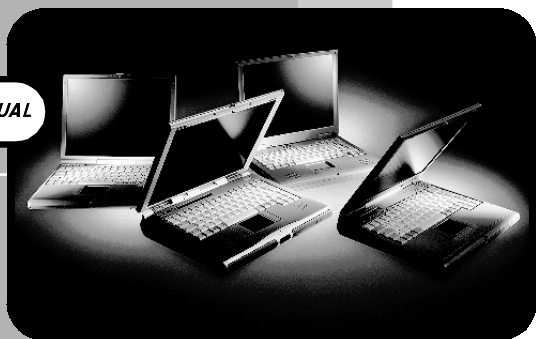# MOBILE 800 / MOBILE 800 AGP
MOBILE 800 S

OPERATING MANUAL

FUJITSU COMPUTERS
SIEMENS

Is there ...

... any technical problem or other
question you need clarified?

Please contact:
- one of our service partners
- your sales partner
- your sales outlet

The addresses of your service partners are contained in the guarantee booklet or in the service
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MOBILE 800 / MOBILE 800 AGP MOBILE 800 S

Operating Manual

November 1999 edition

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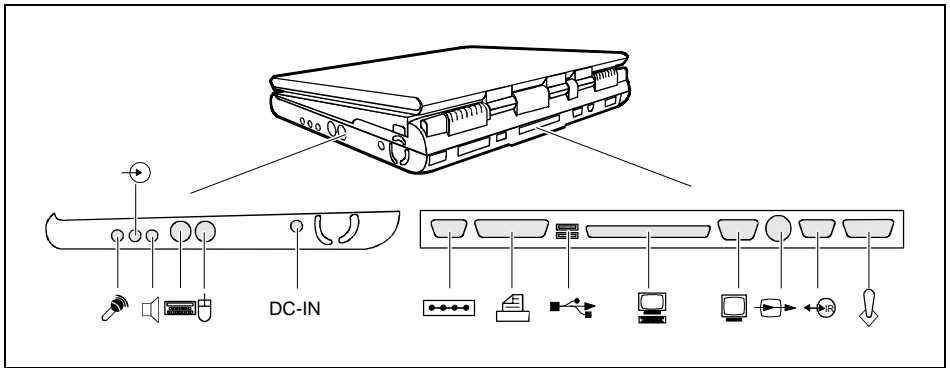
Microphone jack		Audio input (Line in)	
Audio output/loudspeaker		PS/2 keyboard port	
PS/2 mouse port	DC IN	DC socket	
Serial port		Parallel port	
USB - Universal Serial Bus		Port for QuickPort S:	
Video connector		TV out	
IR Port		Game Port/MIDI Port	

Introduction

Innovative technology and ergonomic design make this notebook the ideal user-friendly and reliable travel companion. The removable keyboard now provides even more flexibility in the use of your notebook. Your operating system is pre-installed on the hard disk to facilitate the procedure when you use your notebook for the first time.

The energy-saving processor and the energy-saving functions that can be configured allow you to make the most effective use of the battery capacity. By using an additional battery instead of the disk drive, you can double the notebook's mobile operation time.

Your notebook has 64 -512 MB of main memory installed, depending on the upgrade level. Data is stored on an Enhanced-IDE hard disk drive. Your notebook is supplied with both a 3 1/2" floppy disk drive and a CD-ROM drive. In addition, your notebook can be equipped with a DVD drive, a Zip drive or with a 2nd or 3rd hard disk drive. Two PC card slots (CardBus or PCMCIA) enable simultaneous operation of two Type I/II/III PC cards (a maximum of one Type III and Type II each).

For mouse control the notebook has a touchpad. A double-touch directly on the touchpad is all that is required, for example, to open an application.

Your notebook has connectors for external devices such as, e.g. external monitor, television, printer and mouse. The parallel port (which supports ECP and EPP modes) is designed to accommodate bi-directional data transfer. You can connect peripherals such as, e. g. scanner, loudspeakers, gamepads, keyboard or mouse via the USB interface. The workstation has a fast IrDA interface for wireless data transfer. In addition, the notebook has a connection port for a QuickPort S

An audio controller, two built-in loudspeakers, a built-in microphone, an audio input and output provide your notebook with an audio capability. You can also connect an external microphone, external loudspeakers, a joystick or MIDI devices.

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

Your notebook has a number of security features to ensure that no unauthorized persons can access your data. As a result, access to your notebook is protected with a chipcard reader. The security functions in the *BIOS Setup* also allow you to protect your data by means of passwords.

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 "Safety Notes" manual which is included with your notebook
- in the documentation of your operating system
- on the SCENIC Mobile CD "Drivers & Utilities"
- in the information files (e. g. *.TXT, *.DOC, *.WRI, *.HLP*)
- on the Internet at *www.siemens-pc.de/drivercd*

i	Some of the manuals listed can be found on the CD "Drivers & Utilities" provided with your computer. These manuals can be read and printed with the Acrobat Reader contained on the CD.

Notational conventions

The meanings of the symbols and fonts used in this manual are as follows:

Pay particular attention to texts marked with this symbol. Failure to do so may endanger your life, destroy the notebook or lead to loss of data.

i Supplementary information, remarks and tips follow this symbol.

► Texts which follow this symbol describe activities that must be performed in the order shown.

Texts in italics indicate commands or menu items.

"Quotation marks" indicate names of chapters and terms that are being emphasized.

Installing an ergonomic video workstation

Before you set up your equipment you should select a suitable position for working at the monitor. Please observe the following advices when installing a video workstation.
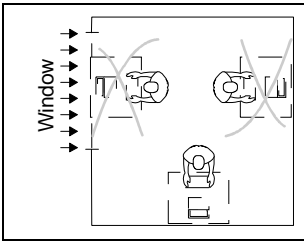
Avoid direct and reflected glare.
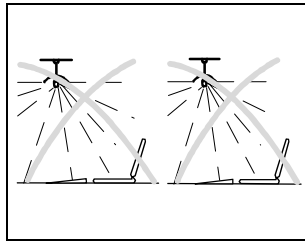
Avoid glare from electric lighting.
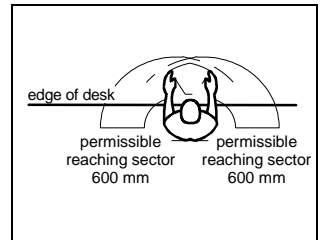
Position the keyboard where it is easiest to reach.
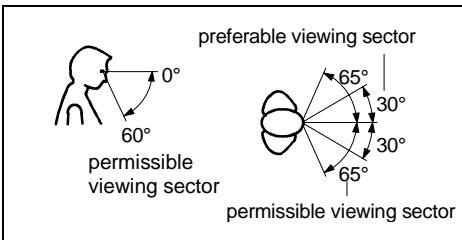
Position the monitor for optimum viewing. The viewing distance to the monitor should be approximately 50 cm.
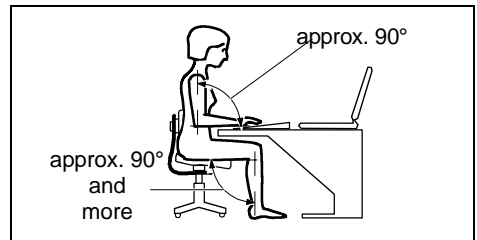
Remember to maintain correct posture.

Important notes

In this chapter you will find information regarding safety which it is essential to take note of when working with your notebook. The manufacturer's notes contain helpful information on your notebook.

Safety

 Pay attention to the information provided in the manual "Safety Notes".

- During installation and before operating the device, please observe the instructions on environmental conditions in the chapter entitled "Technical data" as well as the instructions in the chapter "Preparation for use and operation".
- When cleaning the device, please observe the relevant notes in the paragraph "Cleaning the notebook".
- Keep this Operating Manual together with your device. If you pass on the device to third parties, you should include this manual.

Notes on installing and removing boards

 Only qualified technicians should repair the device. Unauthorized opening or incorrect repair may greatly endanger the user (electric shock, fire risk).

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

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

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

Manufacturer's notes

In normal screen mode (dark characters against a light background) the notebook satisfies the ergonomic requirements for the GS symbol.

Energy saving

Make use of the device's energy saving functions (see "Preparation for use and operation").

- If you will not be using your notebook, switch it off.
- The notebook uses less power when the power management features are enabled. You will then be able to work for longer before having to recharge the battery.

Energy saving under Windows

If a monitor with energy saving features is connected to your notebook, you can use the Screen Saver tab to activate the energy saving features of the monitor. Select the following item in the menu: *Start - Settings - Control Panel - Display - Display Properties - Screen Saver - Energy saving features of monitor*. You can set additional energy saving functions in the start menu by selecting the following item: *Settings - System control - Energy - Extended*.

Disposal and recycling

This device has been manufactured to the greatest possible degree from materials which can be recycled or disposed of in a manner that is not environmentally damaging. The device is taken back after use, to be recycled, provided that it is returned in a condition that is the result of normal use. Any components not reclaimed will be disposed of in an environmentally acceptable manner.

For devices marked with this symbol Fujitsu Siemens Computers B V offers a guarantee for **36 months** with a **Bring-in-Service**. The guarantee starts on the day of delivery (sale date) by Fujitsu Siemens Computers B V or a Fujitsu Siemens partner.

We herewith declare that it will be possible to repair any device marked with the eco-label for at least 5 years after production of that device has discontinued.

Information on power management and energy saving mode can be found in chapter "Technical data".

Do not throw lithium batteries or accumulators into the trashcan. They must be disposed of in accordance with local regulations concerning special waste.

If you have any questions on disposal, please contact your local office, our customer service center, or:

Fujitsu Siemens Computers GmbH
Recycling Center
D-33106 Paderborn

Tel.: ..49 5251 818010
Fax: ..49 5251 818015

CE certificate

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".

FCC Class B Compliance Statement

If there is an FCC statement on the device, then:
The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the accompanying documentation.

NOTE:

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

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

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

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

Power cord selection
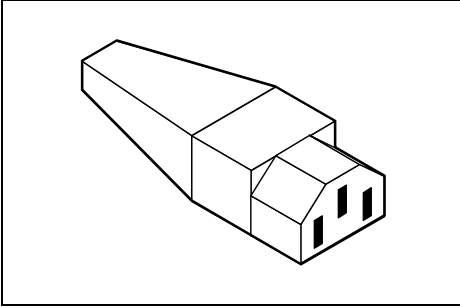
The power cord for this unit has been packed separately and has been selected for use in the appropriate country. It must be used to prevent electric shock. Use the following guidelines if it is necessary to replace the original cord set.

The female receptacle of the cord set must meet CEE-22 requirements (see Figure).

For the United States and Canada

Use a UL listed and CSA labeled cord set consisting of a three-conductor cord with a maximum length of 15 feet.

For units that stand on a desk or table, type SVT or SJT cord sets shall be used.

For units that stand on floor, only SJT type cord sets shall be used.

The cord set must be selected according to the current rating for your unit. Please consult Table A for the selection criteria for power cords used in the United States and Canada.

Table A:

Cord Type	Size of Conductors in Cord	Maximum Current Rating of Unit
SJT	18 AWG 16 AWG 14 AWG	10 Amps 12 Amps 12 Amps
SVT	18 AWG 17 AWG	10 Amps 12 Amps

For units set at 115 V:

use a parallel blade, grounding type attachment plug rated 15 A, 125 V.
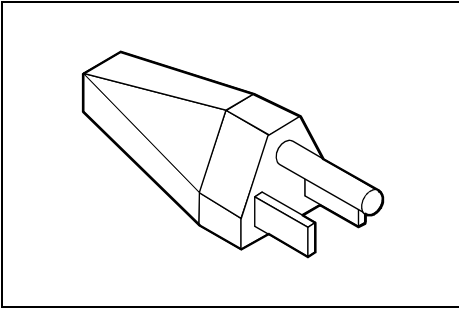
For units set at 230 V (domestic use):

use a tandem blade, grounding type attachment plug rated 15 A, 250 V.
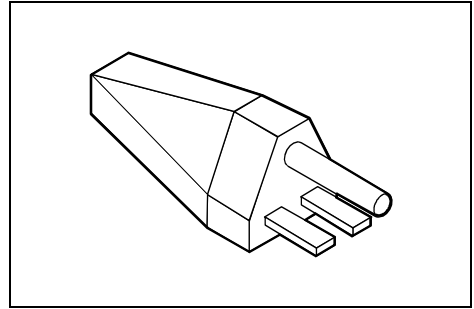
For units set at 230 V (outside of the United States and Canada):

use a cord set consisting of a minimum AWG according to Table A and a grounding type attachment plug rated 15 A, 250 V. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed and should be marked HAR.

For the United Kingdom

Should the plug on the flexible cord not be of the type for your socket outlets, do not use an adapter but remove the plug from the cord and discard. Carefully prepare the end of the supply cord and fit a suitable plug.

WARNING

THIS APPLIANCE MUST BE EARTHED

IMPORTANT

The wires in this mains lead are colored in accordance with the following code:

> Green and Yellow: Earth
> Blue: Neutral
> Brown: Live

As the colors of the wires in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows:

- The wire which is colored Green and Yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol or colored Green or Green and Yellow.
- The wire which is colored Blue must be connected to the terminal which is marked with the letter N or colored Black.
- The wire which is colored Brown must be connected to the terminal which is marked with the letter L or colored Red.

On the move with the notebook

Please observe the points listed below when transporting your notebook.

Transporting the notebook

- Do not carry the notebook by its open screen or by an empty slot.
- Switch the notebook off and close the covers for the ports.
- Remove all data carriers (e.g. floppy disk, CD) from the drives.
- If it needs to be shipped, use the original packaging or other suitable packaging to protect it from damage caused by mishandling.
- Protect the notebook from severe shocks and extreme temperatures (e.g., direct sunlight in a car).

Before starting the journey

- Copy important data from the hard disk onto a floppy disk.
- Remove all data carriers (e.g. floppy disk, CD) from the drives.
- If you wish to use your notebook during a flight, check first with the flight attendants if it is permissible to do so.
- If you are travelling abroad, ensure that the power adapter can be operated on the local line voltage. If this is not the case, obtain the appropriate power adapter for your notebook. Do not use any other voltage converter!

Cleaning the notebook

Switch the notebook off and pull the power plug of the power adapter out of the power socket.

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.

Ensure that no liquid enters the notebook.

Wipe the casing with a dry cloth. If particularly dirty, use a cloth which has been moistened in mild domestic detergent and then carefully wrung out.

To clean the keyboard and the touchpad, you can use disinfectant wipes.

Wipe the monitor casing with a soft, moistened cloth.

Preparation for use and operation

⚠ Please read the "Important notes" in the previous chapter.

You must charge the battery and install the application programs before you can work with the notebook. The operating system and drivers required are preinstalled.

When not plugged into a power 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, you run it off the mains with the aid of the power adapter, or in a QuickPort S.

The chapter on "Connecting external devices" has instructions on how to connect external devices (e.g. mouse, 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 delivery note.

