



PCD-4ND
PCD-5ND

Operating Manual



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PCD-4ND
PCD-5ND

Operating Manual

Introduction

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Preparation for use

Operation

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Introduction

This Operating Manual describes, among other things, how to set up, operate and expand the PCD-4ND and PCD-5ND notebooks. Unless otherwise specified, the information applies for both the PCD-4ND and the PCD-5ND.

Innovative technology and ergonomic design make this notebook the ideal user-friendly and reliable travel companion. The MS-DOS operating system, Windows for Workgroups and Software Utilities are pre-installed on the hard disk to facilitate the procedure when you use your notebook for the first time.

The power-management SL-enhanced processor coupled with power-management functions (APM = **A**dvanced **P**ower **M**anagement) ensure effective use of the battery life of the notebook. The battery can be simply replaced or recharged using the optional auto adapter should it drain while you are on the move. You can use the notebook with an additional battery. To do so, you must change the built-in floppy disk drive against the additional battery. This will double battery life in mobile use. To allow you to utilize the optimum capacity of the battery, you should deep-discharge and recharge it at regular intervals.

The PCD-4ND is equipped with a 4 MB main memory which can be upgraded to 8, 12 or 20 MB. The PCD-5ND is equipped with a 8 MB main memory which can be upgraded to 16, 24 or 40 MB. Data is saved on an IDE hard disk drive. An external disk drive can be connected to the parallel port of the notebook if you wish to work with floppy disks. The notebook also features two PCMCIA slots for using PCMCIA cards (types 1, 2 and 3). The drivers for PCMCIA cards are included on the PCMCIA Utility floppy disk supplied.

Connections for external devices such as screen, printer and mouse are located on the rear panel of the notebook. The PS/2 port recognizes the input device (e.g. external keyboard, mouse) which has been connected. The parallel port (which supports ECP and EPP modes) is designed to accommodate bi-directional data transfer. In addition, the notebook has a connection port for a docking unit or a station box. The notebook disposes of a infrared interface for wireless data transfer.

An audio controller, a loudspeaker, a microphone and an audio connector provide your notebook with an audio capability. You can thus incorporate voice, noise effects and music into your PC environment. You can also connect an external microphone and an external loudspeaker.

Introduction

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

The notebook also features security functions to protect your data against unauthorized access. Booting the operating system or access to the *Setup* program can thus be protected by means of passwords.

For additional information on this notebook PC, refer to:

- *INFO* in MS Windows (utilities and drivers)
- the information files (e.g., *.DOC, *.TXT, *.WRI, *.HLP)

Notational conventions

The characters and typefaces used in this manual have the following meaning:



Pay particular attention to texts marked with this symbol. Failure to observe this warning endangers your life, destroys the system, or may lead to loss of data.



describes additional information, hints and tips.

- ▶ indicates an operational step which you should carry out.
- indicates that you must enter a blank.
- ⏏ indicates that you must press the Enter key after the characters you have entered.

Text in a typewriter font represents screen output.

Text in a bold typewriter font has to be typed at the keyboard.

Text in italics denotes commands or menu options.

"Quotation marks" indicate special emphasis and chapter names.

Important notes

In this chapter you will find information regarding safety which it is essential to take note of with your notebook. The chapter also contains information on the licenses issued for your notebook.

Safety

This device complies with the relevant safety regulations for data processing equipment, including electronic office machines for use in an office environment. If you have any questions, contact your sales office or our customer service.

- Always use the bag supplied when transporting the notebook.
If it needs to be shipped, use the original packaging or other suitable packaging to protect it from damage through mishandling.
- If the device is brought into the installation site from a cold environment, condensation can form. Before operating the device, wait until it is absolutely dry and has reached approximately the same temperature as the installation site.
- Read the information on environmental conditions before setting up and using the notebook (see the sections "Preparation for use" and "System specifications").
- Only run the notebook off the battery or power supply unit included, or off authorized accessories (car adapter, docking unit or station box).
- The power supply unit has a specially approved power cable and must only be connected to a grounded wall outlet. If the power adapter is connected to the grounded wall outlet, it must be free-standing. The power adapter may not be covered while it is in operation. Do not stand it on heat-sensitive material.
- Ensure that the power socket on the power supply unit or the grounded wall outlet is freely accessible.
- The power switch does not disconnect the device from the line voltage. To do this, you must pull out the power plug.
- Lay all cables so that nobody can stand on them or trip over them. When attaching the PC, observe the relevant notes in the chapter "System expansion".
- No data transmission cable should be connected or disconnected during a thunderstorm.

Important notes

- Please ensure that no objects (e.g., necklaces, paperclips etc.) or liquids can get into the interior of the device (electrical shock, short circuit).
- In emergencies (e.g. damaged casing, elements or cables, penetration of liquids or foreign matter), switch off the notebook immediately, remove the power connector, remove the battery, and contact your sales office or customer service.
- Only qualified technicians may repair the device. Unauthorized opening or incorrect repair may greatly endanger the user (electric shock, fire risk).
- When cleaning the system unit, observe the relevant notes in the chapter "Operation".
- Install only system expansions that satisfy the requirements and rules governing safety and electromagnetic compatibility and relating to telecommunications terminal equipment. If you install other expansions, you may damage the system or violate the safety regulations and regulations governing RFI suppression. Information on which system expansions are suitable can be obtained from the customer service or your sales office.
- You may use the battery only for this PC.
Take care not to drop the battery or otherwise damage its housing (risk of fire).
If the battery fails, do not use it in the notebook.
Never interconnect the positive and negative terminals of the battery.
Used batteries must be disposed of in accordance with local regulations (special refuse).
- If the LCD display is damaged (e.g. glass broken), do not allow any escaping liquid to come into contact with skin, mucous membranes (eyes, mouth). Do not inhale vapors.
Clean parts of the body and clothing that have already come into contact with such liquids with plenty of water and soap.
- The warranty expires if the notebook is damaged during the installation or replacement of system expansions.
- You may set only those resolutions and refresh rates specified in the chapter "System specifications" or in the operating manual of the monitor description. Otherwise you may damage your monitor. If you are in any doubt, contact your sales office or customer service.
- The notebook includes a lithium battery which may be replaced only by authorized personnel. Incorrect handling may lead to a risk of explosion. The lithium battery may be replaced only with an identical battery or with a type recommended by the manufacturer. The battery must be disposed of in accordance with local regulations concerning special waste.

For Denmark

ADVARSEL

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Lever det brugte batteri tilbage til leverandøren.

For Norway

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

For Sweden

VARNING

Eksplosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkarenfabrikanten. Kassera använt batteri enligt fabrikantens instruktion.

For Finland

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

Manufacturer's notes

If there is a CE symbol on the device, then:



The device complies with the requirements of the EEC directive 89/336/EEC with regard to "Electromagnetic compatibility".

Note on RFI suppression

All other devices connected to this product must have RFI suppression in accordance with EC directive 89/336/EEC. Products meeting these requirements are accompanied by a certificate issued by the manufacturer and carry the CE symbol.

Energy saving

Make use of the notebook's power management features (see "Operation").

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

Optimum battery capacity

To allow you to utilize the optimum capacity of the battery, you should deep-discharge and recharge it at regular intervals (see the chapter entitled "Operation - Deep-discharging/recharging the battery")

On the move with the notebook

Please observe the points listed below when transporting your notebook PC.

Transporting the notebook

- Do not carry the notebook by its open screen or by its battery compartment if the battery is removed.
- Switch the notebook off and close the LCD display and the covers for the ports and the PCMCIA cards.
- Use the bag supplied to transport the notebook.
If it needs to be shipped, use the original packaging or other suitable packaging to protect it from damage through mishandling.
- Protect the notebook from severe shocks and extreme temperatures (e.g., direct sunlight in a car).

Before starting the journey

- Copy important data from the hard disk to a floppy disk.
- If you wish to use your notebook during a flight, check first with the flight attendants if it is permissible to do so.
- If you are travelling abroad, ensure that the power supply unit can be operated on the local mains voltage. If this is not the case, obtain the appropriate power supply unit for your notebook.
Do not use any other voltage transformers!

Class B

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. 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.

Siemens Nixdorf Informationssysteme AG 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 Siemens Nixdorf Informationssysteme AG. The correction of interferences caused by such unauthorized modification, substitution or attachment will be 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.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of the Canadian Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édicté par le ministre des Communications du Canada.

Important notice concerning power cord selection

The power cord for this unit has been packed separately and has been selected according to the country of destination. 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 1).

For the United States and Canada

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

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

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

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

Table A:

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

For units set at 115 V:

use a parallel blade, grounding type attachment plug rated 15 A, 125 V (Figure 2).

For units set at 230 V (domestic use):

use a tandem blade, grounding type attachment plug rated 15 A, 250 V (Figure 3).

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.

Important notes

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 coloured in accordance with the following code:

Green and Yellow:	Earth
Blue:	Neutral
Brown:	Live

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

- The wire which is coloured 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 coloured Green or Green and Yellow.
- The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black.
- The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Red.

Preparation for use



Pay attention to the information provided in "Important notes" in the previous chapter.

You must install and charge the battery and install the operating system, application programs and drivers before you can work with the notebook.

Refer to the chapter on "System expansions" for instructions on how to connect external devices (e.g. mouse, printer, disk drive) to the notebook.

Unpacking and checking the notebook

- ▶ Unpack all the parts.
- ▶ Check the contents of the shipment for visible damage incurred during transportation.
- ▶ Check that the shipment matches up with the delivery note.
- ▶ Check whether all the necessary details have been entered on the first page of the guaranty booklet or on the guaranty card.

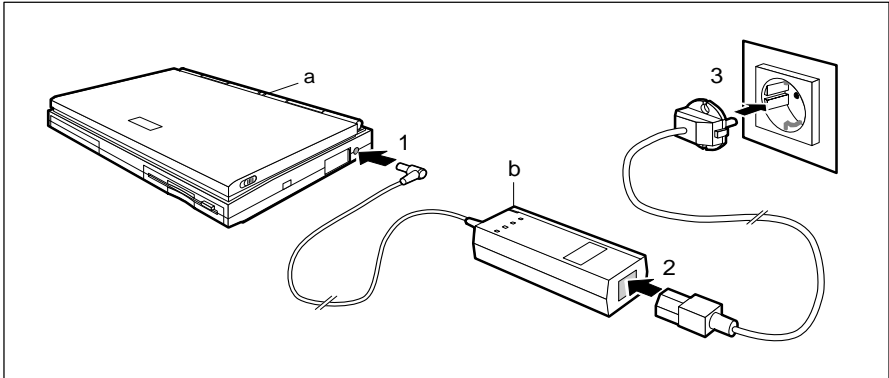
If you discover damage or notice discrepancies between the delivery papers and the contents of the shipment, please contact your sales office.



We recommend that you keep the original packaging in case you need to ship the equipment again.

Connecting the power supply unit

- ▶ Place the notebook on a level, stable surface.



- ▶ Plug the DC output connector on the power supply unit into the DC input connector on the notebook (1).



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

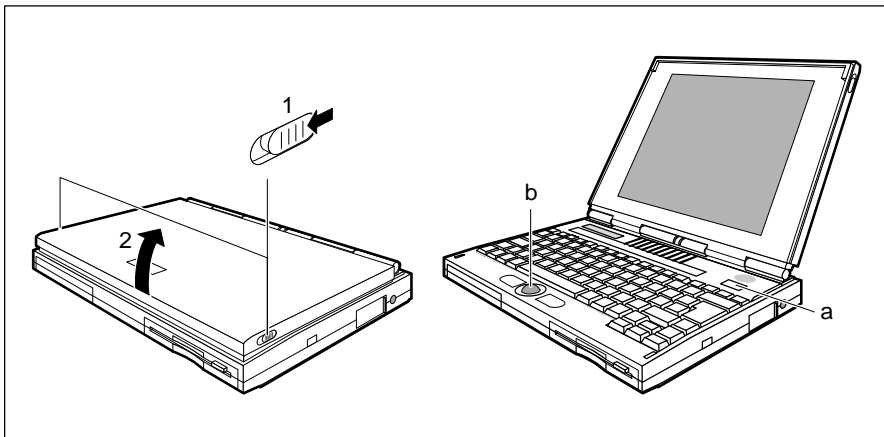
The notebook and the power supply should be at least 200 mm apart. Keep the area within 100 mm of the notebook and the power supply unit clear.

