

# CELSIUS MOBILE 810

*OPERATING MANUAL*

**FUJITSU** COMPUTERS  
**SIEMENS**

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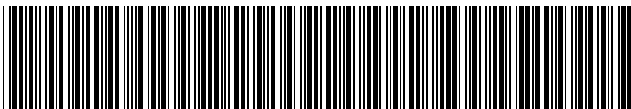




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# **CELSIUS MOBILE 810**

## **Operating Manual**

Introduction

Important notes

Preparation for use and operation

Troubleshooting and tips

Memory extension

Connecting external devices

Technical data

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June 2000 edition

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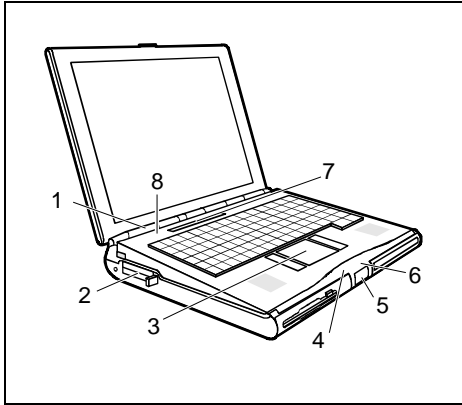
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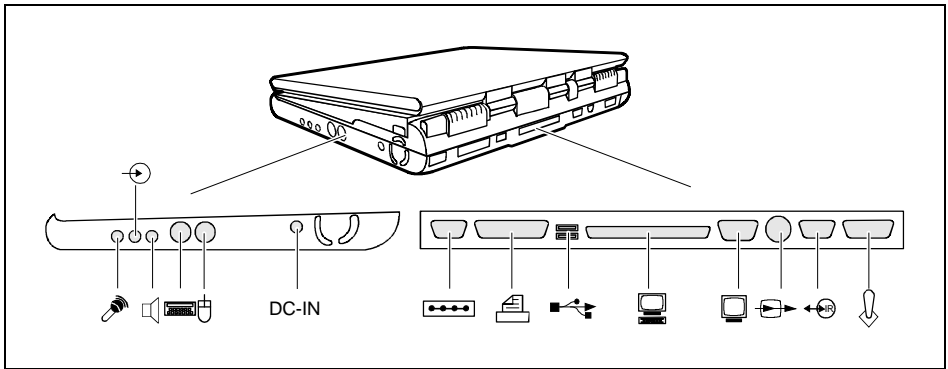
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














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- 1 = ON/OFF switch
- 2 = PC card
- 3 = Touchpad and touchpad buttons
- 4 = Battery status indicator
- 5 = Release
- 6 = Power-on indicator
- 7 = Display field
- 8 = Microphone



-  Microphone jack
-  Audio output/loudspeaker
-  PS/2 mouse port
-  Serial port
-  USB - Universal Serial Bus
-  Monitor port
-  IR Port

-  Audio input (Line in)
-  PS/2 keyboard port
-  DC IN DC socket
-  Parallel port
-  Port for QuickPort S:
-  TV out
-  Game Port/MIDI Port

---

# Introduction

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

Your workstation has 64 -768 MB of main memory installed, depending on the upgrade level. Data is stored on an Enhanced-IDE hard disk drive. Your workstation is supplied with both a 3 1/2" floppy disk drive and a CD-ROM drive. In addition, your workstation can be equipped with a DVD drive, a Zip drive or with a 2<sup>nd</sup> or 3<sup>rd</sup> 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).

You can use the mouse supplied or your workstation's touchpad to control the mouse. A double-touch directly on the touchpad is all that is required, for example, to open an application.

Your workstation 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 workstation 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 workstation with an audio capability. You can also connect an external microphone, external loudspeakers, a joystick or MIDI devices.

The system settings of the workstation 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 workstation.

Your workstation has a number of security features to ensure that no unauthorized persons can access your data. As a result, access to your workstation 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 workstation into operation and how to operate it in daily use.

Additional information on this workstation is also contained in:

- in the "Safety Notes" manual which is included with your workstation
- in the documentation of your operating system
- on the CD "Drivers & Utilities"
- in the information files (e. g. \*.TXT, \*.DOC, \*.WRI, \*.HLP)
- on the Internet at [www.fsc-pc.de/drivercd/start.htm](http://www.fsc-pc.de/drivercd/start.htm)



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 program *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 observe this warning endangers your life, destroys the workstation, or may lead to loss of data.



Supplementary information, remarks and tips follow this symbol.

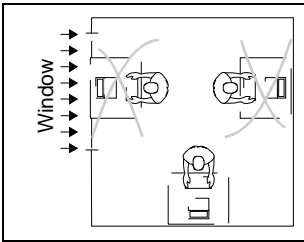
► Texts which follow this symbol describe activities that must be performed in the order shown.

*Texts in italics* indicate commands or menu items.

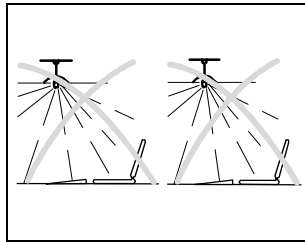
"Quotation marks" indicate names of chapters and terms that are being emphasized.

## Installing an ergonomic video workstation

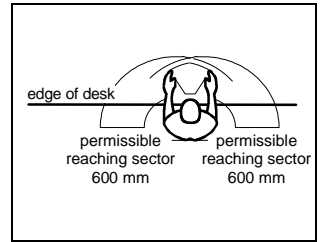
Before you set up your equipment you should select a suitable position for working at the monitor. Please observe the following advices when installing a video workstation.



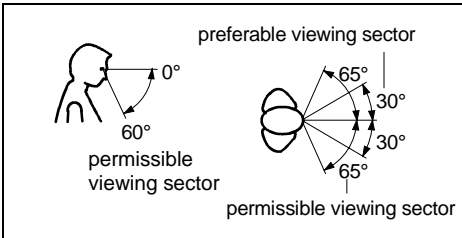
Avoid direct and reflected glare.



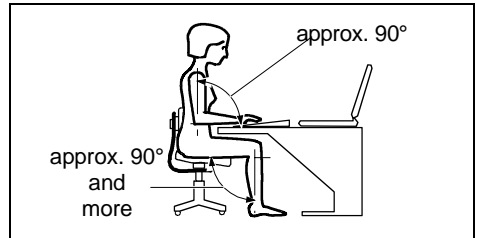
Avoid glare from electric lighting.



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 workstation. The manufacturer's notes contain helpful information on your workstation.

## 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 workstation](#)".
- 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 workstation 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](#)").

- Switch the workstation off when you are not using it.
- The workstation 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 workstation, you can use the *Screen Saver* tab to set 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 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 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  
Frankfurterweg 60  
Recyclingcenter  
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:

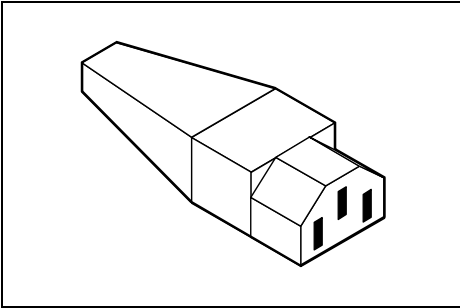
This equipment has been tested and found to comply with the limits for a "Class B" digital device, pursuant to Part 15 of the FCC rules and meets all requirements of the Canadian Interference-Causing Equipment Regulations. These limits are designed to provide reasonable protection against harmful interference 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 GmbH 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 GmbH. 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.

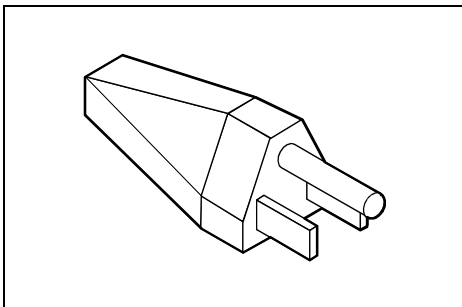
The cord set must be selected according to the current rating for your unit. Please consult Table A for the selection criteria for power cords used in the United States and Canada.

**Table A:**

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

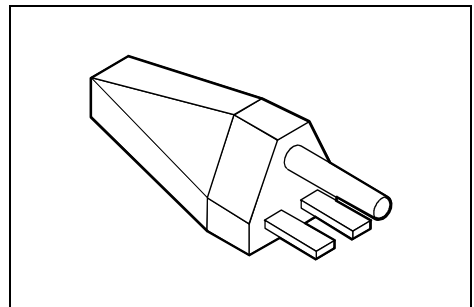
#### For units set at 115 V:

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 workstation**

Please observe the points listed below when transporting your workstation.

**Transporting the workstation**

- Do not carry the workstation by its open screen or by an empty slot.
- Switch the workstation 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 workstation from severe shocks and extreme temperatures (e. g., direct sunlight in a car).