► Check whether all necessary details have been entered on the first page of the guarantee coupon booklet.

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

i Do not discard the original packing material of the devices. Keep it for future transportation.

Selecting the location for your notebook

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

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

• Do not expose the notebook to extreme environmental conditions. Protect it from dust, humidity and heat.

• Keep other objects 100 mm away from the notebook and its power adapter to ensure adequate ventilation. The space between the notebook's feet must be clear. Do not place it on a soft surface (e.g., a carpet or soft furnishings). Do not cover the ventilation slots in the notebook and the power adapter.

● The power adapter must be at least 200 mm away from the notebook. It must be free-standing and must not be covered. Do not place the power adapter on heat-sensitive material.

● For wireless data transfer you must align the notebook's IrDA interface with that of the partner device (e.g. PC). The devices must not be more than one meter apart.

Preparing your notebook for operation

⚠ The power cord 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.

The notebook and the power adapter should be at least 200 mm apart. Keep other objects 100 mm clear of the notebook and its power adapter.

Do not cover the ventilation slots in the notebook and the power adapter.

► Place the notebook on a flat, sturdy surface.
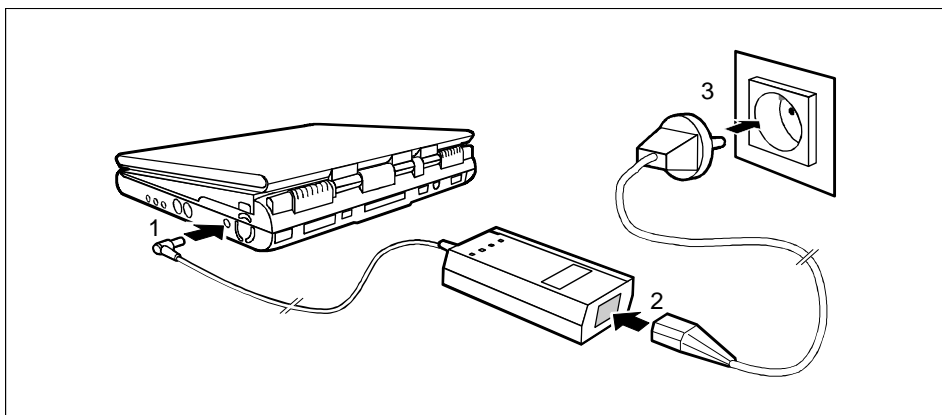
► Connect the power adapter cable to the DC jack (DC IN) of the notebook (1).

► Connect the power cable to the power adapter (2).

► Plug the power cable into the power outlet (3).

ℹ You can also make your notebook operational by connecting it to the optional car adapter (see "Charging, caring for and maintaining the notebook battery").

Opening the notebook
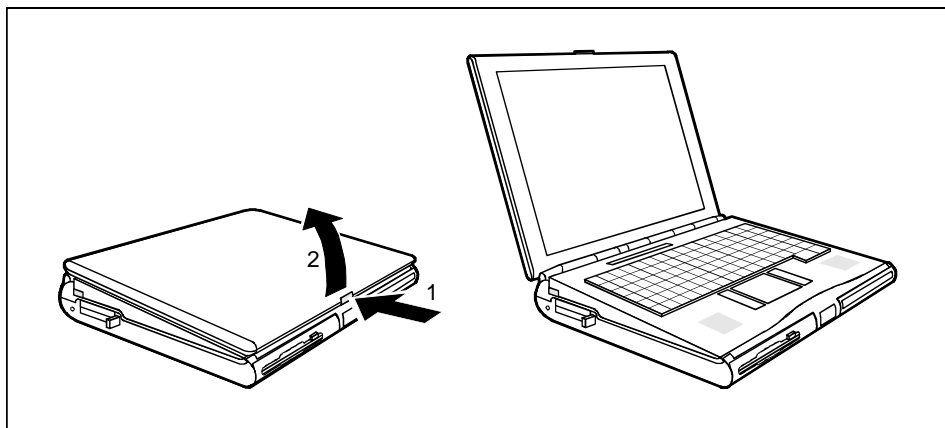
► Press the release button (1) and unfold the display upwards (2).

Removable infrared keyboard

The removable infrared keyboard now provides even more flexibility in the use of your notebook. You can lift the keyboard off the notebook and operate it in front of the notebook. The connection between the keyboard and the notebook is then via the IrDA interface on the back of the keyboard and on the front of the notebook, as with a remote control unit. To operate the keyboard separately from the notebook, the battery in the keyboard must be charged.

Charge the battery before initial use.

The battery in the keyboard is automatically charged when:
- the notebook is connected to the mains mode and
- the keyboard is installed and
- the notebook is switched off.

Installing keyboard battery

► Switch off the notebook.
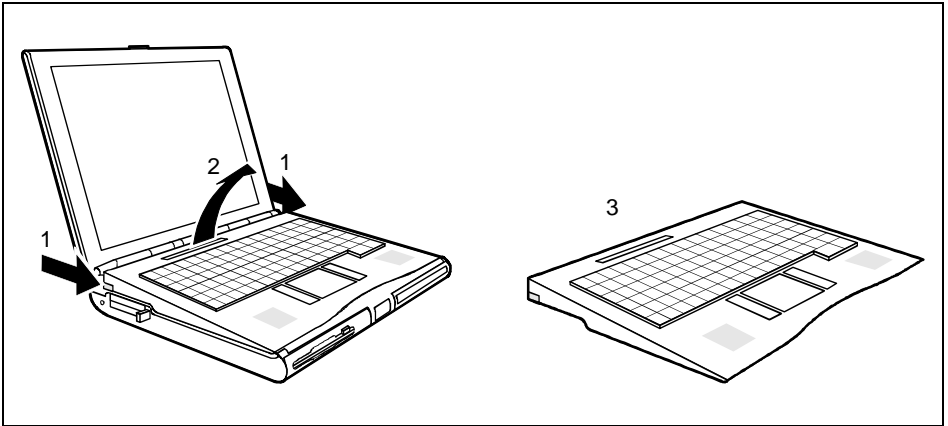
► Push the locking slide forward (1).

► Lift the keyboard at the rear (2) and lay down the keyboard (3).
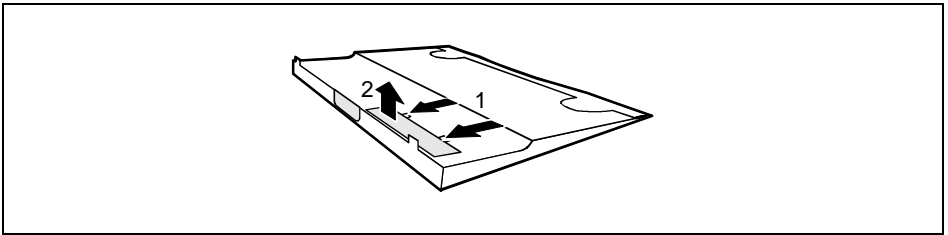
► Press the two tabs in the direction of the arrow (1).

► Lift the cover and pull it in the direction of the arrow (2) from the keyboard.

Use only the keyboard battery of the manufacturer.

The keyboard battery may only be charged with charging units approved by the manufacturer for the notebook.

If you do not use the device for an extended period of time, remove the battery from the keyboard.

Store the battery in a cool, dry place.

The keyboard battery must not be:
● short-circuited
● thrown into fire or heat
● thrown into water
● exposed to rain or moisture
● opened
● loaded mechanically or damaged

▶ Plug in the plug of the keyboard battery.

▶ Lay in the keyboard battery.

▶ Close the cover.
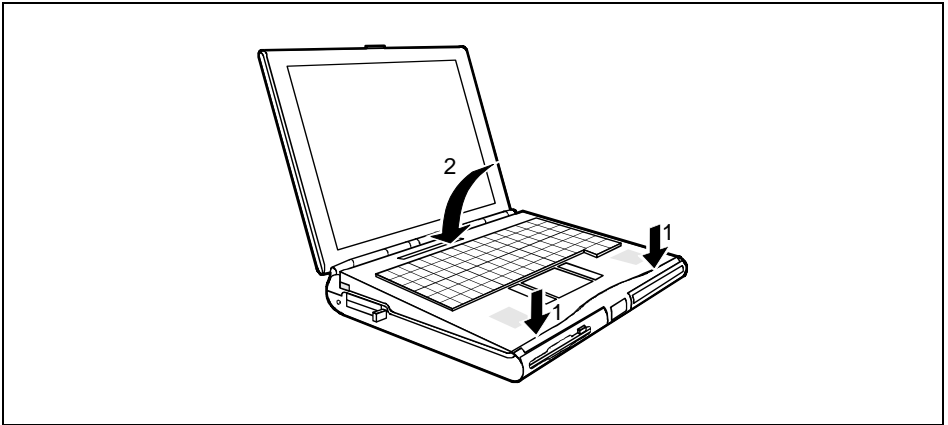
▶ Place the keyboard in the lugs on the notebook (1) and press the keyboard into the bracket provided until it is felt to engage (2).

Connecting infrared keyboard with cable

The infrared keyboard can be connected to a notebook or a PC with an optional cable. This enables the keyboard and the touchpad to be used in the accustomed manner.

▶ Plug the round plug marked with the keyboard symbol into the keyboard connection and the second round plug into the mouse connection of the PC.

▶ Plug the two square plugs into the back of the infrared keyboard.

Switching on the notebook
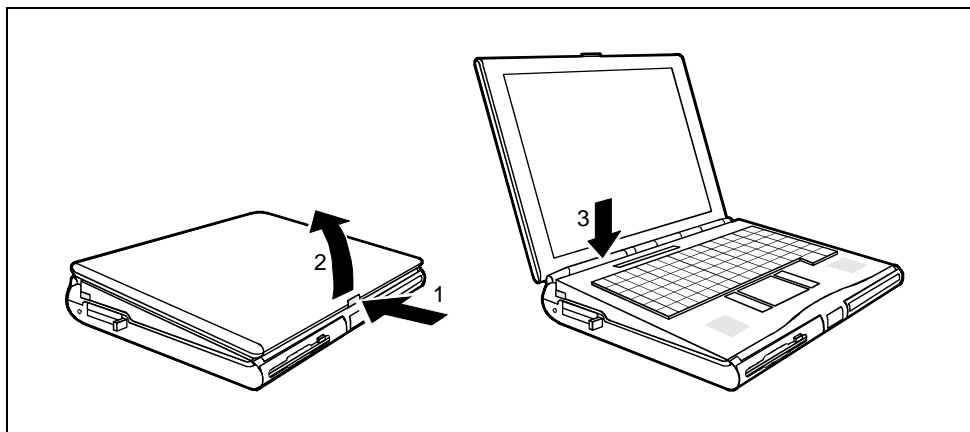
► Press the release button (1) and unfold the display upwards (2).

► Press the ON/OFF switch (3) for roughly one second.

⚠ You must not switch off or warm-boot your notebook during this initial installation.

ℹ When you switch on your notebook for the first time the supplied software is set up and configured. Please follow the instructions on the screen.

If you want to partition your hard disk, please refer to chapter "Restoring the hard disk contents under Windows 9x".

If you have assigned a password, you must enter this when requested to do so, in order to start the operating system.

Once you have installed the operating system and have generally familiarized yourself with the notebook, you should perform the battery learning cycle (see "Learning cycle for notebook batteries").

Notes on Windows

The license number for Windows is printed on the front cover of the Windows manual supplied.

Switching off the notebook
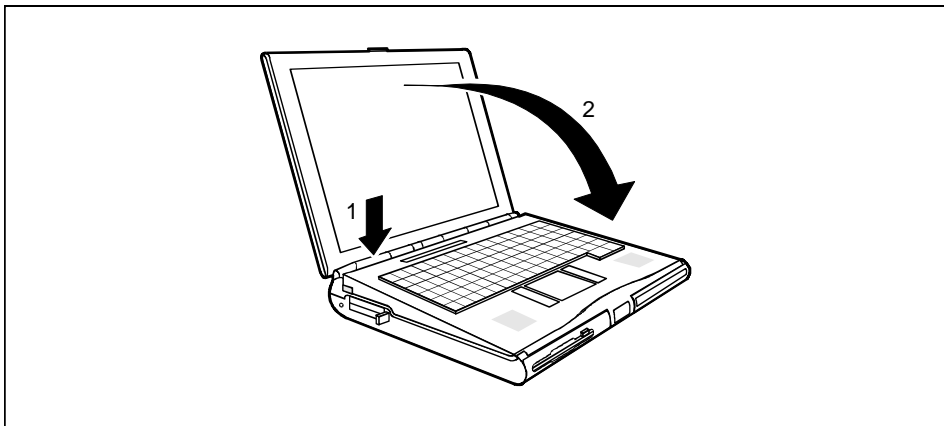
► Shut down the operating system properly. If Windows 9x is installed on your notebook, the system will shut down and the notebook will switch off. If the notebook is not switched off automatically, press the ON/OFF switch (1) for approx. four seconds. If the ON/OFF switch is only pressed for approx. one second or the monitor is folded closed, the notebook switches into the Suspend mode (see Section "Suspend mode").

► Close the display of the notebook (2) so that it is felt to lock into place centered.

Indicators and input devices
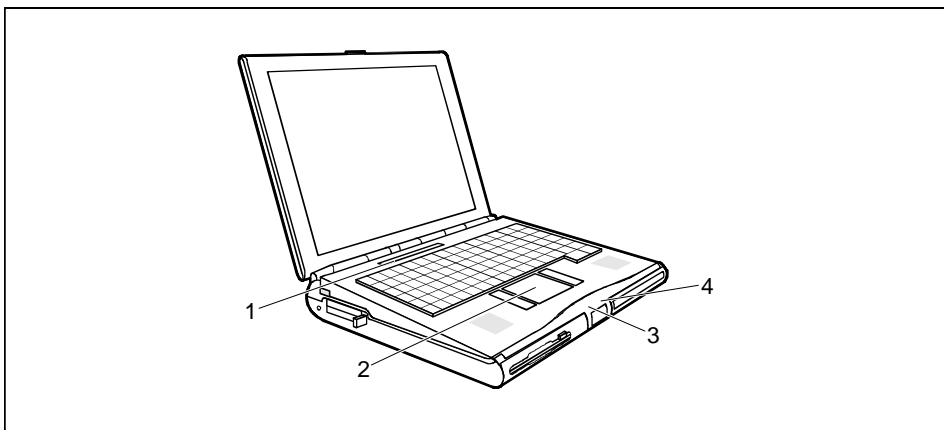
1 = Display field   3 = Battery status indicator
2 = Touchpad and touchpad buttons   4 = Power-on indicator

Battery status indicator

Glows green: Battery is being charged
Glows red: Battery capacity is below 12% or battery is defective

Power-on indicator

Glows green: Notebook is switched on

Display field

Symbols and texts in the display field indicate the operating state of the notebook. The meaning of the symbols and texts are as follows:
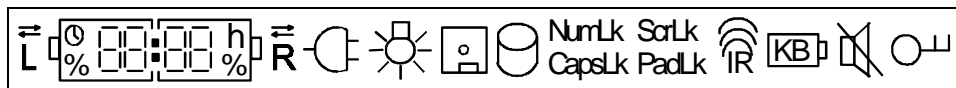
L ▯	The left battery is installed. When the symbol flashes, the left battery is drained or defective (for measures, see "Charging, caring for and maintaining the notebook battery").
▯**R**	The right battery is installed. When the symbol flashes, the right battery is drained or defective (for measures, see "Charging, caring for and maintaining the notebook battery").
% 88.88 %	Indicates the approximate operating time of the installed batteries in percent.
88:88 h	Indicates the approximate operating time of the installed battery in hours and minutes.
⇄	The arrow shows whether the battery is being charged or drained.
⊖	The notebook is connected to an external power source (e.g. via the power adapter).
☼	The notebook is switched to suspend mode.
▭	The floppy disk in the floppy disk drive is being accessed. You must not remove the floppy disk when this symbol is visible.
⊖	A drive (hard disk drive, CD-ROM drive, DVD drive or Zip drive) is being accessed. When this symbol appears, do not remove the data carrier from the drive.
CapsLK	All the characters you type appear in uppercase. In the case of overlay keys, the character on the upper left on the keycap appears when that key is pressed. The CapsLK indicator appears when you press the ⇧ key.
ScrLK	The SCROLL LOCK key has been pressed. The effect this key has varies from program to program.

