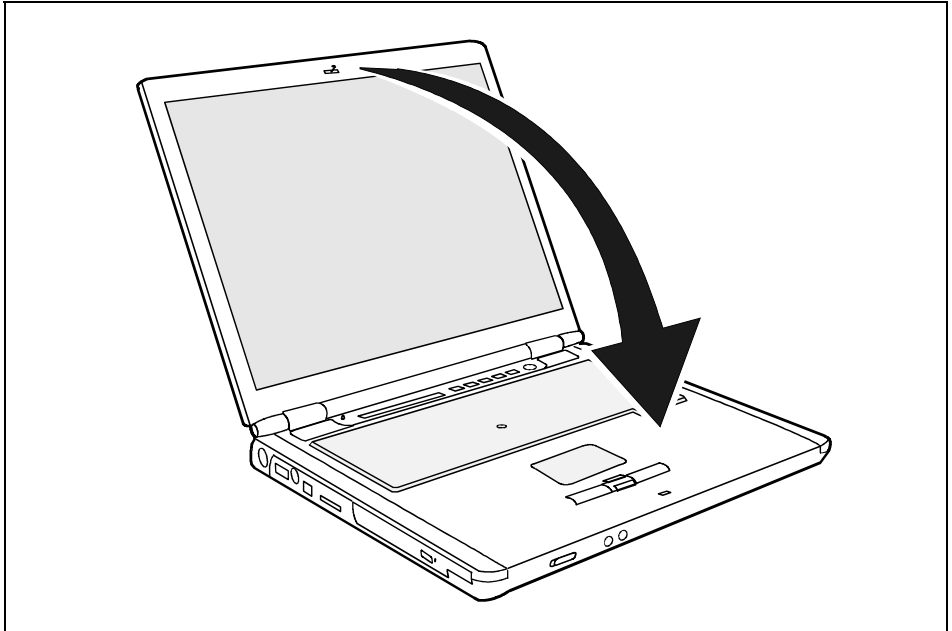
If you have assigned a password, you must enter this when requested to do so, in order to start the operating system password. Detailed information can be found in "Security functions" chapter.

Switching off the notebook

- ▶ Close all programmes and shut down your operating system (please see operating system manual).

i

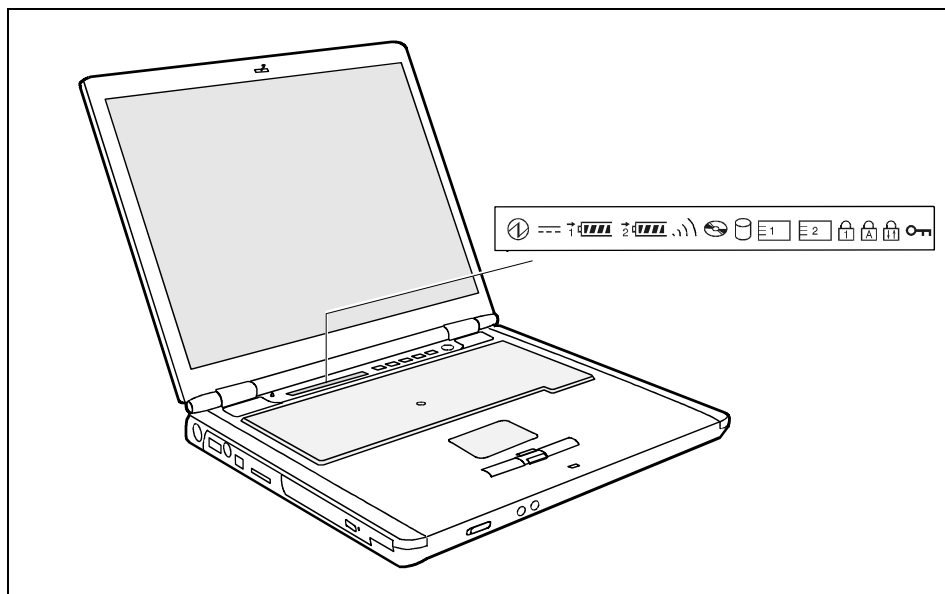
If the notebook cannot be shut down properly, press the Suspend/Resume button for approx. four seconds. The notebook switches off. However, any data which have not been saved may be lost.



- ▶ Close the LCD screen so that it locks into place.

Indicators

The status indicator panel is a small LCD panel on which various symbols appear. These symbols provide information about the status of the power supply, the drives, and the keyboard functions.



- | | | | |
|--|----------------------------|--|---|
| | Power-on indicator | | Hard disk indicator |
| | Power indicator | | PC card/ExpressCard indicators |
| | Battery charging indicator | | Num Lock indicator |
| | First battery indicator | | Caps Lock indicator |
| | Second battery indicator | | Scroll indicator (Scroll Lock) |
| | Indicator Wireless LAN | | Security Panel indicator
(only on CELSIUS H230 and LIFEBOOK E8020) |
| | CD/DVD indicator | | |

The meaning of the symbols are as follows:



Power-on indicator

- The indicator lights up: The notebook is on.
- The indicator flashes (1 second on / 1 second off): The notebook is in energy-saving mode.
- The display is not shown: the notebook is switched off.



Power indicator

The mains adapter is supplying power to the notebook.



Battery charging indicator


- The indicator lights up: The battery is charging.
- The indicator blinks: The battery is too hot or too cold for charging.





1 Battery indicators




2 The charging state of the batteries is shown with the two battery indicators. 1 indicates that the information applies to the first battery in the battery compartment. 2 indicates that the information applies to the second battery in the module bay.

 indicates that the battery is 0%-25% charged.

 indicates that the battery is 25%-50% charged

 indicates that the battery is 50%-75% charged.

 indicates that the battery is 75%-100% charged.



CD/DVD indicator

- The indicator is lit: The CD/DVD in the optical drive is being accessed. You may only remove the CD/DVD when the indicator is dark.
- The indicator flashes: an CD/DVD is being inserted or removed.



Indicator Wireless LAN

- The indicator lights up: The wireless LAN module is switched on.
- The indicator is dark: The wireless LAN module is switched off.



Hard disk indicator

The hard disk drive of the notebook is being accessed.



PC card/ExpressCard indicators

A PC card or an ExpressCard is accessed.



Num Lock indicator

The **Num** key has been pressed. The virtual numeric keypad is activated. You can output the characters located at the upper right on the keys.



Caps Lock indicator

The Caps Lock key has been pressed. All the characters you type appear in uppercase. In the case of overlay keys, the character printed on the upper left of the key appears when that key is pressed.



Scroll indicator (Scroll Lock)

The key combination **Fn** + **Scr** has been pressed. The effect this key has varies from programme to programme.



Security Panel indicator

(only on CELSIUS H230 and LIFEBOOK E8020)

The security panel is active. Supervisor and user passwords are set.



You will find the information on the security panel in "Security functions" chapter.

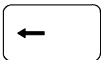
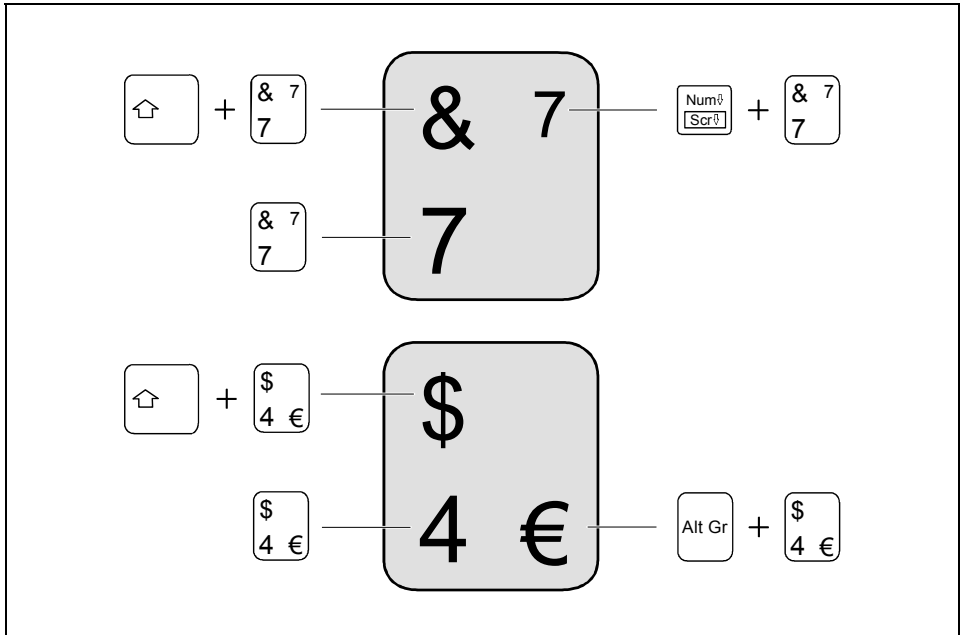
Keyboard

i

The keyboard of your notebook is subject to continuous wear due to normal use. The keyboard markings are subjected to particularly high loads. The keyboard markings can wear off in the course of using 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 and key combinations refers to Windows.



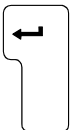
Backspace key

The Backspace key deletes the character to the left of the cursor.



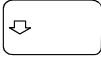
Tab key

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 uppercase mode (CapsLK indicator lit). The Caps Lock function causes all the characters you type to appear in uppercase. In the case of overlay keys, the character printed on the upper left of the key appears 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.



Alt Gr key

The **Alt Gr** key allows one to type the characters printed on the lower right of the keycaps (e.g. { in the case of the **7** key on the German keyboard).



Fn key

The **Fn** key enables the special functions indicated on overlay keys (see "Key combinations").



Cursor keys



The cursor keys move the cursor in the direction of the arrow, i.e. up, down, left, or right.



Pause key

The **Pause** key temporarily suspends display output. Output will resume when you press any other key.



Start key

The Start key invokes the Windows Start menu.

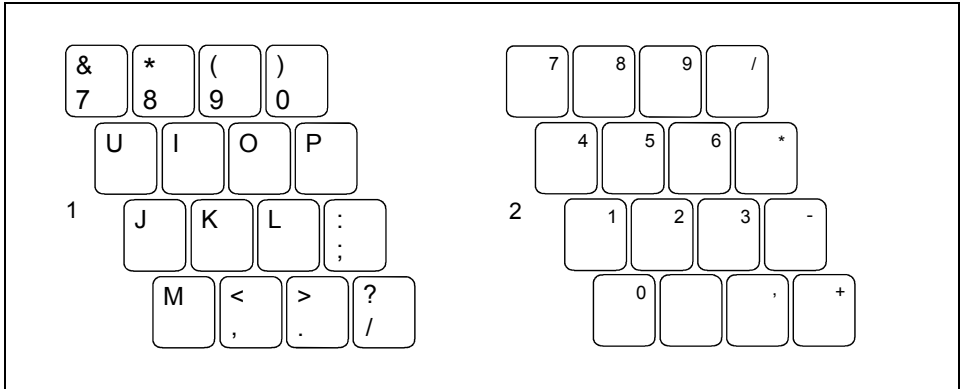


Menu key

The Menu key invokes the menu for the marked item.

Virtual numeric keypad

The keyboard of your notebook does not have 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.



- 1 = Characters enabled when Num Lock indicator is not lit (see "Indicators").
 2 = Characters enabled when Num Lock indicator is lit (see "Indicators").

Key combinations

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

Key combinations are performed as follows:

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



Switching the loudspeakers on/off

This key combination switches your device's integrated loudspeakers off and on. Each time the loudspeaker switches on you will hear an acoustic signal.



Enlarge MS-DOS screen

This key combination enlarges the screen in the MS-DOS mode to the full-screen mode or switches it back to the normal display mode.



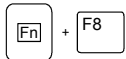
Decreasing screen brightness

This key combination decreases screen brightness.



Increasing screen brightness

This key combination increases screen brightness.



Reducing the volume

This key combination reduces the volume of the integrated loudspeakers.



Increasing the volume

This key combination raises the volume of the integrated loudspeakers.

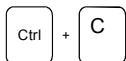


Switching between internal and external screen

If an external monitor is connected, the monitor on which the output is to be displayed can be selected with this key combination.

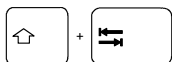
You can opt to use:

- just the notebook's LCD screen
- just the external monitor
- both the LCD screen and the external monitor.



Halting the current operation

This key combination can be used to halt an operation instantly without clearing the keyboard buffer.

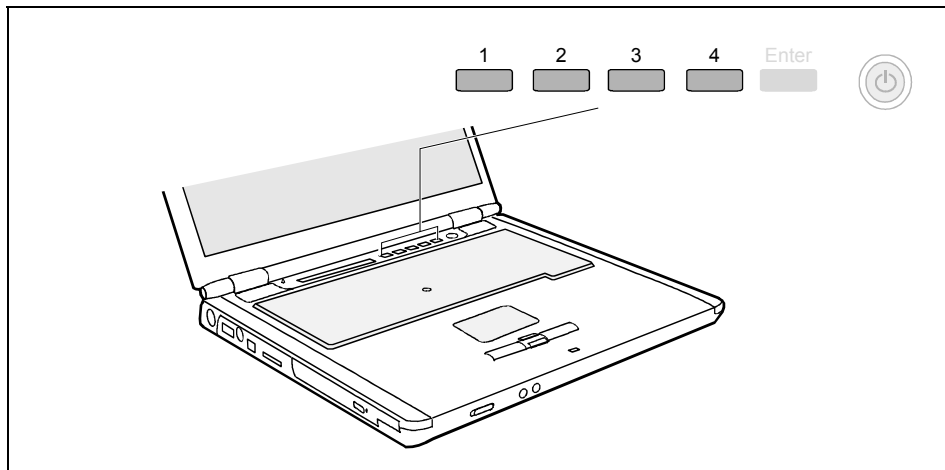


Backtab (Shift+Tab)

This key combination moves the cursor back to the previous tabular stop.

Easy Launch keys (CELSIUS H230/LIFEBOOK E8020 only)

Your notebook is equipped with four configurable Easy Launch keys.



1 = Key 1

This key could be preset. However, you can also configure this key as desired.

2 = Key 2

This key could be preset. However, you can also configure this key as desired.

3 = Key 3 (preset as Internet key)

With this key you can start the standard internet browser for your system. However, you can also configure this key as desired.

4 = Key 4 (preset as E-mail key)

Use this key to start the standard e-mail programme for your system. However, you can also configure this key as desired.

Configuring Easy Launch keys

With the *Application Panel* you can assign various functions to the Easy Launch keys. You will find the *Application Panel* under *Start - (Settings) - Control Panel - Additional Control Panel Options - Application Panel*.

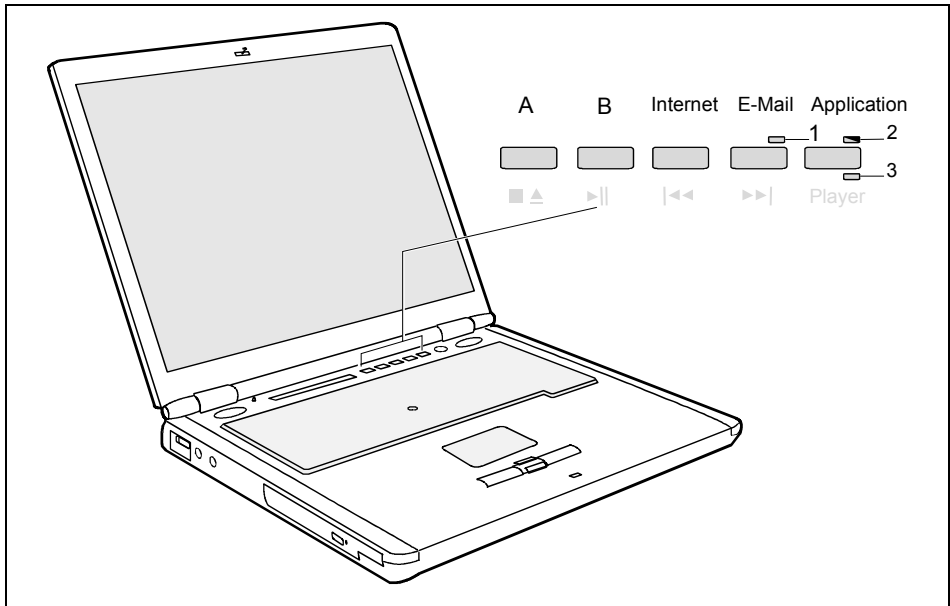
Application/Player buttons (LIFEBOOK C1320 only)

The buttons next to the status indicator panel have functions that differ according to the indicator (Application or Player). You can switch between the functions with the Application/Player button.



You can configure the application buttons using the *Application Button* program. This program and a PDF file with a detailed description are provided under *Start - (Settings) - Control Panel - Application Panel*.

Application buttons



- ▶ Press the Application/Player button to switch between the functions. When the Application indicator (2) lights up, the application buttons are active:

A button

You can configure this button so that an application or Internet website you have selected is started by pressing the button.

B button

You can configure this button so that an application or Internet website you have selected is started by pressing the button.

Internet button

With this button you can start the standard internet browser of your system.

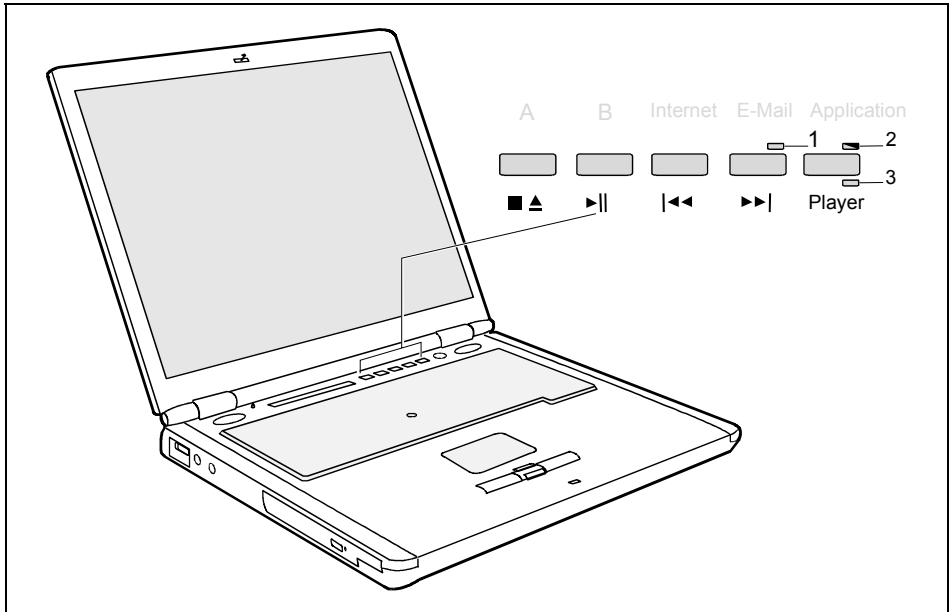
You can also freely program this button.

E-mail button

Use this button to start the standard e-mail programme for your system. The e-mail indicator (1) lights up when an e-mail has been received.

You can also freely program this button.

Player buttons



- ▶ Press the Application/Player button to switch between the functions. When the Player indicator (3) lights up, the player buttons are active:



Stop

You stop audio CD replay with this button.



Play/Pause

You start audio CD replay with this button.



Previous Track

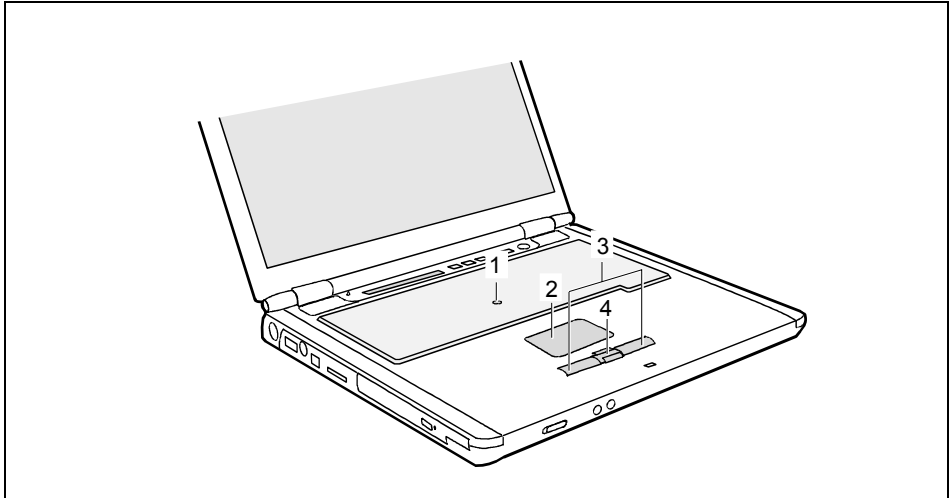
Use this button to skip to the forward title.



Next Track

Use this button to skip to the next title.

Touchpad / TouchStick and touchpad buttons



1 = TouchStick (optional)

2 = Touchpad

3 = Touchpad buttons

4 = Touchpad scroll button

Your notebook offers a Touchpad and a TouchStick (optional) for mouse control.