**Before starting the journey**

- Save your data (Backup).
- Remove all data carriers (e. g. floppy disk, CD) from the drives.
- If you wish to use your workstation 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 workstation. Do not use any other voltage converter!

**Cleaning the workstation**

Switch the workstation 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 workstation.

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 batteries of workstation and keyboard and install the application programs before you can work with the workstation. The operating system and drivers required are preinstalled.

When not plugged into a power outlet, the workstation 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 workstation 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 workstation.

## 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.



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

## Selecting parking location

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

- It is recommended that you place your workstation 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 workstation will mark the surface they stand on.
- Do not expose the workstation to extreme environmental conditions. Protect it from dust, humidity and heat.
- Keep other objects 100 mm away from the workstation and its power adapter to ensure adequate ventilation. The space between the workstation's feet must be clear. Do not place the workstation on a soft surface (e. g., a carpet or soft furnishings). Do not cover the ventilation slots in the workstation and the power adapter.
- The power adapter must be at least 200 mm away from the workstation. 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 workstation's IrDA interface with that of the partner device (e. g. PC). The devices must not be more than one meter apart.

## Producing readiness for operation

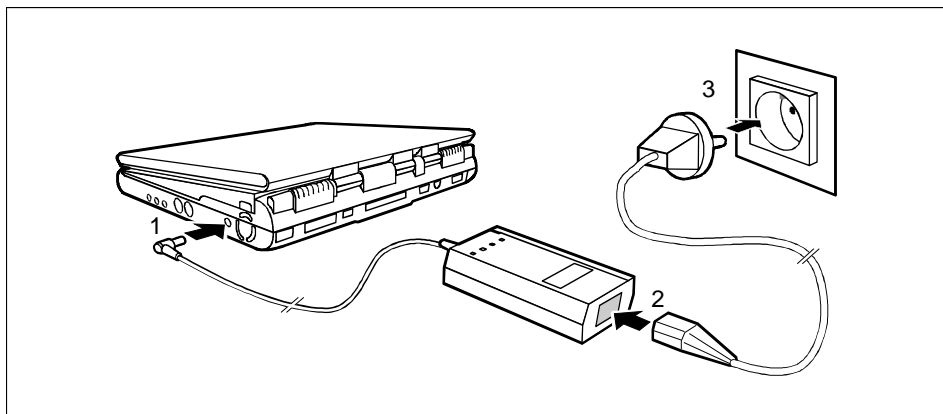


The power cord supplied conforms to the requirements of the country in which you purchased your workstation. Make sure that the power cable is approved for use in the country in which you intend to use it.

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

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

- ▶ Place the workstation on a flat, sturdy surface.

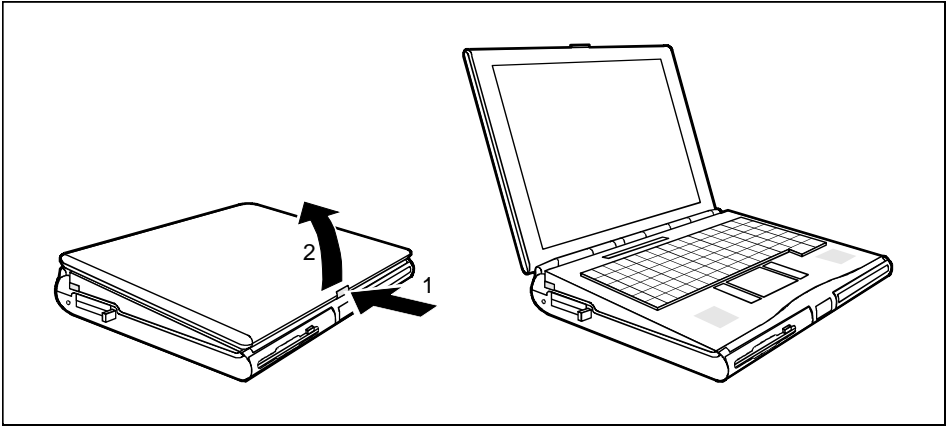


- ▶ Plug the DC output connector on the power adapter into the DC input connector (DC IN) on the workstation (1).
- ▶ Connect the power cable to the power adapter (2).
- ▶ Plug the power cable into the power outlet (3).



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

## Opening the workstation



- 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 workstation. You can lift the keyboard off the workstation and operate it in front of the workstation. The connection between the keyboard and the workstation is then via the IrDA interface on the back of the keyboard and on the front of the workstation, as with a remote control unit. To operate the keyboard separately from the workstation, the battery in the keyboard must be charged.



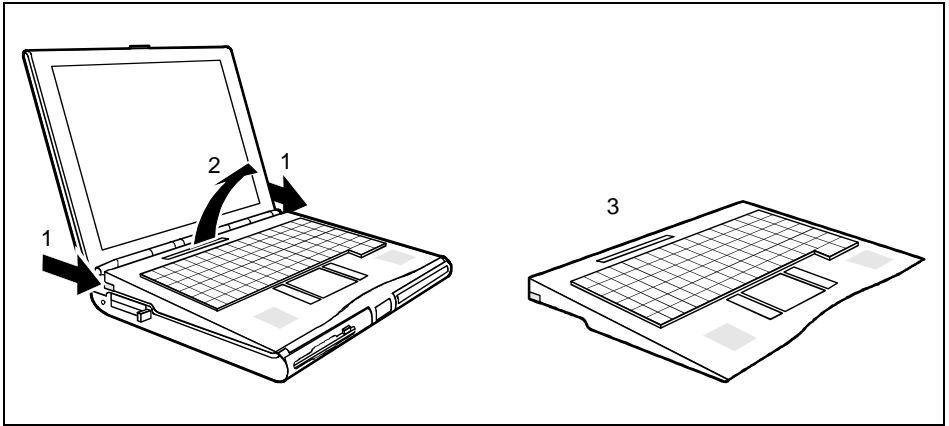
Charge the battery before initial use.

The battery in the keyboard is automatically charged when:

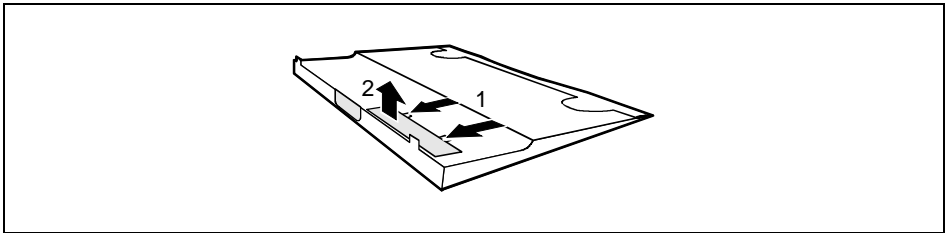
- the workstation is connected to the mains mode and
- the keyboard is installed and
- the workstation is switched off.

**Installing keyboard battery**

- ▶ Switch off the workstation.



- ▶ 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 workstation.

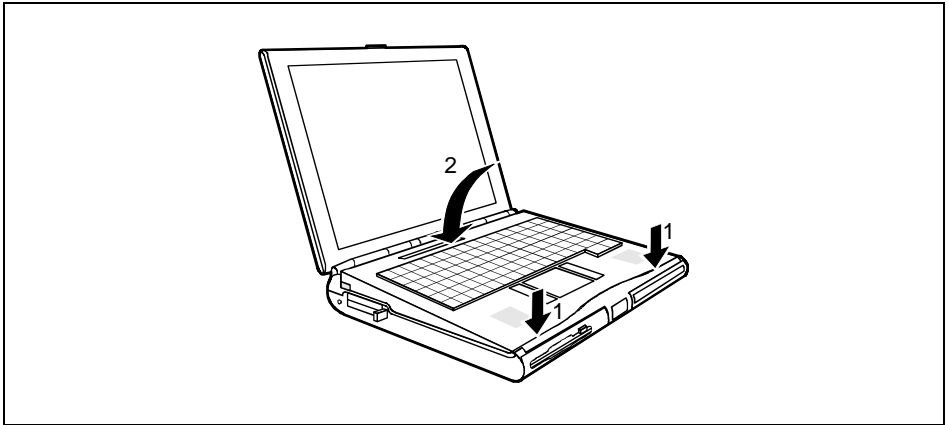
If you do not use the device for an extended period of time, remove the battery from the keyboard.

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.