NumLK	The ⎡Pad Num⎤ key has been pressed. If PadLK is also visible in the function display, the blue numbers on the lower right on keys in the integrated numeric keypad are enabled.
PadLK	The key combination ⎡Fn⎤ + ⎡Pad Num⎤ has been pressed. This enables the blue editing functions on the upper right on keys in the integrated numeric keypad.

The infrared connection between the removable keyboard and the notebook is switched on. When this symbol flashes, the infrared connection is not sufficient. Check the position of the removable keyboard relative to the notebook (see "Removable infrared keyboard").

The "long-distance" infrared connection between the removable keyboard and the notebook is switched on.

The remaining charge of the battery in the removable keyboard is not sufficient for an infrared connection to the notebook. When this symbol flashes, install the removable keyboard in the notebook. The battery will only be charged when the notebook is operating in the mains mode.

The built-in loudspeakers are disabled.

The chipcard reader is active.

Touchpad and touchpad buttons

Keep the touchpad clean, protect it from dirt, liquids or 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.

The touchpad enables you to move the mouse pointer on the screen. If, for example, you move one finger to the left across the touchpad, the mouse pointer also moves to the left.

A brief tap with the finger on the touchpad has the same effect as clicking with the left mouse button. A brief "double-tap" on the touchpad has the same effect as double-clicking with the left mouse button.

The left and right touchpad buttons have the same functions as the left and right buttons on a mouse .

Keyboard
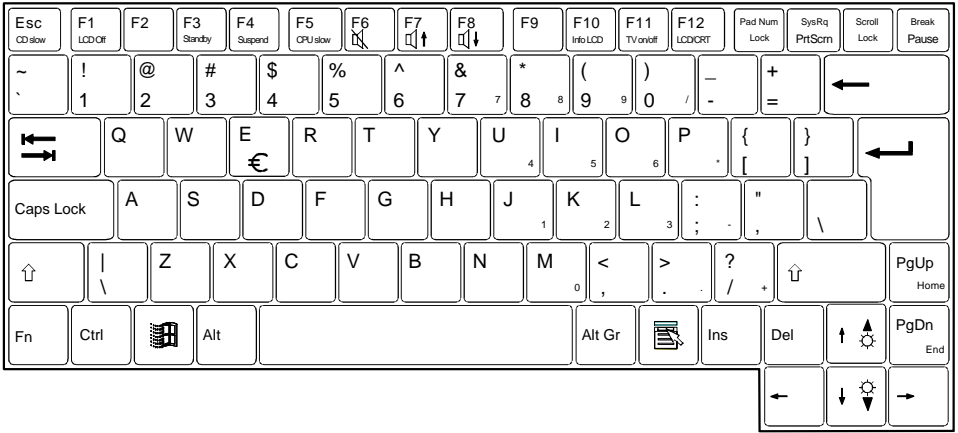
The following description of keys and key combinations refers to Windows 9x. Additional functions supported by the keys are described in the relevant manuals supplied with your application programs.

The figure below shows how to access the different characters on keys with overlaid functions. The keystrokes shown in the example only work if CapsLK and PadLK have not been enabled (i.e. they are not visible in the display field).

Example from a German keyboard
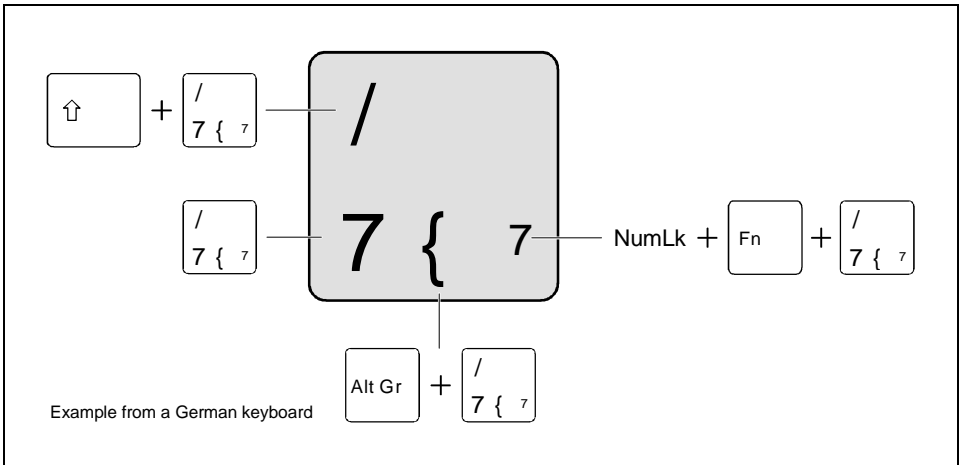
Backspace key
The Backspace key deletes the character to the left of the cursor.

Tab key
The Tab key moves the cursor to the next tab stop.
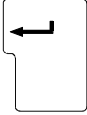
Enter key (return, enter, line feed, carriage return)
The enter key terminates a command line. The command you have entered is executed when you press the key.

Caps Lock key
The Caps Lock key activates uppercase mode (CapsLK is shown in the display field). The Caps Lock function causes all the characters you type to appear in uppercase. In the case of overlay keys, the character on the upper left on the keycap 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 on the upper left on the keycap appears when that key is pressed.

Alt Gr key
The $\boxed{\text{Alt Gr}}$ key causes the characters in the lower middle of the keycap to appear (e.g. { in the case of the $\boxed{7}$ key on the German keyboard).

Fn key
The $\boxed{\text{Fn}}$ key enables the special functions indicated in blue on overlay keys (see "Key combinations").
If the external keyboard does not feature a $\boxed{\text{Fn}}$ key, you can simultaneously press the $\boxed{\text{Ctrl}}$ + $\boxed{\text{Alt}}$ keys instead.
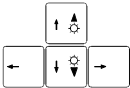
Cursor keys
The cursor keys move the cursor in the direction of the arrow, i.e., up, down, left, or right.

Pad Num key
When the numeric keypad is enabled (PadLK is visible in the display field), the $\boxed{\text{Pad Num}}$ key causes this set of keys to produce numbers (NumLK appears in the display field). Pressing them produces the blue characters shown on the bottom right on the keycaps.

Pause key
The $\boxed{\text{Pause}}$ key temporarily suspends display output. Output will resume when you press any other key.

Start key
The Start key invokes the *START* menu of Windows.

Menu button
The Menu key invokes the menu for the marked item.
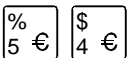
Euro key
The Euro key enables the entering of the euro symbol.

Numeric keypad
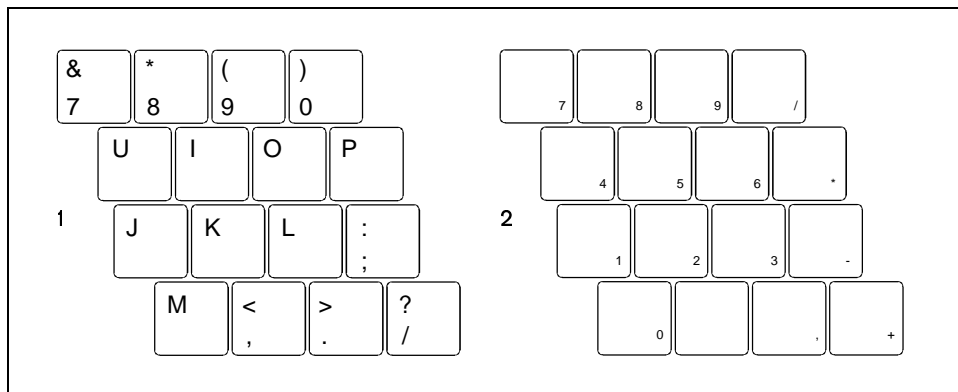
1 = Characters enabled when neither PadLK nor NumLK are visible in the display field.
2 = Characters enabled when PadLK and NumLK are visible in the display field.

The key ⌜Pad Num⌟ enables and disables the integrated numeric keypad. If the numeric keypad is enabled (NumLK is shown in the display field) and you hold the ⌜Fn⌟ key down, you can output the characters printed in blue at the right bottom of the keys.

When the numeric keypad is enabled (NumLK is visible in the display field), pressing the key combination ⌜Fn⌟ + ⌜Pad Num⌟ enables and disables the numeric entry in the integrated numeric keypad. If numeric entry is enabled (NumLK and PadLK are shown in the display field), the blue characters at the bottom right of the keys are effective.

If the numeric keypad and numeric entry are both enabled (NumLK and PadLK are shown in the display field), you can also output standard characters with the numeric keypad. If you press and hold the key ⌜Fn⌟, the keys will produce lowercase letters and numbers indicated on the lower left of the keycaps. If you press and hold the key combination ⌜Fn⌟ + Shift, the keys will produce uppercase letters and the characters indicated on the upper left of the keycaps.

Key combinations

The following description of keys and key combinations refers to Windows 9x. Some of the following key combinations may not function in other operating systems and with some device drivers. Other key combinations are described in the relevant manuals supplied with your application programs.

You enter key combinations as follows:

▶   Press and hold the first key in the combination.

▶   While keeping the first key pressed, press the other key or keys in the combination.

| **i** | If the external keyboard does not feature a ⌜Fn⌟ key, you can simultaneously press the ⌜Ctrl⌟ + ⌜Alt⌟ keys instead. |

| ⌜Fn⌟ + ⌜F1 LCD off⌟ | **Switching monitor on/off**
This key combination switches your notebook's display on and off. Doing so does not affect any running programs. |

Fn	+	F3 Standby
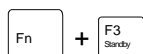
Enabling Standby mode
This key combination enables Standby mode. You can cancel Standby mode by pressing any key.

Fn	+	F4 Suspend
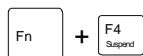
Enabling Suspend mode
This key combination switches the system into Suspend mode (see Section "Suspend mode "). When you switch the notebook on again, the system returns to where it was and the active programs continue running from where they were when you switched into Suspend mode.

Fn	+	F6

Switching the loudspeaker on/off
This key combination switches the integrated loudspeaker on and off.

Fn	+	F7
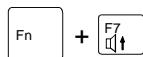
Increasing the volume
This key combination raises the volume of the integrated loudspeaker.

Fn	+	F8
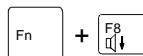
Reducing the volume
This key combination decreases the volume of the integrated loudspeaker.

Fn	+	F10 Info LCD
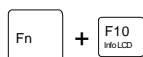
Switching over battery indicator
This key combination switches the battery indicator in the display field between battery capacity in %, as time (notebook will still run xx:xx hours) or the battery charging level display.

Fn	+	F11 TV on/off
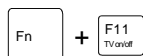
Switching TV out on/off
This key combination switches the video output (TV out) on or off.

Fn	+	F12 LCD/CRT

Switching between internal and external screen
If an external monitor is connected, this key combination switches off the screen display. You can opt to use:
- just the notebook's internal display
- just the external display
- both the internal and the external display.

Fn	+	↑
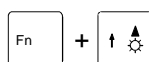
Increasing the display brightness
This key combination increases the brightness of the display.

Fn	+	↓
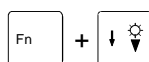
Reducing the display brightness
This key combination reduces the brightness of the display.

The notebook battery

The notebook is fitted with a battery (Lithium Ion battery) that provides it with power during mobile use. You can increase battery life by enabling the system's power management features.

In addition to the notebook standard battery, you can also use a second notebook battery. By using both notebook batteries, you can double the notebook's mobile operation time.

The notebook battery charge is indicated by the battery symbol in the display field (see chapter "Indicators and input devices"). When you switch on the notebook, it takes a few seconds before the battery status is displayed.

The battery will last for roughly 500 charge/discharge cycles.

i	To utilize the optimum charging capacity of the battery, you should regularly perform the battery learning cycle (see chapter "Learning cycle for notebook batteries").

Charging, caring for and maintaining the notebook battery

⚠	Only use notebook batteries designed for this notebook.

The notebook battery can only be charged, when the ambient temperature is between 5°C and max. 40°C.

The notebook battery charge is indicated by the battery symbol in the display field.

A notebook battery will fully charge in approximately three hours in a notebook that is switched off. After half the charging time, the battery has already reached a 70 % charge level. A notebook battery will fully charge in approximately five hours if the notebook is switched on. If the notebook is fitted with two notebook batteries, charging will take twice as long. The notebook batteries are charged successively. The battery which was connected first is charged first.

The notebook battery can be charged by:
- connecting the notebook to the power adapter
- connecting the notebook to the car adapter
- connecting the notebook to the QuickPort S

Before a notebook battery is used for the first time, the battery learning cycle should be performed (see also the section "Learning cycle for notebook batteries").

Work in the battery mode until an acoustic warning signal indicates the need for charging. The notebook battery should not be charged before this point.

i	If you do not use the notebook batteries for an extended period of time, remove them from the notebook. Never store the notebook batteries in the unit.

If storing for a long period of time (longer than two months), notebook batteries should be stored in a charged state of approximately 50%. After six months, at the latest, you should run a learning cycle with the batteries again. If you store the batteries up to two months, the charge status of the batteries must be approximately 30%. The notebook batteries should be stored in a dry environment in temperatures between +10°C and +25°C.

Connecting the power adapter

⚠ The power cable corresponds to the country version of the notebook. Make sure that the power cable is approved for use in the country in which you intend to use it.

The notebook and the power adapter should be at least 200 mm apart. Keep other objects 100 mm clear of the notebook and its power adapter. Do not cover the ventilation slots in the notebook and the power adapter.

Do not place the power adapter on heat-sensitive material.

The power adapter's AC cord should only be connected to a wall outlet if the notebook is connected to the power adapter.