Do not cover the ventilation slots in the notebook and the power supply unit.

- ▶ Connect the AC power cable to the power supply unit (2).
- ▶ Connect the AC power cable to a grounded wall outlet (3).
The LED on the power supply unit (b) and BATTERY LED on the notebook (a) light up.

The battery charges. When the notebook is not running, the battery takes roughly two hours to charge. When the notebook is running, it takes roughly five hours to charge. You can install the operating system and the application programs while the battery is charging.

Installing the operating system



a = Power switch

b = Trackball

- ▶ Slide forward the release tabs (1) and swing open the cover (2).



When you install software you have to work with floppy disks, the keyboard and the trackball. If you are unfamiliar with using floppy disks or input devices, see "Using floppy disks" and "Displays and input devices" in the "Operation" section.



You must not power-cycle or warm-boot your notebook during first-time installation .

- ▶ Press the power switch for roughly one second.
- ▶ Wait until a choice of different languages is displayed on screen.
- ▶ Select the language to be used for the installation procedure by pressing the appropriate function key (e.g. press the **F2** function key for language 2).
- ▶ Select the language in which the operating system is to be installed by pressing the appropriate function key.
- ▶ Once the correct language is displayed, press the Enter key.
Note that your choice of language is final and cannot be reversed.

The operating system is installed. Once it has finished installing, the start-up program appears on screen. You can use the trackball and/or the keyboard to operate the start-up program.



If a choice of different language-specific keyboard layouts is displayed on screen, you can select either the default keyboard layout or one of the others indicated.

- ▶ Confirm the default keyboard layout.

Or

- ▶ Choose one of the other country-specific keyboard layouts listed.

The registration screen appears.

- ▶ Fill in the relevant fields to register as the user of the installed software.

Once you have finished registration, the system asks if you would like to run through a Microsoft Windows tutorial. Once you have finished the tutorial, you return to the start-up program.

- ▶ Continue with the start-up program.

A number of different menu options are displayed on screen.



On-line help is available; to access it, select the information menu item.

- ▶ Select all the menu items shown on screen in the sequence indicated.
- ▶ Quit the start-up program.

You can now begin to work with your notebook or continue to install additional software.



Follow the instructions in the manuals and information files concerning the application programs and drivers.

Once you have installed the operating system, the application programs and drivers, and have generally familiarized yourself with the notebook, you should deep-discharge and recharge the battery. Deep-discharging and recharging the battery ensures that you obtain optimum capacity. How to proceed is described in the section "The battery".

Creating utility disks

To create the utility disks you need two unformatted 3 1/2-inch floppy disks.

- ▶ Switch on the notebook.
- ▶ Start Microsoft Windows.
- ▶ Choose the *Utility disks* icon and press the Enter key.
- ▶ Follow the on-screen instructions.
- ▶ Label the floppy disks as shown in the on-screen instructions.

Installing application programs and drivers

- ▶ Follow the instructions provided in the manuals and the information files (e.g., *INFO*, *README*, *.HLP, *.DOC, *.TXT or *.WRI) supplied with your application programs and device drivers.

Operation

When used away from a wall power outlet, the notebook runs on its built-in battery. You can increase battery life by enabling its power management features.

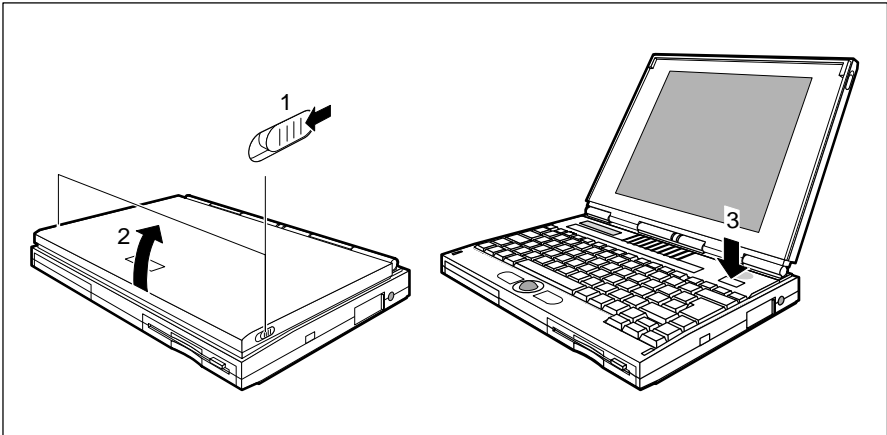
If you use the notebook in a normal office situation, you run it off the mains with the aid of the power supply unit, or in a docking unit or station box. This conserves battery power for mobile use.

Choosing where to set up your notebook

Select a suitable place at which to set up your notebook. We recommend the following:

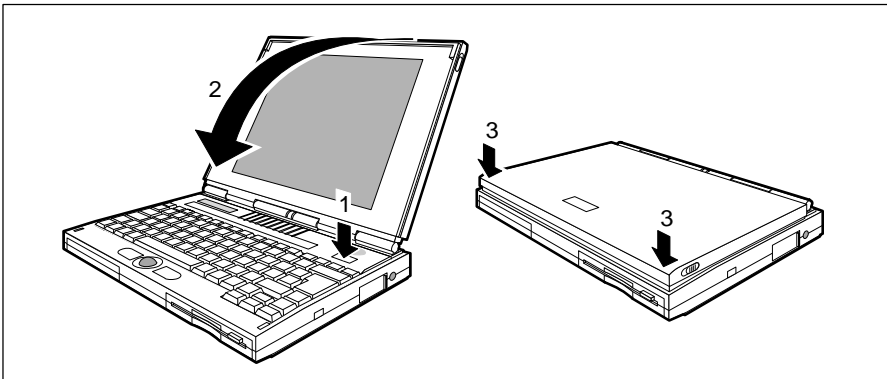
- Choose a stable, non-slip surface on which to set up the notebook. Set it up with care: the notebook's plastic feet might conceivably scratch or damage the finish on different types of furniture.
- Do not use the notebook in environments with high dust, humidity or heat levels.
- Keep other objects 100 mm clear of the notebook and its power supply unit to ensure adequate ventilation. The space between the notebook's plastic feet must be clear. Do not place it on a soft surface (e.g., a carpet or soft furnishings). Do not cover the ventilation slots in the notebook and the power supply unit.
- The power supply unit must be at least 200 mm away from the notebook. It must be free-standing and may not be covered. Do not stand the power adapter on heat-sensitive material.
- For wireless data transfer you must align the notebook's infrared interface with that of the partner device (e.g. PC).
The devices must not be more than one meter apart.

Switching on the notebook



- ▶ Slide forward the release tabs (1) and swing open the cover (2).
- ▶ Press the power switch (3) for roughly one second.

Switching off the notebook



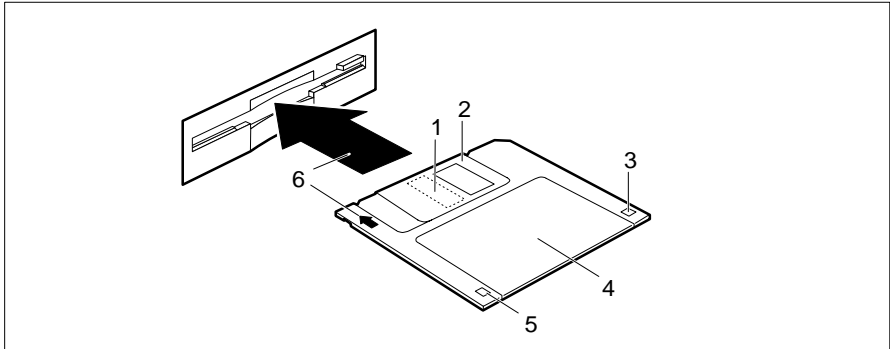
- ▶ Press the power switch (1) for roughly one second.
- ▶ Close the cover of the notebook (2) so that it locks into place on the left and right (3).

Using floppy disks



When using floppy disks, read the information provided by the floppy-disk manufacturer.

Do not use cleaning disks in the floppy disk drive. Doing so would destroy the read/write heads in the drive in just 20 seconds.

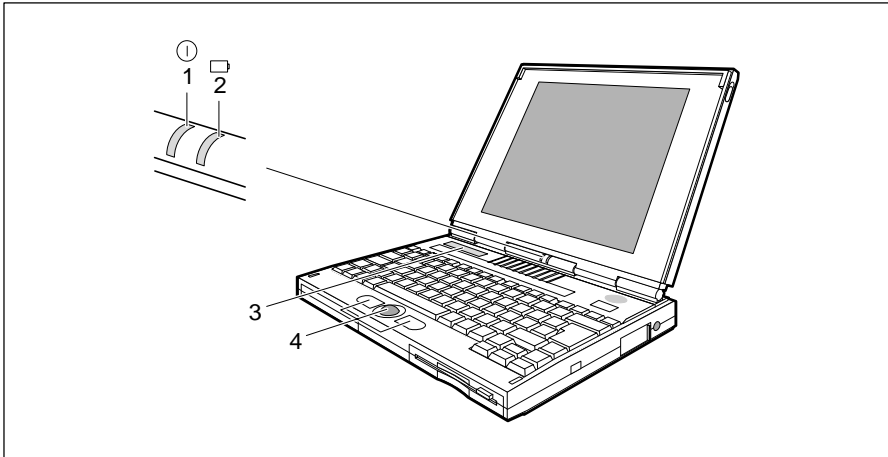


1 = Slot for read/write head
2 = Head access cover
3 = HD disk indicator hole
(high density)

4 = Label area
5 = Write-protect slider
6 = Direction of insertion

Write-protecting floppy disks

Displays and input devices



1 = POWER LED
2 = BATTERY LED

3 = Display field
4 = Trackball and trackball buttons

Displays

The notebook has two LEDs and an LCD-type function display.

POWER LED



The POWER LED is on when the notebook is switched on.

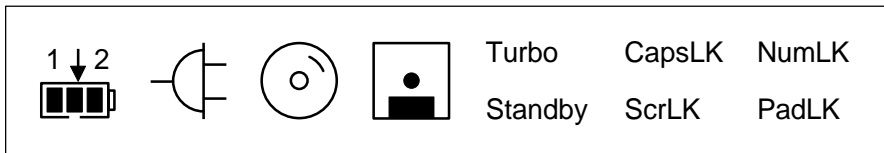
BATTERY LED













The BATTERY LED is on when the battery is charging.

It flashes when battery power has dropped to below 10%. The frequency with which it flashes increases before the notebook shuts itself down.

Function display



Symbols and texts in the function display show the actual state of the notebook. The meaning of the symbols and texts are as follows:

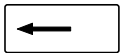
-  The battery symbol shows the amount of power left in the built-in battery. A 1 indicates that the information applies to the battery in the battery compartment. A 2 indicates that the information applies to the additional battery. The arrow indicates that the battery is charging.
-  This symbol indicates that the battery is 90%-100% charged.
-  This symbol indicates that the battery is 50%-90% charged.
-  This symbol indicates that the battery is 10%-50% charged.
-  This symbol indicates that the battery is less than 10% charged.
-  If it has a flashing border, the battery is empty (if the BATTERY LED is flashing, or there is no battery installed (if the BATTERY LED is off).
-  Flashing segments indicate that the notebook has detected that its battery is defective.
-  This indicates that the notebook is connected to an external power source (e.g., the power supply unit).
-  This indicates that the notebook's hard disk is currently being accessed.
-  This indicates that the floppy disk in the floppy disk drive is being accessed. You must not remove the floppy disk when this symbol is visible.