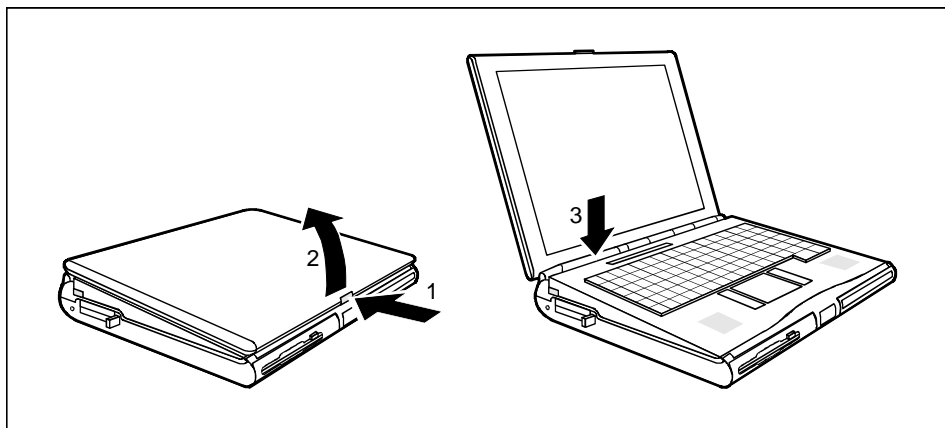
- ▶ Place the keyboard in the lugs on the workstation (1) and press the keyboard into the bracket provided until it is felt to engage (2).

## Connecting infrared keyboard with cable

The infrared keyboard can be connected to a workstation 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 the workstation on



- ▶ 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 workstation during this initial installation.



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

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

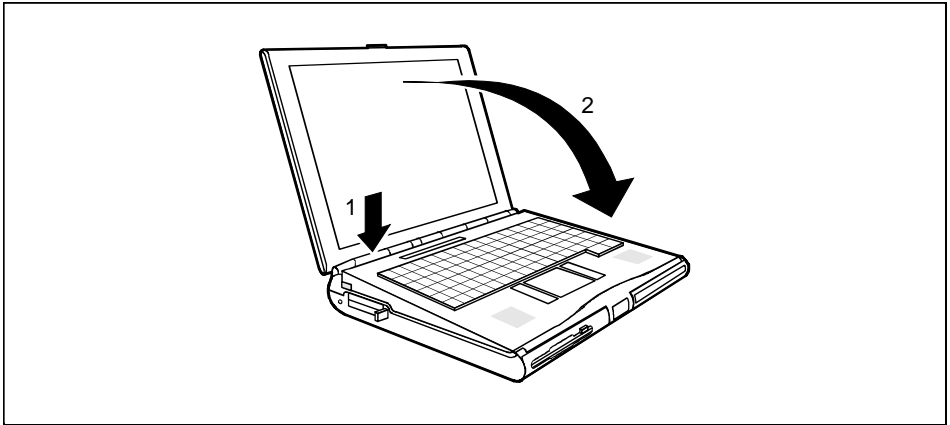
Once you have installed the operating system and have generally familiarized yourself with the workstation, you should perform the battery learning cycle (see "[Learning cycle for workstation batteries](#)").

### Notes on Windows

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

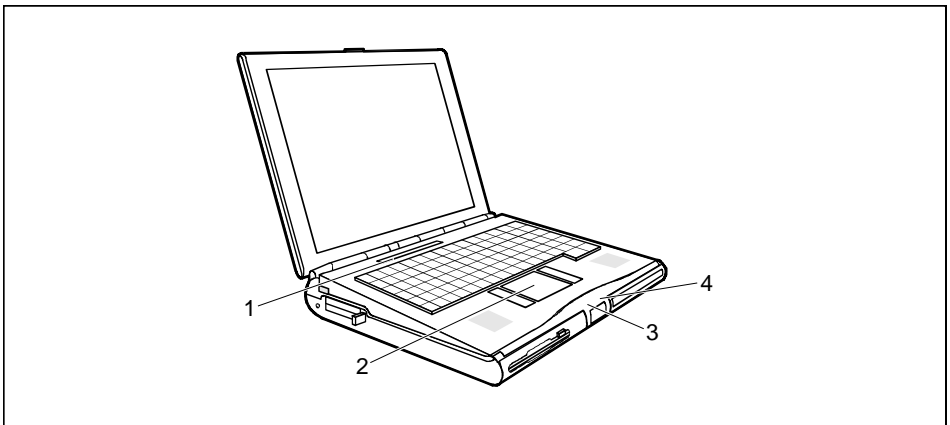


## Switching off the workstation



- ▶ Shut down the operating system properly. The system is shut down and the workstation is switched off. If the workstation 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 workstation switches into the Suspend mode (see section "[Suspend mode](#)").
- ▶ Close the display of the workstation (2) so that it is felt to lock into place centered.

## Indicators and input devices



1 = Display field

2 = Touchpad and touchpad buttons

3 = Battery status indicator

4 = Power-on indicator

### Battery status indicator

Glow green: Battery is being charged

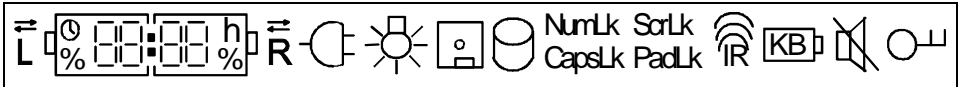
Glow red: Battery capacity is below 12% or battery is defective

### Power-on indicator

Glow green: Workstation is switched on

## Display field

Symbols and texts in the display field indicate the operating state of the workstation. The meaning of the symbols and texts are as follows:



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 workstation battery](#)").



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 workstation battery](#)").



Indicates the approximate operating time of the installed batteries in percent.



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 workstation is connected to an external power source (e. g. via the power adapter).



The workstation 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 <b>Pad Num</b> 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 <b>Fn</b> + <b>Pad Num</b> 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 workstation is switched on. When this symbol flashes, the infrared connection is not sufficient. Check the position of the removable keyboard relative to the workstation (see " <a href="#">Removable infrared keyboard</a> ").
	The "long-distance" infrared connection between the removable keyboard and the workstation is switched on.
	The remaining charge of the battery in the removable keyboard is not sufficient for an infrared connection to the workstation. When this symbol flashes, install the removable keyboard in the workstation. The battery will only be charged when the workstation 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.

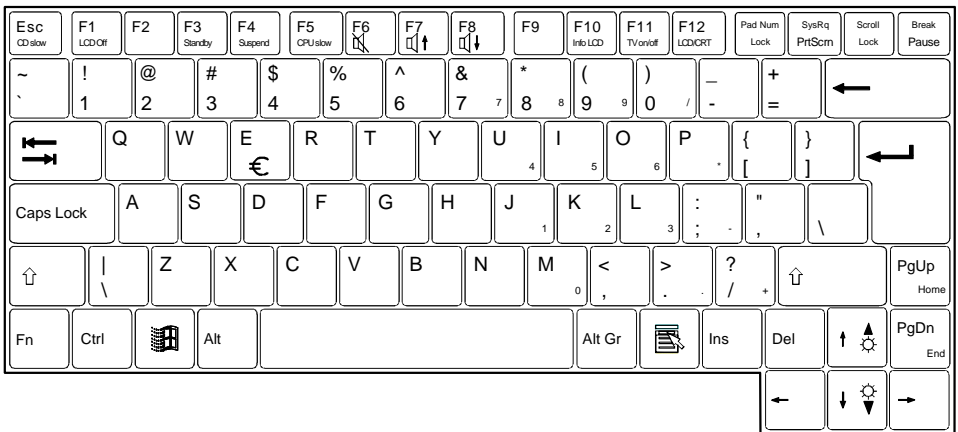
Do not rest heavy objects (e. g., books) on the touchpad or the touchpad buttons.

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.

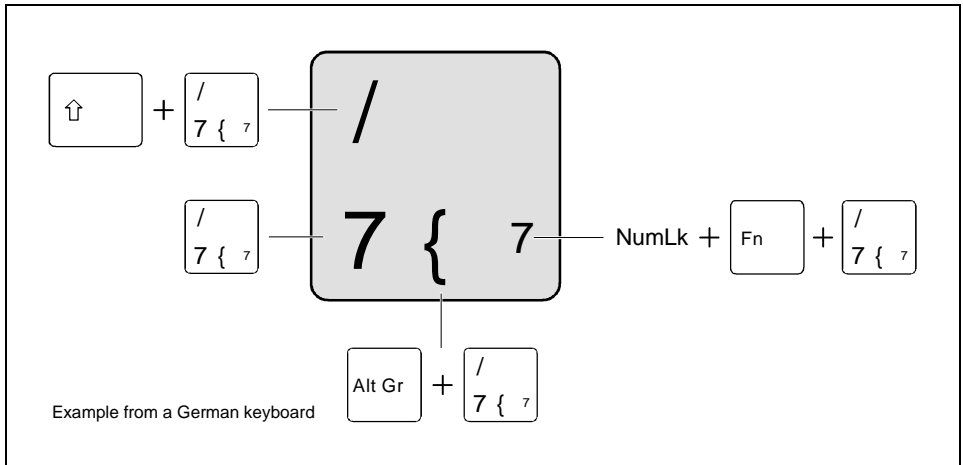
The left and right touchpad buttons have the same functions as the left and right mouse buttons.