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

Do not use the touchpad if your fingers are dirty.

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

Moving the pointer

► Move your finger on the touchpad.

or

► Press down gently with your finger on the TouchStick.

If you want to move the pointer to the left for example, press down gently on the left side of the TouchStick.

The pointer will move accordingly.

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 will be selected.

Executing a command

- ▶ Move the pointer to the field you wish to select.
- ▶ Tap the touchpad twice or press the left button twice.

The command will be executed.

Dragging an object

- ▶ Move the pointer to the item you wish to select.
- ▶ Select the desired object and hold down on the left button.
- ▶ Drag the object to the desired position.
- ▶ Lift your finger from the touchpad.

or

- ▶ Lift your finger from the TouchStick.

The item will be moved.

Scrolling up

- ▶ Press the upper side of the touchpad scroll button to scroll up.

The information/texts above the display area appear.

Scrolling down

- ▶ Press the lower side of the touchpad scroll button to scroll down.

The information/texts below the display area appear.

LCD screen

Information on LCD monitor

High-quality TFT displays with especially bright background lighting are installed in notebooks from Fujitsu Siemens Computers GmbH. For technical reasons, TFT monitors are manufactured for a specific resolution. An optimal, clear picture can only be ensured in the resolution intended for the respective TFT monitor. A monitor resolution which differs from the specification can result in an unclear picture.

The monitor resolution is understood to be the number of horizontal and vertical pixels (i.e. picture elements) which make up the monitor display. For example, "UXGA" stands for 1600 x 1200 pixels. Each pixel consists of three so-called subpixels of the colours red, green and blue. As a result, a UXGA monitor consists of $1600 \times 1200 \times 3 = 5.760.000$ subpixels.

Frequently used monitor resolutions	Number of pixels
XGA	1024 x 768
WXGA	1280 x 800
SXGA	1280 x 1024
SXGA+	1400 x 1050
UXGA	1600 x 1200

The correct monitor resolution for your notebook is specified in the corresponding section in the chapter "Technical data".

Permanently unlit or lit pixels

The standard of production techniques today cannot guarantee an absolutely fault-free screen display. A few isolated constant lit or unlit pixels may be present. The maximum permitted number of pixels faults is stipulated in the stringent international standard ISO 13406-2 (Class II).

Example:

A 15" LCD screen monitor with a resolution of 1024 x 768 has $1024 \times 768 = 786432$ pixels. Each pixel consists of three subpixels (red, green and blue), so there are almost 2,4 million subpixels in total. According to ISO 13406-2 (Class II), a maximum of 4 pixels and 5 subpixels may be defective, i. e. a total of 17 faulted subpixels. That is approx. 0.0007 % of the entire subpixel!

Background lighting

TFT 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 monitor individually.

Monitor settings

Setting resolution (under Windows)

You can change the screen resolution under *Start - (Settings) - Control Panel - Display - Settings*.

Setting font size (under Windows)

Under *Start - (Settings) - Control Panel - Display - Settings* you can choose between a larger and a smaller font in the *Font size* field.

Setting the display brightness

You can adjust the brightness of your LCD screen with the keys **Fn** and **F6** or **F7**: With **Fn** and **F6**, screen brightness will be reduced and with **Fn** and **F7** increased.

Synchronising the display on the LCD screen and an external monitor

Your notebook supports the simultaneous display on the LCD screen and an external monitor. If the picture does not appear correctly on the external monitor, press the key combination **Fn** + **F10** several times, or switch the external monitor off and then on again. This achieves good picture synchronisation.

Adjusting the speed of the mouse pointer

You can change the speed of the mouse pointer under *Start - (Settings) - Control Panel - Mouse* and clicking on the *Motion* tab.

Battery

The battery supplies your notebook with the necessary power during mobile use. You can increase battery life by enabling the system's power management features.

The battery charge is indicated by the battery symbol in the status indicator panel (see also "Indicators"). When you switch on the notebook, it takes a few seconds before the battery status is displayed.

The life of the battery is dependent on its proper storage, the number of charging/discharging cycles and the operating temperature of the notebook.

Charging, caring for and maintaining the battery



Only use batteries approved by Fujitsu Siemens Computers for your notebook.

Take care not to drop the batteries or otherwise damage their casing (fire risk).

If the rechargeable batteries develop a fault please stop using them immediately.

Do not touch the contacts of the batteries.

Never interconnect the positive and negative terminals of a battery.

Batteries are harmful to the environment. You should dispose of them following guidance from your local District Council.

Information on the battery charging time is contained in the "Technical data" chapter.

You can charge the battery by connecting the notebook to the mains adapter. Make sure that the ambient temperature of the notebook lies within the permissible range.

You can maintain long life from your battery by allowing it to discharge fully before you recharge it again. To do this, leave your notebook turned on when it is operated with the battery. Once 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.

Storing the battery

Keep the battery pack between 0°C and +30°C (32 and 122 degrees Fahrenheit). The lower the temperature at which the batteries are stored, the lower is the rate of self-discharge.

If you store rechargeable batteries for a longer period (longer than two months), the battery charge level should be approx. 30%. To prevent exhaustive discharge, check the charging level of the battery at regular intervals.



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

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

Monitoring the battery charging level

The battery charge is indicated by the battery symbol in the status indicator panel (see "Indicators "). Windows includes a "battery charge meter" for monitoring the battery capacity. This can be activated under *Start - (Settings) - Control Panel - Power Options*. The battery charge meter is then displayed in the task bar as a battery symbol. When you place the mouse pointer on the battery symbol, the system displays the battery status.

Removing and installing the battery



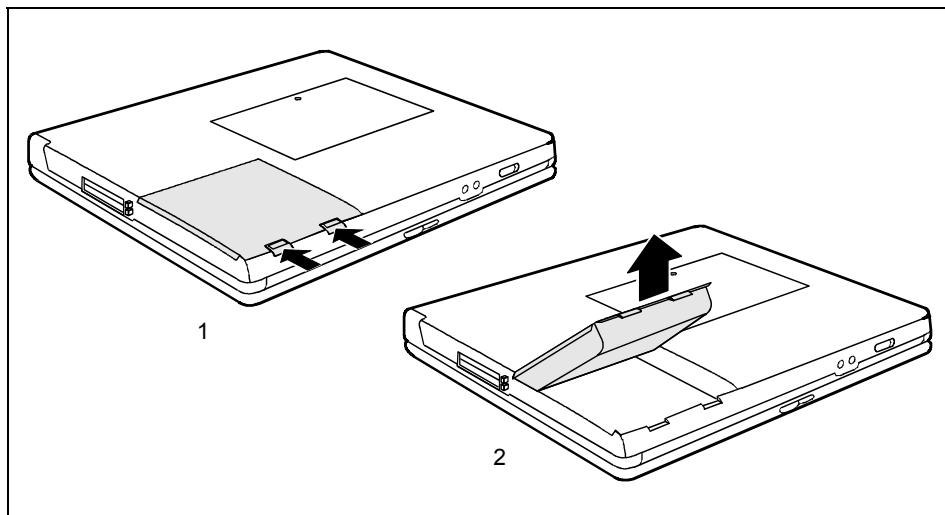
Only use batteries released for this notebook.

Never use force when inserting or removing a battery.

Make sure no foreign objects get into the battery compartment.

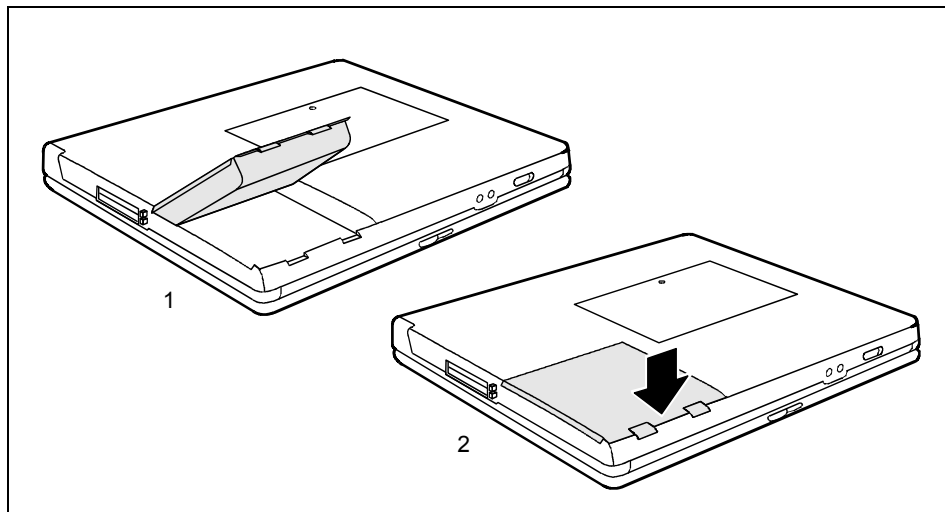
- ▶ Switch the notebook off.
- ▶ Close the LCD screen.
- ▶ Turn your notebook over and place it on a stable, sturdy, flat surface. If necessary, lay an anti-slip cloth on this surface to prevent the notebook from being scratched.

Removing battery



- ▶ Press the two unlocking lugs (1), hold them down and lift the battery somewhat.
- ▶ Remove the battery from the battery compartment (2).


Insert battery



- ▶ Position the battery at the edge of the casing (1).
- ▶ Push the battery into the battery slot until you feel it locking into place (2).

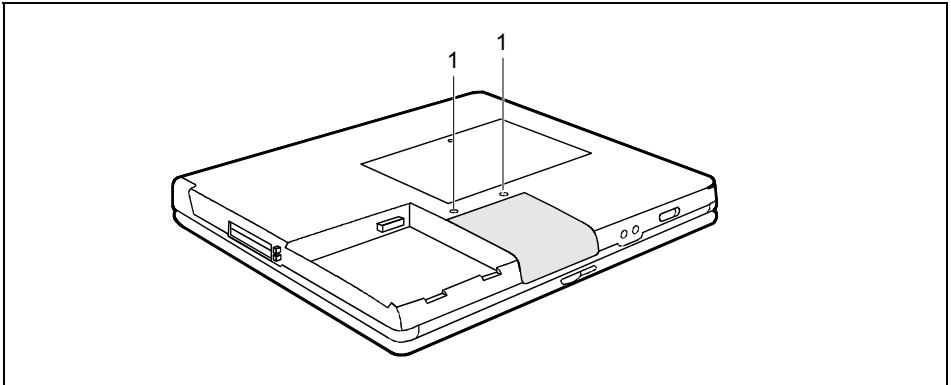
Hard disk

The hard disk is the most important storage medium of your notebook. You can work considerably faster and more efficiently if you copy applications and files from CDs to your hard disk.

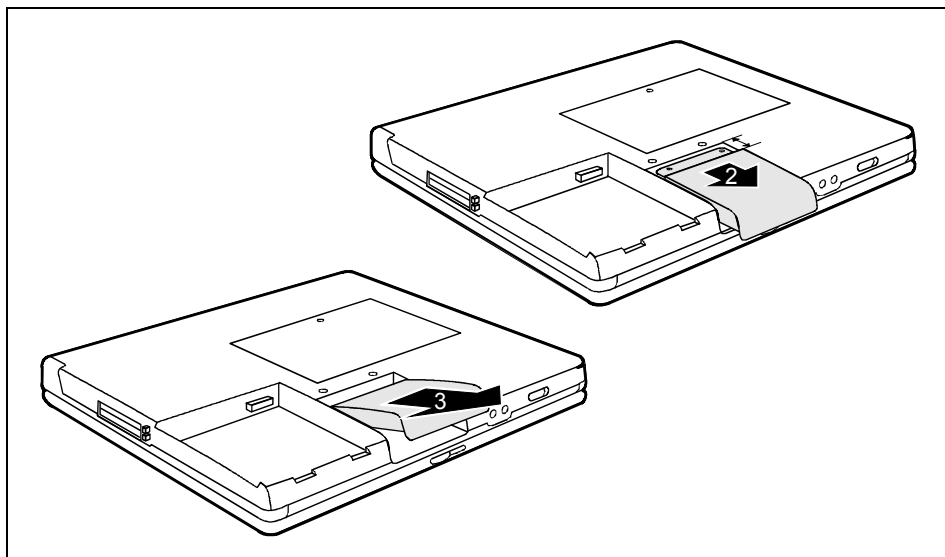
When the hard disk is accessed, the hard disk indicator  lights up in the status indicator panel.

Removing the hard disk

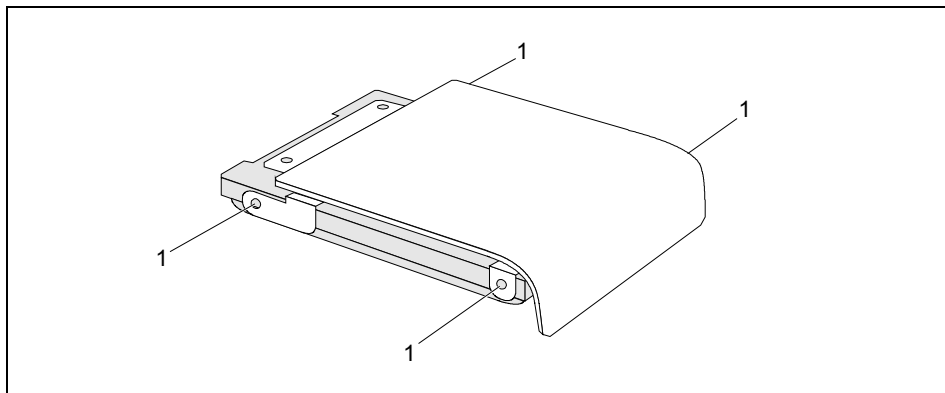
- ▶ Switch the notebook off.
- ▶ Close the LCD screen so that it locks into place.
- ▶ Unplug the mains adapter from the mains socket.
- ▶ Disconnect all cables connected to the notebook.
- ▶ Turn your notebook over and place it on a stable, sturdy, flat surface. If necessary, lay an anti-slip cloth on this surface to prevent the notebook from being scratched.
- ▶ Remove the battery (see "Removing battery").



- ▶ Remove the screws (1).

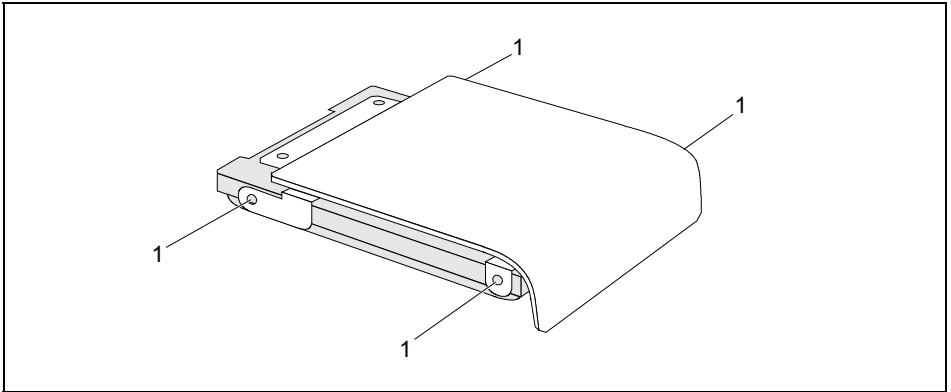


- ▶ Pull the hard disk in the direction of the arrow up to the stop (2).
- ▶ Lift the hard disk and remove it from the hard disk compartment in the direction of the arrow (3).

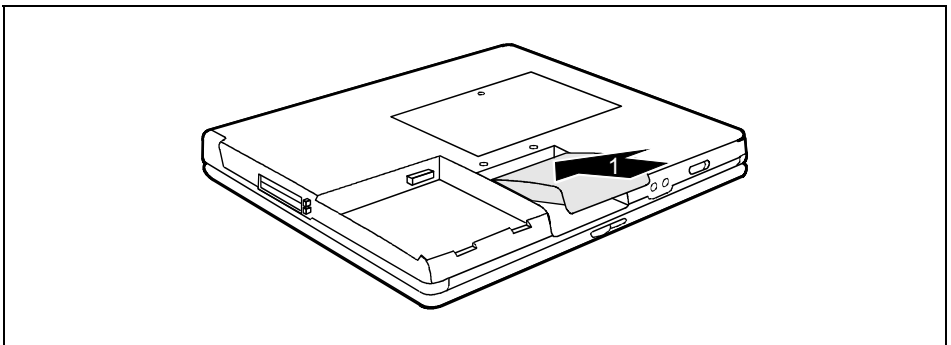


- ▶ Remove the screws (1) to detach the hard disk from the cover.

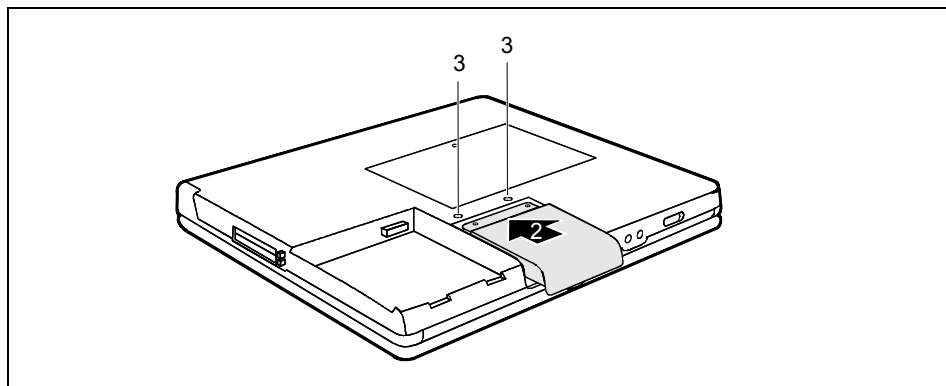
Installing the hard disk



- ▶ Secure the hard disk with the screws (1) on the cover.



- ▶ Position the hard disk on the notebook at somewhat of an angle (1).
- ▶ Tilt the hard disk in the hard disk compartment so that the arrow ▶ on the hard disk housing and the arrow ◀ on the underside of the notebook point toward each other.



- ▶ Push the hard disk in the direction of the arrow up to the stop (2).
- ▶ Secure the hard disk with the screws (3).
- ▶ Replace the battery (see "Insert battery").
- ▶ Turn the notebook over and place it on a flat surface.
- ▶ Reconnect the cables that you disconnected before.

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-ROM drive
- Combo drive (CD-R/CD-RW/DVD)
- DVD±RW dual drive
- Multi-format DVD burner with double layer support
- Weight Saver
- Floppy disk drive (only on LIFEBOOK C1320)



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 replace modules during operation. This means you do not need to switch off the notebook.

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

Then you can simply remove the module.

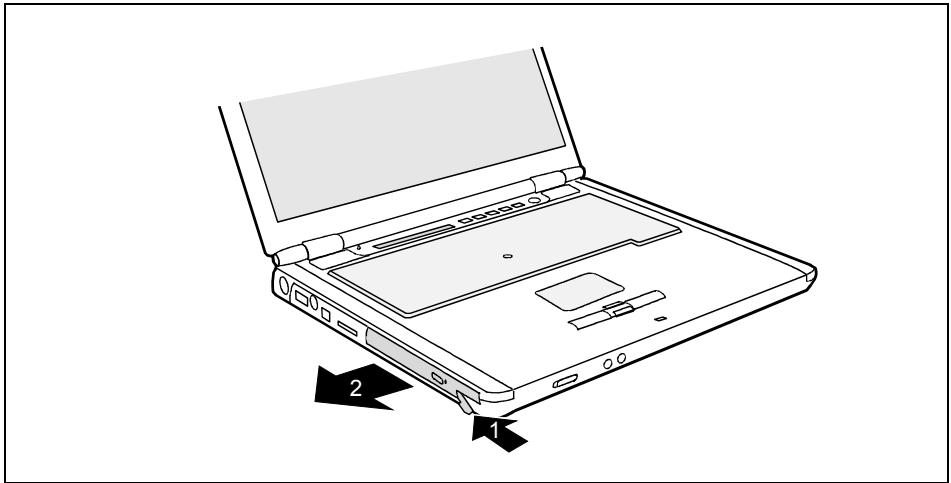
Removing module

- ▶ Place the notebook on a flat surface.