Turbo	This indicates that notebook's CPU is operating at its maximum clock rate (speed).
Standby	This indicates that the notebook is in Standby mode.
CapsLK	This indicates that all the characters you type will appear as uppercase. In the case of keys marked with a number of characters, the upper-left character will appear. The CapsLK indicator appears when you press the Caps Lock key.
ScrLK	This appears when you press the Scroll Lock key. The effect this key has varies from program to program.
NumLK	This appears when you press the Pad Num key. If PadLK is visible in the function display, the blue numbers on the lower right on keys in the integrated numeric keypad are enabled.
PadLK	This appears when you press the Fn + Pad Num keys. This enables the blue editing functions on the upper right on keys in the integrated numeric keypad.

Keyboard

The following description of key functions applies to systems running the MS-DOS operating system. 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 and editing functions on keys with overlaid functions. The keystrokes shown in the example only work if `CapsLK`, `NumLK`, and `PadLK` have not been enabled (i.e., they are not visible in the function display).

**Backspace**

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 (also, Return or Carriage Return)

The Enter key tells the computer that the command line entered is complete. The command you have entered is executed when you press Enter.

Caps Lock

The Caps Lock key shifts the alphabetic characters on the keyboard to uppercase. (When it is enabled, the `CapsLK` symbol appears in the function display.) 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**

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

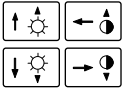
The **Alt Gr** key causes the characters in the lower middle of the keycap to appear (e.g., { in the case of the **7** key).



Fn

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

If the external keyboard does not feature an **Fn** key, you can simultaneously press the **Alt** and **Shift** 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

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

Pause

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

Integrated numeric keypad

- 1 = Characters enabled when neither NumLK, nor PadLK are visible in the function display
- 2 = Editing functions enabled when PadLK is visible in the function display
- 3 = Characters enabled when NumLK and PadLK are visible in the function display.

The key combination **Fn**+**Pad Num** enables and disables the integrated numeric keypad. If it is enabled, PadLK is visible in the function display. The keys in the integrated numeric keypad then perform the editing functions indicated in blue on the upper right of the keycaps.

If **PadLK** is visible in the function display, pressing the **Pad Num** key enables and disables the numeric functions of the keys in the integrated numeric keypad. The keys produce numbers (the numbers indicated in blue on the lower right of the keycaps) when **NumLK** is visible in the function display.

If **PadLK** and/or **NumLK** are visible in the function display, the keys in the integrated numeric keypad will also produce the standard characters shown on the keys. If you press and hold the **Fn** key, the keys will produce lowercase letters and numbers.

If you press and hold the key combination **Fn**+ Shift, the keys will produce uppercase letters and the characters indicated on the upper left of the keycaps.

Key combinations

The description of key combinations that follows applies to systems running the MS-DOS operating system. Other key combinations are described in the relevant manuals supplied with your application programs.

You enter key combinations as follows:

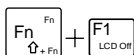
- ▶ Press and hold the first key in the combination.
- ▶ While keeping the first key pressed, press the other key or keys in the combination.

i If the external keyboard does not feature an **Fn** key, you can simultaneously press the **Alt** and **Shift** keys instead.



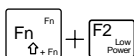
Start the Setup program

If the message `Press Fn + Esc for Setup` appears when you start your notebook, run the *Setup* program by pressing the key combination indicated.



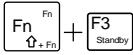
Switch the display on/off

This key combination switches your notebook's display on and off. Doing so does not affect any running programs.



Enable/disable Low Power mode

This key combination enables and disables Low Power mode (slower CPU speed, half-bright display backlight).

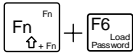
**Enable Standby mode**

This key combination enables Standby mode. `Standby` appears in the function display.

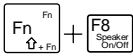
You can cancel Standby mode by pressing any key.

**Enable Suspend mode**

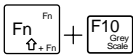
This key combination enables Suspend mode. When you switch the notebook on again, it returns to the same place you were in the program that was running when you switched to Suspend mode.

**Load the setup password**

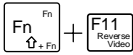
This key combination loads the setup password from the disk *System Utilities* (see "Starting the setup program").

**Enable/disable the speaker**

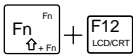
This key combination switches the notebook's built-in speaker on/off.

**Set up gray scales**

If your notebook has a monochrome display, this key combination lets you alter the gray scales it displays.

**Switch between normal and reverse video**

If your notebook has a monochrome or DSTN color display, this key combination switches it between normal and reverse video.

**Select internal/external display**

If an external display is connected to your notebook, you can switch to it with this key combination. You can opt to use:

- just the notebook's internal display
- just the external display
- both the internal and the external display.

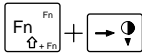
Enable/disable the integrated numeric keypad

This key combination enables and disables the integrated numeric keypad. `PadLK` appears in the function display when the numeric keypad is enabled. The editing functions indicated in blue on the keycaps are enabled.

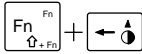
Keyboard lock

If you set *Keyboard Lock* to *Enable* in the *Setup* program, this key combination locks the keyboard, the trackball and, if connected, an external PS/2 mouse; it also switches off the display. This does not affect any programs that are running.

To cancel the keyboard lock, enter the system password.

**Reduce the display contrast**

If your notebook has a monochrome or DSTN color display, this key combination reduces its contrast.

**Increase the display contrast**

If your notebook has a monochrome or DSTN color display, this key combination increases its contrast.

**Increase the display brightness**

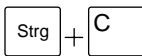
This key combination increases the brightness of the display.

**Reduce the display brightness**

This key combination increases the brightness of the display.

Halt the current operation

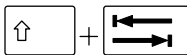
This key combination can be used to halt an operation instantly (its effect depends on the program that is running).

**Halt the current operation**

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

Warm boot

This key combination triggers a reset and warm-boots the notebook.

**Backtab (Shift+Tab)**

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

Trackball and trackball buttons



Make sure that the trackball does not come into contact with dirt, liquids or grease.

Do not touch the trackball if your fingers are dirty.

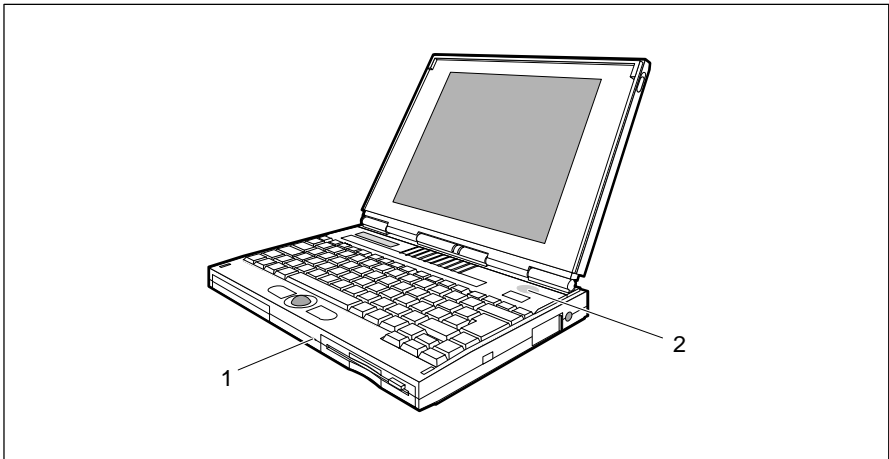
Do not rest heavy objects (e.g., books) on the trackball or the trackball buttons.

You use the trackball to position the mouse pointer on the screen. For example, when you roll the trackball to the left, the pointer moves to the left. The left and right trackball buttons function in the same way as the left and right buttons on a mouse.



If you attach and install an external mouse, the trackball and its buttons are disabled.

Internal microphone and internal loudspeaker



1 = internal microphone

2 = internal loudspeaker

Your notebook contains a built-in microphone (1) and a loudspeaker (2). If you attach an external microphone, the internal microphone is disabled. If you attach an external loudspeaker, the internal loudspeaker is disabled.

Using the power-management features

If you use the notebook's power-management features, it will use less power. This will increase battery life, allowing you to work longer before having to recharge the battery.

If you will not be using your notebook for a longer period, switch it off. Reducing the brightness level of the display helps to reduce the amount of power consumed by the notebook.



If you enable one of the power-management options in the *Power Management Setup* menu in the *Setup* program, that option will still be enabled the next time you switch on your notebook.

Enabling the Long Life mode

Long Life mode uses all the available power-management features. The notebook uses little power and operates slightly slower than usual.

- ▶ Start the *Setup* program.
- ▶ Choose *Power Management Setup*.
- ▶ Press the **F4** function key.
- ▶ Press the **F10** function twice.

Enabling Low Power mode

In Low Power mode the notebook reduces its processor speed and halves the brightness of its display backlight.

- ▶ Press the key combination **Fn**+**F2**.
- To cancel Low Power mode:
- ▶ Press the key combination **Fn**+**F2**.

Enabling Doze mode

In Doze mode the notebook reduces its processor speed if it is inactive for a longer period. The processor speed is increased as soon as the system is used again.

Doze mode is available if *Power Management* has been set to *Enable* in *Power Management Setup*. It is not available if the notebook is attached to a docking unit.

- ▶ In *Power Management Setup*, set *Doze Mode* to *Enable*.

Enabling Standby mode

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

- ▶ Press the key combination **Fn + F3**.

To revert to normal operation from Standby mode:

- ▶ Press any key.

Automatic activation

If the notebook is running and is not used for a predefined period of time, it switches into Standby mode. Any input causes the notebook to come out of Standby mode.

This feature is available if *Power Management* has been set to *Enable* in *Power Management Setup*.

- ▶ In *Power Management Setup*, set the time which has to elapse before the notebook switches to Standby mode in *System Auto Standby*.

Enabling Suspend mode

In Suspend mode all the active data (active programs and files) is saved to the hard disk and the notebook is switched off. The active data can only be saved if sufficient space is available on the hard disk (at least the main memory size + 2 Mbytes).

If you are running the operating system OS/2 or Windows NT, you have to set up an additional FAT partition on the hard disk (see the manuals supplied with the operating system in question). The FAT partition must be at least the size of 16 Mbyte.

You cannot use Suspend mode if the notebook is connected to a docking unit or if the space available on the hard disk is not sufficient.



If your notebook is in Suspend mode:

- do not connect any external peripheral devices
- do not disconnect any external peripheral devices
- do not attempt to switch it on if the built-in battery is empty
- do not change the configuration with the *Setup* program
- do not change or remove the floppy disk, if inserted
- do not add or remove RAM
- do not add or remove any PCMCIA cards.

- ▶ Press the key combination **Fn**+**F4**.

To revive the notebook from Suspend mode:

- ▶ Switch the notebook on.
The notebook reverts to the status it had prior to switching into Suspend mode.

Automatic activation

If the notebook is not used for the predefined period of time, it switches from Standby mode to Suspend mode.

This feature is available if *Power Management* has been set to *Enable* in *Power Management Setup* and you have specified a time in *System Auto Standby*.

- ▶ In *Power Management Setup*, set the time which has to elapse before the notebook switches to Suspend mode in *System Auto Suspend*.

Switching off the display

Switching off the display does not affect running programs.

- ▶ Press the key combination **Fn** + **F1**.