## Keyboard



The following description of keys and key combinations refers to Windows NT. 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).



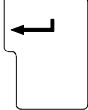
### Backspace key

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



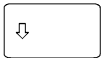
### Tab key

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

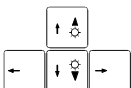
The **Alt Gr** key causes the characters in the lower middle of the keycap to appear (e.g. { in the case of the **7** key on the German keyboard).



### Fn key

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

If the external keyboard does not feature a **Fn** key, you can simultaneously press the **Ctrl** + **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 **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 **Pause** key temporarily suspends display output. Output will resume when you press any other key.

**Start key**

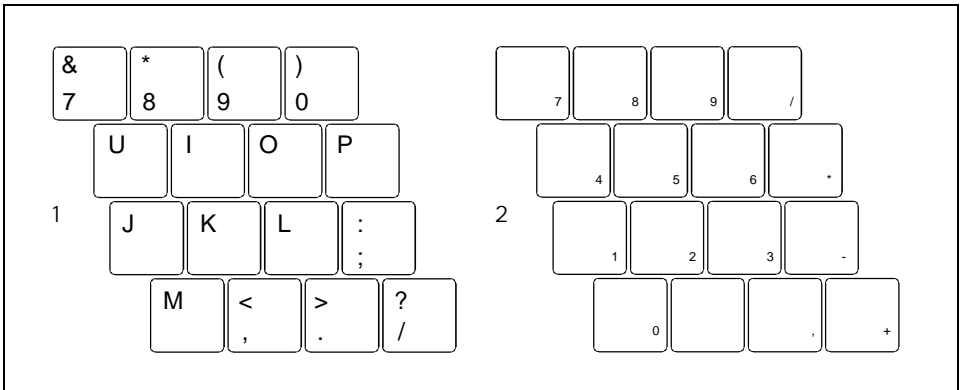
The Start key invokes the *START* menu of Windows.

**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.



**Key combinations**



The following description of key combinations refers to functions when using Microsoft Windows NT. 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.

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



 +  **Switching monitor on/off**  
This key combination switches your workstation's display on and off. Doing so does not affect any running programs.



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



 +  **Enabling Suspend mode**  
This key combination switches the system into Suspend mode (see Section "[Suspend mode](#)"). When you switch the workstation 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.



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

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

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

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

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

 +  **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 workstation's internal display
- just the external display
- both the internal and the external display.

 +  **Increasing the display brightness**  
This key combination increases the brightness of the display.

 +  **Reducing the display brightness**  
This key combination reduces the brightness of the display.

## Workstation battery

The workstation 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 workstation standard battery, you can also use a second workstation battery. By using both workstation batteries, you can double the workstation's mobile operation time.

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

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



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

## Charging, caring for and maintaining the workstation battery



Only use workstation batteries designed for this workstation.

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

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

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

The workstation battery can be charged by:

- connecting the workstation to the power adapter
- connecting the workstation to the car adapter
- connecting the workstation to the QuickPort S

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

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



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

If storing for a long period of time (longer than two months), workstation 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 workstation batteries should be stored in a dry environment in temperatures between +10°C and +25°C.



### Connecting the power adapter



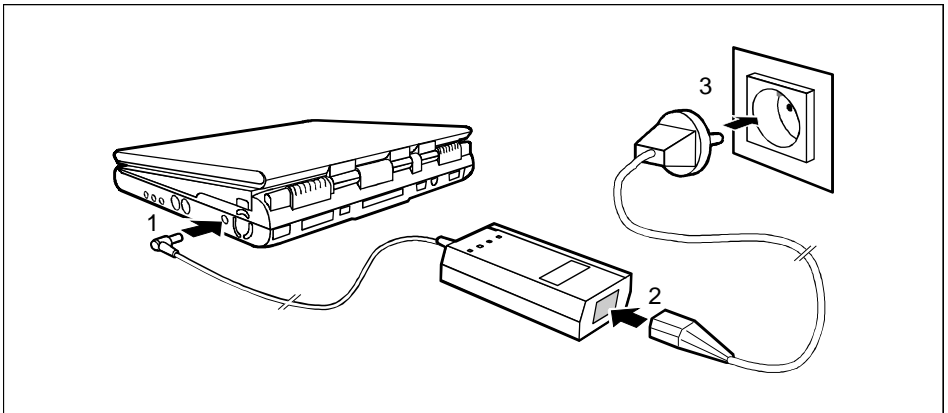
The power cable corresponds to the country version of the workstation. Make sure that the power cable is approved for use in the country in which you intend to use it.

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

- ▶ Place the workstation on a flat, sturdy surface.
- ▶ Install the battery.

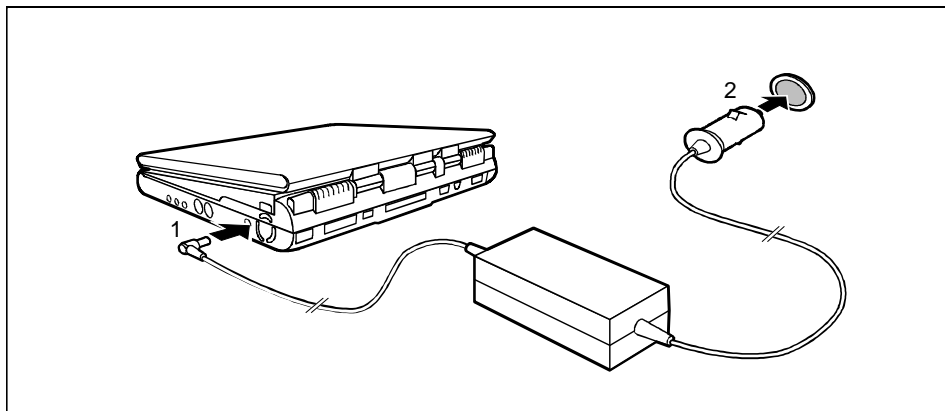


- ▶ Plug the DC output connector on the power adapter into the DC input connector (DC IN) on the workstation (1).
- ▶ Connect the power cable to the power adapter (2).
- ▶ Plug the power cable into the power outlet (3).  
The power adapter indicator lights up. After a few seconds the workstation's battery 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.

- ▶ Place the workstation on a flat, sturdy surface.
- ▶ Install the workstation battery.



- ▶ Connect the car adapter cable to the DC jack (DC IN) of the workstation (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 workstation. Do not cover the ventilation slots in the workstation.

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

### Learning cycle for workstation batteries

Your workstation battery contains electronics that continuously monitor the workstation 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 workstation battery learning cycle lasts between four and seven hours (please never abort the learning cycle).



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.

The *Battery Tool Disk* is also on the Mobile CD "Driver & Utilities" provided or on the Internet at [www.fsc-pc.de/drivercd/start.htm](http://www.fsc-pc.de/drivercd/start.htm).

### 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.

### 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 workstation batteries and drives

The design of your workstation enables the flexible use of workstation batteries and drives. For example, the workstation 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 workstation:

- Workstation 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

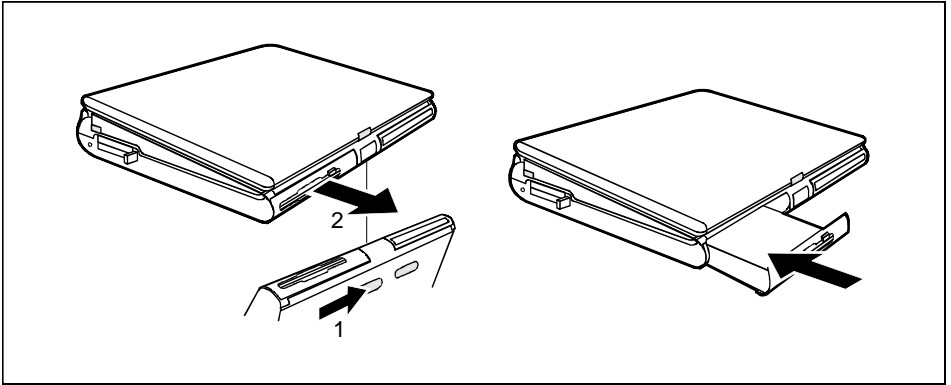


Only use modules designed for your workstation.

Do not use force when installing or removing the module.

Make sure that no foreign objects enter the slots.

- ▶ Before installing or removing workstation modules: switch off the workstation. You can leave the workstation on provided the workstation battery in the left slot is not the workstation's only power source.
- ▶ Place the workstation 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 workstation battery/drive

- ▶ Push the release slide on the underside of the workstation inward (1).
- ▶ Pull the module out of the slot (2).