With the  symbol in the task bar you can stop the module:

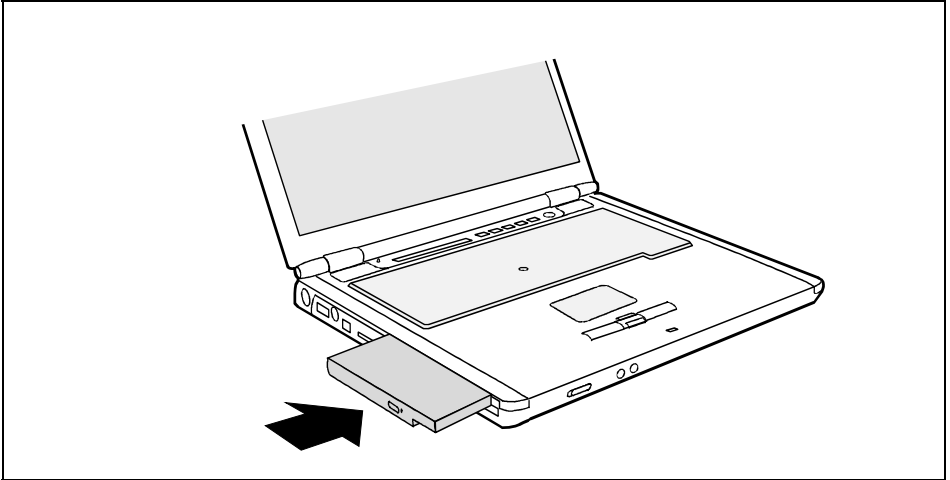
- ▶ Left-click on the icon.
- ▶ Select the module you want to stop and remove.
- ▶ Press the Enter key.

Wait for the dialogue box which tells you that it is now safe to remove the module.



- ▶ Carefully pull the eject lever in the direction of the arrow up to the stop (1).
The module now extends somewhat beyond the casing.
- ▶ Pull the module out of the module bay (2).

Installing 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

Depending on the variant, your notebook is equipped with a DVD-ROM drive, a combination drive (CD-RW/DVD), a DVD±RW dual drive or a multi-format DVD drive with double-layer support.

You can replace your optical drive with another module (e.g. drive or battery), (see "Module").



This device contains a light-emitting diode, classified according to IEC 825-1:1993: LASER CLASS 1, and must not be opened.

Handling CD/DVDs


Observe the following guidelines when handling CD/DVDs:

- Avoid touching the surface of a CD/DVD. Hold CDs/DVDs by their edges!
- Always store CDs/DVDs in their cases. This will protect CD/DVD from dust, scratches and other damage.
- Protect your CDs/DVDs from dust, mechanical vibration and direct sunlight!
- Avoid storing a CD/DVD in areas subject to high temperatures or humidity.


You may use both 8-cm and 12-cm CDs/DVDs in the combo drive.

When using CDs/DVDs of poor quality vibrations and reading errors may occur.

CD/DVD indicator

The CD/DVD indicator  flashes when a CD/DVD 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 CD/DVD when the indicator is dark.

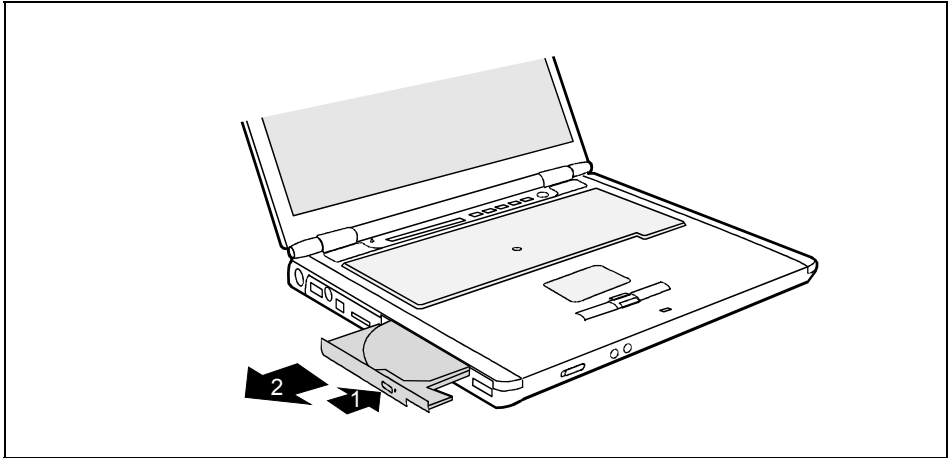


If the CD/DVD indicator  does not go out after inserting a CD/DVD, but instead continues to flash, the drive cannot access the data carrier.

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

Inserting or removing a CD/DVD

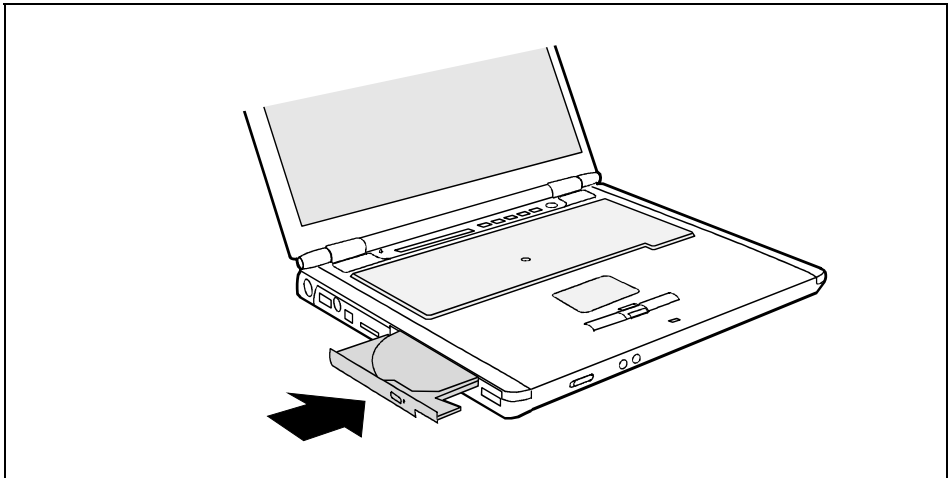
The notebook must be switched on.



- ▶ Push the insert/eject button (1).

The drive tray will open.

- ▶ Pull the drive tray all the way out (2).
- ▶ Place the CD/DVD in the drive tray with the label facing upwards or remove an inserted CD/DVD.

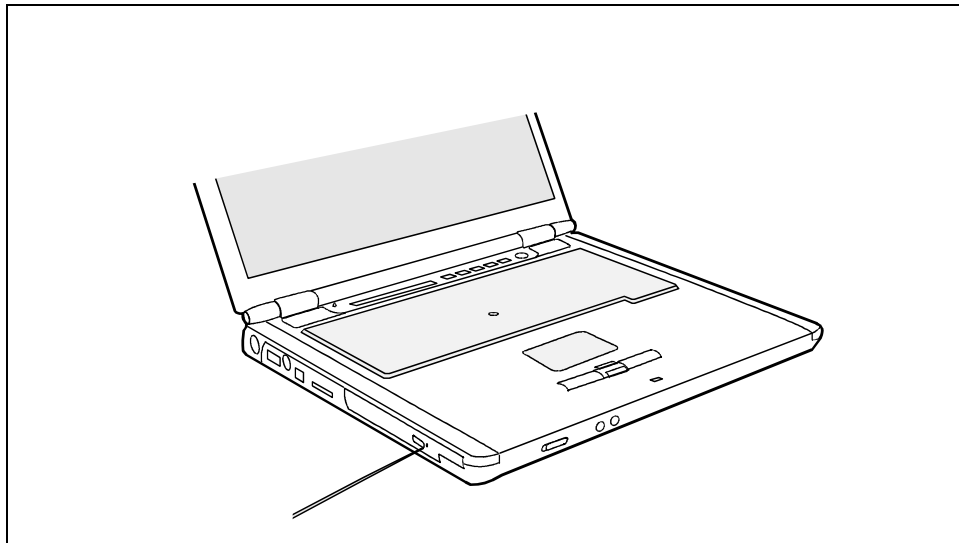


- ▶ Push in the drive tray until you feel it lock into place.

Manual removal (emergency removal)

In the event of a power failure or damage to the drive it may be necessary to manually remove the CD/DVD.

- ▶ Switch the notebook off.



- ▶ Press a pen or a piece of wire (e.g. a paper clip) firmly into the opening. The drive tray is unlocked and opens. You can now pull out the drive tray completely.

Memory cards

Your notebook is equipped with a memory card slot. The memory card slot supports the following formats:

- Secure Digital (SD™ Card)
- MultiMediaCard (MMC)



Please read the documentation supplied with the memory card for any special instructions.

Inserting memory card

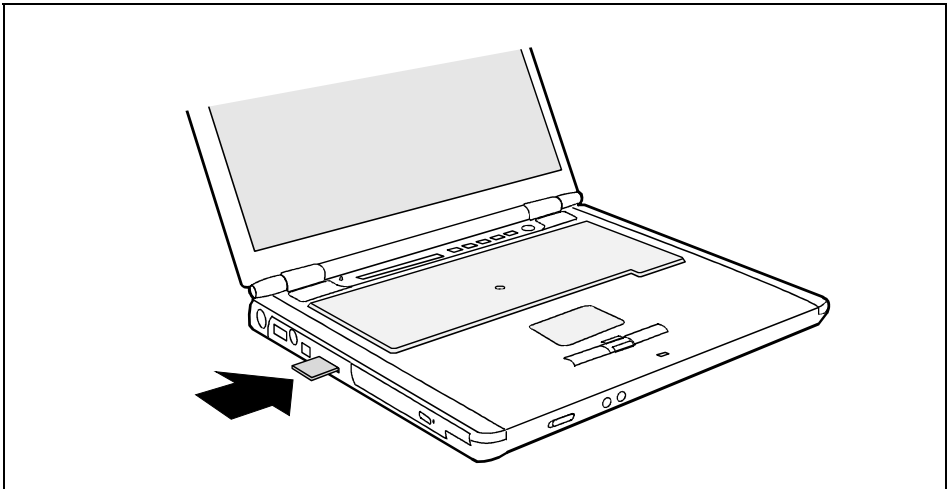


Illustration showing example of LIFEBOOK E8020/CELSIUS H230. For the position of the connections and operating elements on the LIFEBOOK C1320, see "Connections and operating elements" – "LIFEBOOK C1320".

- ▶ Carefully push the memory card into the slot. The label should be facing upward. The memory card may protrude by one to several millimetres (depending on the memory card type).

Removing memory card

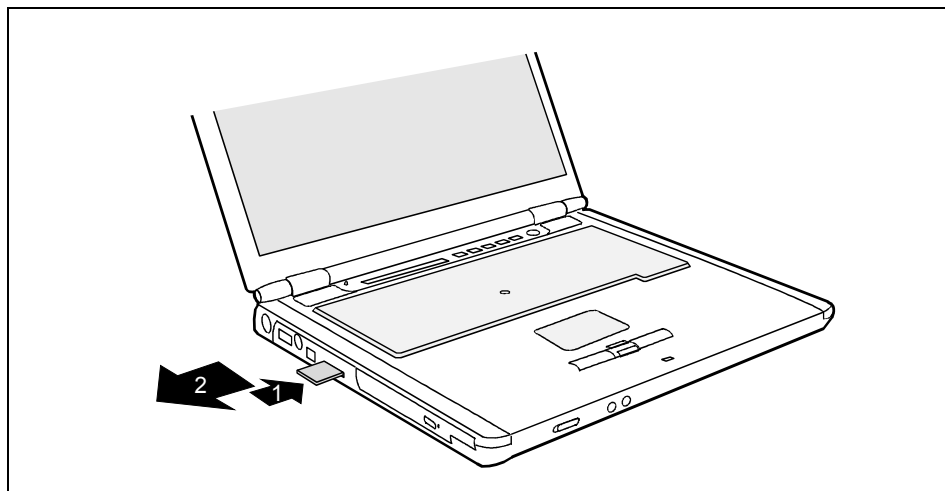
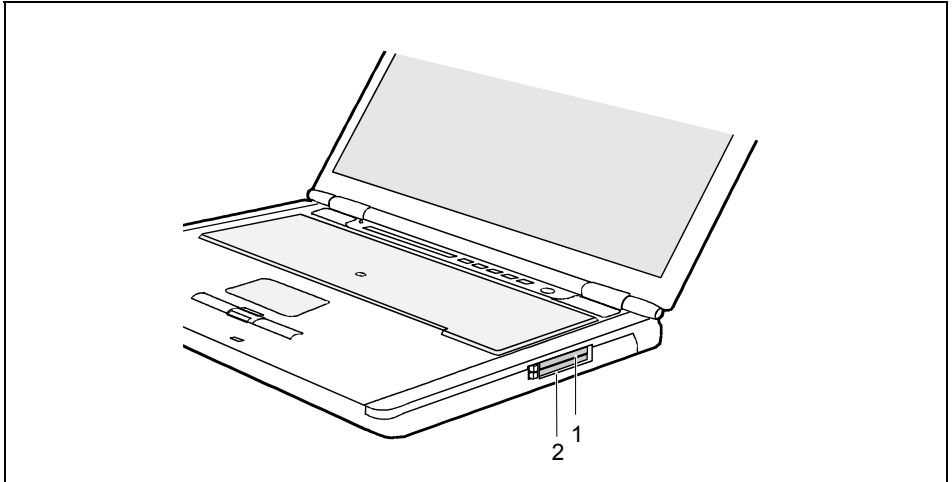


Illustration showing example of LIFEBOOK E8020/CELSIUS H230. For the position of the connections and operating elements on the LIFEBOOK C1320, see "Connections and operating elements" – "LIFEBOOK C1320".

- ▶ Press on the edge of the memory card so that the memory card jumps out of the slot slightly (1).
- ▶ Slide the memory card out of the notebook (2).

PC cards and ExpressCards



1 = ExpressCard slot

2 = PC Card slot (CardBus or PCMCIA)

An ExpressCard slot (1) enables the operation of an ExpressCard/34 or ExpressCard/54. A PC card slot (2) permits operation of a type I or type II PC card.



Please read the documentation on the PC card and/or on the ExpressCard and follow the manufacturer's instructions.

Never use force when installing or removing a PC card or an ExpressCard.

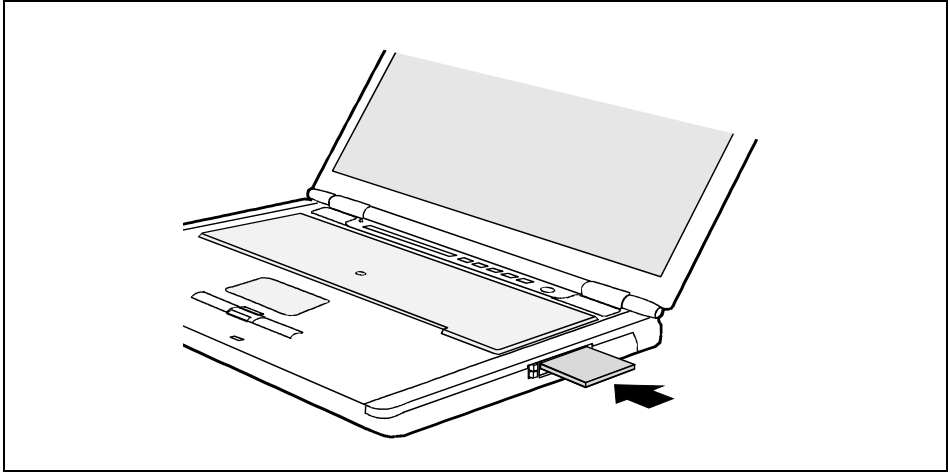
The ExpressCard slot and the PC card slot can be protected with placeholders, which you must remove before using the slots.

Keep the placeholders in a safe place. When you remove the PC card or ExpressCard you should also refit the placeholder in the empty slot. This prevents foreign matter from getting into the slot.



You can push the eject buttons of the ExpressCard or PC card slot into the notebook casing. Press the respective eject button until it snaps in. This prevents the ExpressCard or PC card from being ejected accidentally.

Installing ExpressCard




- ▶ Insert the ExpressCard in the upper slot guide with the connection contacts first.
- ▶ Gently push the ExpressCard into the slot until you feel it click into place.



Please see the documentation on the ExpressCard for driver installation instructions.

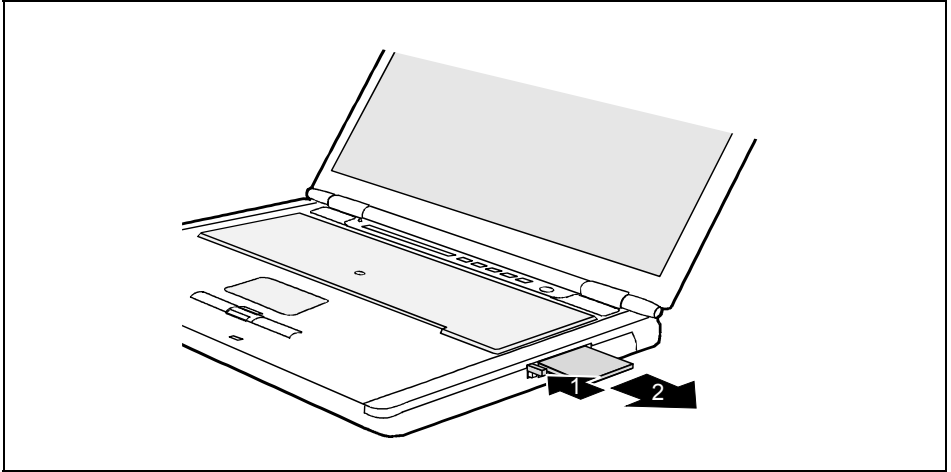
Also observe the corresponding information files (e.g. **.TXT*, **.DOC*, **.WRI*, **.HLP* or **.PDF*) on the driver CD and in the user manual of the operating system.

Removing ExpressCard

With the  symbol in the task bar you can stop the ExpressCard:

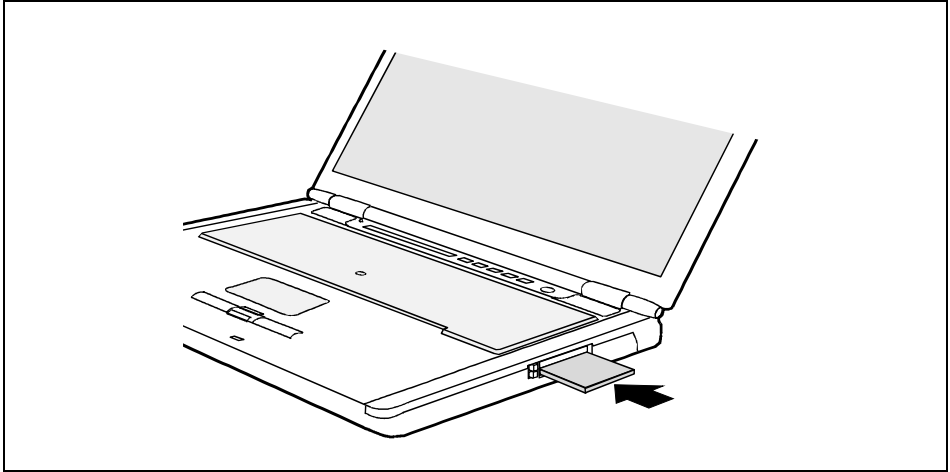
- ▶ Left-click on the icon.
- ▶ Select the ExpressCard you want to stop and remove.
- ▶ Press the Enter key.

Wait for the dialogue box which tells you that it is now safe to remove the ExpressCard.



- ▶ Press the eject button (1) so that the ExpressCard extends somewhat from the notebook. If the eject button is lowered, you must first cause the eject button to release from the notebook casing. To do this, press the eject button until it pops out.
- ▶ Pull the ExpressCard out of the slot (2).

Installing a PC card




- ▶ Insert the PC card, contacts first, into the lower slot guide.
- ▶ Gently push the PC card into the slot until you feel it click into place.



Consult the documentation supplied with the PC card for information on how to install the necessary device drivers.

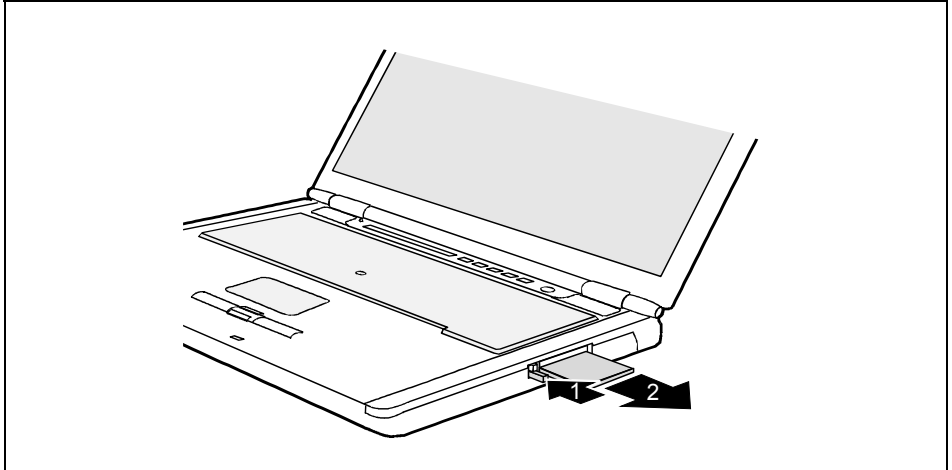
Also observe the corresponding information files (e.g. **.TXT*, **.DOC*, **.WRI*, **.HLP* or **.PDF*) on the driver CD and in the user manual of the operating system.