► Switch off the notebook.

► Place the notebook on a flat, sturdy surface.

► Install the battery.
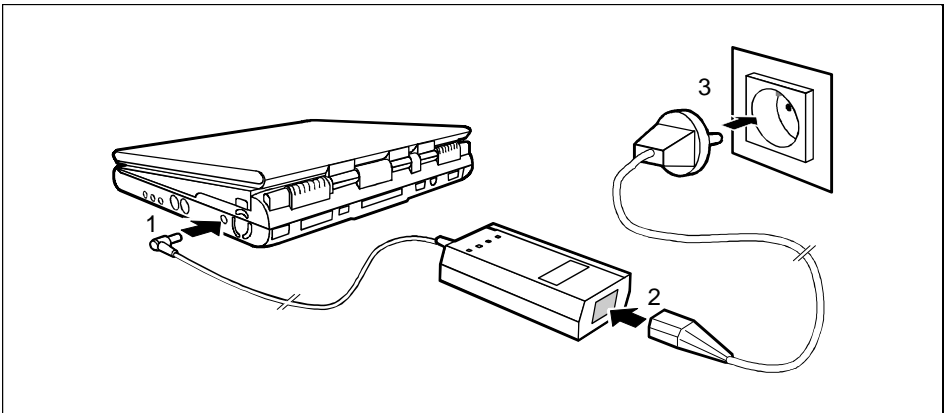
► Connect the power adapter cable to the DC jack (DC IN) of the notebook (1).

► Connect the power cable to the power adapter (2).

► Plug the power cable into the power outlet (3).
The power adapter indicator lights up. After a few seconds the notebook's battery status indicator lights up. The battery will charge.

Connecting the car adapter

You can use the car adapter if the car has a 12 V electrical system.

▶   Switch off the notebook.

▶   Place the notebook on a flat, sturdy surface.

▶   Install the notebook battery.
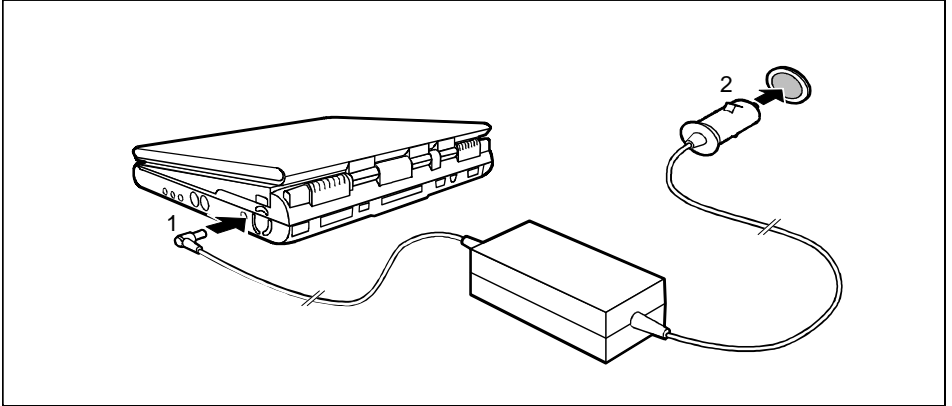
▶   Connect the car adapter cable to the DC jack (DC IN) of the notebook (1).

▶   Start the car's engine.

⚠   You should only use the car adapter while the car's engine is running. You must not start the car's engine while the car adapter is connected to the car's electrical system.

Do not place the car adapter on heat-sensitive material. Whilst in operation, the car adapter must be free-standing and must not be covered.

Keep other objects 100 mm clear of the notebook. Do not cover the ventilation slots in the notebook.

▶   Plug the car adapter's input connector into the car's cigarette lighter (2).
After a few seconds the notebook's battery status indicator on the front lights up. The notebook battery is being recharged.

Learning cycle for notebook batteries

Your notebook battery contains electronics that continuously monitor the notebook battery charging level and displays the current charging level. To compensate for measuring errors in the electronics, and because the chemical properties of the battery change over time, the electronics must be recalibrated regularly. This calibration is carried out using a battery learning cycle. Using the battery learning cycle ensures that the maximum battery capacity can always be used. During the learning cycle a defined charging cycle is carried out.

The notebook battery learning cycle lasts between four and seven hours (please never abort the learning cycle).

> **i** The learning cycle can only be run under MS-DOS. Therefore, a bootable floppy disk must be created for the version of the learning cycle for Windows NT. When the learning cycle is run under Windows 9x, Windows is automatically ended after a note appears.
>
> The *Battery Tool Disk* is also on the Mobile CD "Driver & Utilities" provided or on the Internet at *www.siemens-pc.de/drivercd*.

Windows NT pre-installation

A *Battery Tool* icon is created on the Windows desktop. With that you can create a bootable floppy disk with the learning cycle.

Windows 9x pre-installation

Two icons, *Battery Tools* and *Battery Tool Disk*, are created on the Windows desktop. With *Battery Tools* you can start the learning cycle directly and with *Battery Tool Disk* you can create a bootable floppy disk with the learning cycle.

Running learning cycle from floppy disk

- Start *Battery Tool Disk*.
- Create floppy disk.
- End Windows.
- Insert floppy disk.
- Boot from floppy disk.
- Follow instructions on screen.

Installing and removing notebook batteries and drives

The design of your notebook enables the flexible use of notebook batteries and drives. For example, the notebook batteries and drives can - with the exception of the CD drive and the DVD drive - be operated on both the left and on the right slide-in module. The CD-ROM drive and the DVD drive can only be operated in the right slot.

The following modules are offered for your notebook:
- Notebook battery
- floppy disk drive (maximum of one floppy disk drive)
- CD-ROM drive (only for the right slot)
- DVD drive (only for the right slot)
- second/third hard disk drive
- Zip drive

⚠ 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 slots.

► Before removing a notebook battery:
switch off the notebook. You can leave the notebook on provided the notebook battery in the left slot is not the notebook's only power source.

► Place the notebook on a flat surface.
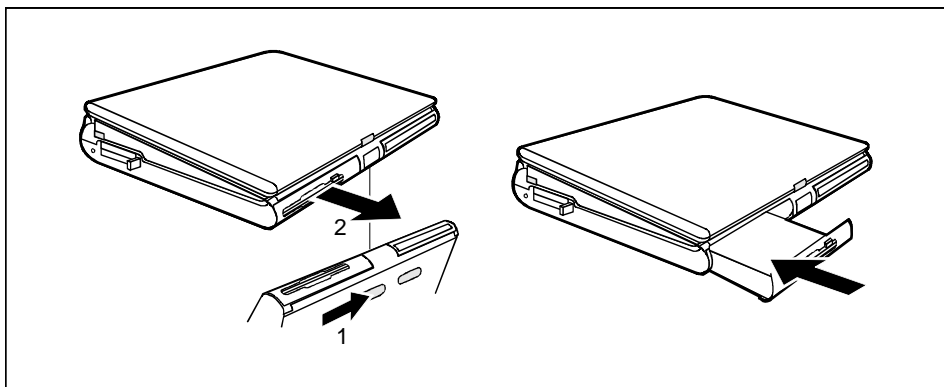
ⓘ Disk drives can also be removed or installed while in operation (but not when the disk drive is being accessed).

Removing notebook battery/drive

► Push the release slide on the underside of the notebook inward (1).

► Pull the module out of the slot (2).

Installing notebook battery/drive

► Place the module in the slide-in module with the connection contacts first and the sticker facing upward.

⚠ The CD-ROM drive and DVD drive can only be operated in the right slot.

► Push the module into the slot until you feel it locking into place.

Working with floppy disks

⚠️ Follow the instructions supplied by the vendor of the floppy disks.
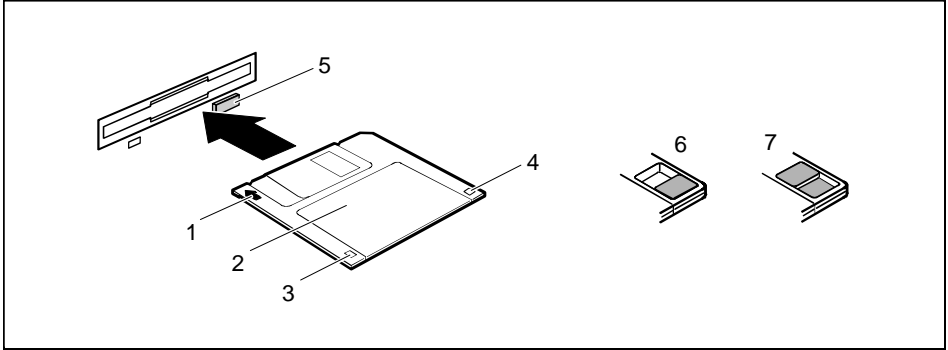
1 = Insertion direction
2 = Label area
3 = Write protection tab for a 720 Kbyte or a 1.44 Mbyte floppy disk
4 = Identification of a 1.44 Mbyte floppy disk or write protect tab on a 120 Mbyte floppy disk

5 = Eject button for inserted floppy disks
6 = Floppy disk is write-protected
7 = Floppy disk is not write-protected

► To insert a floppy disk, push it into the drive in the insertion direction (1) until it engages. The label should be facing upward.

► To remove the floppy disk, press the eject button (5).

The write-protect slider enables you to protect the data on the floppy disk from inadvertent overwriting or deletion.

► To protect the data on the floppy disk from being overwritten, push the write-protect slider to position (6). The hole is now visible.

► To remove write protection, push the slider to position (7). The hole is now covered.

Operating the CD-ROM drive and the DVD drive

⚠ This device contains a light-emitting diode, classified according to IEC 825-1:1993: LASER CLASS 1 (LUOKAN 1 LASERLAITE, KLASS 1 LASER APPARAT), and must not be opened.
Avoid touching the surface of a CD. Handle CDs only by their edges!

Always store CDs/DVDs in their cases. Thus you avoid dust contamination, scratches, bending or 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.

When using CDs/DVDs of minor quality vibrations and reading errors may occur.
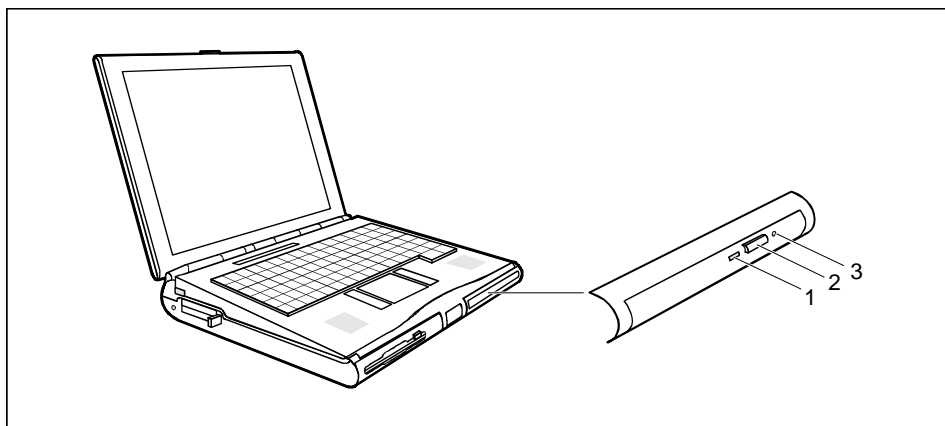
1 = Power-on indicator   3 = Opening for manual ejection
2 = Insert/Eject button

Power-on indicator

The power-on indicator (1) flashes when a CD/DVD is inserted. It goes out when the drive is ready for reading. It lights up when the drive is accessed.

i If the power-on indicator does not go out after the CD/DVD is inserted, and continues to flash, the CD/DVD is probably damaged or dirty.

If the inserted CD/DVD vibrates and/or reading errors occur, then it may be possible to eliminate the vibrations or reading errors by reducing the rotating speed. Press the insert/eject button for roughly two seconds. Reducing the rotating speed also saves power.

Inserting or removing a CD/DVD

The notebook must be switched on.
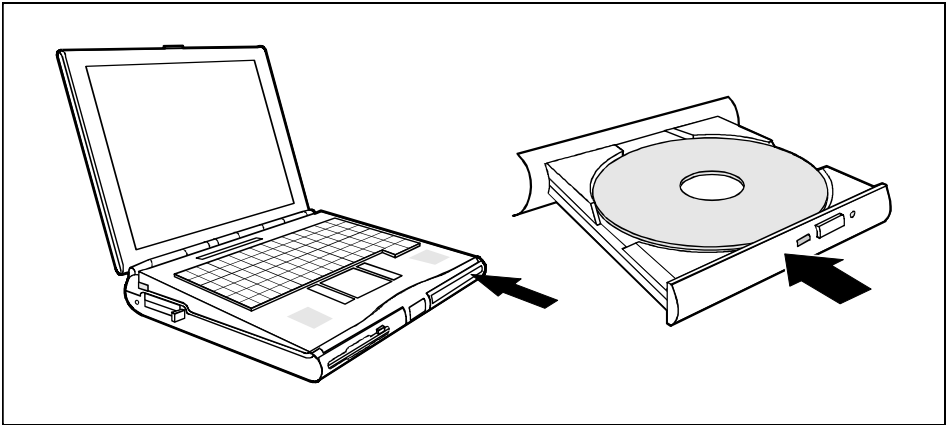
► Press the insert/eject button for roughly one second.

The CD/DVD tray will open.

► Pull the CD/DVD tray completely out.

► Place the CD/DVD in the CD/DVD tray with the labeled side facing upwards, and carefully push the CD/DVD into the mount or remove an inserted CD/DVD.

► Push the CD/DVD tray in until you feel it locking 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.
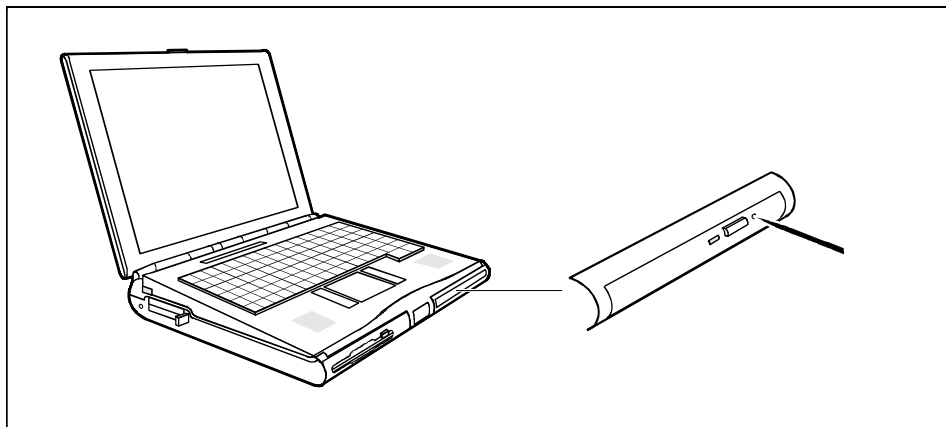
►   Switch off the notebook.