#### Installing workstation battery/drive

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



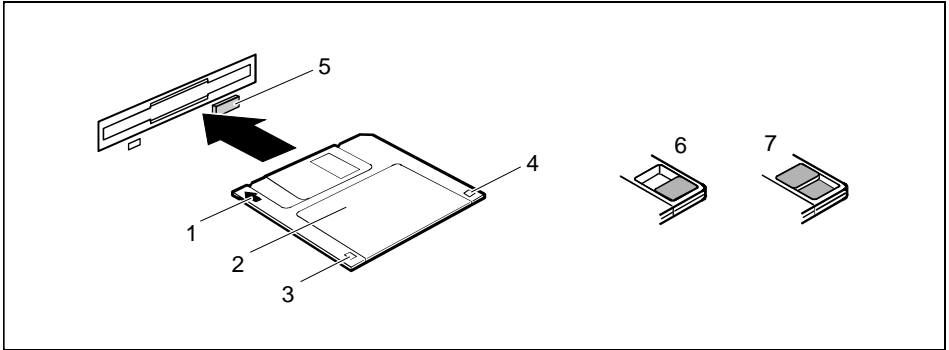
The CD-ROM drive and DVD drive can only be operated in the right slot.

- ▶ 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 = Hole for recognition of 1.44 Mbytes 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!

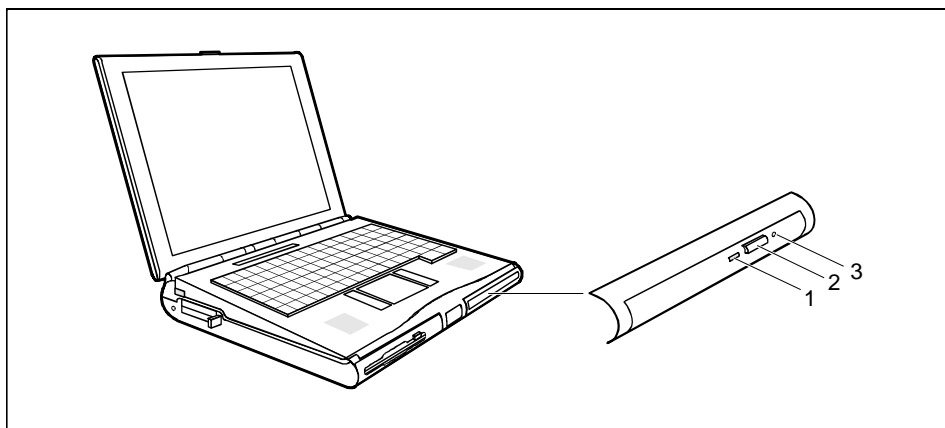
Always store CDs/DVDs in their cases. Thus you avoid dust contamination, scratches, bending or other damage.

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

2 = Insert/Eject button

3 = Opening for manual ejection

### 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.

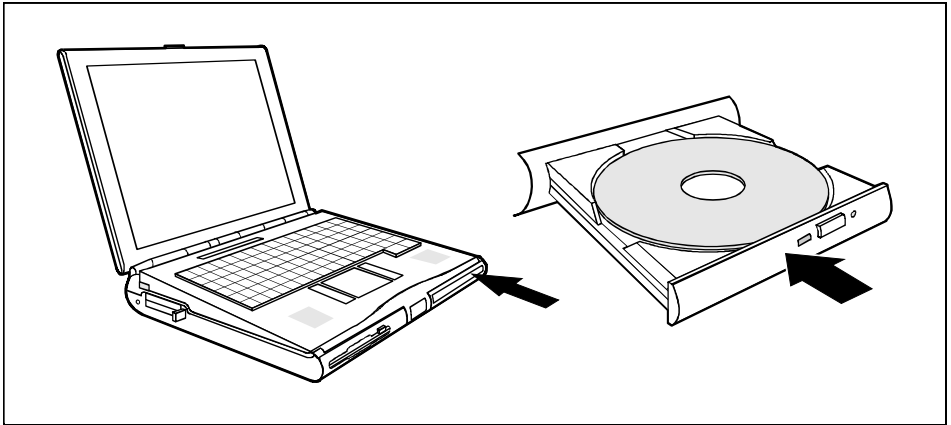


If the power-on indicator does not go out after the CD/DVD is inserted, and continues to flash, the CD/DVD is probably damaged or dirty.

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 workstation must be switched on.



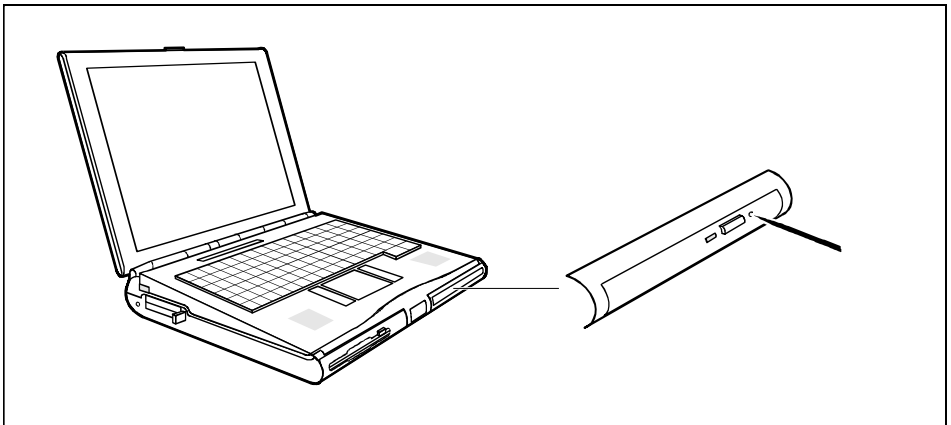
- ▶ Press the insert/eject button for roughly one second.

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 workstation.
- ▶ 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.

## Zip drive

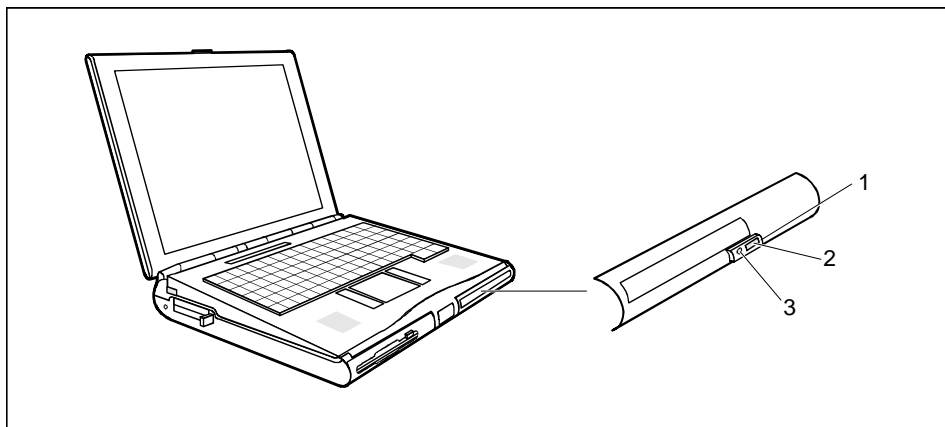
Before the Zip drive can be used, you must install the lomega software on your workstation. To do so, use the lomega CD supplied.

### Installing the lomega software

- ▶ Install the CD-ROM drive in the right slide-in module.
- ▶ Supply the notebook with power via the power adapter.
- ▶ Switch on the notebook and start Windows.
- ▶ Insert the lomega CD.
- ▶ Go to *Start - Run* or to *Explorer* to execute the program *setup.exe* from the lomega CD.
- ▶ Follow the instructions on the screen.
- ▶ Once installation has been completed, switch off the notebook.
- ▶ Install the Zip drive in the right slide-in module.
- ▶ Switch on the notebook again and start Windows.

### Operating the Zip drive

Use the Zip drive like any other drive on your system. To be able to access the Zip drive, you must insert a Zip 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  
2 = Drive indicator

3 = Opening for manual ejection



## 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 your workstation on.
- ▶ Insert the Zip disk in the Zip drive.

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



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 workstation.

### 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.

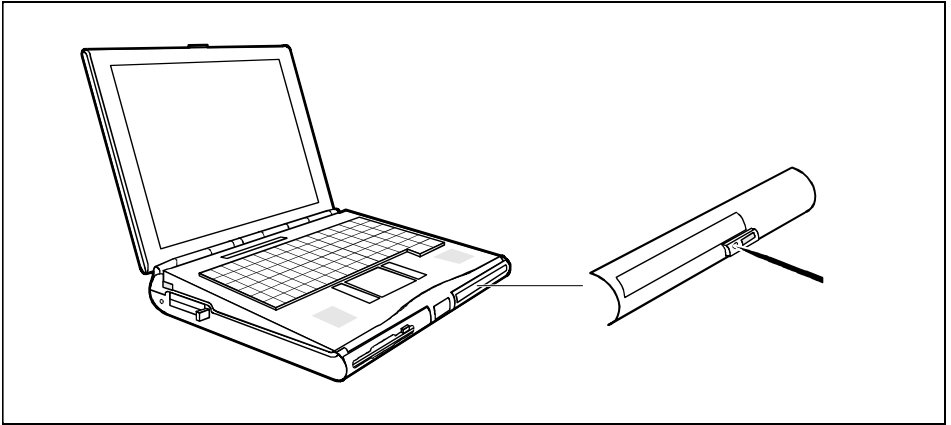
- ▶ Please lay the Zip disk in the protective case after removing it from the drive.