Removing a PC card

With the  symbol in the task bar you can stop the PC card:

- ▶ Left-click on the icon.
- ▶ Select the PC card you want to stop and remove.
- ▶ Press the Enter key.

Wait for the dialogue box which tells you that it is now safe to remove the PC card.



- ▶ Press the eject button (1). The PC card will project further out of the notebook's case. If the eject button is lowered, you must first cause the eject button to release from the notebook casing. To do this, press the eject button until it pops out.
- ▶ Pull the PC card out of the slot (2).

Integrated 56k modem

The integrated 56k modem supports all data communication applications, such as:

- Modem operation: High-speed downloads at up to 56,000 bit/s (V.9x). Downward-compatible to V.34 modems.
- Fax mode: Transmitting and receiving at up to 14,400 bit/s
- Simple country adaptation with programme

The modem complies with the EU Directive 91/263/EEC (Telecommunications terminal equipment directive) and has been checked in agreement with the guideline TBR-21.

The modem can be operated in the following countries:

Multifrequency (MFC) dialling

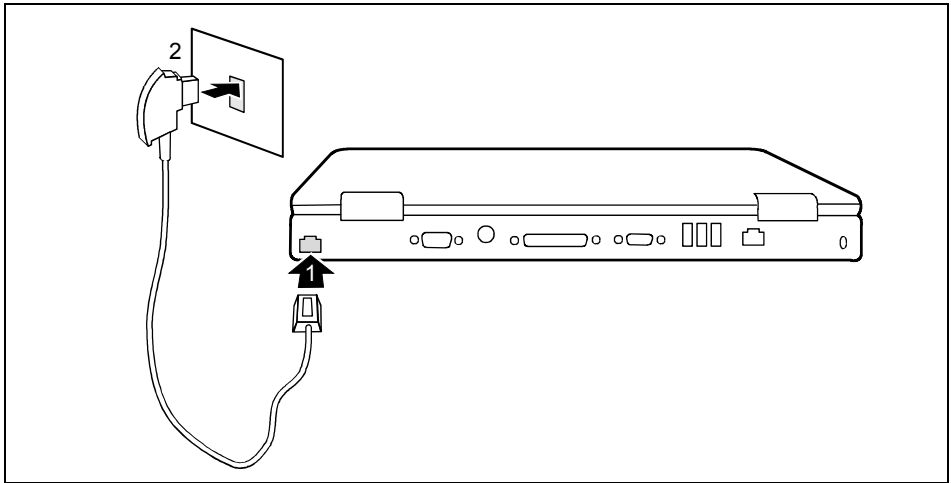
Belgium, Denmark, Germany, Finland, France, Greece, Great Britain, Holland, Ireland, Iceland, Italy, Luxembourg, Norway, Austria, Portugal, Sweden, Switzerland and Spain.

Pulse dialling:

Belgium, France, Holland and Italy.

Also in: Poland, Slovenia, South Africa and Hungary.

Connecting notebook modem to telephone wall socket



- ▶ If necessary, connect the modem cable provided to the optionally available country-specific telephone adapter.
- ▶ Connect the modem cable to the modem port of the notebook (1).
- ▶ Connect the modem cable to your telephone wall socket (2).



Please note that the telephone line is busy and that you cannot use your telephone if the modem cable is plugged into the telephone wall socket. Pull the modem cable out of the telephone socket after you have finished your internet session or the fax mode and reconnect the telephone cable.

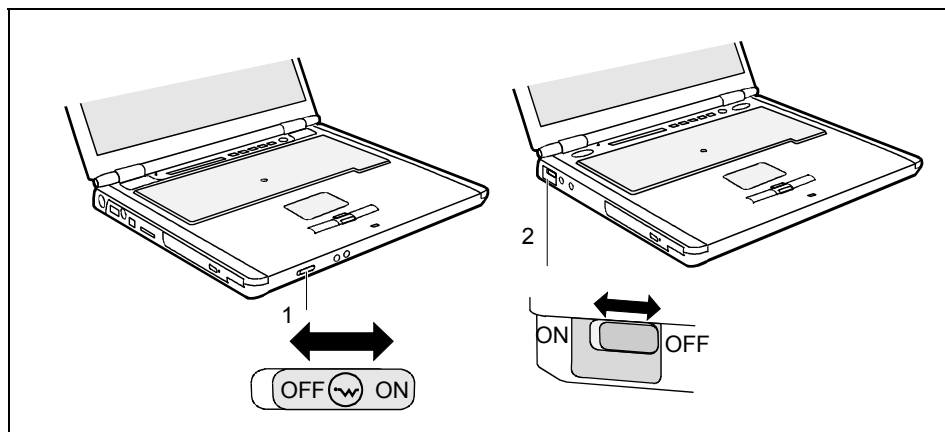
Wireless LAN/ Bluetooth (optional)



The installation of a wireless LAN module not approved by Fujitsu Siemens Computers GmbH voids the permits (CE!, FCC) issued for this device.

Depending on the device variant, wireless LAN/ Bluetooth may be integrated in your notebook. The wireless LAN/ Bluetooth module is switched off in the delivered state.

Switching wireless LAN/ Bluetooth module on and off



1 = ON/OFF switch for radio component on
CELSIUS H230/LIFEBOOK E8020

2 = ON/OFF switch for radio component on
LIFEBOOK C1320

- ▶ Slide the ON/OFF switch into the "ON" position to activate the wireless LAN/ Bluetooth module.
- or
- ▶ Slide the ON/OFF switch into the "OFF" position to deactivate the wireless LAN/ Bluetooth module.



When you switch off the Wireless LAN/ Bluetooth module, the Bluetooth function and the Wireless LAN antenna are also switched off.

Pay attention to the additional safety precautions for devices with wireless LAN/ Bluetooth provided in the "Safety" manual.

Details on using the wireless LAN are contained in the online help for your wireless LAN software and in the "Wireless LAN" manual. (The "Wireless LAN" manual can be found on the "Drivers & Utilities" CD/DVD.)

Detailed information on using Bluetooth is provided on the CD for your Bluetooth software (e.g. the "Widcomm Software Suite" CD).

French / French-Canadian Bluetooth software

In France, Bluetooth may only be operated with a low transmission output. Therefore, the performance class is automatically reduced during the installation of the French Bluetooth software. If you require a French Bluetooth software, however you do not live in France, we recommend that you install the French-Canadian software. With this software the highest performance class is maintained.



Once you have installed the French-Canadian software on your notebook, Bluetooth may **not** be operated in France!

Port Replicator (optional)

The Port Replicator is a docking device with which you can quickly connect your notebook to your peripheral devices. Among other things, the Port Replicator is equipped with the standard ports for serial data transmission, printer, monitor, audio, mouse and keyboard.



Additional information on the Port Replicator and on the various external devices that can be connected to it is contained in the in the chapter entitled "Connecting external devices".

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.

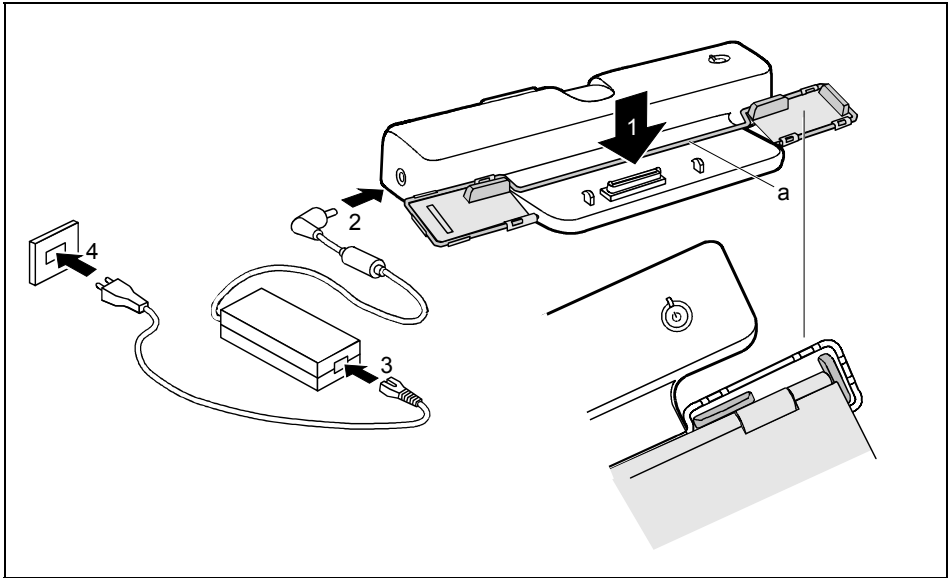


If the notebook is connected to the Port Replicator, you must connect the mains adapter to the Port Replicator. Otherwise some connections will not function.

When the notebook is connected to the Port Replicator, only one microphone port can function. The microphone port on the notebook functions in the standard configuration. If you would like to use the microphone port on the Port Replicator, you must switch over the active microphone port under *Start - Settings - Control Panel - Sounds and Audio Devices*.

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

- ▶ Switch the notebook off.
- ▶ Unplug the mains adapter from the mains socket.
- ▶ Pull the mains adapter cable out of the DC socket (DC IN) of the notebook.

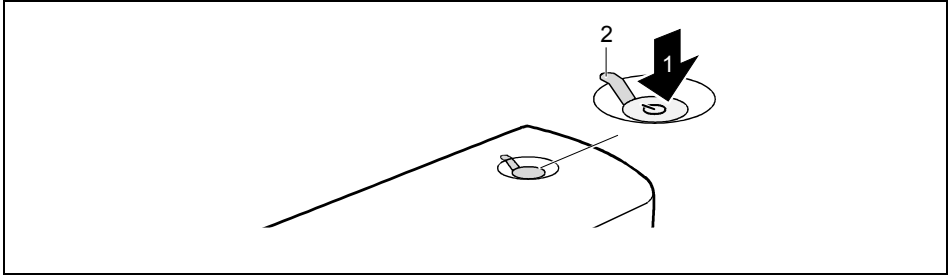


- ▶ Make sure that the hoop (a) is in the position illustrated.
- ▶ Position the notebook so that the rear right-hand corner lies on the Port Replicator, as shown in the illustration (1).
- ▶ Press down on the notebook's rear corners so that it may lock into position.
- ▶ Connect the mains adapter cable to the DC jack (DC IN) of the Port Replicator (2).
- ▶ Connect the power cable to the mains adapter (3).
- ▶ Plug the power cable into the mains socket (4).



If the notebook is connected to a Port Replicator, the operating system creates an 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 notebook via Port Replicator



- ▶ Press the Suspend/Resume button (1) of the Port Replicator.

The power-on indicator (2) of the Port Replicator lights up.



After switch-on a self-test (POST, Power On Self Test) is automatically carried out. Never switch the notebook off during the self-test.

Switching off notebook via Port Replicator

- ▶ Close all programmes and shut down your operating system (please see operating system manual).



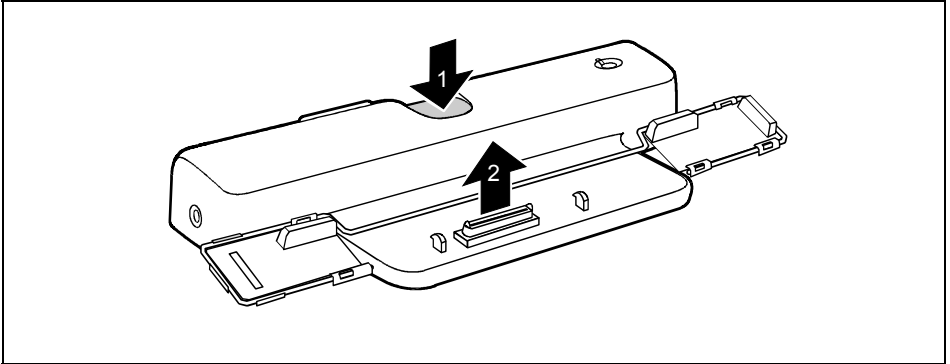
If the notebook cannot be shut down properly, press the Suspend/Resume button of the Port Replicator for approx. four seconds. The notebook switches off. However, any data which have not been saved may be lost.

Disconnecting the notebook from the Port Replicator



If you disconnect the notebook from the Port Replicator during operation, problems can occur. We recommend switching off the notebook beforehand or running the function *Start - Undock Computer* under Windows.

- ▶ Switch the notebook off.
- ▶ Unplug the mains adapter from the mains socket.



- ▶ Press the button (1).
- ▶ Lift off the notebook (2).

Security functions

Your notebook enables you to protect your system and personal data in a number of ways against unauthorised access. By combining these options, you can achieve maximum protection for your system.

In this chapter you will learn which security functions your notebook is equipped with, which advantages these functions offer you and how to configure and use them.



Please consider that in the case of improper use, you yourself will also be unable to access your system and your data. Please note therefore the following hints:

- Back up your data on external data carriers at regular intervals.
- Some security functions need you to choose a password. Please be sure to note these passwords, as otherwise you will no longer be able to access your system. We recommend that you make a note of the passwords and keep them in a safe place.

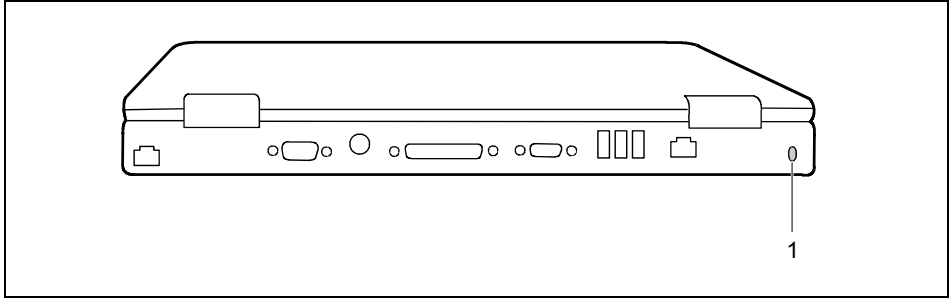
If you lose both the user and the admin passwords, please contact our Hotline/Help Desk. The telephone numbers are contained in the supplied help desk list. Passwords are not covered by your warranty and a charge will be made for assistance.

Brief overview of the security functions

Security function	Type of protection	Preparation
Kensington Lock	Mechanical	Mount and lock Kensington MicroSaver (accessory)
Security Panel (only on CELSIUS H230 and LIFEBOOK E8020)	Hardware password protection with Supervisor and User password. The passwords are numeric combinations. More than 750,000 combinations are possible.	Install the programs provided and specify the numeric combinations for the Supervisor and User passwords using these programs.
BIOS password protection	Password protection for <i>BIOS Setup</i> , operating system and hard disk with Supervisor and User password. The passwords consist of a maximum of eight alphanumeric characters.	Specify at least one Supervisor password in the <i>BIOS Setup</i> and activate the password protection for the operating system and hard disk as desired.
SmartCard reader (available as optional accessory)	PIN and SmartCard protection for operating system	Insert SmartCard holder (accessory). Install the corresponding software, e.g. <i>Smarty</i> (accessory). Specify a password when using the <i>Smarty</i> software.
Trusted Platform Module (optional)	Identification and authentication of the notebook	Define a supervisor password and activate the TPM (<i>Security Chip</i>) in the <i>BIOS Setup</i> .

Mounting Kensington Lock on notebook

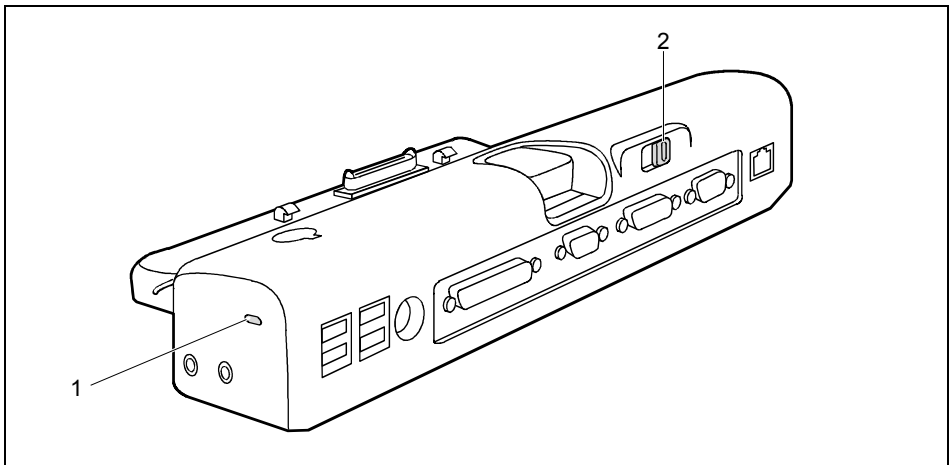
With the Kensington MicroSaver, a sturdy steel cable, you can help protect your notebook from theft. For this reason your notebook is equipped with a device for the Kensington MicroSaver. The Kensington MicroSaver is available as an accessory.



- ▶ Fit the Kensington MicroSaver on the device (1) on your notebook.

Mounting Kensington Lock on Port Replicator

With the Kensington MicroSaver, a sturdy steel cable, you can protect your notebook and your Port Replicator from theft. For this reason your Port Replicator is equipped with two devices for the Kensington MicroSaver. The Kensington MicroSaver is available as an accessory.



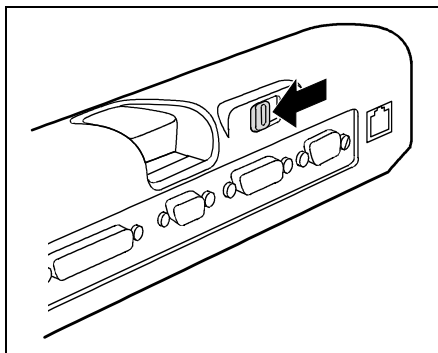
1 = Kensington Lock device

2 = Kensington Lock device

Protecting Port Replicator against theft

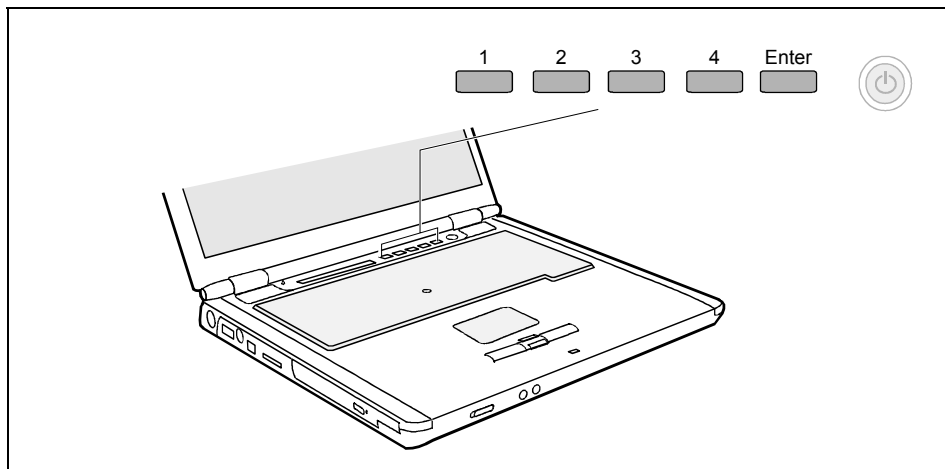
- ▶ Fit the Kensington MicroSaver on the device (1) on your Port Replicator.

Protecting Port Replicator and notebook against theft



- ▶ Connect the notebook to the Port Replicator.
- ▶ Push the switch into the "Lock" position.
- ▶ Fit the Kensington MicroSaver on the device (2) on your Port Replicator.

Configuring and using Security Panel (only on CELSIUS H230 and LIFEBOOK E8020)



Security panel

Configuring Security Panel

When you put your notebook into operation for the first time, the Security Panel is not activated yet. Assign the necessary passwords with the programs *FJSECS.EXE* (Supervisor password) and *FJSECU.EXE* (User password). These programs are ready for installation in the folder *AddOn* and are also provided on the "Drivers & Utilities" CD/DVD.

You require the User password each time you want to start your notebook (or want to return to your working interface from the energy-saving mode). Should you forget your User password, you can unlock the notebook with the Supervisor password and assign a new User password.



We recommend that you make a note of the security passwords and keep them in a safe place.

If you should have forgotten both the User password and the Supervisor password you cannot start your notebook any more. Please contact our Hotline/Help Desk. The deletion of security passwords is not a warranty case and is therefore subject to charge.

Back up your data on external data carriers at regular intervals.

To set the passwords, proceed in the following order:

Setting a supervisor password

The setup programme can be found under *Start - AddOn*.

- ▶ Double-click on the symbol to start the setup programme for *FJSECS.EXE*.

The programme starts.

or

- ▶ Enter the programme name *FJSECS.EXE* under *Start - Run*.
- ▶ Click on *OK*.

The programme starts.

The program instructions will help you configure the password.