►   Press a piece of wire (e. g. a paper clip) firmly into the opening.

The CD/DVD tray is unlocked. You can now pull it out of the drive.

Operating the Zip drive

Before the Zip drive can be used, you must install the Iomega software on your notebook. To do this, use the Iomega installation disk provided and the Zip disk "Iomega Tools".

Installing the Iomega software

►   Install the Zip drive in a slide-in module.

►   Install the floppy disk drive in the other slide-in module.

►   Supply the notebook with power via the external power supply unit.

►   Switch on the notebook and start Windows.

►   Insert the Iomega installation floppy disk in the floppy disk drive.

►   Start the *a:\setup.exe* program from the Iomega installation disk with *Start - Run* (Windows 9x).

►   Follow the instructions on the screen.

►   Switch on the notebook again and load Windows.

►   Insert the Zip disk "Iomega Tools" in the Zip drive.

►   Follow the installation instructions displayed on the screen to finish the software installation.

Reinstalling the Iomega software from the Zip disk

If the Zip drive of your notebook has already been assigned a drive letter in *My Computer* or in the *File Manager*, you can install the Iomega software directly from the Zip disk "Iomega Tools".

► Install the Zip drive.

► Switch on your notebook and start Windows.

► Insert the Zip disk "Iomega Tools" in the Zip drive.

► Open a search window for the Zip disk "Iomega Tools" with *My Computer* (Windows 9x).

► Double-click on *INSTALL.EXE*.

► Follow the installation instructions displayed on the screen to finish the software installation.

Operation

Use the Zip drive like any other drive on your system. To be able to access the Zip drive, you must insert a disk and click on the Zip disk symbol or the Zip drive letter. Save and copy the files on the Zip drive with the same method used for other drives on your system.
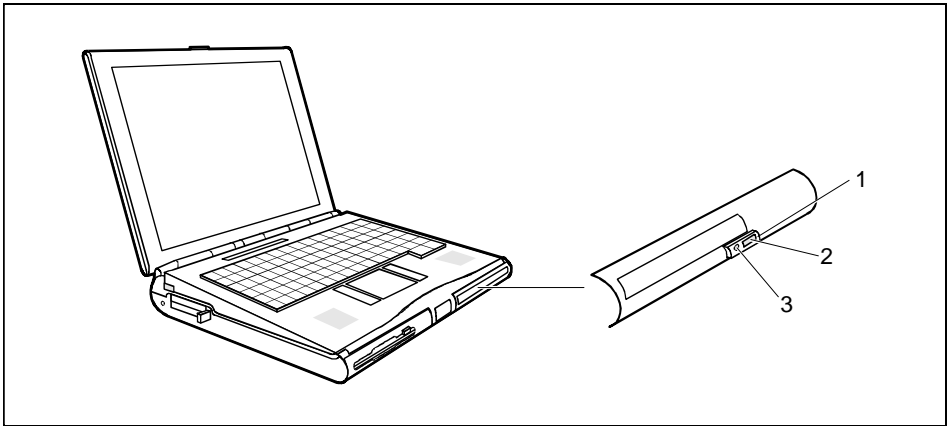
1 = Eject button   3 = Opening for manual ejection
2 = Drive indicator

Handling Zip disks

Follow the instructions supplied by the vendor of the Zip disks and the following notes:

Always switch your computer on before inserting a Zip disk.

Never use force when inserting and removing Zip disks.

Never use ordinary 3.5" disks or cleaning disks in your Zip drive. This will damage the Zip drive.

Do not move the contact protection on the Zip disk.

Protect your Zip disk from dust, mechanical vibration, heat, direct sunlight and strong magnetic fields!

Do not drop the Zip disk.

Do not use the Zip disk during large fluctuations in temperature or humidity.

Always transport the Zip disk in its protective cover.

Never clean the Zip drive with cleaning disks. Even just one attempt would destroy the read/write head in the Zip drive within 20 seconds.

Inserting the Zip disk

► Switch on your notebook.

► Insert the Zip disk in the Zip drive.

The green drive indicator glows briefly and then goes out again.

> **i** Should the indicator continue to flash slowly, please press the eject button to remove the Zip disk and then insert it again.

Sleep mode of drive

The Zip drive is equipped with an automatic sleep mode. It reduces the power consumption and thus extends the operating time of the battery. In the sleep mode the speed of the disk is automatically reduced after an adjustable, inactive time (e.g. 3 minutes). If the drive is accessed, the speed of the disk is automatically increased again. The sleep mode time for the Zip drive is controlled via the system settings of your notebook.

Removing the Zip disk

► Gently push the eject button.

The green drive indicator lights up. After a few seconds the Zip disk is then ejected.

► Please lay the Zip disk in the protective case after removing it from the drive.

| i | When the notebook is switched off, the Zip drive automatically ejects the Zip disk. |

Manual removal (emergency removal)

For normal removal of Zip disks, the notebook must be switched on. If the power supply of the notebook is interrupted, the Zip disk can be removed manually.
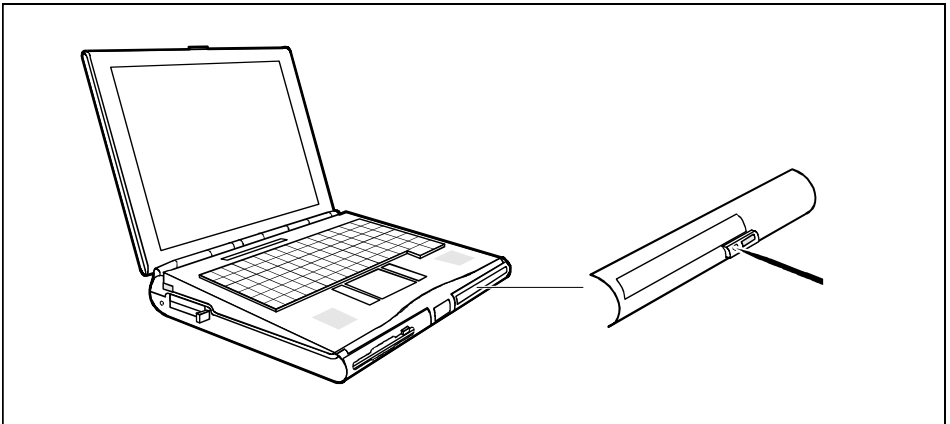
► Switch off the notebook.

► Press a piece of wire (e. g. a paper clip) firmly into the opening.

The Zip disk is unlocked. You can now pull it out of the drive.

| ⚠ | Only use the disk emergency removal function when no battery is installed in the notebook and no power supply unit is connected to the notebook. |

Chipcard reader

Access to your notebook is protected by a chipcard reader. The chipcard reader is located under the removable keyboard. The settings and operating instructions for PC-Lock are contained in the "BIOS Setup" manual in the chapter "PC-Lock".

► Remove the keyboard (see "Removable infrared keyboard ").

► Push your chipcard into the chipcard reader with the chip (contact surface) facing downward.
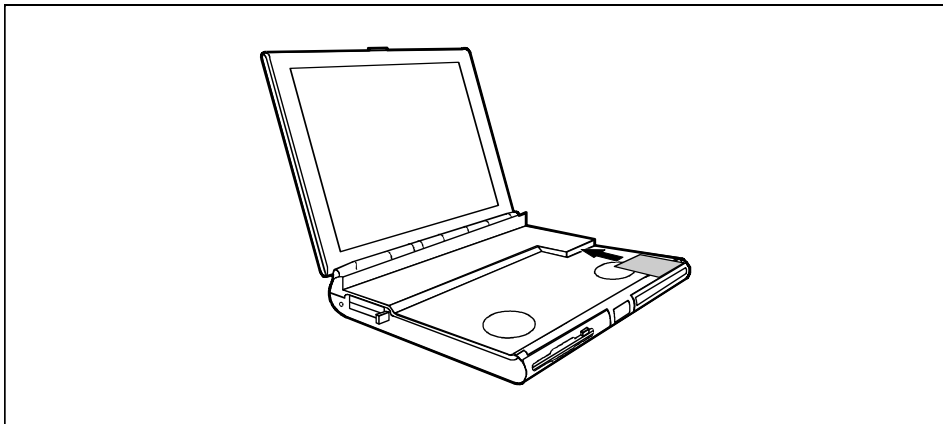
PC Cards

Two PC card slots (CardBus or PCMCIA) enable simultaneous operation of two Type I/II/III PC cards (a maximum of one Type III and Type II each).

⚠ The PC card must not consume more than 600mA (at +5V) or 60mA (at +12V).

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

Never use force when inserting or removing a PC card.

Make sure that foreign objects do not fall into the PC card slot.

Zoomed video port

Your notebook is equipped with a Zoomed video port (ZV port). You can install an MPEG decoder or a TV and video grabber card in the two PC card slots, however only one is ready for operation at a time. Please contact one of our IT Service Shops or your local sales partner or office for advice on selecting a suitable ZV port card.

Installing a PC card
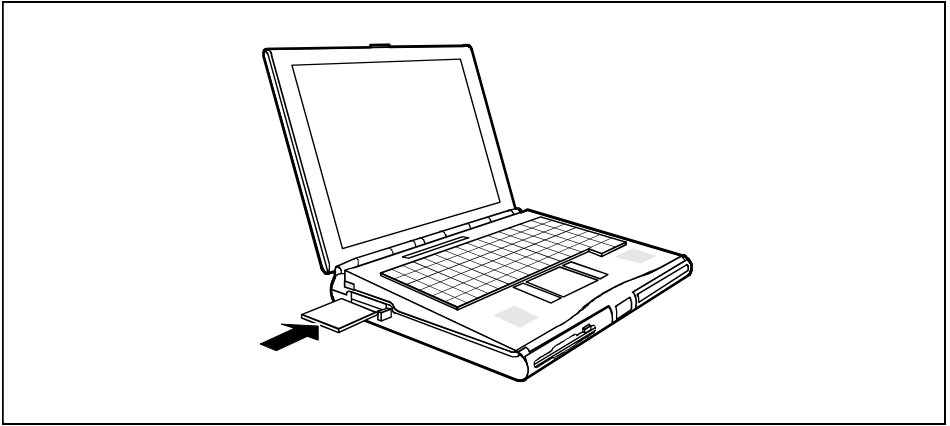
► Insert the PC card, contacts first, into the slot guides. The labeled side of the PC card must be facing upward.

► Gently push the PC card into the slot until you feel it click into place.

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

For further information refer to the information files (e.g. *.TXT*, *.DOC*, *.WRI*, or *.HLP*) provided on the PC card driver diskette or the information in the Windows 9x manual.

You can push the PC card slot eject buttons into the notebook casing. Press the eject buttons until they snap in.

Removing a PC card
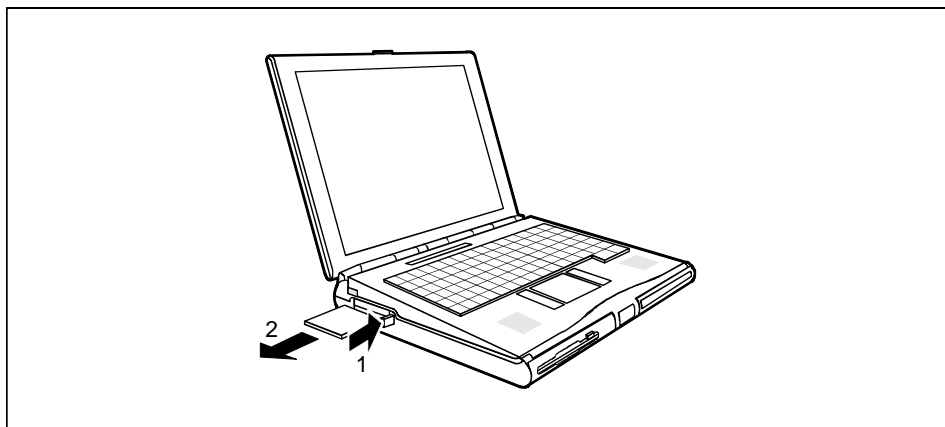
► Press the eject button (1). It will project further out of the notebook's case. If the eject buttons are pushed in flush with the notebook casing, they must first be snapped out. Press the eject buttons until they snap out.

► Slide the PC card out of the notebook (2).

Microphone and loudspeakers
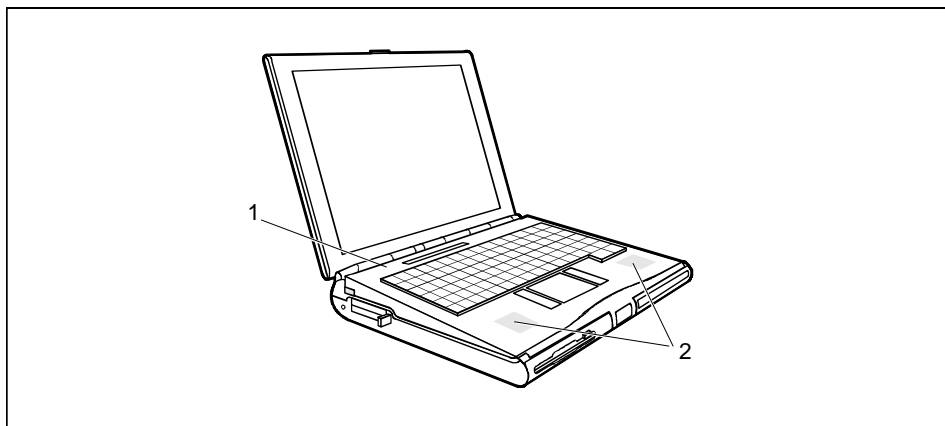
1 = built-in microphone   2 = built-in loudspeakers

Your notebook contains a built-in microphone (1) and two loudspeakers (2).

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

Using the power-management features

The notebook uses less power when the power management features are enabled. You will then be able to work for longer before having to recharge the battery.

Switch off your notebook if you do not intend to use it for an extended period of time. Reducing the brightness level of the display helps to reduce the amount of power consumed by the notebook.

i	If you enable one of the power-management options in the *BIOS Setup*, that option will still be enabled the next time you switch on your notebook (see manual "BIOS Setup").

Maximum Power Savings

The *Maximum Power Savings* mode uses all the available power-management features. The notebook uses little power and operates slightly slower than usual.

Activating

▶ In the *BIOS Setup* menu set the *Power Setup - Power Savings* field to *Maximum Power Savings*.

▶ In the *BIOS Setup* menu set the *Power Setup - PM Control* field to *Always Enable* or to *Battery Powered Only.*

Deactivating

▶ In the *BIOS Setup* menu set the *Power Setup - PM Control* field to *Disabled*.

Standby mode

In Standby mode the notebook's system clock is suspended and its display and hard-disk motor are shut down.

Enabling: Fn + F3

Disabling: any key

Automatic activation

If the notebook is running and is not used for a predefined period of time, it switches into Standby mode. The next input terminates standby mode.