When the workstation is switched off, the Zip drive automatically ejects the Zip disk.

## Manual removal (emergency removal)

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



- ▶ Switch off the workstation.
- ▶ 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.

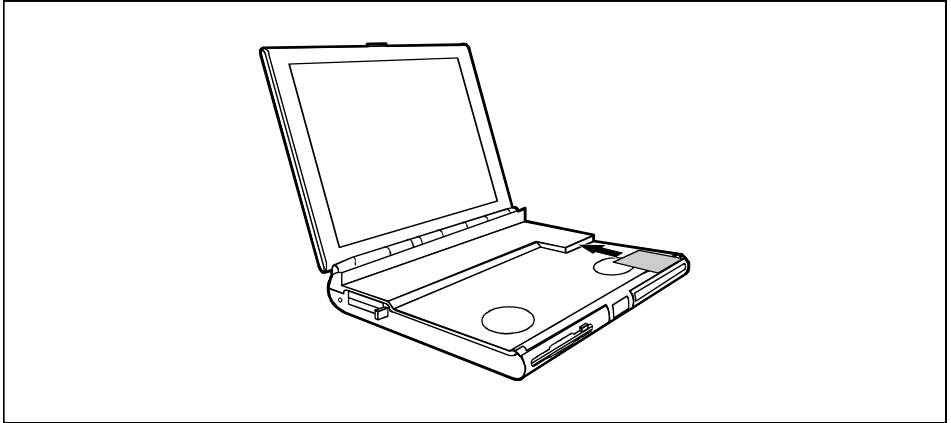


Only use the disk emergency removal function when no battery is installed in the workstation and no power supply unit is connected to the workstation.

## Chipcard reader

Access to your workstation 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.

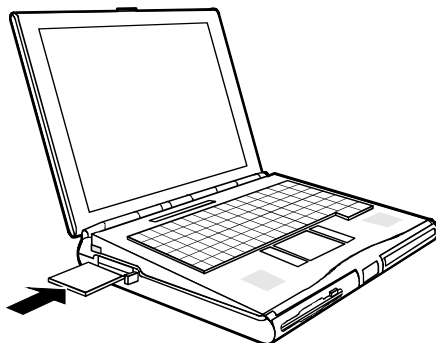
Never use force when inserting or removing a PC card.

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

## Zoomed video port

Your workstation 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.

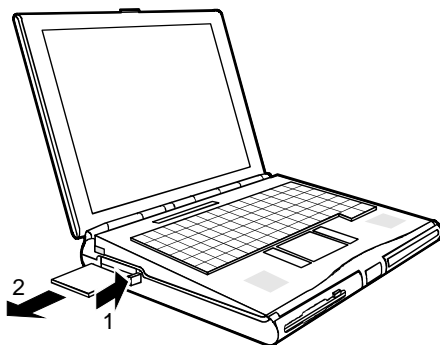
**i**

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 manual.

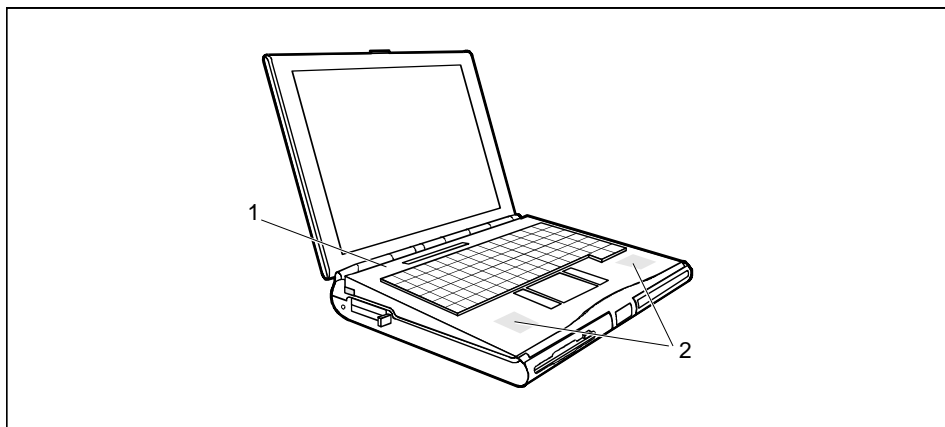
You can push the PC card slot eject buttons into the workstation casing. Press the eject buttons until they snap in.

## Removing a PC card



- ▶ Press the eject button (1). It will project further out of the workstation's case. If the eject buttons are pushed in flush with the workstation casing, they must first be snapped out. Press the eject buttons until they snap out.
- ▶ Slide the PC card out of the workstation (2).

## Microphone and loudspeakers



1 = built-in microphone

2 = built-in loudspeakers

Your workstation 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 workstation 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 workstation 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 workstation.



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 workstation (see manual "BIOS Setup").

## Maximum Power Savings

The *Maximum Power Savings* mode uses all the available power-management features. The workstation 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 workstation'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 workstation 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 workstation 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*.

## Performance and Silence mode

### Performance mode

If a certain temperature limit is exceeded in the system, you can switch on the integrated fan. If the temperature continues to increase, the clock frequency of the processor is also reduced.

- ▶ In the *BIOS-Setup* menu set the *Cooling Control* field to *Performance Mode*.

### Silence mode


If a certain temperature limit is exceeded in the system, you can reduce the clock frequency of the processor. If the temperature continues to increase, the integrated fan is also switched on.

- ▶ In the *BIOS-Setup* menu set the *Cooling Control* field to *Silence Mode*.

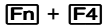
## Suspend mode

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 workstation is switched off. After the workstation is switched on, you can continue working exactly where you left off before.



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

### Enabling Suspend mode



If your workstation 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 workstation is supplied with energy. If the workstation 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). To ensure this is so, in Windows NT you must set up a FAT partition providing this space as drive C: on the hard disk (see the operating system manual).

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

### Ending Suspend mode

- ▶ Switch the workstation on.

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

### Automatic activation

If the workstation 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 workstation 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

- ▶ 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 workstation's internal display
- just the external display
- both the internal and the external display.
- just the television

After the workstation 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.



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# 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 workstation.
- ▶ 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 workstation 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 workstation.
- ▶ Check whether the power cable is plugged properly into the power adapter and into the power outlet.
- ▶ Switch the workstation on. The display  in the workstation display field must light up.

## The workstation's display 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 workstation's display is difficult to read

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

### Reflection

- ▶ Turn the workstation 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 workstation 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 workstation.
- ▶ 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 workstation and the external monitor (if it is plugged in with a connector).
- ▶ Switch on the external monitor and the workstation.

## 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 with **Alt** + **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 workstation'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 **Fn** + **F11** until the screen display is correct.

## The workstation casing gets warm

The workstation is so designed that the heat generated by the integrated devices is dissipated via the cover. It is thus normal for the cover to get warm and this is no reason for concern.

The integrated fan only switches on to provide additional cooling when the load is extreme.

## The workstation stops working

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

### The workstation is in Standby or Suspend mode

- ▶ Reactivate the workstation 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 workstation 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 workstation.
- ▶ Check that the mouse cable is correctly connected to the workstation. If you use an adapter or extension lead with the mouse cable, check the connections.
- ▶ Switch the workstation 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 workstation is connected to the mains mode and
  - the keyboard is installed and
  - the workstation 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 workstation (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 workstation's date or time is incorrect

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



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



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# Memory extension



The workstation 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 is extended and you use the suspend mode *Save to Disk* on the workstation, you must check the size of the first partition or adjust it accordingly if you are using Windows NT (see the manual on Windows NT).

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 workstation.

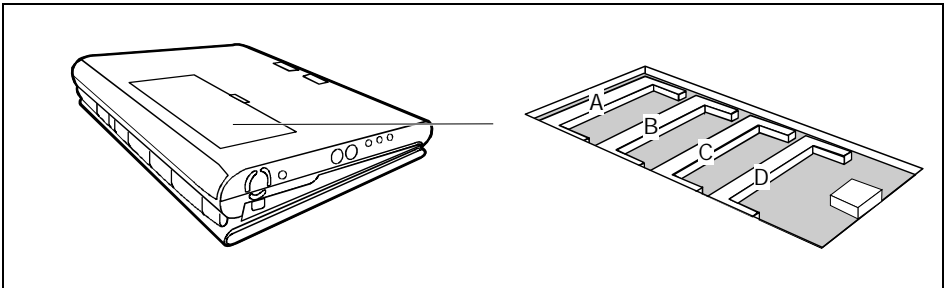
Never use force when installing or removing memory modules.