First (Essential):	1	2	3	4
Second:	1	2	3	4
Third:	1	2	3	4
Fourth:	1	2	3	4
Fifth:	1	2	3	4

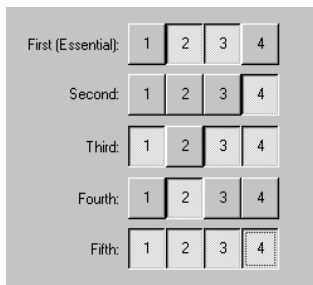
You see a field with five lines and 4 keys each with the numbers 1 to 4 for selecting your password. You can select one number or a combination of several numbers in each line.

- ▶ Click one to four keys in the first line.
- ▶ You can also click a key or key combination in additional lines if desired.

Here it is important that you do not skip a line. In the end your password consists of one to five numbers or one to five number combinations.



With a combination you must press the security keys with these numbers simultaneously later when entering the password.



An example:

Here the combination 2, 3 was selected in the first line, the number 4 in the second line, the combination 1, 3 and 4 in the third line, the number 2 in the fourth line and finally the combination 1, 2, 3 and 4 in the fifth line.

In this case the supervisor password is then:

2/3 4 1/3/4 2 1/2/3/4

Assigning the user password

The setup programme can be found under *Start - AddOn*.

- ▶ Double-click on the symbol to start the setup programme for *FJSECU.EXE*.

The programme starts.

or


- ▶ Enter the programme name *FJSECU.EXE* under *Start - Run*.
- ▶ Click on *OK*.

The programme starts.

The program instructions will help you configure the password. Enter the user password with its numbers and number combinations in the same way as the supervisor password.

Using Security Panel

Entering security password

During the next reboot a key symbol  in the display field indicates that Security Panel is activated. Your notebook does not start up until you have correctly entered your selected user password.

For the example in the section "Setting a supervisor password" (2/3 4 1/3/4 2 1/2/3/4), the following steps are necessary:

- ▶ Simultaneously press the security keys 2 and 3.
- ▶ Press the security button 4.
- ▶ Simultaneously press the security keys 1, 3 and 4.
- ▶ Press the security button 2.
- ▶ Simultaneously press the security keys 1, 2, 3 and 4.
- ▶ Then press the Enter key to complete the entry.


Your notebook boots.



The Security Panel is never activated with the functions *Wake on Ring*, *Wake on LAN* and *Time Resume*. This means the notebook boots without password entry with the functions named.

Password error alarm

If the password is entered incorrectly three times, a one-minute alarm is triggered. If the correct password is still entered during the alarm, the notebook boots as usual.

After one minute the notebook stops the alarm. The user must press the Suspend/Resume key. The key symbol  appears in the display field - the user must now enter the correct user password. Upon correct entry the notebook boots.

Changing or removing security password

After you have installed the programs *FJSECS.EXE* and *FJSECU.EXE*, you will find the entry *Security control* under *Start - Programs*. Here you can change or completely remove your user password. In this case follow the instructions of the programme.

Configuring password protection in BIOS Setup



Please refer to section "Settings in BIOS Setup" for a description of calling and operating the *BIOS Setup*.



Before using the various options of password protection for your data security in the *BIOS Setup*, please note the following hints:

- Please keep in mind your passwords in any case, as you will not be able to access your *BIOS Setup* and/or your system any longer, if you forget both the user password and the supervisor password.
Passwords are not covered by your warranty and a charge will be made for assistance.
- Back up your data on external data carriers at regular intervals.



Passwords can be up to eight characters long. You can use all alphanumeric characters and need not distinguish between uppercase and lowercase characters.

Password protection for BIOS Setup (supervisor and user password)

We recommend that you print out the following instructions, as these cannot be displayed while setting the password.

You prevent unauthorised opening of the *BIOS Setup* with both the supervisor and the user password. With the supervisor password you have access to all functions of the *BIOS Setup*, and with the user password only to part of the functions. You can only set a user password if a supervisor password has already been assigned.

Set the supervisor and user password

- ▶ Enter the *BIOS Setup* by pressing **F2** during system startup.
- ▶ Select the *Security* menu.
- ▶ Mark the *Set Supervisor Password* field and press the Enter key.

With *Enter new Password*: you are then requested to enter a password.

- ▶ Enter the password and press the Enter key.

With *Confirm new Password* you are asked to confirm the password.

- ▶ Enter the password again and press the Enter key.

With *Notice: Changes have been saved* you receive a confirmation that the new password has been saved.

- ▶ To assign the user password, mark the field *Set User Password* and proceed exactly as when configuring the supervisor password.

If you do not want to make any other settings, you can exit *BIOS Setup*.

- ▶ Select the *Exit Saving Changes* option in the *Exit* menu.

The notebook is rebooted and the new password is effective. If you now want to open the *BIOS Setup*, you must first enter your supervisor or user password. Please note that you only have access to a few BIOS settings with the user password.

Changing supervisor or user password

- ▶ Enter the *BIOS Setup* by pressing **F2** during system startup.
- ▶ Select the *Security* menu.
- ▶ When changing the password, proceed exactly as for password assignment.

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

Cancelling passwords

To cancel a password (without setting a new password) run the following steps:

- ▶ Enter the *BIOS Setup* by pressing **F2** during system startup.
- ▶ Select the *Security* menu.
- ▶ Mark the *Set User Password* or *Set Supervisor Password* field and press the Enter key.

With *Enter new Password* you will then be asked to enter a password.

- ▶ Press the Enter key twice.
- ▶ Select the *Exit Saving Changes* option in the *Exit* menu.

Your notebook will now restart and the password is cancelled.

With the supervisor password you simultaneously deactivate the user password.

Password protection for starting the operating system



With the supervisor password or the user password, you have assigned in the *BIOS Setup* (see "Set the supervisor and user password"), you can also prevent booting of the operating system.

Activating system protection

- ▶ Enter the *BIOS Setup* by pressing **F2** during system startup.
- ▶ Select the *Security* menu.
- ▶ If you have not assigned BIOS passwords yet, define the supervisor and the user password now, if desired (see "Set the supervisor and user password").
- ▶ Mark the *Password on Boot* field and press the Enter key.
- ▶ Select the *Every Boot* entry and press the Enter key.

If you do not want to make any other settings, you can exit *BIOS Setup*.

- ▶ Select the *Exit Saving Changes* option in the *Exit* menu.

The notebook reboots and you are asked to enter your password (the supervisor or user password).

Deactivating system protection

- ▶ Enter the *BIOS Setup* by pressing **F2** during system startup.
- ▶ Select the *Security* menu.
- ▶ Mark the *Password on Boot* field and press the Enter key.
- ▶ Select *Disabled* and press the Enter key.

If you do not want to make any other settings, you can exit *BIOS Setup*.

- ▶ Select the *Exit Saving Changes* option in the *Exit* menu.

The notebook reboots and there is no longer any password protection for the operating system.

Password protection for hard disk



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

Activating hard disk protection

- ▶ Enter the *BIOS Setup* by pressing **F2** during system startup.
- ▶ Select the *Security* menu.
- ▶ If you have not assigned BIOS passwords yet, define the supervisor and the user password now, if desired (see "Set the supervisor and user password").
- ▶ Mark the *Hard Disk Security* field and press the Enter key.
- ▶ Mark the *Set Primary Master Password* field and press the Enter key.

With *Enter new Password*: you are then requested to enter a password.

- ▶ Enter the password and press the Enter key.

With *Confirm new Password* you are asked to confirm the password.

- ▶ Enter the password again and press the Enter key.

With *Notice: Changes have been saved* you receive a confirmation that the new password has been saved.

- ▶ If you want to assign the password for the second hard disk, mark the field *Set Secondary Master Password* and proceed exactly as when configuring the password for the first hard disk.

The field *Password Entry on Boot* is set to *Enabled* in the default setting.

If you do not want to make any other settings, you can exit *BIOS Setup*.

- ▶ Select the *Exit Saving Changes* option in the *Exit* menu.

The notebook reboots and your hard disk is now protected with a password. The password request becomes active as soon as the hard disk is installed in another computer and the computer is started.

Deactivating hard disk protection

To cancel a password (without setting a new password) run the following steps:

- ▶ Enter the *BIOS Setup* by pressing **F2** during system startup.
- ▶ Select the *Security* menu.
- ▶ Mark the *Hard Disk Security* field and press the Enter key.
- ▶ Mark the *Set Primary Master Password* field and press the Enter key.

With *Enter new Password* you will then be asked to enter a password.

- ▶ Press the Enter key twice.
- ▶ Select the *Exit Saving Changes* option in the *Exit* menu.

Your notebook will now restart and the password is cancelled.

With the password for the first hard disk you simultaneously deactivate the password for the second hard disk.

- ▶ Select the *Exit Saving Changes* option in the *Exit* menu.

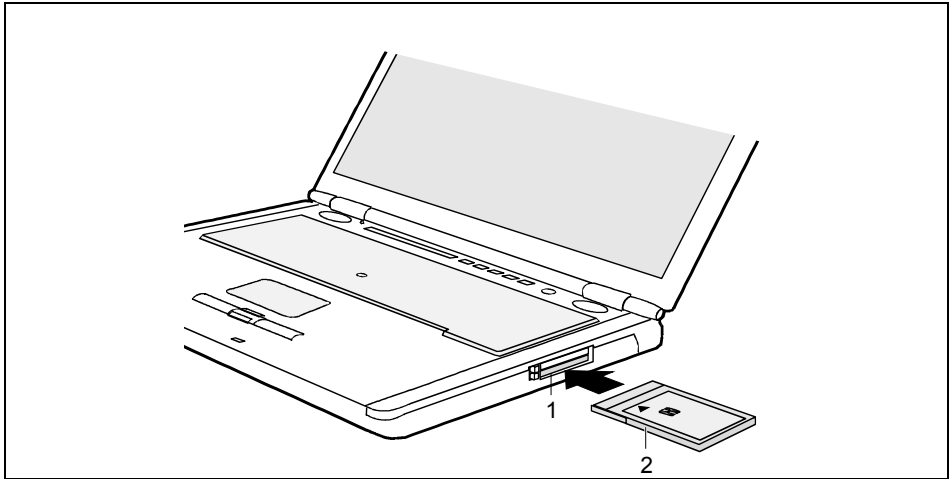
The notebook reboots and there is no longer any password protection for the hard disk.

SmartCard reader (optional)

A SmartCard reader is available as an accessory for your notebook. The following sections only apply to the SmartCard reader for the devices CELSIUS H230/LIFEBOOK E8020.



If you require a SmartCard reader for the LIFEBOOK C1320, please contact your point of sale or our Hotline/Help Desk.



1 = PC card slot with SmartCard Interface

1 + 2 = SmartCard reader

2 = SmartCard holder

To use the SmartCard reader, you must install a SmartCard holder in your notebook. The SmartCard holder is contained in the "Mobile Secure IT Suite", which is available as an accessory.

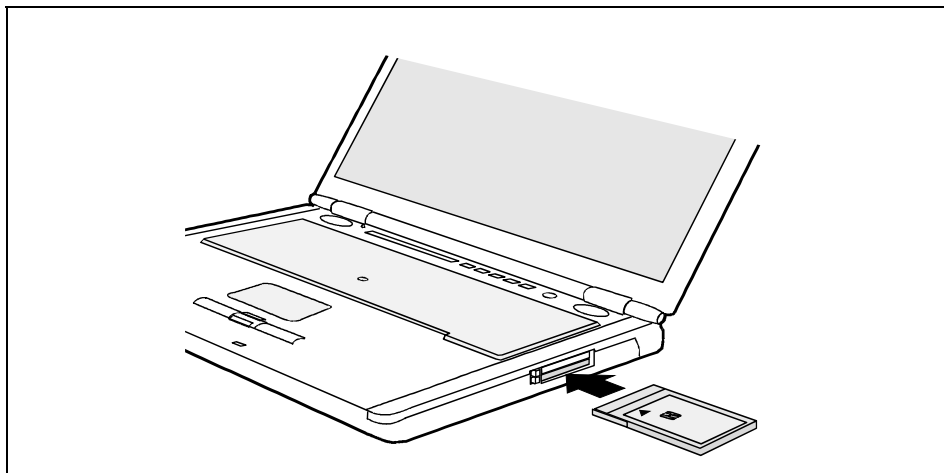
Configuring SmartCard reader



Do not use force when installing and removing the SmartCard holder. Make sure that foreign objects do not fall into the SmartCard holder.



You can lower the eject button into the notebook casing. Press the eject button until it snaps in. This prevents the SmartCard holder from being ejected accidentally.



- ▶ Insert the SmartCard holder in the slot guide with the connection contacts first.
- ▶ Carefully slide the SmartCard holder into the slot with the sticker facing upward until it audibly engages.

Installing drivers

Windows will detect the installed SmartCard holder as new hardware and will search for the chip driver. The driver is located on the "Drivers & Utilities" CD/DVD.

- ▶ Follow the instructions that appear on the screen after inserting the CD/DVD.

The SmartCard reader is now configured.



To remove the SmartCard holder, proceed exactly as for a PC card (see "Removing a PC card").

SmartCards

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 homebanking.

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



The SmartCard can only be used with a PIN so protection is maintained even when the SmartCard is lost. The SICRYPT SmartCard, that is included in the "Mobile Secure IT Suite", is locked after an incorrect PIN is input three times, to ensure maximum security for you.

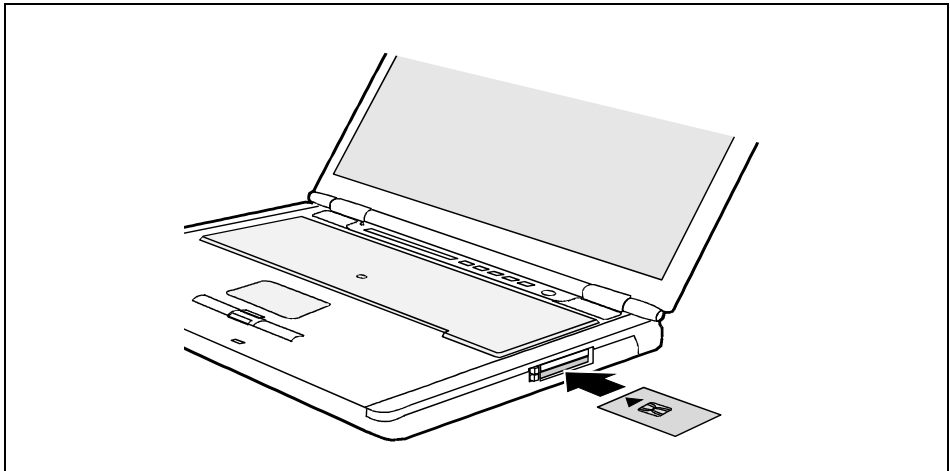
The first time you use your SmartCard you must enter the preset PIN provided by the SmartCard manufacturer or your system administrator.

Inserting the SmartCard



Do not use force when inserting and removing the SmartCard.

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



- ▶ Slide the SmartCard into the SmartCard reader with the chip facing upward and at the front. When the SmartCard is properly inserted, it protrudes by approximately 1.5 cm.

Application examples

SmartCard as device protection

After you insert the SmartCard, you are prompted in the logon screen to enter your PIN. Upon correct entry the SmartCard is checked and the operating system is booted.

The SmartCard remains in the SmartCard reader during the entire work session.



In the *Smarty* software you can specify how the user is to log on to the operating system:

- only with SmartCard and PIN
- either with SmartCard and PIN or with password entry

To install, configure and use *Smarty*, please see the documentation and online help on the CD for the *Smarty* software.

SmartCard as system protection (SystemLock)

With *SystemLock*, the notebook can only be started with an initialised SmartCard (SICRYPT, CardOS or Fujitsu) and personal identification number (PIN). SmartCard and PIN are already checked during system booting in the *BIOS Setup*, i.e. before the operating system is booted. To use *SystemLock*, the following conditions must be met:

- You must configure a SmartCard reader.
- You must install *SystemLock* on your notebook.
- You must initialise a SmartCard.

SmartCard for protecting your opened documents

In conjunction with software such as *Smarty* (accessory), the SmartCard allows you to interrupt your work. So you can leave your notebook unattended without unauthorised persons being able to access your opened documents and data.

- ▶ Pull the SmartCard out of the notebook during your work session.

A window appears stating that the system is locked.

- ▶ When you want to continue your work, insert the SmartCard and enter your PIN.

You return to your opened documents.

Trusted Platform Module (optional)

To use the TPM, you must be sure to activate the TPM in the *BIOS Setup* **before the software installation**. The condition for this is that you have assigned at least the supervisor password (see "Set the supervisor and user password").

- ▶ Enter the *BIOS Setup* by pressing **[F2]** during system startup.
- ▶ Select the *Security* menu.
- ▶ Select the entry *Enabled for Embedded Security Chip* to activate the TPM.

If you have activated the TPM, the menu item *Clear Security Chip* appears.



You can use this menu item to delete the holder in the TPM. However, you can then no longer access the data you have encrypted on the holder-based keys.

On the supplied TPM software CD/DVD you will find software that, in conjunction with the TPM, enhances the security of your system. Information on using the TPM and the related software is provided on the TPM software CD/DVD.



If you use TPM and the software on the TPM software CD/DVD, we strongly recommend that you use the emergency restoration function and create a medium (e.g. floppy disk, network drive) for restoration in emergencies.

You can only re-access your encrypted data using the medium you created for emergency restoration if, for example, a security key is lost due to hardware faults.

When the TPM is activated, it initially takes control of the notebook during each start-up to check all hardware components and the *BIOS Setup* for trustworthiness. In the further course of operation, the TPM checks the operating system, certain drivers and applications. Should a component not have a valid certificate, the TPM refuses this component access to protected content.

For example, with the TPM activated, data can be generated which can only be read or run on this device. The support of security protocols, such as SSL (Secure Socket Layer) for Internet connections, IPSec (LAN encryption), S-MIME (e-mail encryption, WLAN encryption and others) is also possible.

Troubleshooting

Security panel

You have forgotten your password or passwords.

If you have forgotten the user password, you can reset the forgotten user password and specify a new user password with the supervisor password.

If the Security panel is active and you have forgotten both the user password and the supervisor password, please contact our Hotline/Help Desk. You must provide proof of ownership for the notebook. Then the Help Desk will refer you to our service partner, who will unlock your notebook (for a charge).

BIOS passwords

You have forgotten your user and/or supervisor password.

If you have forgotten your user password, enter the supervisor password or contact your system administrator. If the supervisor password is also no longer available, please contact our Hotline/Help Desk. You must provide proof of ownership for the notebook. Then the Help Desk will refer you to our service partner, who will unlock your notebook (for a charge).

SmartCard reader

Your SmartCard is not recognised.

Make sure you have inserted your SmartCard into the SmartCard holder with the chip facing upward. Also make sure you are using a supported SmartCard. Your SmartCard must comply with the ISO standard 7816-1, -2 or -3.

You have forgotten your PIN.

If you work in a network, contact your system administrator, who can unlock your notebook with an Admin PIN.

You have lost your SmartCard.

If you work in a network, contact your system administrator, who can boot your notebook with an Admin SmartCard.

Connecting external devices



Under all circumstances, please observe the safety notes provided in the "Important notes" chapter.

Read the documentation on the external device before connecting it.

Do not connect or disconnect cables during a thunderstorm.

Do not pull on the cable when disconnecting a cable. Always take hold of the actual plug.

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

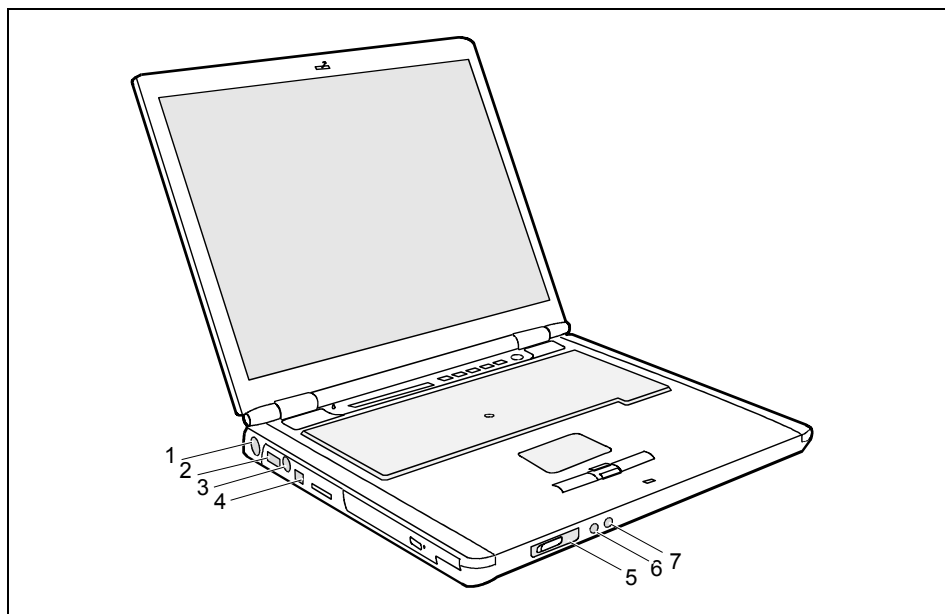
Connecting devices to notebook

1. Turn off all power and equipment switches.
2. Remove all power plugs from the grounded mains outlets.
3. Connect all the cables to the notebook and the external devices.
4. Plug all data communication cables into the utility sockets.
5. Plug all power cables into the mains supply.