To switch the notebook's display on again:

- ▶ Press the key combination **Fn** + **F1**.

Automatic powerdown

You set this function up in the *Setup* program.

If the notebook receives no input for a predefined period of time, the displays switches off automatically. It switches on again automatically as soon as the notebook receives input.

- ▶ In *Power Management Setup*, set the time which has to elapse before the display switches off in *LCD Powerdown*.

Enabling the hard disk's power-management feature

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

- ▶ Set the time which has to elapse before the hard-disk motor switches off in *Hard Disk Powerdown*.

Disabling the system speaker

- ▶ Press the key combination **Fn** + **F8**.

To re-enable the system speaker:

- ▶ Press the key combination **Fn** + **F8**.

You can also disable the speaker in the *Setup* program.

- ▶ In *Power Management Setup*, set *System Speaker* to *Disable*.

Changing display settings

You configure the basic display settings with *Video Setup* in the *Setup* program (see the section "System configuration").

You can change the settings listed below using key combinations.

Setting the gray scales for the monochrome display

- ▶ Press the key combination **Fn**+**F10** until you have found the gray-scale configuration you require.

Switching between normal and reverse video

If your notebook has a monochrome or DSTN color display, you can switch between normal and reverse video. You can select a normal display (dark characters on a light background) or a reverse display (light characters on a dark background).

- ▶ Press the key combination **Fn**+**F11**.

The setting you select with *Reverse Video* in *Video Setup* is always active when you switch on your notebook.

Switching between internal and external displays

If an external display is connected to your notebook, you can switch between different display options:

- just the notebook's internal display
- just the external display
- both the internal and the external display (not possible with DSTN color display).

The setting you select with *Display Device* in *Video Setup* is always active when you switch on your notebook.

- ▶ Press the key combination **Fn**+**F12** until you find the display option you require.


Setting the display contrast

If your notebook has a monochrome or DSTN color display, you can set the display contrast.

Increasing the contrast

- ▶ Press the key combination **Fn** +  until you find the right display contrast.

Reducing the display contrast

- ▶ Press the key combination **Fn** +  until you find the right display contrast.

Setting the display brightness


If you find the display too bright or too dark, you can adjust the brightness.

Increasing the brightness

- ▶ Press the key combination **Fn** +  until you find the right brightness level.

Reducing the brightness

Reducing the brightness also reduces the notebook's power consumption.

- ▶ Press the key combination **Fn** +  until you find the right brightness level.

Volume adjustment

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

Using the security features

Your notebook has security features which prevent unauthorized access to your data.

You can set up the security features with *Security Setup* in the *Setup* program. The security features and the necessary settings are summarized below.

For details of how to set them up, see the section "System configuration".



If CapsLK, NumLK, PadLK and ScrLK are displayed in turn in the function display, you must enter a password.

System Lock

When this feature is enabled, the system password has to be entered before the notebook will start from a cold boot, a warm boot, or Suspend mode. The system password is not echoed on screen when it is entered.

You can enable this security feature if you have specified a system password in *Security Setup*.

- ▶ In *Security Setup*, set *System Lock* to *Enable*.

Keyboard Lock

You can lock the input devices and switch off the display by pressing the key combination **Fn** + **Scroll Lock**. You can set up the notebook to automatically apply this lock if it receives no input for a predefined period of time.

The lock is released by entering the system password. The system password is not echoed on screen when it is entered.

You can enable this security feature if you have specified a system password in *Security Setup*.

- ▶ In *Security Setup*, set *Keyboard Lock* to *Enable*, or specify the time after which the lock is to be applied.

Setup Lock

The Setup program will only start if you enter the setup password. The setup password is not echoed on screen when it is entered.

You can enable this security feature if you have specified a system password or a setup password in *Security Setup*.

- ▶ In *Security Setup*, set *Setup Lock* to *Enable*.

Restricting access to the docking unit

The docking unit can only be accessed if you enter the docking unit password. The docking unit password is not echoed on screen when it is entered.

You can enable this security feature if your notebook is attached to a docking unit.

- ▶ In *Security Setup*, set *Docking Unit Password* to *Enable* and specify the docking unit password.

Preventing the notebook from booting from floppy disk

The operating system cannot be started from drive A: with a boot disk (system disk).

If you only want the notebook to boot from its hard disk:

- ▶ Set *Boot Device* to *Hard Disk* in *Security Setup*.

If the operating system is to be started from the PCMCIA card in PCMCIA slot 1 or from the hard disk:

- ▶ Set *Boot Device* to *PCMCIA* in *Security Setup*.

Preventing write operations to floppy disk

Write operations to floppy disks in the notebook are impossible. Floppy disks cannot be overwritten or deleted.

- ▶ In *Security Setup*, set *Diskette Write* to *Disable*.

Preventing write operations to PCMCIA cards

Data cannot be transferred to any PCMCIA cards installed in the notebook.

- ▶ In *Security Setup*, set *PC Card Write* to *Disable*.

Locking the serial port

Data cannot be transferred via the serial port.

- ▶ In *Security Setup*, set *Serial Interface* to *Disable*.

Locking the parallel port

Data cannot be transferred via the parallel port.

- ▶ In *Security Setup*, set *Parallel Interface* to *Disable*.

The battery

The notebook is fitted with a nickel metal hydride battery that provides it with power during mobile use. You can increase battery life by enabling the notebook's power-management features.

You can use the notebook with an additional battery. To do so, you must change the built-in floppy disk drive against the additional battery. This will double battery life in mobile use.

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

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



Deep-discharge and recharge the battery at regular intervals to utilize the optimum capacity of the battery (see "Deep-discharging the battery").

Charging the battery

Only charge the battery when the ambient temperatures is between 5 °C and 35 °C.

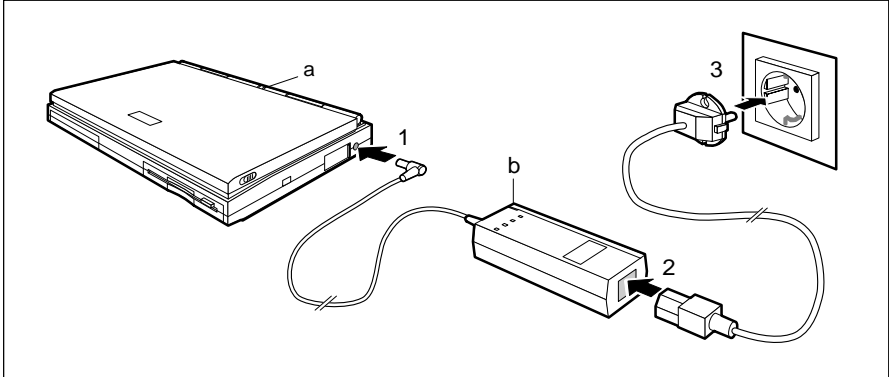
When the notebook is not in use, the battery will charge in roughly two hours. If the notebook is switched on, it will trickle-charge in roughly five hours. If the notebook is fitted with two batteries, charging will take twice as long.

You can charge the battery by:

- connecting the notebook to the power supply unit
- connecting the notebook to the auto adapter
- connecting the notebook to a docking unit
- connecting the notebook to a station box

Connecting the power supply unit

- ▶ Switch off the notebook.
- ▶ Place the notebook on a level, stable surface.



- ▶ Plug the DC output connector on the power supply unit into the DC input connector on the notebook (1).



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

The notebook and the power supply should be at least 200 mm apart. Keep the area within 100 mm of the notebook and the power supply unit clear. Do not cover the ventilation slots in the notebook and the power supply unit.

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

The power supply unit's AC cord may only be connected to a grounded wall outlet if the notebook is connected to the power supply unit.

- ▶ Connect the AC power cord to the power supply unit (2).
- ▶ Connect the AC power cord to a grounded wall outlet (3).
The LED on the power supply unit goes on (b). A few seconds later, the notebook's BATTERY LED lights up. The battery begins to charge.

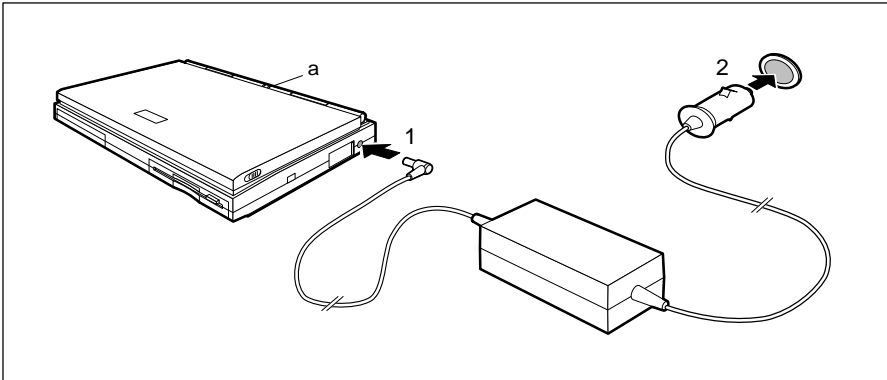


Switch the notebook off before you disconnect it from its power supply unit.

Connecting the auto adapter

You can use the auto adapter to charge your notebook's battery if the car has a 12V electrical system.

- ▶ Switch the notebook off.
- ▶ Place the notebook on a level, stable surface.



- ▶ Connect the auto adapter's cord to the notebook's DC input (1).
- ▶ Start the car's engine.



You should only use the auto adapter while the car's engine is running.

You must not start the car's engine while the auto adapter is connected to the car's electrical system.

Ensure that the area within 100 mm of the notebook is kept clear.

When in operation, the autoadapter must be free-standing and may not be covered. Do not stand the autoadapter on heat-sensitive material.

The ventilation slots in the notebook must not be covered.

- ▶ Insert the auto adapter's input connector to the car's cigarette lighter (2). After a few seconds the notebook's BATTERY LED (a) lights up. The battery begins to charge.



Switch off the notebook before you disconnect it from the auto adapter.

Inserting and removing batteries



Only use batteries designed specifically for this notebook.
Never use force when inserting or removing a battery.

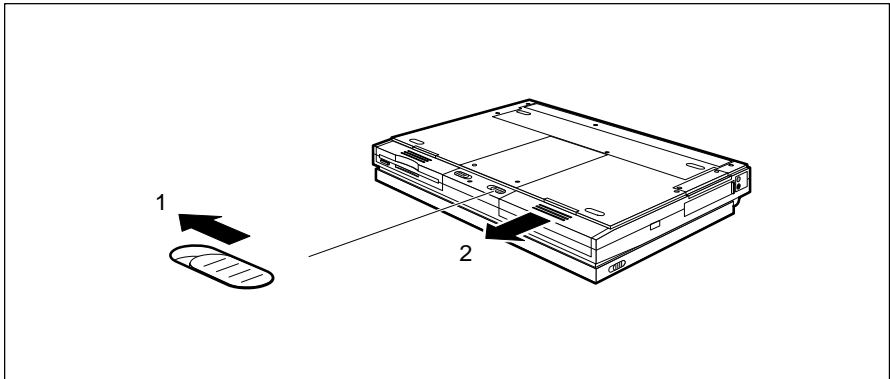
Make sure that foreign objects do not fall into the battery compartment.



Pull the power plug of the power supply unit out of grounded wall outlet before inserting and removing batteries.