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

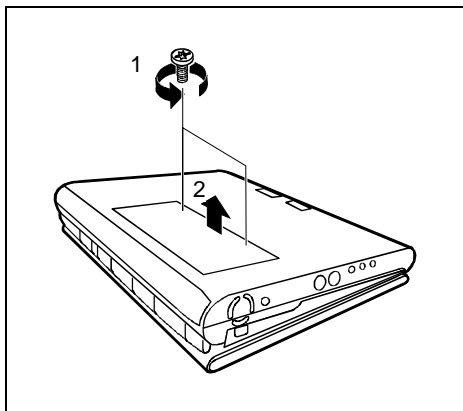
## Memory modules

The main memory of your workstation can be upgraded to 64 -768 Mbyte with up to four 64 or 128 Mbyte memory modules or with up to three 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.

128/256 Mbyte 2-bank modules (100 MHz) may only be inserted in slots A, B and C.

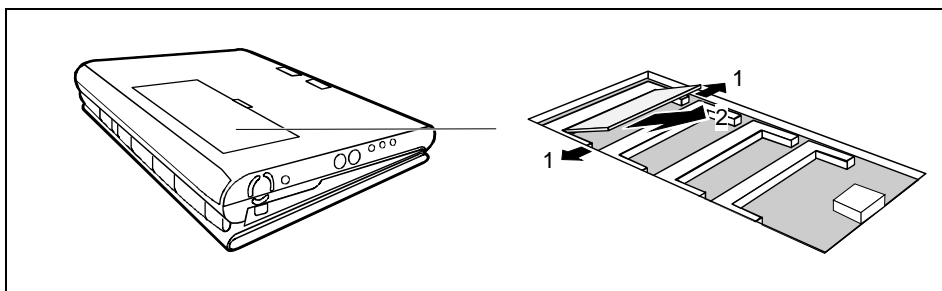


### Removing cover



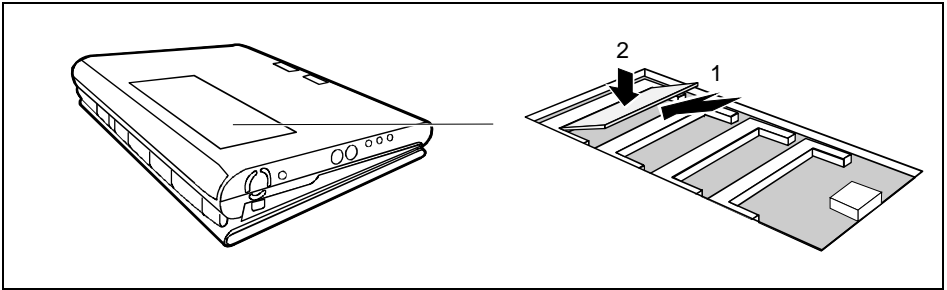
- ▶ Switch off the workstation.
- ▶ Remove the workstation batteries.
- ▶ Remove the power plug of the power adapter from the power outlet.
- ▶ Close the display of the workstation so that it locks into place.
- ▶ Disconnect all cables connected to workstation.
- ▶ Place the workstation bottom-up on a flat surface.
- ▶ Remove the two screws (1).
- ▶ Lift the cover and pull it in the direction of the arrow (2) from the workstation.

### Installing memory modules



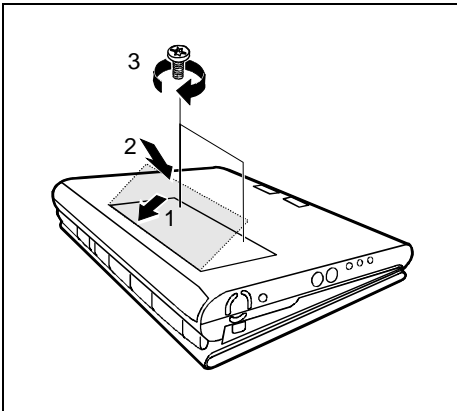
- ▶ Insert the memory modules, contacts first, into the slot (1).
- ▶ Carefully push the memory module downwards (2) until you feel it latch into place.
- ▶ Install additional memory modules in the same way.

### Removing memory modules



- ▶ Carefully push the two mounting clips outwards (1). The memory module flaps upwards.
- ▶ Slide the memory module out of the workstation (2).
- ▶ Remove additional memory modules in the same way.

### Mounting cover



- ▶ Place the cover on its mounting location (1) and flap it into place on the underside of the workstation (2).
- ▶ Fasten the cover with the two screws (3).
- ▶ Turn the workstation over and place it on a flat surface.
- ▶ Reconnect the cables.
- ▶ Swing open the screen.
- ▶ Install the workstation batteries again.

### Testing memory modules

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



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# 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.

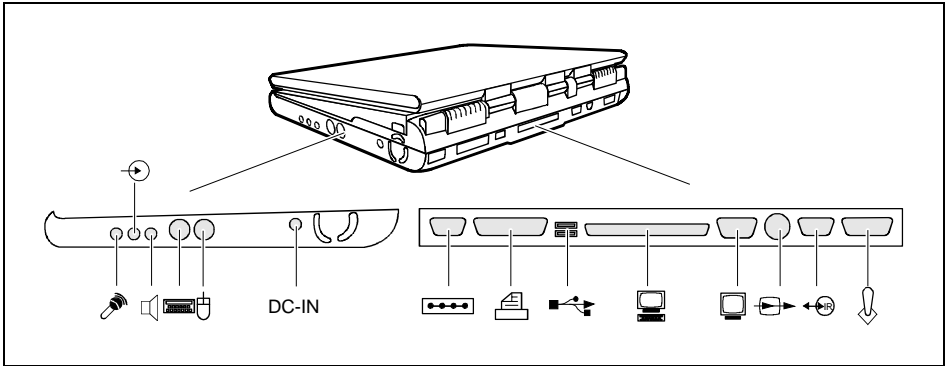
## Connecting cables

- Turn off all power and equipment switches.
- Pull all power plugs out of the grounded power outlets.
- Connect all the cables to the workstation 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 workstation and the external devices.

# Ports



Microphone jack



Audio output/loudspeaker



PS/2 mouse port



Serial port



USB - Universal Serial Bus



Monitor port



IR Port



Audio input (Line in)



Keyboard port

DC IN

DC socket



Parallel port



Port for QuickPort S:



TV out



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 workstation. The workstation screen controller for an external monitor supports screen resolutions up to 1600 x 1280 (True Color).

- ▶ 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 workstation 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 workstation 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 workstation.
- ▶ If your TV or video device has no S-VHS socket, then plug the FBAS adapter into the S-VHS socket of the workstation. 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 workstation.
- ▶ Switch the screen display on with the key combination **[Fn] + [F11]**.

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

### Connecting an external keyboard

Connecting an external keyboard does not disable the workstation'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.



Never press the keys on the external and internal keyboards at the same time.

If the external keyboard does not have an **[Fn]** key, you can press the **[Ctrl]** key and the **[Alt]** key together instead.

For example, to enter the key combination **[Fn] + [F1]** on the external keyboard you would press **[Ctrl] + [Alt] + [F1]**.

### Connecting external audio devices



Do not put on headphones until the workstation 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 workstation.



Read the QuickPort S manual carefully before attempting to connect the workstation.

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



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 workstation. Details of the I/O addresses, interrupts and DMA channels are provided in the section "[Technical data](#)".



## Transferring data with the infrared interface

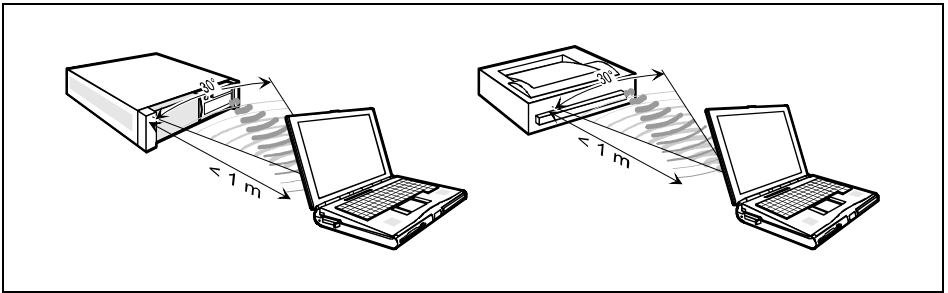
The IrDA interface (Fast IrDA) on the back of the workstation allows wireless serial data transmission from the workstation to a PC or printer. The infrared interface of the infrared keyboard enables wireless data transmission to the workstation.