▶ In the *BIOS Setup* menu set the *Power Setup - Power Savings* field to *Customize* and set the time which has to elapse before the notebook switches to Standby mode in the *Standby Timeout* field.

or

▶ In the *BIOS Setup* menu set the *Power Setup - Power Savings* field to *Maximum Performance* or *Maximum Power Savings.*

Suspend mode

In suspend mode, all current data (active programs, files) is buffered in the memory (*Suspend*) or saved to the hard disk (*Suspend to Disk*), and then the notebook is switched off. After the notebook is switched on, you can continue working exactly where you left off before.

i	The Suspend mode is shown in the display field with the display ☼.

Enabling Suspend mode

[Fn] + [F4]

⚠	If your notebook is in Suspend mode:
	• do not connect any external peripheral devices
	• do not disconnect any external peripheral devices
	• do not attempt to switch it on if the built-in battery is flat
	• do not change or remove the floppy disk, if inserted
	• do not add or remove RAM
	• do not add or remove any PC cards.

Suspend (to DRAM)

The current data is buffered in the memory (DRAM). The data is stored for as long as the notebook is supplied with energy. If the notebook battery is full, the data is stored for a matter of days. Without a battery and without a power supply the data is stored for only about 5 minutes.

► Set *Power Setup - Suspend Mode* field in the *BIOS setup* to *Suspend*.

Suspend to Disk

The active data can only be saved if sufficient space is available on the hard disk (at least the main memory size + 2 Mbytes). If you are running the operating systems Windows NT or OS/2 Warp, you have to set up an additional FAT partition on the hard disk as drive C: (see the manuals supplied with the operating system in question).

► In the *BIOS Setup* menu set the *Power Setup - Suspend Mode* field to *Save to Disk*.

Ending Suspend mode

► Switch the notebook on.

The notebook reverts to the status it had prior to switching into Suspend mode.

Automatic activation

If the notebook is running and is not used for a predefined period of time, it switches into Suspend mode.

► In the *Power Setup* menu set the *Power Setup - Power Savings* field to *Customize* and set the time which has to elapse before the notebook switches to Suspend mode in the *Suspend Timeout* field.

► In the *BIOS Setup* menu set the *Power Setup - Suspend Mode* field to *Save to Disk* or *Suspend*.

or

► In the *BIOS Setup* menu set the *Power Setup - Power Savings* field to *Maximum Performance* or *Maximum Power Savings.*

► In the *BIOS Setup* menu set the *Power Setup - Suspend Mode* field to *Save to Disk* or *Suspend*.

Decreasing reading speed of the CD-ROM drive

Decreasing the rotating speed of the CD-ROM drive saves power. Press the insert/eject button for roughly two seconds.

Display

Switching off the display does not affect running programs.

Enabling: Fn + F1

Disabling: Fn + F1

Automatic power down

You set this function in the *BIOS Setup* (see manual "BIOS Setup").
If the notebook receives no input for a predefined period of time, the display switches off automatically. The next input switches the display on again.

► In the *BIOS Setup* menu set the *Power Setup - Power Savings* field to *Customize* and set the time which has to elapse before the display switches off in the *Video Timeout* field.

or

Ê In the *BIOS Setup* menu set the *Power Setup - Power Savings* field to *Maximum Performance* or *Maximum Power Savings.*

Hard disk's energy saving function

If the hard disk is not accessed for a predefined period of time, its motor switches off automatically. It will automatically switch on again when the hard disk is next accessed.

Activating

▶   In the *BIOS Setup* menu set the *Power Setup - Power Savings* field to *Customize* and set the time which has to elapse before the motor of the hard disk switches off in the *Hard Disk Timeout* field.

or

▶   In the *BIOS Setup* menu set the *Power Setup - Power Savings* field to *Maximum Performance* or *Maximum Power Savings.*

Loudspeakers

Disabling: [Fn] + [F6]

Enabling: [Fn] + [F6]

Volume adjustment

Increasing the volume: [Fn] + [F7]

Decreasing the volume: [Fn] + [F8]

You can also adjust the volume of the loudspeaker by using the audio program (e.g. mixer) or using the audio functions in an application program.

Changing display settings

You configure the basic display settings in the *BIOS Setup* menu *Main* (see manual "BIOS Setup").

Switching between internal and external screen

You can opt to use:
● just the notebook's internal display
● just the external display
● both the internal and the external display.
● just the television

After the notebook is switched on, the setting in the *BIOS setup* of the *Advanced Setup - System Configuration Menu - Display Device* field becomes effective.

If an external monitor is connected, you can switch over the screen output with the [Fn] + [F12] key combination.

▶   Press the key combination [Fn] + [F12] until you find the display option you require.

Troubleshooting and tips

⚠️ Take note of the safety hints in the chapter "Important notes", 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:

► Switch off the notebook.

► Make a note of the steps and the circumstances that led to the fault. Also make a note of any error messages displayed.

► Contact your sales outlet or our customer service center.

The power-on indicator does not light up when the device is switched on

If the power-on indicator remains off, it can have the following reasons:

The battery is not installed correctly

► Check whether the battery is installed correctly in its compartment.

► Switch the notebook on.

The battery is dead

► Recharge the battery or install a fully charged battery.

The power adapter is not connected correctly

► Check whether the power adapter is connected correctly to the notebook.

► Check whether the power cable is plugged properly into the power adapter and into the power outlet.

► Switch the notebook on. The display ⟟ in the notebook display field must light up.

The display of the notebook remains blank

If your screen remains blank this may have the following causes:

Monitor is switched off

► Press the key combination ⟦Fn⟧ + ⟦F1⟧ or enter the user password.

The notebook's display is difficult to read

If the display is difficult to read, the following can cause it:

Reflection

► Turn the notebook or alter the tilt of the display.

Maximum screen resolution

The screen controller converts the current screen display for the entire screen size. A certain "fuzziness" cannot always be avoided at resolutions below 1024 x 768.

Defective pixels on the screen

Pixel faults in the form of permanently lit, unlit or different-colored pixels can occur with LCD monitors. Up to ten pixel faults on the screen do not constitute grounds for exchanging the unit.

Exceptional cases are:

● if two pixel faults are lying directly next to each other
● if three pixel faults occur in a 5-mm diameter circle

In these exceptional cases, please contact our customer service center.

The external monitor stays blank

If your screen remains blank this may have the following causes:

Monitor is switched off

► Switch the external monitor on.

Screen has been blanked

► Press any key to continue.

Brightness control is set to dark

► Set the brightness control to bright. For detailed information, please refer to the Operating Manual supplied with your monitor.

The notebook has been configured to drive the internal display

► Press the key combination ⌐Fn¬ + ⌐F12¬ or set the *Advanced Setup - System Configuration Menu - Display Device* field in the *BIOS Setup* menu to *Monitor & LCD* or *Monitor*.

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 power adapter and into the power outlet.

► Check whether the data cable is properly connected to the notebook and the external monitor (if it is plugged in with a connector).

► Switch on the external monitor and the notebook.

The external monitor is blank or the image is unstable

The wrong frequency has been selected for the external monitor or for the application program.

Terminate the application program in Windows 9x with $\boxed{\text{Alt}}$ + $\boxed{\text{F4}}$. If the error persists after the program has been terminated, switch the external monitor off, wait for about 5 seconds, and then switch the external monitor on again.

► Set the screen resolution required by the application. Select the *Start* button. Select the *System control* item under *Settings*. Double-click on the *Display* symbol. Select the required screen resolution on the *Settings* tab of the *Resolution* field.

The screen display (TV) is black and white

The screen of the TV or video device is connected to the notebook's S-VHS output. Depending on the device or cable used, automatic switchover between the FBAS and S-VHS TV standards will not function correctly.

► Hold down the key combination $\boxed{\text{Fn}}$ + $\boxed{\text{F11}}$ until the screen display is correct.

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).

An application program has caused the malfunction

► Close the application program or restart the notebook by switching it on/off or with a warm boot.

The battery is dead

► Recharge the battery or install a fully charged battery.

The touchpad does not work

If the touchpad does not work, this can have the following reasons:

Incorrect setting in BIOS Setup

► Check whether the *Advanced Setup - PS/2 Mouse* field in the *BIOS Setup* menu is set to *Enabled*.

Touchpad dirty

► Clean the touchpad.

The mouse does not work

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

Incorrect setting in Setup

► Check in the *BIOS Setup* whether the *Advanced Setup - PS/2 Mouse* field is set to *Enabled* (for a PS/2 mouse) or *Disabled* (for a serial mouse).

► Check in the *BIOS setup* whether the serial port is activated and correctly set in the *Advanced Setup - I/O Device Configuration - Serial Port A* field.

Mouse driver not loaded

► Check whether the correct mouse driver is properly installed and is present before the application program is started. Detailed information can be found in the User Guides for the mouse or application program.

Mouse not connected

► Switch off the notebook.
► 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 infrared keyboard does not function when removed

► Check whether the battery pack in the keyboard is charged (see "Display field").

⚠ The battery in the keyboard is automatically charged when:
  • the notebook is connected to the mains mode and
  • the keyboard is installed and
  • the notebook is switched off.

► Check whether the battery pack in the keyboard is properly installed (see "Removable infrared keyboard").

► Check whether the keyboard is at the proper distance from and angle to the notebook (see "Transferring data with the infrared interface").

The floppy disk cannot be written

► Check whether the floppy disk is OK and is not write-protected.

The notebook's date or time is incorrect

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

> **i** If the date and time are repeatedly incorrect when you switch on the notebook, the buffer battery that supplies the internal clock is dead. Connect the notebook via its power adapter to a grounded wall outlet or install a fresh battery. The buffer battery will take approximately two days to complete its recharge. Should the problem persist, please contact your Service provider.

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 in the *BIOS setup* whether the parallel port is activated and correctly set in the *Advanced Setup - I/O Device Configuration - Parallel Port* field. The respective entries in the fields of *Serial Port* or *Parallel Port* must match the setting in the application program under Windows.

Acoustic warnings

A beep sounds every few seconds

The battery is almost flat.

► Charge the battery.

A single continuous beep

The notebook cannot switch to standby or suspend mode because hard disk or diskette accesses take place or there is no space provided on the hard disk.

► Wait until the hard disk or diskette accesses have terminated, or set up the required storage space on the hard disk.

Three long beeps

The notebook cannot restore the programs that were active when it switched to Suspend mode.

Error messages on the screen

In the following the error messages are described which are output by the system BIOS (see BIOS Setup manual). Error messages displayed by the operating system or programs are described in the relevant manuals.

Diskette read failure - press F1 to retry boot

The inserted system disk is defective

► Insert another system disk.

► Press function key F1 .

No boot device available - press F1 to retry boot

The operating system cannot be loaded

► Insert a system disk.

► Press function key F1 .

No boot sector on fixed disk - press F1 to retry boot

The operating system is not installed on the hard disk or the hard disk has not been formatted.

► Insert a system disk.

► Press function key F1 .

Not a boot disk - press F1 to retry boot

The disk in the floppy drive is not a system disk.

► Remove the floppy disk from the drive.

► Press function key F1 .

If you wish to boot from floppy disk:

► Insert a system disk.

► Press function key F1 .

Real time clock failure
Invalid configuration information - please run setup program
Press the F1 key to continue, F2 to run the setup utility

The system configuration information is incorrect.

► Press function key F2 .

► If the time and date are incorrect, set them correctly.

► Reconfigure the system.

If the error message occurs repeatedly, then the buffer battery in the notebook is dead. Connect the notebook via its power adapter to a grounded wall outlet or install a fresh battery. The buffer battery will take approximately two days to complete its recharge.

Restoring the hard disk contents under Windows 9x

All data on the hard disk will be deleted. Operating system, drivers and software utilities will be reinstalled. For this reason you should try to save important data to a backup medium before you restore the hard disk contents.

Using the Windows 9x CD and the "Drivers & Utilities" CD, you can restore your notebook to the state in which it was originally delivered from the factory.

► Insert the "Start-Disk for Windows 9x CD" into the floppy disk drive and switch the notebook on.

► Follow the instructions on the screen.

i Detailed PC knowledge is required for manual partitioning.

Detailed instructions for restoration is contained on the "Drivers & Utilities" CD under *html\files\docu\Inst9598*.

► Insert the Windows 9x CD into the CD-ROM drive.

► Start the *Setup* program on the CD.

► You must then reinstall all the drivers. Use the "Drivers & Utilities" CD.

Memory extension

⚠ The notebook must be switched off when installing/removing the memory modules and may not be in the Suspend mode.

So that the current data can be saved in the *Save to Disk* suspend mode, sufficient memory space must be available on the hard disk (at least the size of the main memory + 2 Mbytes).

If the main memory size is increased and you use the *Save to Disk* suspend mode on the notebook, then you must check the size of the first partition and adjust it if necessary with the operating systems Windows NT and OS/2 Warp (see the manual for the respective operating system).

Install only memory expansions that satisfy the requirements and rules governing safety, RFI and electromagnetic compatibility and relating to telecommunications terminal equipment (see the chapter "Important notes").

Use only memory expansions which have been released for your notebook.

Never use force when installing or removing memory modules.

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

Memory modules

The main memory of your notebook can be upgraded to 64 - 512 Mbyte with up to four 64 or 128 Mbyte memory modules or with up to two 256 Mbyte memory modules. The memory modules may be mixed as required. The notebook will not start without memory modules, as no fixed main memory is installed.

|	
Mobile 800 / Mobile 800 AGP:	128 Mbyte 2-bank modules (100 MHz) may only be inserted in slots A, B and C. 256 Mbyte modules are not supported.
Mobile 800 S:	128 Mbyte 2-bank modules (100 MHz) may only be inserted in slots A, B and C. 256 Mbyte modules (100 MHz) may only be inserted in slots A and C. Slots B and D must remain unused.
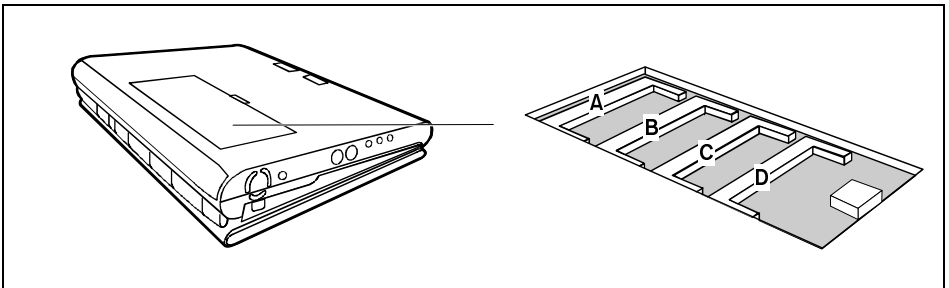
Removing cover
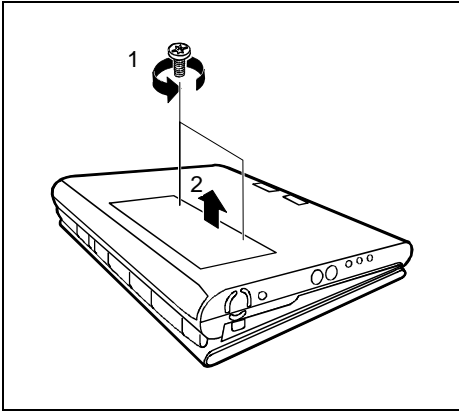
► Switch off the notebook.