Removing the standard battery

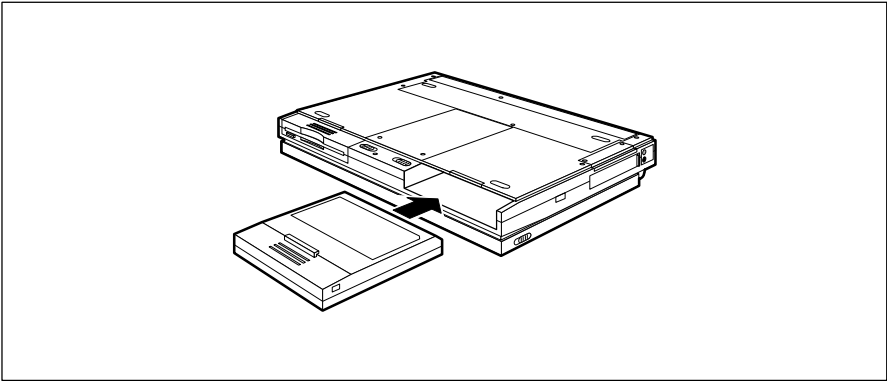
- ▶ Switch off the notebook.
- ▶ Pull the power plug of the power supply unit out of grounded wall outlet
- ▶ Close the cover of the notebook so that it locks into place on the left and right.
- ▶ Disconnect any cables attached to the notebook.
- ▶ Place the notebook bottom-up on a flat surface.



- ▶ Push the battery compartment's release tab in the direction of the arrow (1).
- ▶ Pull the battery out of the battery compartment (2).

Installing the standard battery

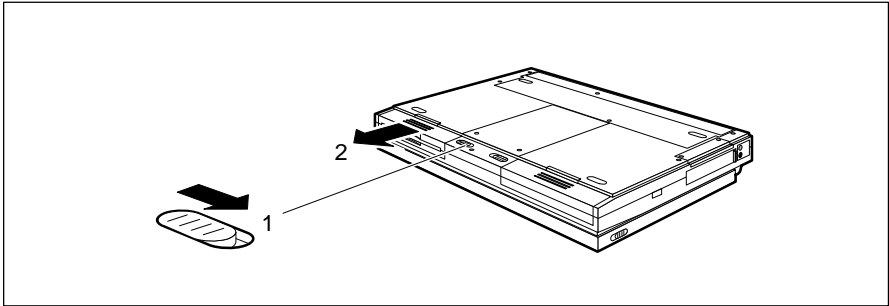
- ▶ Switch off the notebook.
- ▶ Pull the power plug of the power supply unit out of grounded wall outlet
- ▶ Close the cover of the notebook so that it locks into place on the left and right.
- ▶ Disconnect any cables attached to the notebook.
- ▶ Place the notebook bottom-up on a flat surface.



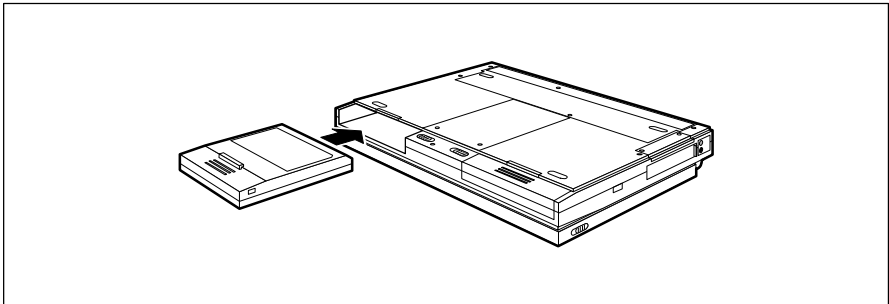
- ▶ Insert the battery, contacts first, into the battery compartment. The contacts must face upwards.
- ▶ Push the battery into the compartment until it clicks into place.
- ▶ Turn the notebook over and place it on a flat surface with the underside facing downwards.
- ▶ Reconnect the cables you previously disconnected.

Installing an additional battery

- ▶ Switch off the notebook.
- ▶ Pull the power plug of the power supply unit out of grounded wall outlet
- ▶ Close the cover of the notebook so that it locks into place on the left and right.
- ▶ Disconnect any cables attached to the notebook.
- ▶ Place the notebook bottom-up on a flat surface.



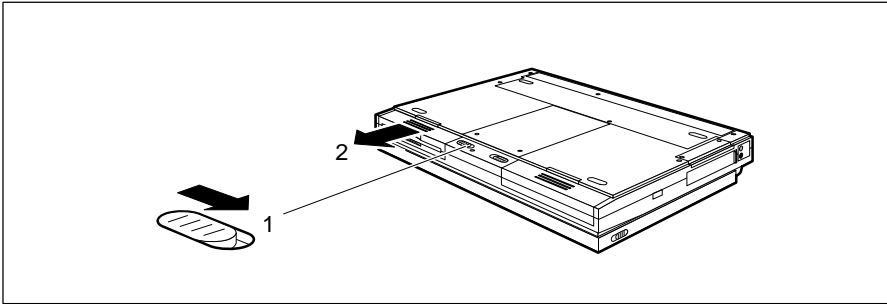
- ▶ Push the floppy disk compartment's release tab in the direction of the arrow (1).
- ▶ Remove the floppy disk drive from the compartment (2).



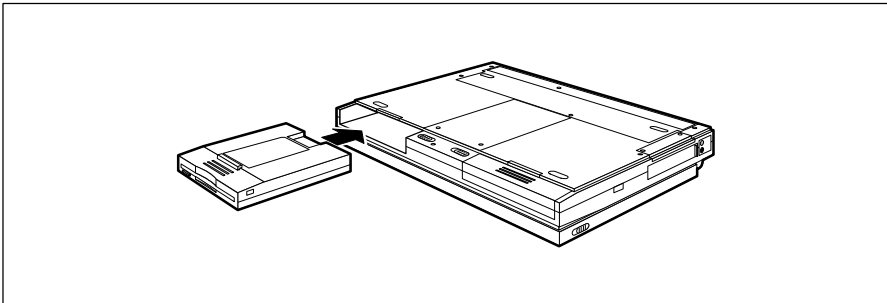
- ▶ Insert the battery, contacts first, into the floppy disk compartment. The contacts must face upwards.
- ▶ Push the battery into the compartment until it clicks into place.
- ▶ Turn the notebook over and place it on a flat surface with the underside facing downwards.
- ▶ Reconnect the cables you previously disconnected.

Removing the additional battery

- ▶ Switch off the notebook.
- ▶ Pull the power plug of the power supply unit out of grounded wall outlet
- ▶ Close the cover of the notebook so that it locks into place on the left and right.
- ▶ Disconnect any cables attached to the notebook.
- ▶ Place the notebook bottom-up on a flat surface.



- ▶ Push the floppy disk compartment's release tab in the direction of the arrow (1).
- ▶ Pull the battery out of the floppy disk compartment (2).



- ▶ Insert the floppy disk, contacts first, into the floppy disk compartment. The side with the label should face towards the notebook's display.
- ▶ Push the floppy disk into the compartment until you feel it click into place.

Deep-discharging/recharging the battery

The process of fully discharging and recharging the battery is necessary to ensure that the battery charges fully. You should carry this out once a month and

- after charging the battery for the first time (e.g., when you use the notebook for the first time)
- if you have not used the notebook for a longer period of time (e.g., a week)
- if the battery charge does not last as long as usual
- if the battery gets hot while charging
- if the charge segments in the battery symbol start to flash.

- ▶ Switch off the notebook.
- ▶ Pull the power plug of the power supply unit out of grounded wall outlet
- ▶ Disconnect any cables attached to the notebook.
- ▶ Run the *Setup* program.
- ▶ Choose *Power Management Setup*.
- ▶ Set *Deep Discharge to Enable*.
- ▶ Press the **F10** function key twice.
The battery begins to discharge.
- ▶ Leave the notebook switched on.
The notebook switches itself off when the battery is empty.
- ▶ Fully recharge the battery.
- ▶ If necessary, repeat the process.



If the battery becomes hot in spite of discharging and recharging the battery or if the battery charge does not last as long as usual or if the charge segments in the battery symbol start to flash, the battery should be replaced.

When disposing of the old battery, pay attention to the safety instructions in the section "Important notes".

Cleaning the notebook



Switch off the notebook and disconnect the power supply unit cable.

Only authorized service personnel may clean the inside of the casing.

Do not use scouring powder or cleaning agents that attack plastics.

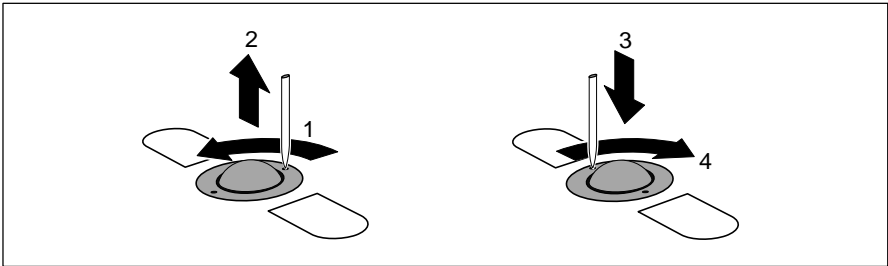
Make sure that no liquids penetrate the notebook's casing.

Use a clean, dry cloth to clean the casing. If it is especially dirty, use a cloth lightly moistened in water and mild washing-up liquid.

To clean the keyboard, you can use disinfectant wipes.

To clean the display, you can use a soft, lightly moistened cloth.

Cleaning the trackball mechanism



- ▶ Insert a pointed object (e.g., a ballpoint pen) into the recess in the retaining ring and push the ring counterclockwise a quarter-turn (1).
- ▶ Remove the retaining ring and the trackball from the notebook (2).
- ▶ Clean the trackball mechanism and the trackball with a lint-free cloth.
- ▶ Put back the trackball and the retaining ring (3).
- ▶ Insert the pointed object or ballpoint pen in the recess in the retaining ring and push the ring clockwise a quarter-turn (4). You should feel it click into place.

Rebuilding the hard disk

If you have created a bootable system disk (floppy disk) and have backed up the hard disk, you can reformat and rebuild the hard disk, and restore the versions of directories and files stored on the hard disk at the time you performed the backup.

- ▶ Use the system disk to boot the PC from the floppy disk drive.
- ▶ Use the MS-DOS command *FDISK* to partition the hard disk. (This requires sound knowledge of the system.)
- ▶ Use the MS-DOS command *FORMAT* with the */s* option (e.g., **FORMAT C: /s**) to format the hard disk.
The */s* option causes the system files that start the operating system to be transferred to the hard disk.
- ▶ Copy the files of the backup program *MSBACKUP* from the system disk to the hard disk (e.g., **COPY_A:\MSB*. * _C:**).
- ▶ Switch to the hard disk (e.g., **C:**).
- ▶ Start the backup program *MSBACKUP* (**MSBACKUP**).
- ▶ Restore your files from your backup disks to the hard disk with the backup program's *RESTORE* function.

If these steps fail to correct the problem with your hard disk, it will have to be replaced.

Code table for the standard character set

To display one of the following characters on screen, proceed as follows:

- ▶ Press and hold the **[Alt]** key.
- ▶ Enter the appropriate three-digit code for the character you require.

Characters 000 through 031 are displayed on screen as characters, but they are really control characters and are therefore not included in the table below.