### 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.



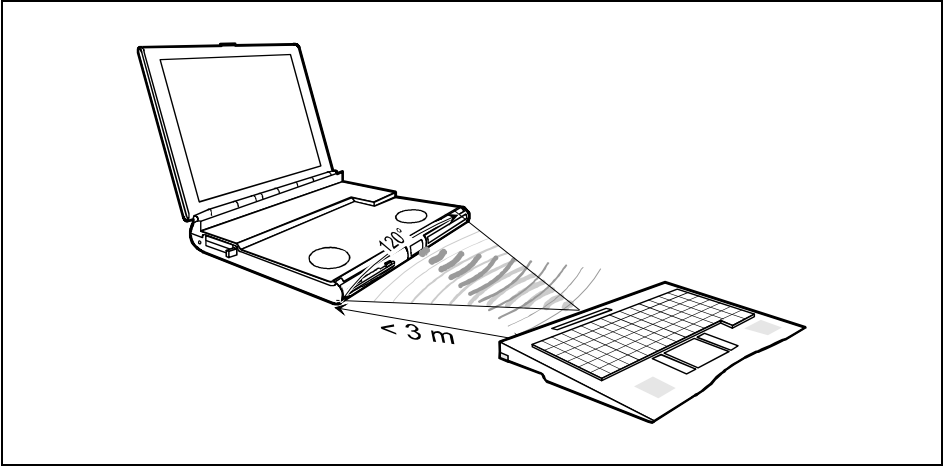
The IrDA port can only be used when the IrDA interface in the *BIOS setup* is switched on in the *Advanced Setup - I/O Device Configuration - Serial Port B* field.



- 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 workstation



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 workstation is displayed in the display field.

---

# Technical data

## CELSIUS Mobile 810

Processor	Pentium III with Speed Step Technology as from 650 MHz
Cache:	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 3 slots for 256 Mbyte modules, 64 bit 128 -768 Mbyte, JEDEC 144 pin SO-DIMM, 100 MHz
Screen controller	CELSIUS GM1
Video memory (SD RAM):	8 Mbyte
<ul style="list-style-type: none"><li>supported resolutions on external display</li></ul>	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 / 16.7 million colors and 75 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: 38.1 cm (15) XGA
- Resolution / colors: 1024x768 / 262,144 colors (18 bit)

### Audio

Soundchip:	ESS1946-E1 (PCI)
<ul style="list-style-type: none"><li>Compatibility:</li></ul>	Soundblaster Pro, Ad lib, MS soundsystem
<ul style="list-style-type: none"><li>A/D and D/A conversion:</li></ul>	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	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. 3.9 kg

## Workstation 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

- Type: Class 1 Laser Product
- Wave length: Semiconductor GaA/As
- Power output: 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

- Type: Class 1 Laser Product
- Wave length: Semiconductor GaA/As
- Power output: 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
Parallel port <b>LPT</b>	<b>378h - 37Fh</b> * = 378h - 37Fh = 3BCh- 3C5h = 278h - 27Fh =	<b>IRQ 7</b> * IRQ 5 IRQ 7 IRQ 5	DMA 1 or DMA 3 in ECP-mode
1. Serial port <b>COM</b>	<b>3F8h - 3FFh</b> * = 2F8h - 2FFh = 3E8h - 3EFh = 2E8h - 2EFh =	<b>IRQ 4 / COM1</b> * IRQ 3 / COM2 IRQ 4 / COM3 IRQ 3 / COM4	
2. Serial port <b>COM</b> = Fast <b>IrDA</b>	<b>2F8h - 2FFh</b> * = 3E8h - 3EFh = 2E8h - 2EFh =	<b>IRQ 3 / COM2</b> * IRQ 4 / COM3 IRQ 3 / COM4	<b>DMA 0</b> * DMA 1 DMA 3

\* = default setting in *BIOS Setup*

## 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
<b>PC card (PCMCIA cards):</b> 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 ( <b>no</b> 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

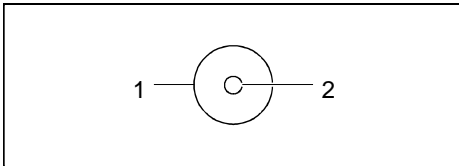
**Shared IRQ:**

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

## Port assignment

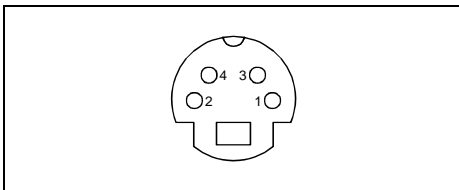
The assignment of the external ports are as follows:

### DC jack (DC IN)



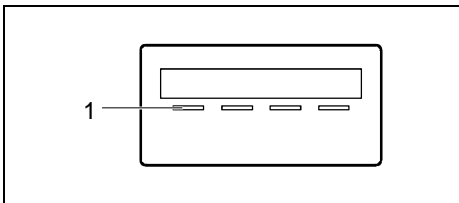
Pos.	Meaning
1	0 V
2	+19 V

### TV out socket



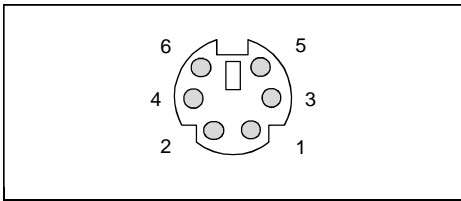
Pos.	Meaning
1	0 V
2	0 V
3	SVideo_Y_FBAS_MUX
4	SVideo_COL

### USB port



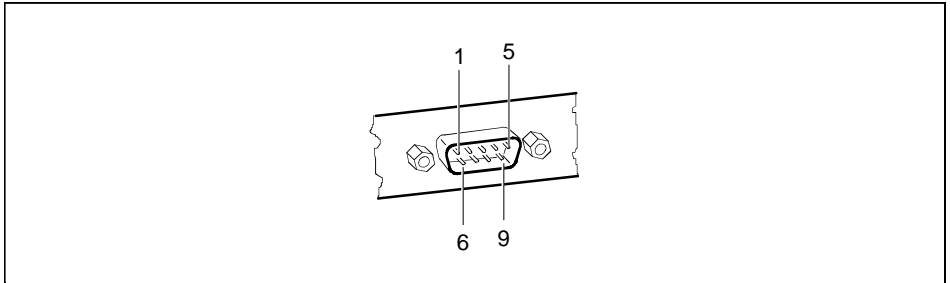
Pos.	Meaning
1	VCC
2	DATA_NEGATIVE
3	DATA_POSITIVE
4	GND

## Port for external keyboard and PS/2 mouse



Pos.	Meaning
1	Data
2	reserved
3	0 V
4	+5 V
5	Clock
6	reserved

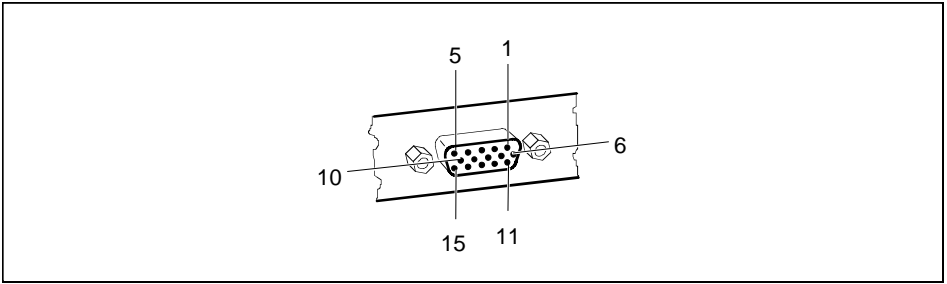
## Serial port



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



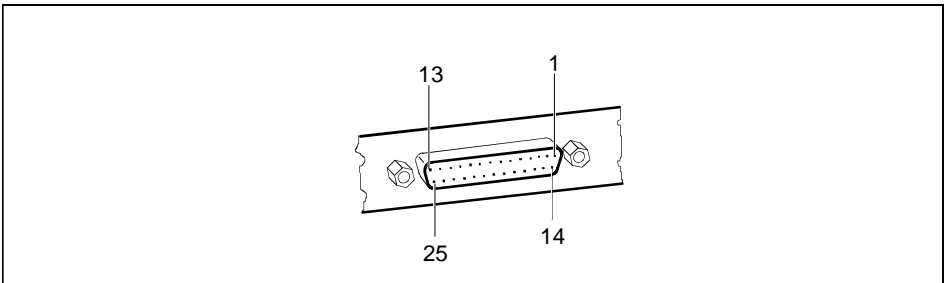
## Port for external monitor



Pos.	Meaning
1	Video output red
2	Video output green
3	Video output blue
4	reserved
5	DDC ground
6	Video ground red
7	Video ground green
8	Video ground blue

Pos.	Meaning
9	+5V
10	logic ground
11	reserved
12	DDC data line (bi-directional)
13	horizontal synchronization
14	vertical synchronization
15	DDC clock signal line

## 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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