► Remove the notebook batteries.

► Remove the power plug of the power adapter from the power outlet.

► Close the display of the notebook so that it locks into place.

► Disconnect all cables connected to the notebook.

► Place the notebook bottom-up on a flat surface.

► Remove the two screws (1).

► Lift the cover and pull it in the direction of the arrow (2) from the notebook.

Installing memory modules
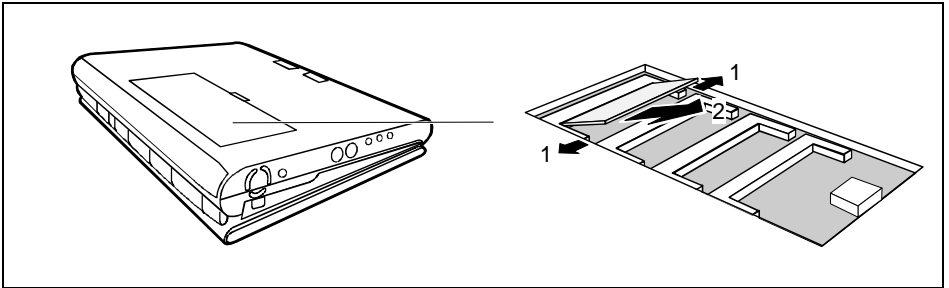
► Insert the memory modules, contacts first, into the slot (1).

► Carefully push the memory module downwards (2) until you feel it latch into place.

► Install additional memory modules in the same way.

Removing memory modules
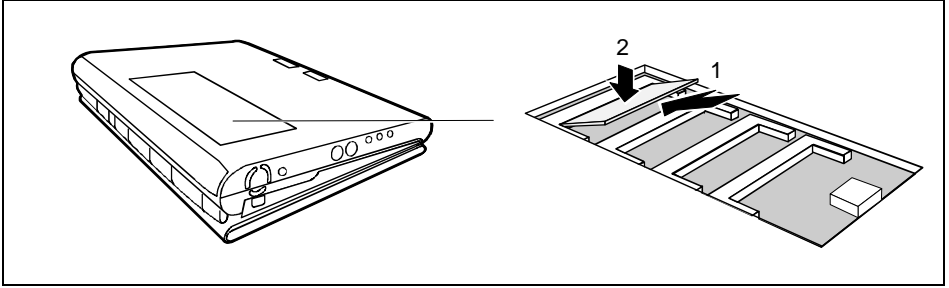
▶ Carefully push the two mounting clips outwards (1). The memory module flaps upwards.

▶ Slide the memory module out of its location (2).

▶ Remove additional memory modules in the same way.

Mounting cover
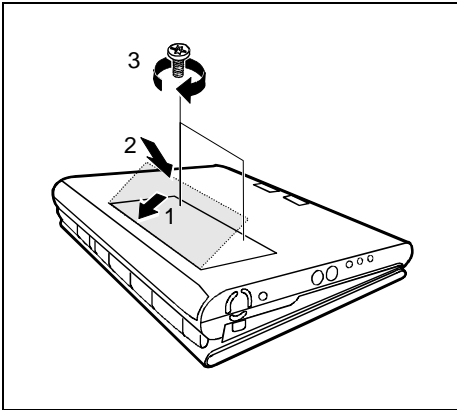
▶ Place the cover in its mounting location (1) and hinge it into place on the underside of the notebook (2).

▶ Fasten the cover with the two screws (3).

▶ Turn the notebook over and place it on a flat surface.

▶ Reconnect the cables.

▶ Swing open the screen.

▶ Install the notebook batteries again.

Testing memory modules

▶ Switch on the notebook and check whether the changed memory size is detected.

Connecting external devices

⚠️ Disconnect all the devices from their respective power sources when you connect or disconnect a device. Read the documentation on the external device before connecting it.

Do not connect or disconnect cables during a thunderstorm.

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

Connect and disconnect the cables in the order described below.

Connecting cables

- Turn off all power and equipment switches.
- Pull all power plugs out of the grounded power outlets.
- Connect all the cables to the notebook and the external devices. Please observe under all circumstances the safety notes provided in the chapter "Important notes".
- Plug all data communication cables into the utility sockets.
- Plug all power cables into the grounded power outlets.

Disconnecting cables

- Turn off all power and equipment switches.
- Pull all power plugs out of the grounded power outlets.
- Unplug all data communication cables from the utility sockets.
- Disconnect all the cables from the notebook and the external devices.

Ports
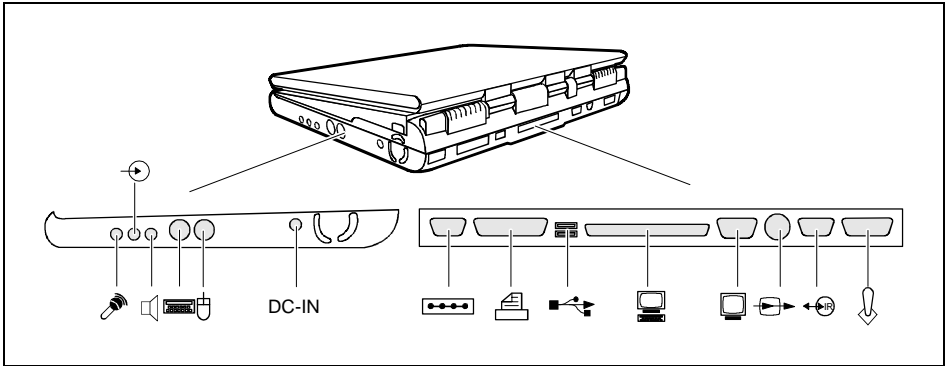
🎤	Microphone jack	⊕	Audio input (Line in)
🔊	Audio output/loudspeaker	⌨	Keyboard port
⊐	PS/2 mouse port	DC IN	DC socket
••••	Serial port	🖶	Parallel port
USB	USB - Universal Serial Bus	🖥	Port for QuickPort S:
▯	Video connector	▶	TV out
◀IR	IR Port	⬇	Game Port/MIDI Port

Connecting devices with serial or parallel port (printer)

► Connect the data cable of the external device to the appropriate port.

The serial port is configured by default as *COM1*. You can change the setting in the *Advanced Setup - I/O Device Configuration - Serial Port A* field in the *BIOS Setup* menu.

The parallel port is configured by default as *LPT1*. You can change the setting in the *Advanced Setup - I/O Device Configuration - Parallel Port* field in the *BIOS Setup* menu.

Connecting an external monitor

An external monitor can be connected to the notebook. The notebook screen controller for an external monitor supports screen resolutions up to 1600 x 1280.

► Plug the data cable of the monitor into the monitor port.

► Connect the power cable of the external monitor to a power outlet and switch on the monitor.

► Switch the notebook on.

► Press the key combination ⌊Fn⌋ + ⌊F12⌋ (selecting internal/external display) or set the *Advanced Setup - System Configuration Menu - Display Device* field in the *BIOS Setup* menu to *Monitor & LCD* or *Monitor*.

► Select the resolution for the external monitor. Ensure that the settings you choose for display resolution and refresh rate do not exceed the maximum values for your monitor (see monitor operating manual, "Technical Data" chapter).

Connecting the mouse

► Connect the mouse, depending on the type, to either the PS/2 mouse port or the serial port. The touchpad and the touchpad buttons are disabled when you connect an external mouse.

► Switch the notebook on.

► Set the *Advanced Setup - PS/2 Mouse* field in the *BIOS Setup* to *Disabled* if you want to use a serial mouse (e g. TrackMan).

► Install the necessary device driver (see the manual supplied with the mouse).

Connecting a television set

► Connect the S-VHS output of your TV or video device to the S-VHS socket of the notebook.

► If your TV or video device has no S-VHS socket, then plug the FBAS adapter into the S-VHS socket of the notebook. Then connect the adapter to the video input of your TV or video device.

► Connect the audio input of your TV or video device to the audio input of the notebook.

► Switch the screen display on with the key combination $\boxed{\text{Fn}}$ + $\boxed{\text{F11}}$.

The required video and audio cables are available at specialized dealers.

Connecting an external keyboard

Connecting an external keyboard does not disable the notebook's built-in keyboard. If your external keyboard incorporates an ON/OFF switch, connect the keyboard cable to the mouse port.

► Connect the external keyboard to the external keyboard port. If you wish to connect a keyboard with a 5-pin connector you will require an adapter from 5-pin DIN to 6-pin DIN mini connector.

i	Never press the keys on the external and internal keyboards at the same time. If the external keyboard does not have an $\boxed{\text{Fn}}$ key, you can press the $\boxed{\text{Ctrl}}$ key and the $\boxed{\text{Alt}}$ key together instead. For example, to enter the key combination $\boxed{\text{Fn}}$ + $\boxed{\text{F1}}$ on the external keyboard you would press $\boxed{\text{Ctrl}}$ + $\boxed{\text{Alt}}$ + $\boxed{\text{F1}}$.

Connecting external audio devices

⚠	Do not put on headphones until the notebook has been switched on. Before putting loudspeakers and headphones into operation, set the volume to a low setting and then adjust it to the desired volume after start-up.

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

Connect the audio device (external microphone, external loudspeaker, audio output) to the appropriate port.

Connecting the QuickPort

The manual supplied with the QuickPort S describes how to connect the notebook.

⚠️ Read the QuickPort S manual carefully before attempting to connect the notebook.

Make sure that no PC cards or extracting tools for PC cards are projecting from the notebook. No power adapter may be connected when you dock the MobiDock onto the notebook.

ℹ️ In case of problems with the screen output on the external monitor, press the ⎡Fn⎤ + ⎡F12⎤ key combination (selecting internal/external display) or set the *Advanced Setup - System Configuration Menu - Display Device* field in the *BIOS setup* to *Monitor & LCD* or to *Monitor*.

Makes sure that any PC card installed in the QuickPort S do not use I/O addresses, interrupts or DMA channels already used by the notebook. Details of the I/O addresses, interrupts and DMA channels are provided in the section "Technical data".

Transferring data with the infrared interface

The IrDA interface (Fast IrDA) on the back of the notebook allows wireless serial data transmission from the notebook to a PC or printer. The infrared interface of the infrared keyboard enables wireless data transmission to the notebook.

Infrared data transmission from device to device

By default the infrared port is set to *COM2*. You can change the setting in the *Advanced Setup - I/O Device Configuration - Serial Port B* field in the *BIOS Setup* menu.

ℹ️ The IrDA port can only be used when the IrDA interface in the *BIOS setup* is switched on in the *Advanced Setup - I/O Device Configuration - Serial Port B* field.
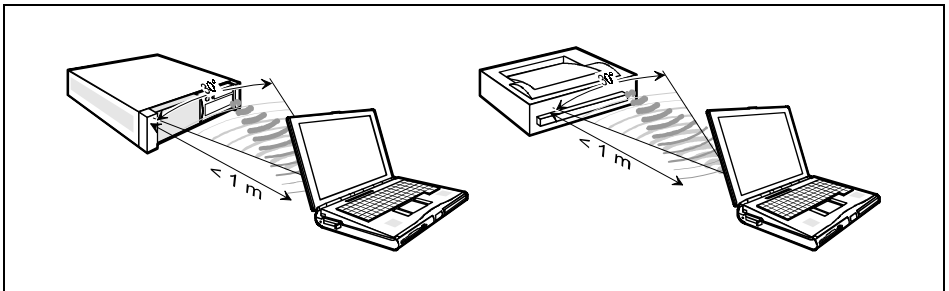
► Set up the IrDA transmitter and receiver as illustrated above. The devices may be no more than one meter apart.

The IrDA interface of one device must be in the range of influence (horizontally approx. 30° and vertically approx. 15°) of the IrDA interface of the other device.

Infrared data transmission from infrared keyboard to notebook
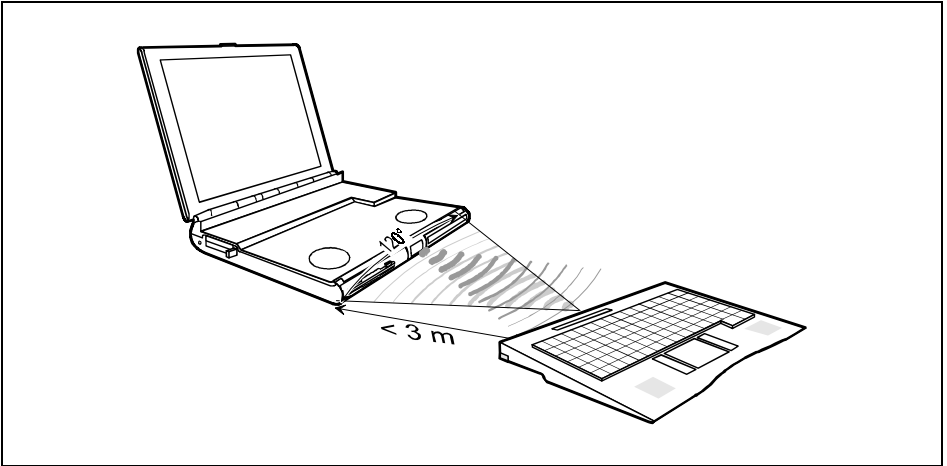
The infrared transmission angle is approx. 120 ° up to a distance of one meter and decreases for distances up to three meters (approx. 60 °). The "long-distance" infrared connection between the removable keyboard and the notebook is displayed in the display field.