Disconnecting devices from notebook

1. Turn off all power and equipment switches.
2. Remove all power plugs from the grounded mains outlets.
3. Unplug all data communication cables from the utility sockets.
4. Disconnect all the cables from the notebook and the external devices.

Connections on notebook CELSIUS H230/LIFEBOOK E8020



1 = DC jack (DC IN)

2 = USB port

3 = S Video out socket (video output)

4 = FireWire port

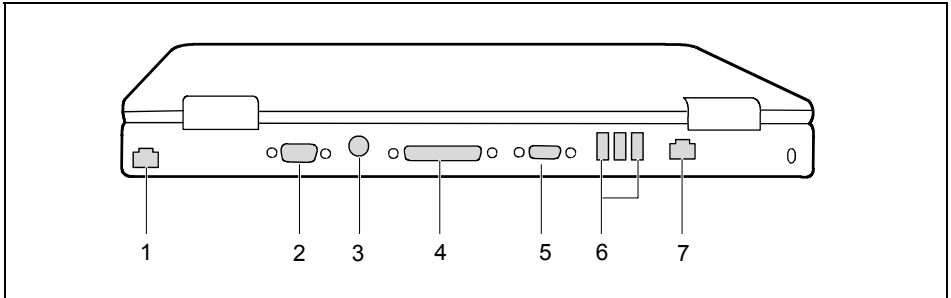
5 = Infrared interface

6 = Headphone port/SPDIF

7 = Microphone jack

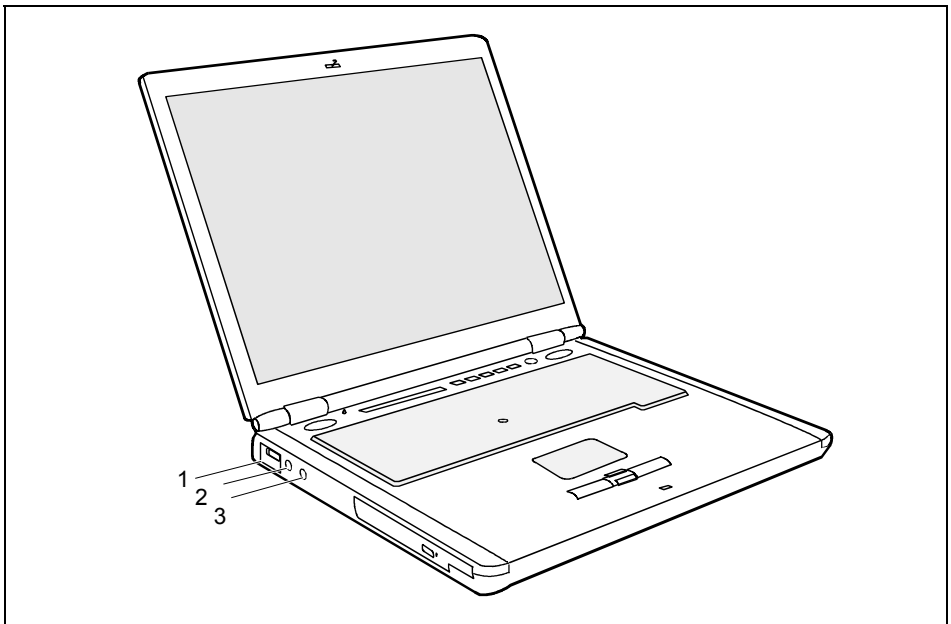


When the notebook is connected to the Port Replicator, the audio connections on the notebook are deactivated: microphone jack and headphone port.



- | | |
|---------------------------------------|------------------|
| 1 = Modem port | 5 = Monitor port |
| 2 = Serial port | 6 = USB ports |
| 3 = PS/2 port (for keyboard or mouse) | 7 = LAN port |
| 4 = Parallel port | |

LIFEBOOK C1320

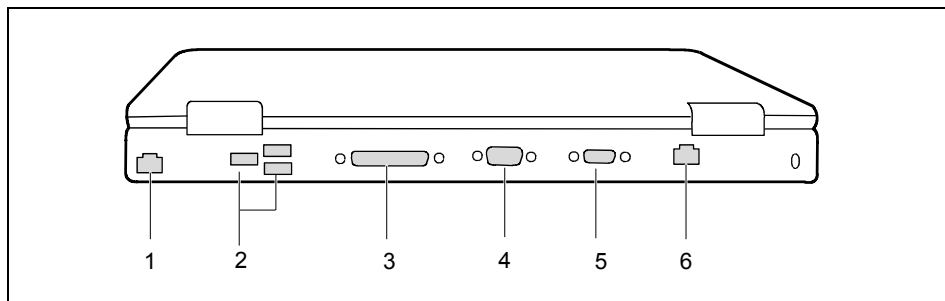


- | | |
|--------------------------------|-------------------------------|
| 1 = Infrared interface | 3 = Microphone port (Line In) |
| 2 = Headphones port (Line Out) | |



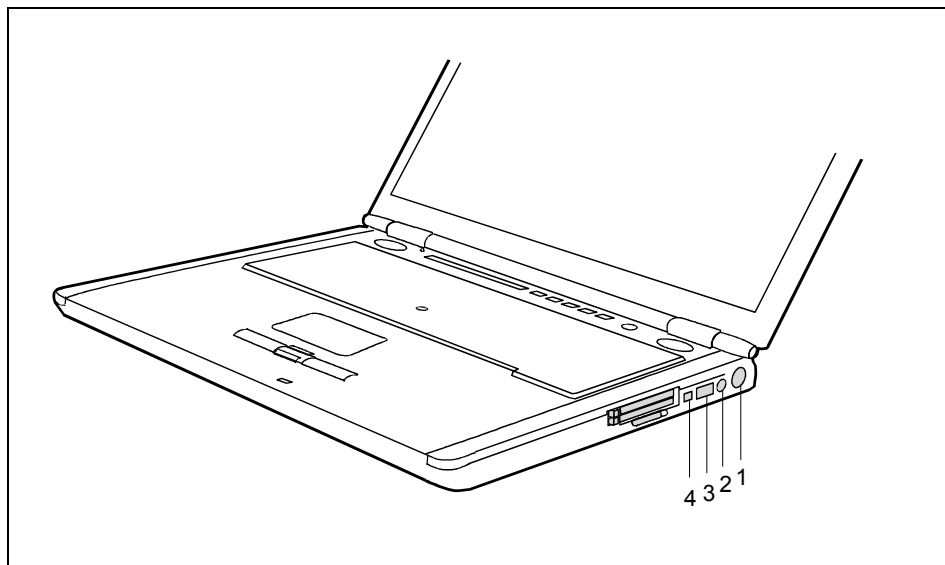
When the notebook is connected to the Port Replicator, the audio connections on the notebook are deactivated: microphone jack and headphone port.

Connecting external devices



- 1 = Modem port
- 2 = USB ports
- 3 = Parallel port

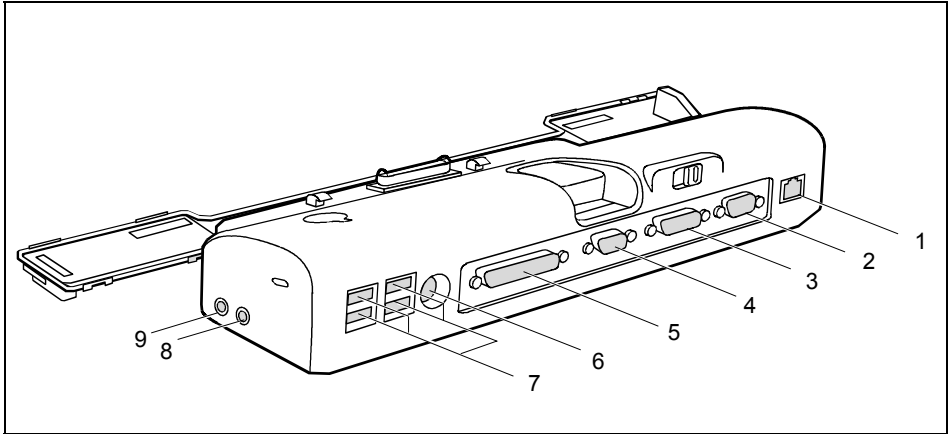
- 4 = Monitor port (VGA)
- 5 = Serial port
- 6 = LAN port



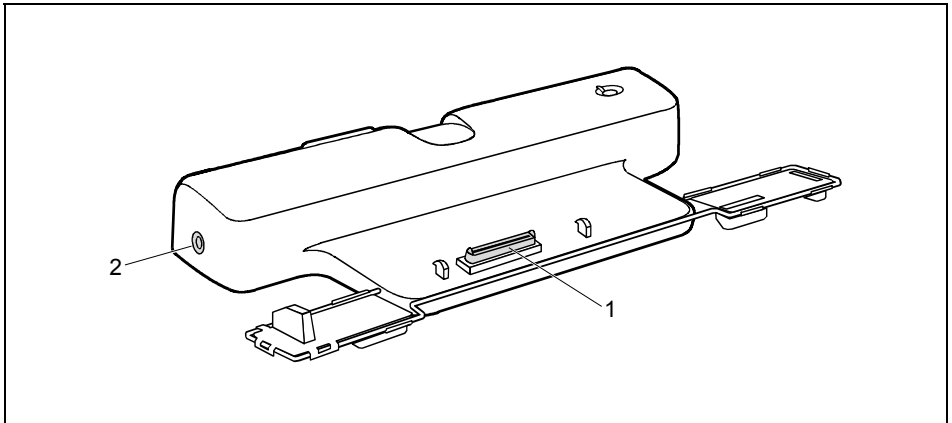
- 1 = DC jack (DC IN)
- 2 = S Video out socket

- 3 = USB port
- 4 = FireWire port

Ports on the Port Replicator



- | | |
|----------------------------------|---------------------------------------|
| 1 = LAN port | 6 = PS/2 port (for keyboard or mouse) |
| 2 = Serial port | 7 = USB ports |
| 3 = Monitor port DVI-D (digital) | 8 = Headphones port |
| 4 = Monitor port VGA (analogue) | 9 = Microphone jack |
| 5 = Parallel port | |



- | |
|--|
| 1 = Connector of the Port Replicator for the docking port on the underside of the notebook |
| 2 = DC jack (DC IN) |



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

Connecting an external monitor to the notebook

An external monitor can be connected to the notebook. The notebook graphics card supports resolutions up to 1600 x 1200 (UXGA) and 16.7 million colours at 85 Hz.



The graphics card of the CELSIUS H230 supports resolutions up to 1920 x 1200 (WUXGA) and the simultaneous operation of two monitors when you use a port replicator. Connect one monitor to the DVI-D port and one monitor to the VGA port of the port replicator.

Using the **[Fn]** + **[F10]** key combination you can switch back and forth between the external monitor and the LCD screen.

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

Setting the refresh rate for your external monitor

The correct setting of the refresh rate is important with CRT monitors to prevent the picture from flickering.

- ▶ Select the monitor type in the menu *Start - (Settings) - Control Panel - Appearance and Themes - Display - Settings - Advanced - Display*.
- ▶ Adjust the refresh rate and click *Apply*.



If the refresh rate set is too high, the monitor may be damaged. Please see the documentation included with your monitor for the maximum possible refresh rate.

Connecting an external monitor to the Port Replicator

An external monitor can be connected to the notebook. The notebook graphics card supports resolutions up to 1600 x 1200 (UXGA) and 16.7 million colours at 85 Hz.

Using the **[Fn]** + **[F10]** key combination you can switch back and forth between the external monitor and the LCD screen.

- ▶ Switch off the notebook and the external monitor.
- ▶ Connect the external monitor's data cable to the monitor port (analogue) on the Port Replicator.

or

- ▶ Connect the external monitor's data cable to the DVI-D port (digital) on the Port Replicator.
- ▶ First switch on the monitor and then the notebook.



If the notebook is connected to a Port Replicator, the operating system creates an hardware profile for the "Docked" mode. The setting with the last screen used for output is saved in this profile. This profile will be loaded, as soon as the notebook is connected to a Port Replicator of the same type.

Setting the refresh rate for your external monitor

The refresh rate must be correctly set so that the image does not flicker.

- ▶ Select the monitor type in the menu *Start - (Settings) - Control Panel - Appearance and Themes - Display - Settings - Advanced - Display*.
- ▶ Adjust the refresh rate and click *Apply*.



If the refresh rate set is too high, the monitor may be damaged. Please see the documentation included with your monitor for the maximum possible refresh rate.

Connecting an external keyboard

You do not need to switch your notebook off.

- ▶ Connect the external keyboard to the PS/2 port on the notebook or the Port Replicator.

Connecting an external PS/2 mouse

You do not need to switch your notebook off.

- ▶ Connect the mouse to the PS/2 port on the notebook or the Port Replicator.

Using the parallel port

- ▶ Switch the notebook off.
- ▶ Connect the data cable of the printer to the parallel port on the notebook.
or
Connect the data cable of the printer to the parallel interface on the Port Replicator.
- ▶ Plug the printer power cable into the grounded mains outlet.
- ▶ First switch the printer on, then the notebook.

Connecting USB devices

On the USB ports you can connect external devices that also have a USB port (e.g. 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.

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 the USB port of the notebook.
or
Connect the data cable to the USB port on the Port Replicator.



Device drivers

The devices you connect to the USB ports usually require no driver of their own, as the required software is already included in the operating system. However, if the USB device requires its own software, install it from the data carrier provided with the USB device.

Connecting external audio devices



High Definition Audio

The LIFEBOOK E8020 with Intel graphics and the LIFEBOOK C1320 are equipped with the HDA (High Definition Audio) function. As soon as an audio device is connected to one of the audio sockets, a popup window of the audio driver appears on the screen. In this window you can enter which audio device you have connected (e.g. headphones or loudspeakers on the audio output). This ensures an optimum sound experience.

Microphone jack

Via the microphone port you can connect an external microphone to your notebook or to the Port Replicator.

Headphones port

Via the headphone port you can connect either headphones or external loudspeakers to your notebook or to the Port Replicator.

Connecting an external device to S-Video Out

You can connect a TV set or a projector to the notebook.

- ▶ Switch off the notebook and the external device.
- ▶ Connect the external device to the S-Video Out socket of your notebook.
- ▶ First switch the external device on and then the notebook.

Activating the external TV / projector

- ▶ Select the monitor type in the menu *Start - (Settings) - Control Panel - Appearance and Themes - Display - Settings - Advanced - Display*.
- ▶ Click on *Apply*.

Connecting FireWire devices

External devices such as digital audio/video devices or other high-speed devices can be connected to the FireWire port. The FireWire port operates at a speed of 400 Mbit per second.



FireWire devices are hot-pluggable. Therefore, the cables of FireWire devices can be connected and disconnected with the system switched on.

Additional information is provided in the documentation of the FireWire devices.

- ▶ Connect this data cable of the external devices to the FireWire port of the notebook.
- ▶ Plug the power cable of the external device into the mains socket.

Memory expansion

Your notebook has 256 Mbyte - 2 Gbyte of main memory installed, depending on the upgrade level. The notebook will not start without memory modules, as no fixed main memory is installed.

Your notebook supports the Dual-Channel DDR2 technology, which increases the processor and main memory performance.



The Dual-Channel DDR2 technology can only be used with two identical memory modules. When two different memory modules are installed, only the "single-channel" performance is supported.

An installation overview is provided in the following table:

Memory slot 1	Memory slot 2	Mode	Performance	Total main memory
256 MB	-	Single channel	Single channel	256 MB
256 MB	256 MB	Dual channel interleave mode	Dual channel	512 MB
256 MB	512 MB	Dual channel asymmetric mode	Single channel	768 MB
256 MB	1 GB	Dual channel asymmetric mode	Single channel	1.25 GB
512 MB	-	Single channel	Single channel	512 MB
512 MB	256 MB	Dual channel asymmetric mode	Single channel	768 MB
512 MB	512 MB	Dual channel interleave mode	Dual channel	1 GB
512 MB	1 GB	Dual channel asymmetric mode	Single channel	1.50 GB
1 GB	-	Single channel	Single channel	1 GB
1 GB	256 MB	Dual channel asymmetric mode	Single channel	1.25 GB
1 GB	512 MB	Dual channel asymmetric mode	Single channel	1.50 GB
1 GB	1 GB	Dual channel interleave mode	Dual channel	2 GB

Installing and removing the memory extension



Please take note of the section "Notes on installing and removing boards and components" in the "Important notes" chapter.

The notebook must be switched off when installing/removing the memory modules, it must not be in Suspend mode.

Use only memory extensions which have been approved for your notebook (256, 512 Mbyte modules or 1 Gbyte modules of the type DDR2 533 SDRAM).

Never use force when installing or removing memory modules.

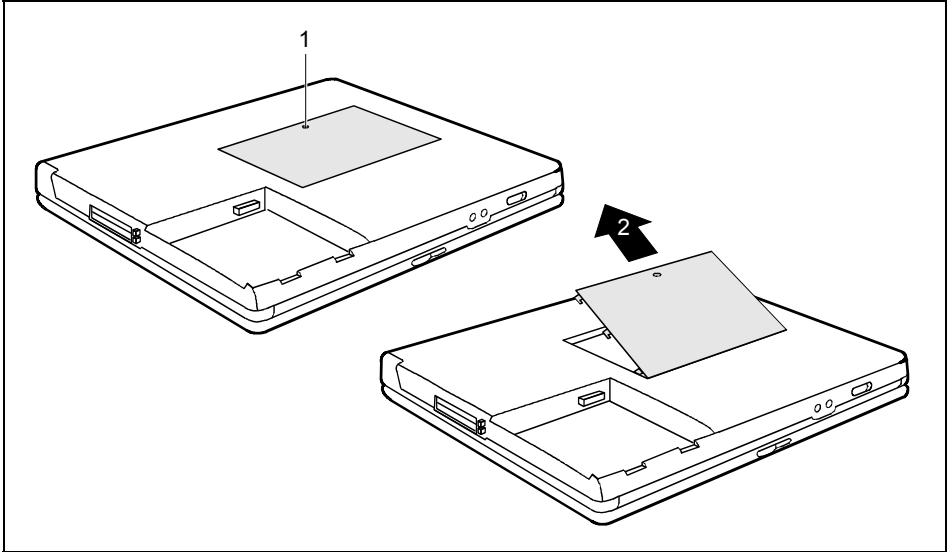
Make sure that foreign objects do not fall into the memory extension compartment.



The memory modules are located in a larger service compartment. You must open the entire service compartment when removing and installing a memory module. Once you have removed the cover, the various components are exposed. These components should be removed and replaced only by authorised specialists.

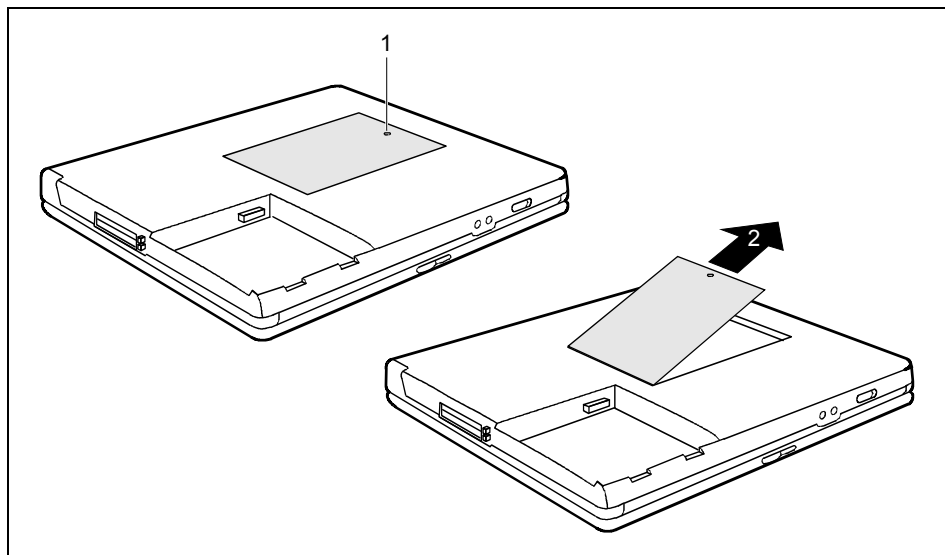
- ▶ Switch the notebook off.
- ▶ Close the LCD screen so that it locks into place.
- ▶ Unplug the mains adapter from the mains socket.
- ▶ Disconnect all cables connected to the notebook.
- ▶ Turn your notebook over and place it on a stable, sturdy, flat surface. If necessary, lay an anti-slip cloth on this surface to prevent the notebook from being scratched.
- ▶ Remove the battery (see "Removing battery").