032 =	064 = @	096 = `	128 = Ç	160 = á	192 = Ł	224 = α
033 = !	065 = A	097 = a	129 = Ũ	161 = í	193 = ˆ	225 = β
034 = "	066 = B	098 = b	130 = é	162 = ó	194 = ˜	226 = Γ
035 = #	067 = C	099 = c	131 = â	163 = ú	195 = ˘	227 = π
036 = \$	068 = D	100 = d	132 = ä	164 = ñ	196 = —	228 = Σ
037 = %	069 = E	101 = e	133 = à	165 = Ñ	197 = †	229 = σ
038 = &	070 = F	102 = f	134 = â	166 = ª	198 = ‡	230 = μ
039 = '	071 = G	103 = g	135 = ç	167 = °	199 = ††	231 = τ
040 = (072 = H	104 = h	136 = è	168 = ç	200 = ‡‡	232 = Φ
041 =)	073 = I	105 = i	137 = ë	169 = ¸	201 = †††	233 = Ξ
042 = *	074 = J	106 = j	138 = è	170 = ¬	202 = ††††	234 = Ω
043 = +	075 = K	107 = k	139 = ï	171 = 1/2	203 = †††††	235 = δ
044 = ,	076 = L	108 = l	140 = î	172 = 1/4	204 = ††††††	236 = ∞
045 = -	077 = M	109 = m	141 = ï	173 = ¡	205 = =	237 = Ø
046 = .	078 = N	110 = n	142 = Ä	174 = «	206 = †††††††	238 = €
047 = /	079 = O	111 = o	143 = Å	175 = »	207 = ††††††††	239 = ∩
048 = 0	080 = P	112 = p	144 = É	176 = █	208 = †††††††††	240 = ≡
049 = 1	081 = Q	113 = q	145 = æ	177 = █	209 = ††††††††††	241 = ±
050 = 2	082 = R	114 = r	146 = Æ	178 = █	210 = †††††††††††	242 = ≥
051 = 3	083 = S	115 = s	147 = ô	179 =	211 = ††††††††††††	243 = ≤
052 = 4	084 = T	116 = t	148 = ö	180 = †	212 = †	244 = ∫
053 = 5	085 = U	117 = u	149 = ò	181 = ††	213 = ††	245 = ∫
054 = 6	086 = V	118 = v	150 = û	182 = †††	214 = †††	246 = †
055 = 7	087 = W	119 = w	151 = ù	183 = ††††	215 = ††††	247 = ≈
056 = 8	088 = X	120 = x	152 = ÿ	184 = †††††	216 = †††††	248 = °
057 = 9	089 = Y	121 = y	153 = Ö	185 = ††††††	217 = ††††††	249 = ·
058 = :	090 = Z	122 = z	154 = Ü	186 = †††††††	218 = †††††††	250 = —
059 = ;	091 = [123 = {	155 = ø	187 = ††††††††	219 = █	251 = √
060 = <	092 = \	124 =	156 = £	188 = †††††††††	220 = █	252 = n
061 = =	093 =]	125 = }	157 = ¥	189 = ††††††††††	221 = █	253 = ²
062 = >	094 = ^	126 = ~	158 = Pt	190 = †††††††††††	222 = █	254 = ■
063 = ?	095 = _	127 =	159 = f	191 = ¬	223 = █	255 =

System configuration

You use the *Setup* program to configure your notebook's hardware and system functions.

When it is supplied, the notebook is set to factory default settings which you can alter in the *Setup* program's various submenus. Any changes you make take effect as soon as you quit the *Setup* program or switch on the notebook.

The *Setup* program contains the following submenus:

- *System Setup*: for setting the system time and date and configuring the ports and the pointing device
- *Video Setup*: for setting up the display
- *Security Setup*: for setting up the security features
- *Power Management*: for setting up the power-management features
- *Docking Unit Setup*: for configuring the docking unit (this option is only available if the notebook is connected to a docking unit.)

Starting the Setup program

- ▶ Reboot the notebook (switching on/off or warm boot).
- ▶ When the message `Press Fn + Esc for Setup` appears, press the key combination **Fn** + **Esc**.



If the external keyboard does not feature an **Fn** key, you can simultaneously press the **Alt** and **Shift** keys instead.

If a setup password has been defined:

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

If you have forgotten the setup password:

- ▶ Insert the disk *System Utilities* in the notebook's floppy disk drive.
- ▶ Press the key combination **Fn** + **F6**.

If you have forgotten the Setup password and it is not stored on the System Utilities disk or the System Utilities disk is no longer available, please contact our customer service.

The *Setup* program's main menu is displayed.









```






F3A21                               Setup                               03.07.95
-----
                                     System Setup
                                     Video Setup
                                     Security Setup
                                     Power Management
                                     [Docking Unit Setup]

-----
Esc      F3                               F10      Enter      ↑↓
Exit    Set Default                       Save     Submenu   Field
  
```

The *Setup* program's main menu

Using the Setup program

- ▶ Use the cursor key  or  to select the submenu you wish to access to make changes.
- ▶ Press the Enter key. The submenu opens.
- ▶ Use the cursor key  or  to select the item you wish to change.
- ▶ Press the cursor key  or  until the setting you require appears. The items *System Password*, *Setup Lock* and *Docking Unit Password* require that you enter normal text.
- ▶ Repeat the last two steps described for all the items you wish to change.
- ▶ Make a note of the changes you have made (here in this manual, for example).
- ▶ Press the function key .
The changes you have made are saved temporarily. The main menu appears again.
- ▶ Change any other settings you wish in the other submenus.
- ▶ Press the function key .
The changes you have made are stored and *Setup* ends. The notebook reboots.

 If you press the  key instead of the function key  , your changes are not saved. If you press the function key  , all the entries are reset to their defaults.
If you press function key  in the submenu *Security Setup*, all passwords will be deleted.

Changing the system settings - System Setup

In the *System Setup* submenu you can set up the following:

- the time (in the field marked *Time*)
- the date (in the field marked *Date*)
- the serial port (in the field marked *COM Port*)
- the parallel port (in the field marked *LPT Port*)
- the cache memory (in the field marked *Cache Memory*)
- the pointing devices (in the field marked *Pointing Device*)
- the power-on self-test (in the field marked *Pointing Device*)

F3D31		System Setup				01.09.95	

Time (H:M:S):	HH:MM:SS						
Date (D.M.Y):	DD.MM.YY						
[Internal Floppy Drive:	Drive A	1.44MB	3.5Inch]				
[External Floppy Drive:	Drive B	1.2MB	5.25Inch]				
		Cyl	Hd	Sec	Mbyte		
Internal Hard Disk:	Auto	1016	16	63	500		
[External Hard Disk:	Auto	1016	16	63	500]		
Base Memory:	640KB	Shadow BIOS:		Enable			
Extended Memory:	7MB	Cache Memory:		Enable			
COM Port:	COM1	Pointing Device:		PS/2 Type			
IR Port:	COM2	Quick Boot:		Disable			
LPT Port:	LPT1	Audio Device:		220h			
Mode:	Bidirectional						

Esc	F3	F10		↑↓	←/→		
Main Menu	Set Default	Save		Field	Value		

The *System Setup* submenu

Time Date

The *Time* field and the *Date* field indicate the time and date according to the notebook's built-in clock. If you change these settings, enter the time in the format *HH:MM:SS* (hours:minutes:seconds) and enter the date in the format *DD.MM.YYYY* (day/month/year).

Internal Floppy Drive External Floppy Drive

These two fields show the types of floppy drive installed in the notebook (internal) and in the docking unit (external). If a floppy disk drive is not installed or the docking unit is not connected, the relevant item does not appear on the display.

Internal Hard Disk**External Hard Disk**

These two fields show the types of hard disk installed in the notebook (internal) and in the docking unit (external). The external hard disk type only appears if the notebook is attached to a docking station in which a hard disk is installed.

Base Memory

This field shows the amount of base memory available below 1 Mbyte.

Extended Memory

The *Extended Memory* field shows the amount of available memory above 1 Mbyte.

COM Port

This field is used to specify the port address and the interrupt request used by the serial port.

COM1 The serial port uses the address 3F8h and IRQ4 (default).

COM2 The serial port uses the address 2F8h and IRQ3.

Disable The serial port is disabled.

IR Port

This field defines the address and the interrupt for the serial interface.

COM1 The infrared interface is set to address 3F8h and IRQ4.

COM2 The infrared interface is set to address 2F8h and IRQ3 (default entry).

Disable The infrared interface is disabled.

LPT Port

This field is used to specify the address and the interrupt used by the parallel port.

LPT1 The parallel port uses the address 378h and IRQ7 (default).

LPT2 The parallel port uses the address 278h and IRQ5.

Disable The parallel port is disabled.

Mode

This field defines whether the parallel port is used as an input/output device or just as an output device. The EPP and ECP transmission modes can also be enabled. The data transmission rates can be increased to 2 and 2.4 MB/s with these modes. The peripheral equipment and associated drivers which support these modes are required. (see Documentation of peripheral equipment).

- Bidirectional* Data can be received and transmitted (default).
- EPP 1.7* EPP1.7 standard transmission mode (enhanced parallel port).
- EPP 1.9* EPP1.9 standard transmission mode (enhanced parallel port).
- Extended (ECP)* Extended capability port transmission mode.
- Unidirectional* Data can only be transmitted.

Shadow BIOS

The *Shadow BIOS* field is always set to *Enable*.

The system BIOS is copied to faster RAM when the notebook is switched on.

Cache Memory

This field is used to enable and disable the cache memory. If the access time is too fast for certain application programs, you should disable the cache memory.

- Enable* Part of main memory is mapped to high-speed cache memory. (default).
- Disable* The cache memory is not used.

Pointing Device

This field is used to specify the type of pointing device used.

- PS/2 Type* Select this option to use the built-in trackball or a PS/2 mouse (default).
- Serial Type* Select this option if you wish to use a serial mouse. If you use a serial mouse, you will have to load the appropriate device driver.

Quick Boot

This field is used to specify the type of power-on self-test carried out by the notebook.

- Enable* A short, limited-scope test is carried out when the notebook is switched on.
- Disable* A longer, full test is carried out when the notebook is switched on (default).

Audio Device

This field is used to specify the address for the audio device.

220h (default entry), *230h*, *240h* and *250h*

You have to change this field only if another device uses the default address 220h.

Disable The audio device is disabled.

Display settings - Video Setup

You can select the following settings in the *Video Setup* submenu:

- the display device (in the field marked *Display Device*)
- the display attributes (in the field marked *Reverse Video*)
- the on-screen image size (in the field marked *Expanded Mode*)

F3D31	Video Setup	01.09.95
Panel Type:	Color TFT LCD	
Display Device:	LCD	
[Reverse Video]:	Disable]	
Expanded Mode:	Enable	
External Monitor:	VGA	
Esc Main Menu	F3 Set Default	F10 Save
		↑↓ Field
		←/→ Value

The *Video Setup* submenu

Panel Type

This field shows the notebook's built-in display type.

Monochrome LCD monochrome display

Color DSTN LCD DSTN (Double Super Twisted Nematic) color

Color TFT LCD TFT (Thin Film Transistor) color

Display Device

This field is used to specify the display device.

- LCD* Just the notebook's internal display is used (default).
- CRT* Just the external display is used.
- LCD&CRT* The notebook's internal display and the external display are used. The DSTN color display does not allow this setting.

Reverse Video

This field is only displayed if your notebook is fitted with a monochrome or DSTN color display.

You specify whether, and how, reverse video is to be used.

- Disable* Produces dark characters on a light background (default).
- Text Only* Light characters on a dark background in text mode.
- Text&Graphics* Light characters on a dark background in text and graphics modes.

Expanded Mode

This field controls the on-screen image size in video modes that drive less than 480 lines.

- Disable* 400 lines are centered vertically on the display.
- Enable* The video output is expanded to fill the full available screen area (default).

External Monitor:

With this field you can select the refresh rate for the external monitor. It appears only at PCD 5ND.

- VGA* The external monitor has a refresh rate of 60 Hz. (default entry)
- Enhanced* The external monitor has a refresh rate of 70 Hz.