Technical data

Notebook

Processor
- Mobile 800 / Mobile 800 AGP: Pentium II
- Mobile 800 S: Pentium III

Cache
- Mobile 800:   32 Kbyte integrated in processor
  512 Kbyte synchronous Second Level Cache
- Mobile 800 AGP / Mobile 800 S: 256 Kbyte second-level cache integrated in processor (double speed)

Main memory (SD RAM 3.3 V)   4 slots for 64, 128 Mbyte modules, 64 bit or
2 slots for 256 Mbyte modules, 64 bit
- Mobile 800:   64 -512 Mbyte, JEDEC 144 pin SO-DIMM, 66 MHz
- Mobile 800 AGP: 128 -512 Mbyte, JEDEC 144 pin SO-DIMM, 66 MHz
- Mobile 800 S: 128 -512 Mbyte, JEDEC 144 pin SO-DIMM, 100 MHz

System ROM (flash EPROM):   512 Kbyte for system and video BIOS

Screen controller
- Mobile 800:   ATI 3D Rage LTPro
  Video memory (SD RAM):   4 Mbyte
- Mobile 800 AGP / Mobile 800 S: ATI 3D Rage LTPro AGP
  Video memory (SD RAM):   8 Mbyte
- supported resolutions on external display   640x480 / 16.7 million colors and 100 Hz
  800x600/ 16.7 million colors and 100 Hz
  1024x768 / 16.7 million colors and 100 Hz
  1280x1024 / 16.7 million colors and 100 Hz
  1600x1200 / 64K colors and 85 Hz

Disk drives: Floppy disk drive for 3 1/2 inch floppy disks
Hard disk drive 2.5 inch, max. 17 mm height, CD-ROM drive 24 speed or more, optional: DVD drive, second/third hard disk drive, Zip drive

Electrical data

Regulations complied with: EN 60950 / VDE 0805, UL 1950
CSA 22.2 No.950

Protection class: II

Maximum power draw in operation: < 26 W *)

Display:

Backlit liquid-crystal transmissive display (LCD TFT)
- Display diagonal: 36.0 cm (14.1) XGA
- Resolution / colors: 1024x768 / 262,144 colors (18 bit)

Audio:

Soundchip Mobile 800:	ESS1869
Soundchip Mobile 800 AGP / Mobile 800 S:	ESS1946-E1 (PCI)
● Compatibility:	Soundblaster Pro, Ad lib, MS soundsystem
● A/D and D/A conversion:	16 bit, stereo

Input devices

● Keyboard:	86 keys
● Touchpad (Length, Width)	64 x 48 mm

Slots PC Card (CardBus/PCMCIA)

1 x type III and 1 x type II simultaneously,
CardBus compatible, Zoomed-Video-Port
● Mobile 800:	TI PCI 1250
● Mobile 800 AGP / Mobile 800 S:	TI PCI 1251B

Ports

● PS/2 mouse port:	6-pin mini DIN female connector
● Port for external keyboard:	6-pin mini DIN female connector
● Port for QuickPort S:	240-pin female connector
● Parallel port:	25-pin female connector, bi-directional, EPP /ECP capable
● Port for external monitor:	15-pin female connector
● Serial port:	9-pin male connector, 16550 compatible
● Microphone jack:	connector, mono
● Audio input:	connector, stereo
● Port for external loudspeaker:	connector, stereo
● Game/Midi	15-pin female connector
● IrDA port (Fast IrDA)	
● USB (Universal Serial Bus)	
● Video output:	FBAS Pal or NTSC

Environmental conditions

Environment class 7K1	DIN IEC 721
Environment class 7M2	DIN IEC 721

Temperature:
● Operating (7K1)	5 °C .... 40 °C
● Transport (2K2)	-25 °C .... 60 °C

Dimensions

Width/depth/height:	326 mm, 259 mm, 46/67 mm
Weight:	approx. 3.8 kg

Notebook battery

Rated voltage:	10.8 V
Rated capacity	63 Wh / 5.8 Ah
Charging time (when not in operation):	3 hours (70% charging after 1.5 hours)
Operating time with a battery:	approx. 3.5 hours (depending on application)
Weight:	550 g

Power supply unit

Primary
- Rated voltage: 100 V to 240 V (automatic)
- Frequency: 50 Hz to 60 Hz (automatic)
- max. rated current: 0.75 A / 1.5 A

Secondary
- Rated voltage: 19 V
- max. rated current: 3.4 A

Car adapter

Primary
- Rated voltage: 10 V to 15 V

Secondary
- Rated voltage: 19 V
- max. rated current: 3.4 A

CD-ROM drive

Supported CD formats:
- CD-Digital Audio
- CD-ROM (Mode 1 and Mode 2)
- CD-ROM XA
  (Mode 2, Form 1 and Form 2)
- CD-I (Mode 2, Form 1 and Form 2)
- CD-I Ready
- CD bridge
- Photo-CD (Single- and Multisession)
- Video-CD

Laser   Class 1 Laser Product
- Type: Semiconductor GaA/As
- Wave length: 780 nm
- Power output: 5 mW max.

DVD drive

Supported DVD/CD formats:
- DVD- 5:   4.377 Gbyte
- DVD- 9:   7.959 Gbyte
- DVD-10:   8.754 Gbyte
- DVD-18:   15.917 Gbyte
- CD (Mode-1): 656.5 Mbyte
- CD (Mode-2): 748.8 Mbyte

Laser   Class 1 Laser Product
- Type: Semiconductor GaA/As
- Wave length: 650 nm
- Power output: 5 mW max.

Chipcard reader

- Processing of asynchronous processor chipcards:
  Protocols T=1 and T=14

- Processing of synchronous memory chipcards:
  SLE 4418, SLE 4428; SLE 4432, SLE 4442; SLE 4436; SLE 4439; SLE 553x and PCF 8582

Interrupt I/O addresses, and DMA assignment

Changeable internal settings:

Function	I/O address	IRQ	DMA
Mobile 800: • Soundchip ESS1869 Mobile 800 AGP and Mobile 800 S: • The Soundchip ESS1946-E1 (PCI) requires none of these settings.	**220h - 22Fh *** 240h - 24Fh 260h - 26Fh 280h - 28Fh *Midi Play Unit (MPU):* **330h - 331h** 300h - 301h 310h - 311h 320h - 321h *FM:* **388h** - **38Bh **** *Gameport:* **201h*** *Control Interface:* **800h-807h** 810h-817h 820h-827h 830-837h	**IRQ 5 * (LPT)** IRQ 7 (LPT) IRQ 9 IRQ 10 IRQ 11	*1. DMA:* **DMA 3 *** DMA 0 DMA 1 *2. DMA:* **DMA 3 *** DMA 0 DMA 1
Parallel port **LPT**	**378h - 37Fh* =** 378h - 37Fh = 3BCh- 3C5h = 278h - 27Fh =	**IRQ 7*** IRQ 5 IRQ 7 IRQ 5	DMA 1 or DMA 3 in ECP-mode
1. Serial port **COM**	**3F8h - 3FFh* =** 2F8h - 2FFh = 3E8h - 3EFh = 2E8h - 2EFh =	**IRQ 4 / COM1 *** IRQ 3 / COM2 IRQ 4 / COM3 IRQ 3 / COM4	
2. Serial port **COM** **=** Fast **IrDA**	**2F8h - 2FFh * =** 3E8h - 3EFh = 2E8h - 2EFh =	**IRQ 3 / COM2 *** IRQ 4 / COM3 IRQ 3 / COM4	**DMA 0 *** DMA 1 DMA 3

* = default setting in *BIOS Setup*
** = default setting, when Audio is enabled

Fixed internal settings:

Function	I/O address	IRQ	DMA
System Timer	040h-043h	0	
Keyboard	060h, 064h	1	
Interrupt controller	020h-021h, -0A0h-0A1h	2	
Floppy disk drive controller	3F0h-3F5h, 3F7h	6	2
System CMOS / Realtime clock	070h-071h	8	
PC card controller "TI1250"		10	
USB controller	120h-13Fh	11	
Synaptics touchpad		12	
Numeric processor	0F0h - 0FFh	13	
Intel 82371AB PCI bus primary IDE controller	1F0h-1F7h, 3F6h, FCD0h-FCD7h	14	
Intel 82371AB PCI bus secondary IDE controller	170h-177h, 376h, FCD8h-FCDFh	15	
DMA controller	000h-00Fh, 081h-08Fh, 0C0h-0DFh		4
PCI bus	CF8h-CFFh		

Settings for external components (e.g. PC card):

Function	I/O address	IRQ	DMA
PC card (PCMCIA cards): max. 1x TypIII + 1x TypII or 2x TypII • I/O cards (modem, network board, COM, SCSI etc.) • memory cards (e.g. SRAM, FLASH) • ATA cards (e.g. hard disk, sundisk)	PC cards require an IRQ (**no** shared IRQ!), I/O addresses and/or a memory area and possibly DMA (see also the documentation on the PC card).		

PnP = Plug and Play

Shared IRQ:

Several PCI components can **share one** free ISA-**IRQ** (assignment of the IRQ's is automatic).

Under Windows 9x you can change the resource contentions manually with the "Device Manager".

Port assignment

The assignment of the external ports are as follows:

DC jack (DC IN)
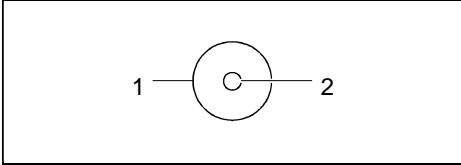
Pos.	Meaning
1	0 V
2	+19 V

TV out socket
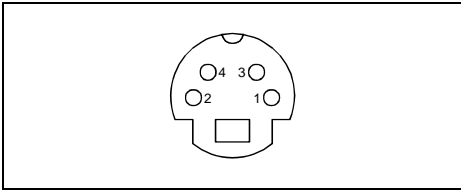
Pos.	Meaning
1	0 V
2	0 V
3	SVideo_Y_FBAS_MUX
4	SVideo_COL

USB port
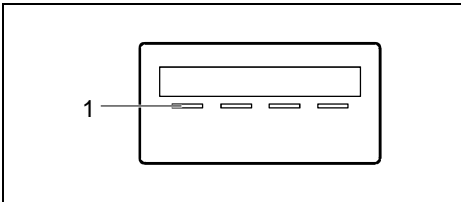
Pos.	Meaning
1	VCC
2	DATA_NEGATIVE
3	DATA_POSITIVE
4	GND

Port for external keyboard and PS/2 mouse
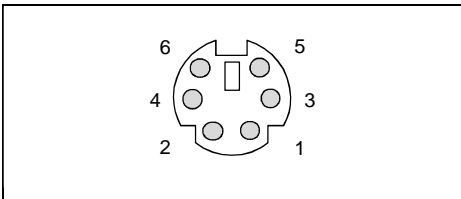
Pos.	Meaning
1	Data
2	reserved
3	0 V
4	+5 V
5	Clock
6	reserved

Serial port
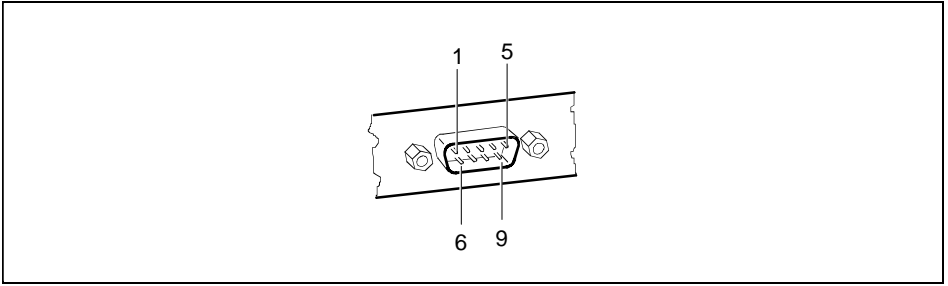
Pos.	Signal name	Meaning
1	DCD (Data Carrier Detect)	Data Carrier Detect
2	RxD (Receive Data)	Receive Data
3	TxD (Transmit Data)	Transmit Data
4	DTR (Data Terminal Ready)	Data Terminal Ready
5	Signal Ground	Signal Ground
6	DSR (Data Set Ready)	Data Set Ready
7	RTS (Request to Send)	Request to Send
8	CTS (Clear to Send)	Clear to Send
9	Ri (Ring Indicator)	Ring Indicator

Port for external monitor
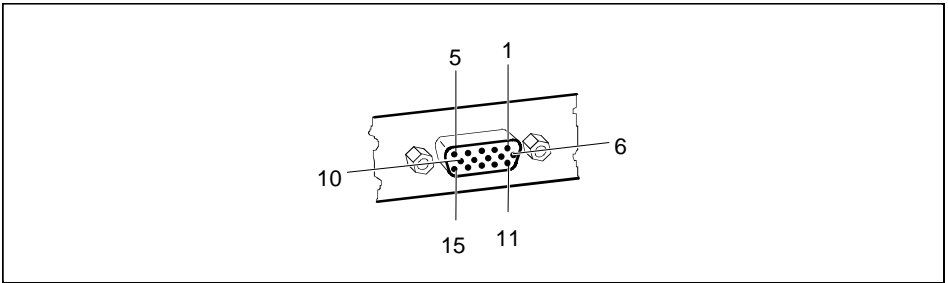
Pos.	Meaning	Pos.	Meaning
1	Video output red	9	+5V
2	Video output green	10	logic ground
3	Video output blue	11	reserved
4	reserved	12	DDC data line (bi-directional)
5	DDC ground	13	horizontal synchronization
6	Video ground red	14	vertical synchronization
7	Video ground green	15	DDC clock signal line
8	Video ground blue		
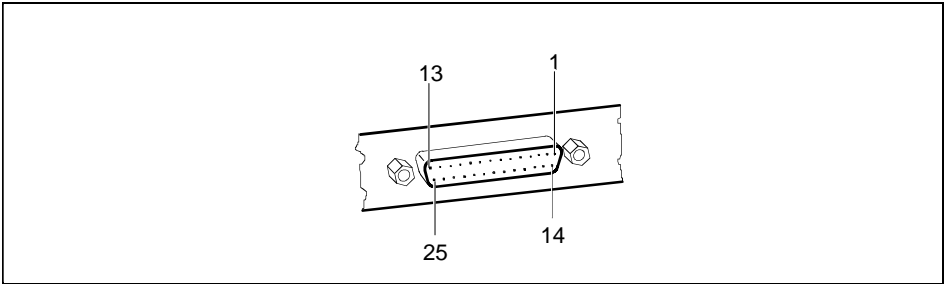
Parallel port

The parallel port supports three transfer modes: SPP, EPP and ECP. SPP mode (standard parallel port) is the mode traditionally used to drive a printer. EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) modes are transfer modes that allow transfer rates of 2 and 2.4 Mbytes/s. These modes will only work in connection with peripheral devices which specifically support them. Cases where these transfer modes are used are, for example, interface conversions between Parallel and SCSI or Parallel and IDE. The pinouts are different in all three modes.

Pinout in SPP mode (Standard Parallel Port)

Pos.	Signal name	Meaning
1	STROBE	Data strobe
2-9	Data Lines 0-7	Data lines 0-7
10	ACKNOWLEDGE	Data acknowledgement
11	BUSY	Not available
12	PE	End of paper
13	SELECT	Select device
14	AUTO	Automatic new line
15	ERROR	Device error
16	INIT	Reset/Initialize
17	SELECT IN	Select printer
18-25	GROUND	Ground

Pinout in EPP mode (Enhanced Parallel Port)

Pos.	Signal name	Meaning
1	Write	Output
2-9	Data Lines	Input/output
10	Intr	Input
11	Wait	Input
12	reserved	-
13	reserved	-
14	DStrb	Output
15	reserved	-
16	reserved	-
17	AStrb	Output
18-25	Ground	-

Pinout in ECP mode (Enhanced Capabilities Port)

Pos.	Signal name	Meaning
1	HostClk	Output
2-9	Data Lines 0-7	Input/output
10	PeriphClk	Input
11	PeriphAck	Input
12	AckReverse	Input
13	Xflag	Input
14	HostAck	Output
15	PeriphRequest	Input
16	ReverseRequest	Output
17	ECP-Mode	Output
18-25	Ground	-

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