Removing cover (LIFEBOOK E8020/CELSIUS H230)



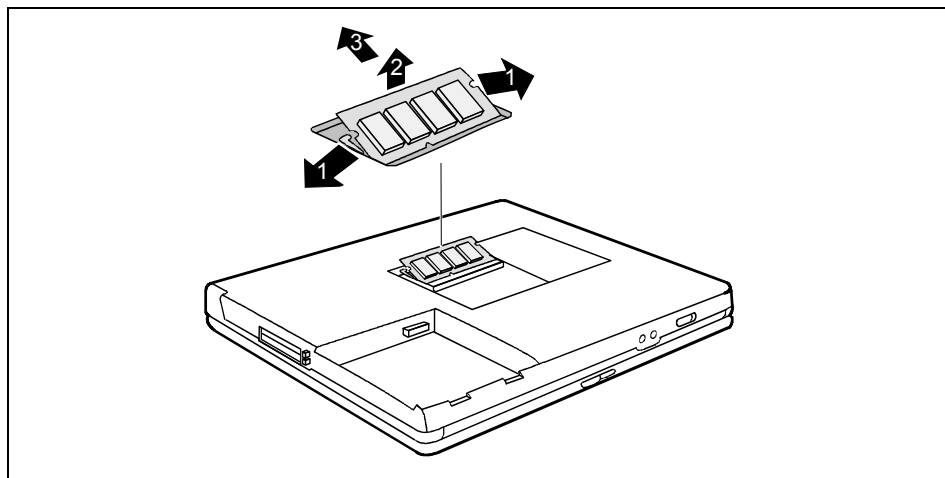
- ▶ Remove the screw (1).
- ▶ Pull off the cover from the notebook in the direction of the arrow (2).

Removing cover (LIFEBOOK C1320)



- ▶ Remove the screw (1).
- ▶ Pull off the cover from the notebook in the direction of the arrow (2).

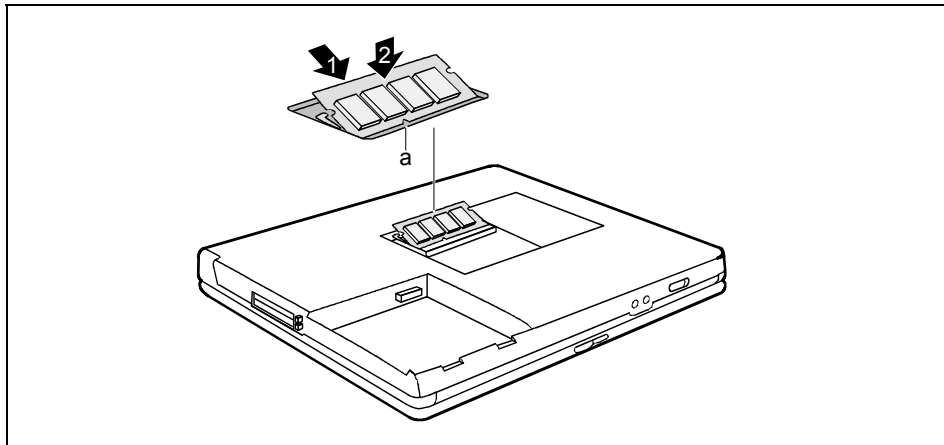
Removing a memory module



- ▶ Carefully push the two mounting clips outwards (1).
The memory module will flap upward (2).

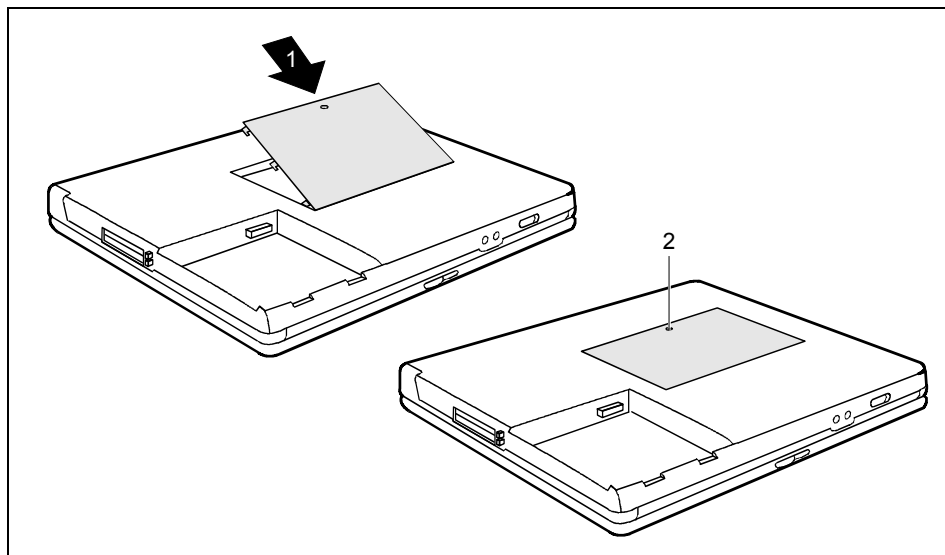
- ▶ Pull the memory module out of its slot in the direction of the arrow (3).

Installing a memory module



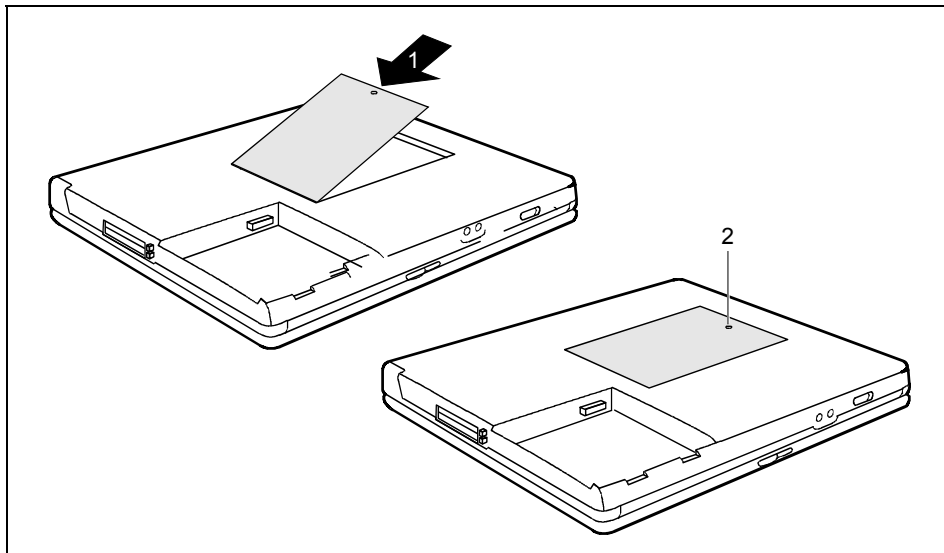
- ▶ Insert the memory module with the contacts and the recess (a) facing the slot (1).
- ▶ Carefully push the memory module downwards until it engages noticeably (2).

Mounting cover (LIFEBOOK E8020/CELSIUS H230)



- ▶ Position the cover on its slot in the direction of the arrow (1).
- ▶ Fasten the cover with the screw (2).
- ▶ Replace the battery (see "Insert battery").
- ▶ Turn the notebook over and place it on a flat surface.
- ▶ Reconnect the cables that you disconnected before.

Mounting cover (LIFEBOOK C1320)



- ▶ Position the cover on its slot in the direction of the arrow (1).
- ▶ Fasten the cover with the screw (2).
- ▶ Replace the battery (see "Insert battery").
- ▶ Turn the notebook over and place it on a flat surface.
- ▶ Reconnect the cables that you disconnected before.

Energy saving functions

If you use the possible energy saving functions in battery mode, the notebook uses less energy. You will then be able to work for longer before having to recharge the battery.

You can set the power-management features for your notebook under *Start - (Settings) - Control Panel - Power Options*.



Additional information on this service programme is contained in your operating system help files.



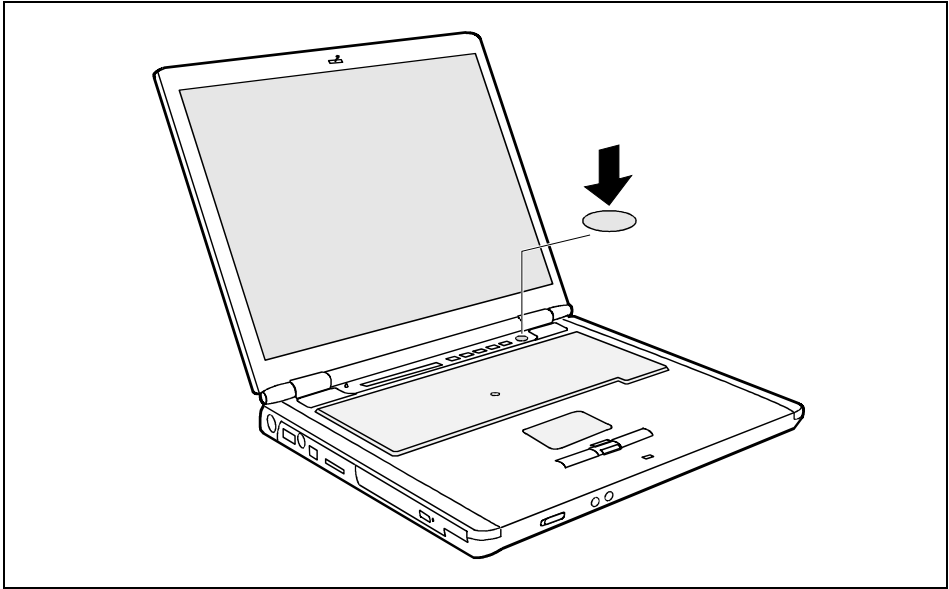
Never switch the notebook off with the Suspend/Resume button while the notebook is in one of the energy-saving modes.

When you are finished working with your notebook we advise you to come out of an energy saving mode and then turn off as normal.

If the notebook is in an energy-saving mode mode:

- Do not connect any external devices.
- Do not disconnect any external devices.
- Do not disconnect the notebook from the Port Replicator.
- Do not attempt to switch the notebook on if the built-in battery is flat.
- Do not add or remove RAM.
- Do not install or remove a PC card or ExpressCard.
- Do not replace or remove the battery.

Standby mode



- ▶ Press the Suspend/Resume button to switch the Standby mode on and off.



You can configure the Suspend/Resume button under *Start - (Settings) - Control Panel - Power Options - Advanced*.

In the Standby/Suspend-to-DRAM mode the content of your main memory is saved by continuing to supply the main memory with power, while the processor, monitor, hard disk and other internal components are switched off. This mode is activated whenever you press the Suspend/Resume button. Saving is also triggered when you do not make an entry on your notebook for a certain time. When you resume work, your notebook returns to the place at which you discontinued working.



If you use an integrated LAN/Modem, a PC-LAN card or a PC modem card, we do not recommend switching over to the Standby mode, as this may lead to an interruption in the network connection.

When you press the Suspend/Resume button for more than 4 seconds, your notebook will switch off.

Settings in BIOS Setup

In *BIOS Setup* you can set the system functions and the hardware configuration of the notebook. The settings can only be changed via the keyboard.

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

The *BIOS Setup* programme contains the following menus:

<i>Main:</i>	for system settings as time, date, hard disk and monitor selection
<i>Advanced:</i>	for system settings such as ports and keyboard
<i>Security:</i>	for password settings and safety functions
<i>Boot:</i>	for configuring the boot sequence
<i>Info:</i>	for displaying the system configuration (e.g. processor and memory configuration)
<i>Exit:</i>	to exit the <i>BIOS Setup</i>

Start BIOS Setup

- ▶ Restart the notebook (switching ON/OFF or warm boot).

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 **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 Hotline/Help Desk.

Operating BIOS Setup



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

You can revert to the default settings for the *BIOS Setup* menu you are currently in, by using the **[F9]** function key.

- ▶ Use the cursor key **[←]** or **[→]** to select the menu you wish to access to make changes.
- ▶ Press the Enter key.

The menu is displayed on the screen.

- ▶ Use the cursor key **[↑]** or **[↓]** to select the field you wish to change.
- ▶ Press the Enter key to confirm your selection.
- ▶ 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

To exit *BIOS Setup*, select the *Exit* menu from the menu bar. You can then decide which settings you want to save. The *Exit* menu offers the following options.

You must mark the required option and activate it with the Enter key.

Exit Saving Changes

Select *Exit Saving Changes* and *Yes* to save the current settings and exit the *BIOS Setup*. The device is rebooted and the new settings come into effect.

Exit Discarding Changes

Select *Exit Discarding Changes* and *Yes* to discard the changes you have made. The settings which were in force when *BIOS Setup* was called remain effective. *BIOS Setup* is terminated and the device is rebooted.

Load Setup Default

To revert all the menus of *BIOS Setup* to the default entries, select *Load Setup Default* and *Yes*.

Discard Changes

To load the values of all the menus of *BIOS Setup* that were in effect when *BIOS Setup* was called, select *Discard Changes* and *Yes*. If you want to exit *BIOS Setup* with these settings, select *Exit Saving Changes* and *Yes*.

Save Changes

To save settings without exiting *BIOS Setup*, select *Save Changes* and *Yes*.

Troubleshooting and tips



Take note of the safety notes in the "Safety" manual, when you connect or disconnect 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/Help Desk.

The telephone numbers are contained in the supplied help 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 after receiving the notebook.
- Any changes you have made to the *BIOS Setup* settings after receiving the notebook.
- Your system configuration and all peripheral devices connected to your system.
- Your sales contract.

Reinstalling Windows XP

You can reinstall the Windows XP operating system with the "Windows XP Recovery CD" and the "Drivers & Utilities" CD/DVD.

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 that you 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 XP Recovery CD" into the optical drive.
- ▶ Select the *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 *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

- ▶ Double-click on the clock in the task bar and adjust the time.

or


- ▶ Set the time and/or date in the *BIOS Setup* menu *Main*.



If the date and time are repeatedly incorrect when you switch on the notebook, the buffer battery that supplies the internal clock is dead.

Please contact your sales outlet or our Hotline/Help Desk.

No display appears on the screen, the power-on indicator flashes

If no display appears on the screen and the power-on indicator  flashes, this may have the following causes:

The screen power-management feature may be active.

- ▶ Press any key to activate the display.

The notebook is in Standby or Suspend mode.

- ▶ Press the Suspend/Resume button to end the Standby or Suspend mode.

The display angle or brightness may not be properly adjusted.

- ▶ Change the display angle and set the brightness by pressing the key **Fn** together with the key **F6** (darker) or **F7** (brighter) until the picture appears correct.

The notebook is set so that the picture only appears on the external screen.

- ▶ Press the key combination **Fn** + **F10** to switch over the display to the LCD screen or to specify the simultaneous display on the LCD screen and the external screen.

The LCD screen of the notebook remains blank

If your LCD screen remains blank this may be due to the following:

LCD screen is switched off

- ▶ Press a key or enter the password

External monitor or television set connected

- ▶ In *BIOS-Setup* in the *Advanced - Video Features* menu set the *Display Settings* setting to *Internal Flat Panel*.

The notebook has been configured to drive the external monitor

- ▶ Press the key combination **[Fn] + [F10]** until you find the display option you require.

The LCD screen is difficult to read

If the LCD screen display is hard to read, it can be due to the following:

Reflection

- ▶ Turn the notebook or alter the tilt of the LCD screen.

Brightness control is set to dark

- ▶ Set the brightness control of the LCD screen to bright.

Incorrect screen resolution set

- ▶ Set the correct screen resolution.
Under Windows: *Start - (Settings) - Control Panel - Display - Settings*.

The correct monitor resolution for your notebook is specified in the corresponding section in the chapter "Technical data".

The external monitor stays blank

If your screen remains blank this may be due to the following:

Monitor is switched off

- ▶ Switch the external monitor on.

Power saving has been activated (screen is blank)

- ▶ Press any key to continue.

Brightness control is set to dark

- ▶ Adjust the brightness control.

Screen output is set to the notebook's LCD screen

- ▶ Press the key combination **[Fn] + [F10]** (selecting internal/external display).

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.
- ▶ Switch on the external monitor and the notebook.

The external monitor is blank or the image is unstable

The wrong external monitor has been selected or the wrong screen resolution has been set for the application programme.

- ▶ Terminate the application programme in Windows with **[Alt] + [F4]**. If the fault continues to occur after ending the programme, switch over to the notebook's internal LCD screen with **[Fn] + [F10]** and carry out the following routine:
 - ▶ Select the correct monitor or set the correct screen resolution.
 - Setting the screen resolution: Select *Start - (Settings) - Control Panel - Display - Settings* and then the screen resolution you require in the *Resolution* field.
 - Selecting the monitor: Select the correct monitor under *Start - (Settings) - Control Panel - Display - Settings - Advanced Properties - Monitor - Modify*.

Battery indicator (battery dead) appears

The battery is dead.

If the battery display  appears, the battery is not charged.

- ▶ Charge the battery.

If this does not succeed, you must change the battery for a new one. Observe the information on the "Drivers & Utilities" CD/DVD when disposing of the defective battery.

Battery indicator no longer appears in status indicator panel

If the battery indicator does not appear in the status indicator panel, no battery is installed or there is no contact between the notebook and the battery.

- ▶ Check whether the battery is installed correctly in its compartment.

or

- ▶ Charge the battery.

If this does not succeed, you must change the battery for a new one. When you dispose of used batteries, please observe the safety instructions in the "Safety" manual.

The battery discharges too quickly

The battery is either too hot or too cold. In this case the battery indicator flashes.

- ▶ Bring the notebook up / down to a normal temperature again.

If the operating time of the battery mode is extremely short, the battery is probably old and should be replaced.

You may have an application running that consumes a great deal of power due to frequent accessing of the hard disk or optical drive.

- ▶ Use the mains adapter as frequently as possible.

The maximum brightness may have been set for the screen.

- ▶ Set the screen somewhat darker with the key **[Fn]** and the key **[F6]** to reduce the power consumption.

The power-management features have been deactivated.

- ▶ Check the settings in the *BIOS Setup* (in the *Power* menu) and under Windows (*Start - (Settings) - Control Panel - Power Options*), and adjust the parameters.

The notebook cannot be started

If the notebook does not start after switch on, this may be due to one of the following:

The battery is not installed correctly.

- ▶ Switch the notebook off.
- ▶ Check whether the battery is installed correctly in its compartment.
- ▶ Switch the notebook on.

The battery is dead.

- ▶ Charge the battery.


or


- ▶ Install a charged battery.

or

- ▶ Connect the notebook via its mains adapter to the mains outlet.

The mains adapter is not connected correctly.

- ▶ Switch the notebook off.
- ▶ Check whether the mains adapter is connected correctly to the notebook.
- ▶ Check whether the power cable is plugged properly into the mains adapter and into the mains outlet.
- ▶ Switch the notebook on.
The power indicator  of the notebook must appear in the status indicator panel.

The Security Panel  indicator lights up (only on CELSIUS H230 and LIFEBOOK E8020).

- ▶ Enter your password.



If you have forgotten your password, please contact our Hotline/Help Desk. Passwords are not covered by your warranty and a charge will be made for assistance.

The notebook stops working

If the notebook stops working, this may have the following reasons:

The notebook is in Standby or Suspend mode.

- ▶ Reactivate the notebook by pressing a key (Standby mode) or by switching it back on (Suspend mode).

The application programme has caused a malfunction.

- ▶ Close the application programme or restart the notebook by switching it on/off or with a warm boot.

The battery is dead.

- ▶ Charge the battery.

or

- ▶ Install a charged battery.

or

- ▶ Connect the mains adapter to the notebook.

The notebook switches off

You have defined a time limit in the "Power" menu in BIOS Setup that is insufficient for your needs.

- ▶ Enter the *BIOS Setup* by pressing **[F2]** during system startup.
- ▶ Correct the time limit in the *Power* menu in the *BIOS Setup*.

If you are operating the notebook with a battery, you may have overlooked the reference to the low battery level and the notebook has switched over to Standby mode.

- ▶ Connect the mains adapter.
- ▶ Press the Suspend/Resume button.

The Suspend/Resume button does not respond properly

The system may be processing.

- ▶ Wait until the system has completed processing.

You have not pressed the Suspend/Resume button long enough to switch off the notebook.

- ▶ Press the Suspend/Resume button until the notebook switches off.

The Standby function has been deactivated in the BIOS Setup.

- ▶ Enter the *BIOS Setup* by pressing **[F2]** during system startup.
- ▶ Activate the *Standby* function in the *Power* menu.

The radio connection to a network does not function

The ON/OFF switch for the wireless LAN/Bluetooth module is in the "OFF" position.

- ▶ Switch the radio component on (see "Switching wireless LAN/ Bluetooth module on and off").

The ON/OFF switch for the wireless LAN/Bluetooth module is in the "ON" position. Nevertheless, the radio connection to a network does not function.

- ▶ Check whether the radio connection is switched on via the software.