Setting up the security features - Security Setup

You can set up the following security features in the *Security Setup* submenu:

- Control of system start-up (in the field marked *System Lock*)
- Locking of input devices (in the field marked *Keyboard Lock*)
- Control of access to the *Setup* program (in the field marked *Setup Lock*)
- Control of access to the docking unit (in the field marked *Docking Unit Password*)
- Prevention of system boots from floppy disk (in the field marked *Boot Device*)
- Prevention of write operations to floppy disk (in the field marked *Diskette Write*)
- Prevention of write operations to PCMCIA cards (in the field marked *PC Card Write*)
- Serial port locking (in the field marked *Serial Interface*)
- Infrared interface locking (in the field marked *IR Interface*)
- Parallel port locking (in the field marked *Parallel Interface*)

```

F3D31                               Security Setup                               01.09.95
-----
System Password:                     Not Set
System Lock:                         Disable
Keyboard Lock:                      Disable
Setup Lock:                         Disable

[Docking Unit Password: Disable]

Boot Device:                         Floppy Drive

Diskette Write:                     Enable

PC Card Write:                      Enable

Serial Interface:                   Enable
IR-Interface:                       Enable
Parallel Interface:                 Enable

-----
Esc      F3      F10      ↑↓      ←/→
Main Menu  Set Default  Save  Field  Value

```

The *Security Setup* submenu

System Password

You can specify a system password in this field. Depending on the *System Lock* and *Keyboard Lock* settings, the system password allows the system to boot, or unlocks the input devices.

If you do not specify a different password in *Setup Lock*, the system password will also permit access to the *Setup* program. Default: *Not Set*



Make a note of your passwords, and store the written note and the System Utilities diskette (with the stored setup password) in a secure place.

To specify or alter the system password:

- ▶ Select *System Password*.
- ▶ Enter the system password and press the Enter key.
The system password can consist of a maximum of eight letters or numbers.
- ▶ Enter the system password a second time to confirm it and press the Enter key.
The following message is displayed:
`New password is now installed, press any key ...`
- ▶ Press any key to continue.

If you do not wish to change the current system password:

- ▶ Select another item that you wish to change.

System Lock

In this field you select whether the system start-up is to be restricted by means of the system password.

Enable You can only select this option if you have specified a system password.
Whenever the notebook is switched on or warm-booted, the keyboard lock is released, or the notebook comes out of suspend mode you have to enter the system password before the system will boot.

Disable The system will boot without the entry of a password (default).

Keyboard Lock

You use this field to specify whether the keyboard, trackball and mouse should be locked. If the input devices are locked, you can unlock them by entering the system password.

Enable You can only select this option if you have specified a system password.
Using the key combination **Fn**+**Scroll Lock** you can lock the input devices and switch off the display.

1 Minute, 2 Minutes, 3 Minutes, 4 Minutes or 5 Minutes
You can only select this option if you have specified a system password.
If the notebook receives no input within the period of time specified, the input devices are locked and the display is switched off.
You can also lock the input devices and switch off the screen by pressing the key combination **Fn**+**Scroll Lock** .

Disable The input devices cannot be locked (default).

Setup Lock

You use this field to enable and disable password-protection for the *Setup* program. The setup password can consist of a maximum of eight letters or numbers.



Make a note of your passwords, and store the written note and the System Utilities diskette (with the stored setup password) in a secure place.

Enable The setup password has to be entered before the *Setup* program will start.
This field is automatically set to *Enable* if *System Lock* or *Keyboard Lock* is set to *Enable*. If you do not specify a separate setup password, you have to enter the system password in order to run *Setup*.

Disable You can only select this option if *System Lock* and *Keyboard Lock* are set to *Disable*.
You will then be able to start *Setup* without having to enter a password (default).

If you want to specify or change a setup password:

- ▶ Select *Setup Lock*.
- ▶ Select *Enable*.
- ▶ Enter a setup password and press the Enter key.
- ▶ Enter the setup password a second time to confirm it and press the Enter key.
The following message is displayed:
New password is now installed, press any key ...
- ▶ Press any key to continue.
- ▶ Select *Setup Lock*.
- ▶ Insert the disk *System Utilities* in the floppy disk drive.
- ▶ Press the Enter key.
The setup password is saved in encrypted form on the disk *System Utilities*.

If you have not defined a setup password and you wish to use the system password as the setup password:

- ▶ Select *Setup Lock*.
- ▶ If the field is set to *Disable*, change this setting to *Enable*.
- ▶ Insert the disk *System Utilities* in the floppy disk drive.
- ▶ Press the Enter key.
The setup password is saved in encrypted form on the disk *System Utilities*.

If you do not wish to use the system password as the setup password or if you wish to change the setup password:

- ▶ Select *Setup Lock*.
- ▶ Enter the new setup password and press the Enter key.
- ▶ Enter the new setup password a second time to confirm it and press the Enter key. The following message is displayed:
New password is now installed, press any key ...
- ▶ Press any key to continue.
- ▶ Select *Setup Lock*.
- ▶ Insert the disk *System Utilities* in the floppy disk drive.
- ▶ Press the Enter key.
The setup password is saved in encrypted form on the disk *System Utilities*.

Docking unit password

This field only appears if the notebook is connected to a docking unit. It lets you specify whether docking-unit access is to be controlled by means of a password.

- | | |
|----------------|---|
| <i>Enable</i> | You have to enter a password in order access the docking unit. |
| <i>Disable</i> | You can access the docking unit without having to enter a password (default). |

If you wish to specify a docking unit password:

- ▶ Select *Docking Unit Password*.
- ▶ If the field is set to *Disable*, change this setting to *Enable*.
- ▶ Enter a docking unit password and press the Enter key.
The password can consist of a maximum of eight letters and numbers.
- ▶ Enter the docking unit password a second time to confirm it and press the Enter key. The following message is displayed:
New password is now installed, press any key ...
- ▶ Press any key to continue.

Boot Device

In this field you specify the boot device (the device from which the operating system is loaded).

Floppy Drive The BIOS attempts to boot the system from floppy drive A:. If A: does not contain a bootable system disk, it tries to boot from the hard disk, drive C: (default).

Hard Disk The BIOS always boots the system from the hard disk, drive C:.

PCMCIA This option cannot be selected if the notebook is attached to docking unit which contains a floppy disk drive.
The BIOS tries to boot the system from PCMCIA slot 1. If PCMCIA slot 1 (the lower slot) does not contain a PCMCIA card with an operating system on it, the system boots from drive C:.

Diskette Write

In this field you specify whether the notebook's floppy disk drive can write to, or delete, floppy disks.

Enable Floppy disks can be read, written and deleted (default).

Disable Floppy disks can only be read.

PC Card Write

In this field you specify whether data can be written to PCMCIA cards installed in the notebook.

Enable PCMCIA cards can be read, written and deleted (default).

Disable PCMCIA cards can only be read.

Serial Interface

In this field you specify whether data can be transferred across the notebook's serial port.

Enable The serial port is enabled, data can be transferred.

Disable The serial port is disabled.

IR (infrared) Interface

In this field you specify whether data exchange is possible via the notebook's infrared interface.

Enable The infrared interface is enabled - data exchange is possible.
(default entry)

Disable The infrared interface is disabled.

Parallel Interface

In this field you specify whether data can be transferred across the notebook's parallel port.

Enable The parallel port is enabled, data can be transferred

Disable The parallel port is disabled.

Setting up the power management features - Power Management Setup

You can do the following in the *Power Management Setup* submenu:

- Enable/disable the power management features (in the field marked *Power Management*)
- Specify the response to display output (in the field marked *Video Access Trigger*)
- Enable/disable Doze mode (in the field marked *Doze Mode*)
- Enable/disable Standby mode (in the field marked *System Auto Standby*)
- Enable/disable Suspend mode (in the field marked *System Auto Suspend*)
- Enable/disable automatic display power-down (in the field marked *LCD Power Down*)
- Enable/disable the hard disk's power saving features (in the field marked *Hard Disk Power Down*)
- Set the CPU speed (in the field marked *CPU Speed*)
- Enable/disable the system speaker (in the field marked *System Speaker*)
- Deep-discharge the battery (in the field marked *Deep Discharge*)

F3A21	Power Management Setup	03.07.95

Power Management:	Enable for Battery Powered Only	
Video Access Trigger:	Enable	
Doze Mode:	Enable	
System Auto Standby:	2 Minutes	
System Auto Suspend:	4 Minutes	
LCD Powerdown:	1 Minute	
Hard Disk Powerdown:	2 Minutes	
CPU Speed:	High	
System Speaker:	Enable	
Deep Discharge:	Disable	

Esc	F3	F4
Main Menu	Set Default	Long Life
		F5
		High Performance
		F10
		Save
	↑↓	←/→
	Field	Value

The *Power Management* submenu

Long Life mode

You can select the Long Life mode by pressing function key **F4** . The Long Life mode uses all the available power management features to conserve power. The notebook uses little power and operates slightly slower than usual.

To re-enable the default power management features, press function key **F3** .

High Performance mode

You can select High Performance mode by pressing function key **F5** . In this mode the notebook operates at maximum speed and uses the most power.

To re-enable the default power management features, press function key **F3** .

Power Management

You use this field to specify when the power management features are to be used.

Enable for Battery Powered only

The power management features are only used if the notebook is running on its built-in battery (default).

Disable

The power management features are not used.

Always Enable

The power management features are permanently enabled.

Video Access Trigger

You use this feature to define how power management is to react to display output.

Enable

Output to the display is treated as system activity and resets the timer (e.g., for *LCD Power Down*) (default).

Disable

Output to the display is not treated as system activity. You must use this setting if you intend to use a screen saver or are running OS/2.

Doze Mode

Enable

If the system registers no activity for a specific period of time, the CPU speed is reduced to save power. Any resumption of activity causes the CPU speed to return to normal (default).

Disable

The Doze mode is disabled.

System Auto Standby

In this field you specify how long the notebook waits during a period without system activity before switching to Standby mode.

1 Minute to 15 Minutes

If the notebook registers no system activity for the period specified in this field, it switches to Standby mode. Any resumption of activity re-activates the notebook.

(Default: 2 Minutes)

Disable The feature is disabled.

System Auto Suspend

In this field you specify how long the notebook waits during a period without system activity before switching from Standby mode to Suspend mode. This feature will only work if a time is defined in *System Auto Standby*.

Battery Low Suspend

The notebook switches to Suspend mode five minutes after the remaining battery power has dropped to below 10%.

1 Minute to 15 Minutes

If the notebook registers no system activity for the period specified in this field, it switches from Standby mode to Suspend mode.

(Default: 4 Minutes)

Disable The feature is disabled.

LCD Powerdown

In this field you specify the time after which the notebook powers down its display if it is receiving no input. Any input it receives causes it to switch the display on again.

1 Minute to 15 Minutes

If the notebook registers no input for the period defined in this field, it switches off its display. (Default: 1 Minute)

Disable The feature is disabled.

Hard Disk Powerdown

In this field you specify the time after which the notebook powers down its hard disk if it is not being accessed. The next attempt to access the hard disk powers it up again.

1 Minute to 15 Minutes

If the hard disk is not accessed for the period defined, it is powered down. (Default: *2 Minutes*)

Disable The feature is disabled.

CPU Speed

In this field you select the CPU speed.

High The CPU operates at maximum speed (default).

Low The CPU operates at reduced speed.

System Speaker

In this field you enable or disable the notebook's system speaker.

Enable The system speaker is enabled (default).

Disable The system speaker is disabled.

Deep Discharge

In this field you can specify that the built-in battery is to be fully discharged (see chapter "Operation - The battery - Deep-discharging/recharging the battery").

Enable The battery will be discharged, provided the notebook is left switched on.

Disable The feature is disabled (default).

Configuring the docking unit - Docking Unit Setup

The *Docking Unit Setup* submenu only appears if the notebook is attached to a docking unit.