Details are contained in the online help for your wireless LAN software and in the "Wireless LAN" manual. The "Wireless LAN" manual can be found on the "Drivers & Utilities" CD/DVD.

Detailed information on using Bluetooth is provided on the CD for your Bluetooth software (e.g. the "Widcomm Software Suite" CD).

The mouse does not work

If the connected mouse does not work, the following can cause it:

Touchpad driver is not installed properly

- ▶ Deinstall the touchpad driver.
- ▶ Install the actual driver from the "Drivers & Utilities" CD/DVD.

Mouse driver is not loaded

- ▶ Check whether the correct mouse driver is properly installed and is present before the application programme is started.
Detailed information can be found in the User guides for the mouse or application programme.

Mouse is not connected

- ▶ Switch the notebook off.
- ▶ Check whether the mouse cable is correctly connected to the notebook. If you use an adapter or extension lead with the mouse cable, check the connections.
- ▶ Switch the notebook on.

The printer does not print

- ▶ Make sure that the printer is switched on and is on-line (see the manuals supplied with the printer).
- ▶ Check that the cable connecting the notebook and the printer is connected properly.
- ▶ Check that the correct printer driver is installed.
- ▶ Check the printer settings in Windows.
- ▶ Check the entry for the port used in the *BIOS Setup* in the *Advanced - Serial/Parallel Port Configurations* menu. The respective entry in the fields of *Serial Port* or *Parallel Port* must match the setting in the application programme under Windows.

No sound or minimal volume

Check whether the volume is set correctly.

- ▶ Make sure that the sound driver is correctly installed under *Control Panel - System - Device Manager*.
- ▶ Use the key combination **[Fn] + [F3]** to check the mute status.
- ▶ Double-click on the volume indicator in the task bar and adjust the volume.
or
- ▶ Use the key combination **[Fn] + [F8]** or **[Fn] + [F9]** to check the volume.

The CD/DVD does not function

Check whether the CD/DVD has been properly inserted into the drive.

- ▶ Check whether the CD/DVD is scratched, warped, dirty or damp.
- ▶ Make sure that you use a CD/DVD that complies with the standards.
- ▶ Use the key combination **[Fn] + [F3]** to check the mute status.
- ▶ Use the key combination **[Fn] + [F8]** or **[Fn] + [F9]** to check the volume.

Acoustic warnings

A beep sounds every few seconds.

The battery is almost flat.

- ▶ Charge the battery.

Error messages on the screen

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

CMOS Battery Bad

If the error message occurs repeatedly, then the buffer battery in the notebook is dead.

Please contact your sales outlet or our Hotline/Help Desk.

System CMOS checksum bad - Default configuration used

The system configuration information is incorrect.

- ▶ Switch the notebook off.
- ▶ Switch the notebook on.
- ▶ Enter the *BIOS Setup* by pressing **F2**.
- ▶ Select the *Exit* menu in the *BIOS Setup*.
- ▶ Select the entry *Load Setup Defaults*.
- ▶ Select *OK* and press the Enter key.

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

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.

If this error message appears again, please contact your sales outlet or our Hotline/Help Desk.

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 off the notebook with the Suspend/Resume button.
- ▶ Wait 3 - 5 seconds and switch on the notebook again.

If this error message appears again, please contact your sales outlet or our Hotline/Help Desk.

Keyboard error

If you use an external keyboard:

- ▶ Check the connection and reboot the notebook.

If this error message appears again, please contact your sales outlet or our Hotline/Help Desk.

nn Stuck key

- ▶ Make sure that no key is pressed.

If this error message appears again, please contact your sales outlet or our Hotline/Help Desk.

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.
- ▶ Enter the *BIOS Setup* by pressing **F2**.

Previous boot incomplete - Default configuration used

Due to an error during the previous system boot, default values were used for certain settings. Check the *BIOS Setup* and the settings.

- ▶ Press the **F1** function key when prompted to do so.

Real Time clock error

- ▶ Please contact your sales outlet or our Hotline/Help Desk.

nnnnK Shadow RAM failed at offset: xxxx Failing Bits: zzzz

- ▶ Please contact your sales outlet or our Hotline/Help Desk.

System battery is dead - Replace and run SETUP

- ▶ Please contact your sales outlet or our Hotline/Help Desk.

System cache error - Cache disabled

- ▶ Please contact your sales outlet or our Hotline/Help Desk.

System timer error

- ▶ Please contact your sales outlet or our Hotline/Help Desk.

Technical data

CELSIUS H230

Processor:	Intel Pentium M as from 1.73 GHz
Main memory:	Maximum 2 Gbyte DDR2 533 SDRAM 2 slots for 256, 512-Mbyte modules or 1-Gbyte modules
Possible modules:	<ul style="list-style-type: none">• Second battery• second hard disk drive• DVD-ROM drive• Combo drive (CD-R/CD-RW/DVD)• DVD±RW dual drive• Multi-format DVD burner with double layer support• Weight Saver

Electrical data

Regulations complied with:	CE, CEI, Energy Star
Protection class:	II
Maximum power draw: (notebook on with battery charging)	80 W

LCD screen

Display diagonal:	15 inch UXGA, TFT
Max. resolution:	1600 x 1200 / 16 mio. colours

Screen controller

Chip:	ATI Mobility FireGL V5000
Video memory (VRAM):	256 MB

Audio

Soundchip	ALC 203, AC97
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Input devices

Keyboard:	85 keys
Touchpad/TouchStick:	2 buttons and 1 scroll button

Slots

ExpressCard slot:	1 x ExpressCard/34 or ExpressCard/54
– Compliance ID:	EC 100009
PC Card slot (CardBus/PCMCIA):	PCMCIA 1 x type I or II
– PC card controller:	OZ711MC1B
Memory card slot:	1 x Secure Digital or 1 x MultiMediaCard

Connections on notebook

• PS/2 port:	6-pin mini DIN female connector
• S Video out socket:	7-pin mini DIN female connector
• Monitor port:	15-pin female connector
• Modem port:	connector, RJ11
• LAN connector:	connector, RJ45
• Parallel port:	25-pin female connector
• Serial port:	9-pin plug
• Microphone jack:	3.5 mm mono mini-jack
• Headphone port/SPDIF:	3.5 mm stereo mini jack
• FireWire port:	S400, 4-pin
• USB port:	4x USB 2.0
• Infrared interface:	IrDA 1.1
• Docking port:	100-pin

Ports on the Port Replicator

• LAN connector:	connector, RJ45
• Serial port:	9-pin plug
• DVI-D port:	25-pin female connector, digital
• Monitor port:	15-pin female connector, analogue
• Parallel port:	25-pin female connector
• PS/2 port:	6-pin mini DIN female connector
• USB port:	4x USB 2.0
• Headphone port:	3.5 mm stereo mini jack
• Microphone jack:	3.5 mm mono mini-jack
• Docking port:	100-pin

Environmental conditions

Environment class (3K2)	DIN IEC 721
Mechanical class 7M2	DIN IEC 721
Temperature:	
• Operation	5 °C 35 °C
• Transport	-15 °C 60 °C

Dimensions

Width x Depth x Height (front/back):	333 mm x 285 mm x 35/37 mm
Weight with Weight Saver:	approx. 3 kg

LIFEBOOK E8020 (Intel graphics)

Processor:	Intel Pentium M as from 1.60 GHz
Main memory:	Maximum 2 Gbyte DDR2 533 SDRAM 2 slots for 256, 512-Mbyte modules or 1-Gbyte modules
Possible modules:	<ul style="list-style-type: none"> • Second battery • second hard disk drive • DVD-ROM drive • Combo drive (CD-R/CD-RW/DVD) • DVD±RW dual drive • Multi-format DVD burner with double layer support • Weight Saver

Electrical data

Regulations complied with:	CE, CE!, Energy Star, TBR21
Protection class:	II
Maximum power draw: (notebook on with battery charging)	80 W

LCD screen

Display diagonal:	15 inch TFT XGA (1024 x 768) 15 inch TFT SXGA+ (1400 x 1050)
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Screen controller

Chip:	Intel 915GM Internal Graphics
Video memory:	8 -128 Mbyte

Audio

Soundchip	ALC 203, AC97
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Input devices

Keyboard:	85 keys
Touchpad/TouchStick:	2 buttons and 1 scroll button

Slots

ExpressCard slot:	1 x ExpressCard/34 or ExpressCard/54
– Compliance ID:	EC 100020
PC Card slot (CardBus/PCMCIA):	PCMCIA 1 x type I or II
– PC card controller:	OZ711MC1B
Memory card slot:	1 x Secure Digital or 1 x MultiMediaCard

Connections on notebook

- PS/2 port: 6-pin mini DIN female connector
- S Video out socket: 7-pin mini DIN female connector
- Monitor port: 15-pin female connector
- Modem port: connector, RJ11
- LAN connector: connector, RJ45
- Parallel port: 25-pin female connector
- Serial port: 9-pin plug
- Microphone jack: 3.5 mm mono mini-jack
- Headphone port/SPDIF: 3.5 mm stereo mini jack
- FireWire port: S400, 4-pin
- USB port: 4x USB 2.0
- Infrared interface: IrDA 1.1
- Docking port: 100-pin

Ports on the Port Replicator

- LAN connector: connector, RJ45
- Serial port: 9-pin plug
- DVI-D port: 25-pin female connector, digital
- Monitor port: 15-pin female connector, analogue
- Parallel port: 25-pin female connector
- PS/2 port: 6-pin mini DIN female connector
- USB port: 4x USB 2.0
- Headphone port: 3.5 mm stereo mini jack
- Microphone jack: 3.5 mm mono mini-jack
- Docking port: 100-pin

Environmental conditions

Environment class (3K2) DIN IEC 721
Mechanical class 7M2 DIN IEC 721

Temperature:

- Operation 5 °C 35 °C
- Transport -15 °C 60 °C

Dimensions

Width x Depth x Height (front/back): 333 mm x 285 mm x 38 mm
Weight with Weight Saver: approx. 3 kg

LIFEBOOK E8020 (external graphics)

Processor:	Intel Pentium M as from 1.73 GHz
Main memory:	Maximum 2 Gbyte DDR2 533 SDRAM 2 slots for 256, 512-Mbyte modules or 1-Gbyte modules
Possible modules:	<ul style="list-style-type: none"> • Second battery • second hard disk drive • DVD-ROM drive • Combo drive (CD-R/CD-RW/DVD) • DVD±RW dual drive • Multi-format DVD burner with double layer support • Weight Saver

Electrical data

Regulations complied with:	CE, CE!, Energy Star, TBR21
Protection class:	II
Maximum power draw: (notebook on with battery charging)	80 W

LCD screen

Display diagonal:	15 inch TFT XGA (1024 x 768) 15 inch TFT SXGA+ (1400 x 1050)
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Screen controller

Chip:	ATI MOBILITY™ RADEON® X600
Video memory (VRAM):	64 MB

Audio

Soundchip	ALC 203, AC97
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Input devices

Keyboard:	85 keys
Touchpad/TouchStick:	2 buttons and 1 scroll button

Slots

ExpressCard slot:	1 x ExpressCard/34 or ExpressCard/54
– Compliance ID:	EC 10009
PC Card slot (CardBus/PCMCIA):	PCMCIA 1 x type I or II
– PC card controller:	OZ711MC1B
Memory card slot:	1 x Secure Digital or 1 x MultiMediaCard

Connections on notebook

- PS/2 port: 6-pin mini DIN female connector
- S Video out socket: 7-pin mini DIN female connector
- Monitor port: 15-pin female connector
- Modem port: connector, RJ11
- LAN connector: connector, RJ45
- Parallel port: 25-pin female connector
- Serial port: 9-pin plug
- Microphone jack: 3.5 mm mono mini-jack
- Headphone port/SPDIF: 3.5 mm stereo mini jack
- FireWire port: S400, 4-pin
- USB port: 4x USB 2.0
- Infrared interface: IrDA 1.1
- Docking port: 100-pin

Ports on the Port Replicator

- LAN connector: connector, RJ45
- Serial port: 9-pin plug
- DVI-D port: 25-pin female connector, digital
- Monitor port: 15-pin female connector, analogue
- Parallel port: 25-pin female connector
- PS/2 port: 6-pin mini DIN female connector
- USB port: 4x USB 2.0
- Headphone port: 3.5 mm stereo mini jack
- Microphone jack: 3.5 mm mono mini-jack
- Docking port: 100-pin

Environmental conditions

Environment class (3K2) DIN IEC 721

Mechanical class 7M2 DIN IEC 721

Temperature:

- Operation 5 °C 35 °C
- Transport -15 °C 60 °C

Dimensions

Width x Depth x Height (front/back): 333 mm x 285 mm x 35/37 mm

Weight with Weight Saver: approx. 3 kg

LIFEBOOK C1320

Processor:	Intel Celeron M as from 1.4 GHz or Intel Pentium M as from 1.73 GHz
Main memory:	Maximum 2 Gbyte DDR2 533 SDRAM 2 slots for 256, 512-Mbyte modules or 1-Gbyte modules
Possible modules:	<ul style="list-style-type: none"> • Second battery • second hard disk drive • DVD-ROM drive • Combo drive (CD-R/CD-RW/DVD) • DVD±RW dual drive • Multi-format DVD burner with double layer support • Weight Saver • Floppy Disk Drive

Electrical data

Regulations complied with:	CE, CE!, Energy Star, TBR21
Protection class:	II
Maximum power draw: (notebook on with battery charging)	60 W

LCD screen

Display diagonal:	15 inch TFT XGA (1024 x 768) 15 inch TFT SXGA (1400 x 1050) 15.4 inch TFT WXGA+ (1280x 800)
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Screen controller

Chip:	Intel 915GM Internal Graphics
Video memory:	from 8 Mbyte to 128 Mbyte

Audio

Soundchip	Realtek ALC 260
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Input devices

Keyboard:	85 keys
Touchpad/TouchStick:	2 buttons and 1 scroll button

Slots

ExpressCard slot:	1 x ExpressCard/34 or ExpressCard/54
– Compliance ID:	EC100034
PC Card slot (CardBus/PCMCIA):	PCMCIA 1 x type I or II
PC card controller:	Ricoh R5C841
Memory card slot:	1 x Secure Digital or 1 x MultiMediaCard

Connections on notebook

• S Video out socket:	7-pin mini DIN female connector
• Monitor port:	15-pin female connector
• Modem port:	connector, RJ11
• LAN connector:	connector, RJ45
• Parallel port:	25-pin female connector
• Serial port:	9-pin plug
• Microphone port (Line In):	3.5 mm mono mini-jack
• Headphones port (Line Out):	3.5 mm stereo mini jack
• FireWire port:	S400, 4-pin
• USB port:	4x USB 2.0
• Infrared interface:	IrDA 1.1 (max. 4 Mbps)
• Docking port:	100-pin

Ports on the Port Replicator

• LAN connector:	connector, RJ45
• Serial port:	9-pin plug
• DVI-D port:	25-pin female connector, digital
• Monitor port:	15-pin female connector, analogue
• Parallel port:	25-pin female connector
• PS/2 port:	6-pin mini DIN female connector
• USB port:	4x USB 2.0
• Headphone port:	3.5 mm stereo mini jack
• Microphone jack:	3.5 mm mono mini-jack
• Docking port:	100-pin

Environmental conditions

Environment class (3K2)	DIN IEC 721
Mechanical class 7M2	DIN IEC 721

Temperature:

• Operation	5 °C 35 °C
• Transport	-15 °C 60 °C

Dimensions

Width x Depth x Height (front/back):	360 mm x 272 mm x 38 mm
Weight with Weight Saver:	approx. 2.7 kg

Battery (CELSIUS H230/LIFEBOOK E8020)

Rated voltage:	14.4 V
Rated capacity:	69.1 Wh
Charge time:	approx. 1.5 hours (when switched off)
Operating time with a battery external graphics:	up to 4.5 hours (depending on application and power management settings)
Operating time with a battery Intel graphics:	up to 5.5 hours (depending on application and power management settings)

Battery (LIFEBOOK C1320)

6-cell rechargeable battery

Rated voltage:	10.8 V
Rated capacity:	56.2 Wh
Charge time:	approx. 1.5 hours (when switched off)
Operating time with a battery:	up to 4 hours (depending on application and power management settings)

8-cell rechargeable battery

Rated voltage:	14.4 V
Rated capacity:	75 Wh
Charge time:	approx. 2 hours (when switched off)
Operating time with a battery:	up to 5.5 hours (depending on application and power management settings)

Mains adapter 80 W (CELSIUS H230/LIFEBOOK E8020)

Main

- Rated voltage: 100 V or 240 V (automatic)
- Frequency: 50 Hz to 60 Hz (automatic)

Sub

- Rated voltage: 19 V
- Max. rated current: 4.22 A

You can readily order an additional mains adapter and an additional power cable.

Mains adapter 60 W (LIFEBOOK C1320)

Main

- Rated voltage: 100 V or 240 V (automatic)
- Frequency: 50 Hz to 60 Hz (automatic)

Sub

- Rated voltage: 19 V
- Max. rated current: 3.15 A

You can readily order an additional mains adapter and an additional power cable.

Manufacturer's notes

Disposal and recycling

Further information can be found on the "Drivers & Utilities" CD/DVD provided with your computer.

Energy Star



The notebook from Fujitsu Siemens Computers is designed to conserve electricity by dropping to less than 8 W when it goes into standby/suspend mode and to less than 3 W when it goes into OFF mode. With this level of power management, the notebook qualifies for the U.S. Environmental Protection Agency's (EPA) Energy Star Computers award.

The EPA estimates that computer equipment uses 5 % percent of all business electricity and that this is growing rapidly. If all desktop PCs and peripherals enter a low-power mode when not in use, the overall savings in electricity could amount to \$ 2 milliard annually. These savings could also prevent the emission of 20 million tons of carbon dioxide into the atmosphere - the equivalent of 5 million automobiles.

As an Energy Star Partner, Fujitsu Siemens Computers GmbH has determined that this product meets the Energy Star guidelines for energy efficiency.

Copyright-protected technology

This product incorporates copyright protection technology that is protected by method claims of certain U. S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorised by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorised by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

CE marking



CE marking for devices without wireless LAN/ Bluetooth

The shipped version of this device complies with the requirements of the EEC directives 89/336/EEC "Electromagnetic compatibility" and 73/23/EEC "Low voltage directive".



CE marking for devices with radio component

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

This equipment can be used in the following countries:

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

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

Regulatory notices



This device may only be introduced to the US trading area if it has an FCC logo and possibly also an FCC ID, and if it satisfies the associated technical criteria.

Regulatory information for notebooks without radio device

NOTICE:

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

Notice to Users of Radios and Television

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device.

Notice to Users of the US Telephone Network

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

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

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

The REN is used to determine the number of devices that you may connect to your telephone line and still have all of those devices ring when your number is called. Too many devices on one line may result in failure to ring in response to an incoming call. In most, but not all, areas the sum of the RENs of all of the devices should not exceed five (5). To be certain of the number of devices you may connect to your line, as determined by the RENs, contact your local telephone company.

If this equipment causes harm to the telephone network, your telephone company may discontinue your service temporarily. If possible, they will notify you in advance. If advance notice is not practical they will notify you as soon as possible. You will also be advised of your right to file a complaint with the FCC.

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

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

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

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

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

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

DOC (INDUSTRY CANADA) NOTICES

Notice to Users of Radios and Television

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

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

Notice to Users of the Canadian Telephone Network

NOTICE:

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications.

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

Repairs to telecommunication equipment should be made by a Canadian authorized maintenance facility. Any repairs or alterations not expressly approved by Fujitsu or any equipment failures may give the telecommunication company cause to request the user to disconnect the equipment from the telephone line.

NOTICE:

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



CAUTION:

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

Avis Aux Utilisateurs Du Réseau Téléphonique Canadien

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

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

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

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



AVERTISSEMENT:

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

UL Notice

This unit requires an AC adapter to operate. Use only UL Listed Class 2 adapter, output rating 19 V DC, 4.22 A. Refer to the illustration below for the correct AC Adapter output polarity:



CAUTION:

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

For Authorized Repair Technicians Only



CAUTION:

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



WARNING:

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

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

FCC Regulatory information for notebooks with radio device

Federal Communications Commission statement

This device complies with Part 15 of FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause interference, and, (2) This device must accept any interference, including interference that may cause undesired operation of this device.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

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

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

FCC Radio Frequency Exposure statement

This radio device has been evaluated under FCC Bulletin OET 65C and found compliant with the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) addressing RF Exposure from radio frequency devices. The radiated output power of this radio device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation is minimized. When using this device, a certain separation distance between antenna and nearby persons must be maintained to ensure RF exposure compliance. In order to comply with RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than 20 cm (8 inches).

Regulatory Notes and Statements**Radio device, health and authorisation for use**

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

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

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

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

Regulatory Information/Disclaimers

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

Export restrictions

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

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

Modifications not expressly authorized by Fujitsu Siemens Computers may invalidate the user's right to operate this equipment.

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