You can specify the following in *Docking Unit Setup*:

- Hard disk drive C: (in the field marked *Hard Disk Boot*)
- Floppy disk drive A: (in the field marked *Diskette Boot*)
- The docking unit's display controller (in the field marked *Primary Display*)
- The display controller used by the notebook (in the field marked *Internal VGA*)
- The type of pointing device (in the field marked *Pointing Device*)

F3D31	Docking Unit Setup					01.09.95
External Diskette:	1.2MB 5.25Inch					
External Hard Disk:	Auto	Cyl 985	Hd 13	Sec 32	Mbyte 200	
Hard Disk Boot:	Internal					
Diskette Boot:	Enable					
Primary Display:	VGA/EGA					
Internal VGA:	Automatic					
Pointing Device:	PS/2 Type					
SCSI Drive:	Disable					
I/O:	340h					
IRQ:	11					

Esc	F3		F10	↑↓	←/→	
Main Menu	Set Default		Save	Field	Value	

The *Docking Unit Setup* submenu

External Diskette

In this field you specify the type of floppy disk drive (if any) installed in the docking unit.

Options: 360 KB, 720 KB, 1.2 MB, 1.44 MB, 2.88, and None (default: None)

Default entry: None

External Hard Disk

This field shows the type of hard disk installed in the docking unit.

Hard Disk Boot

In this field you specify which hard disk is to be treated as hard disk C:. This is then the hard disk from which the operating system is loaded.

- Internal* The notebook's built-in hard disk is drive C: (default).
- External* The hard disk in the docking unit is drive C:.
- Disable* The hard disk in the notebook and the hard disk in the docking unit are disabled.

Diskette Boot

In this field you specify which floppy disk drive is to be treated as drive A:. This is then the floppy disk drive from which the operating system can be loaded.

- Internal* The notebook's built-in floppy disk drive is drive A: (default).
- External* The floppy disk drive in the docking unit is drive A:.

Primary Display

If the notebook's built-in display controller has been disabled, this field specifies the type of display controller installed in the docking unit.

- Options: *VGA/EGA, 40 color, 80 color, and Mono.*
- Default: *VGA/EGA*

Internal VGA

This field is used to specify when the notebook's built-in display controller should be disabled.

- Automatic* If the notebook detects a display controller in the docking unit, the notebook's own display controller is disabled (default).
- Disable* If the notebook is attached to a docking station, its own display controller is disabled.

Pointing Device

This field is used to specify the kind of pointing device used. The entry in this field takes precedence over the *Pointing Device* setting in the *System Setup* submenu.

- PS/2 Type* Select this option if you wish to use the trackball or a PS/2 mouse (default).
- Serial Type* Select this option if you wish to use a serial mouse. If you use a serial mouse, you will have to load the appropriate device driver.

SCSI Drive:

- Enable* A SCSI drive can be incorporated in the docking unit.
- Disable* No SCSI drive can be incorporated in the docking unit. (default entry)

I/O:

- 140h* The I/O address for the SCSI drive incorporated in the docking unit is 140h.
- 340h* The I/O address for the SCSI drive incorporated in the docking unit is 340h. (default entry)

IRQ:

- 9* The interrupt for SCSI drive incorporated in the docking unit is 9.
- 10* The interrupt for SCSI drive incorporated in the docking unit is 10.
- 11* The interrupt for SCSI drive incorporated in the docking unit is 11. (default entry)
- 15* The interrupt for SCSI drive incorporated in the docking unit is 15.

The fields SCSI Drive, I7O and IRQ appear only when a PCD-5ND is docked into a docking unit II.

System expansion



Only use system upgrades that meet the requirements and guidelines concerning safety, RFI, EMC and telecommunications terminal equipment (see the section "Important notes").

Adding/removing memory (PCD-4ND)

The notebook PCD-4ND is fitted with a standard 4 Mbytes of main memory (RAM). This can be increased to either 8 Mbytes or 20 Mbytes with a memory upgrade card.



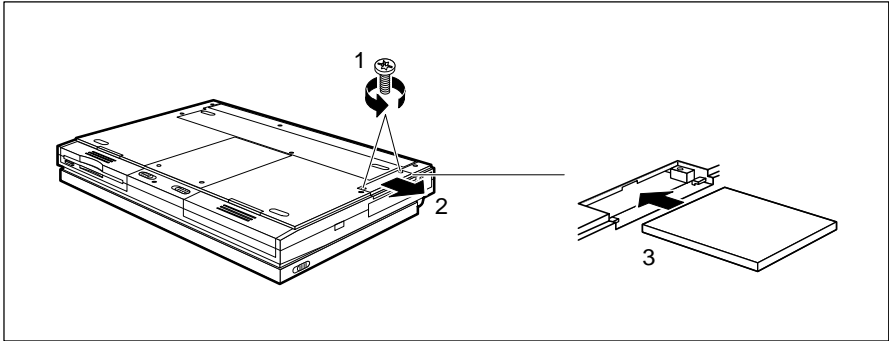
Only use memory upgrades designed specifically for this notebook.

Never use force when installing or removing a memory upgrade.

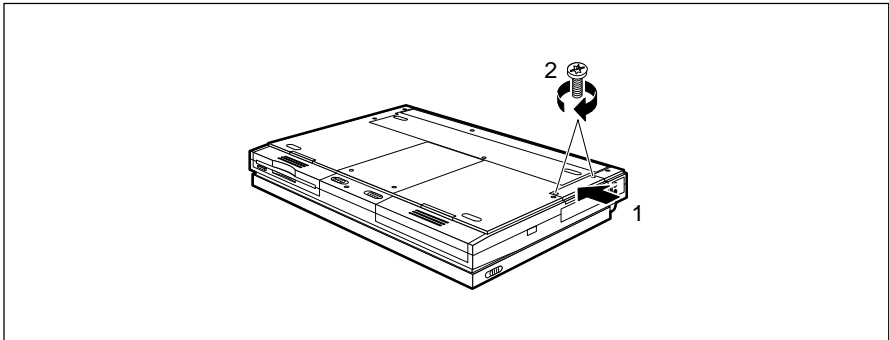
Make sure that foreign objects do not fall into the memory upgrade slot.

Installation

- ▶ Switch off the notebook.
- ▶ Close the cover of the notebook so that it locks into place on the left and right.
- ▶ Disconnect any cables attached to the notebook.
- ▶ Place the notebook bottom-up on a flat surface.



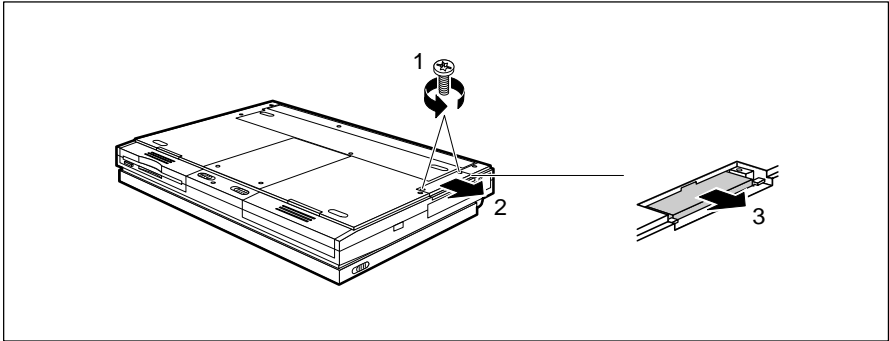
- ▶ Remove both screws (1).
- ▶ Remove the memory slot cover (2).
- ▶ Insert the memory upgrade, contacts first, into the slot (3). The labeled side of the upgrade must face towards the notebook's display.
- ▶ Gently push the memory upgrade into the slot until you feel it click into place.



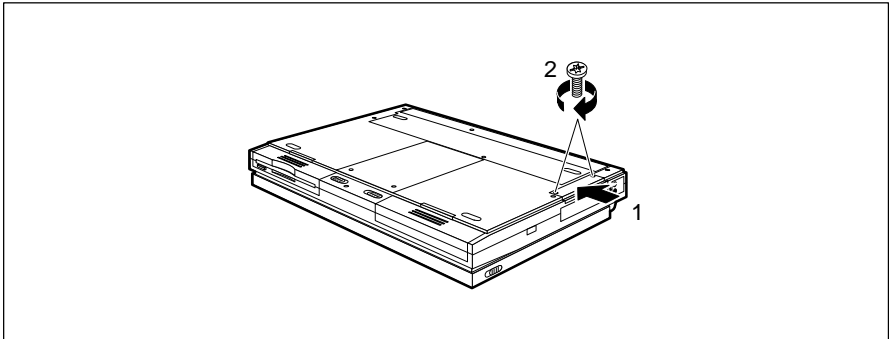
- ▶ Replace the cover (1).
- ▶ Replace both screws (2).
- ▶ Turn the notebook over and place it on a flat surface with the underside facing downwards.
- ▶ Reconnect the cables you previously disconnected.

Removal

- ▶ Switch off the notebook.
- ▶ Close the cover of the notebook so that it locks into place on the left and right.
- ▶ Disconnect any cables attached to the notebook.
- ▶ Place the notebook bottom-up on a flat surface.



- ▶ Remove both screws (1).
- ▶ Remove the cover (2).
- ▶ Pull the memory card out of the notebook as indicated by the arrow (3).



- ▶ Replace the cover (1).
- ▶ Replace both screws (2).
- ▶ Turn the notebook over and place it on a flat surface with the underside facing downwards.
- ▶ Reconnect the cables you previously disconnected.

Adding/removing memory (PCD-5ND)

The notebook PCD-5ND is fitted with a standard 8 Mbytes of main memory (RAM). This can be increased to either 16 Mbytes, 24 Mbytes or 40 Mbytes with two memory modules.



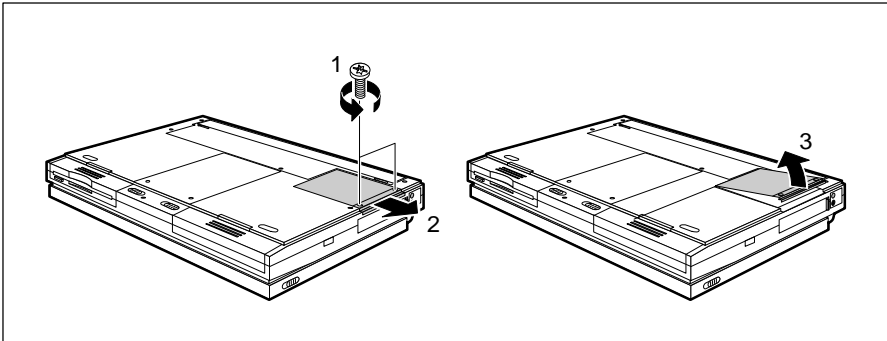
Only use memory modules designed specifically for this notebook.

Never use force when installing or removing a memory module.

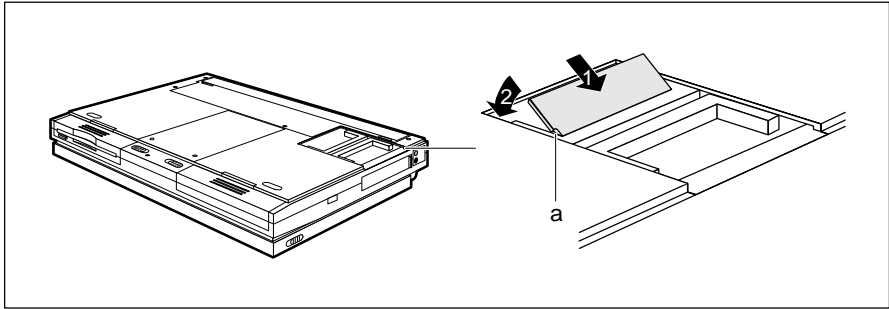
Make sure that foreign objects do not fall into the memory module slot.

Installation

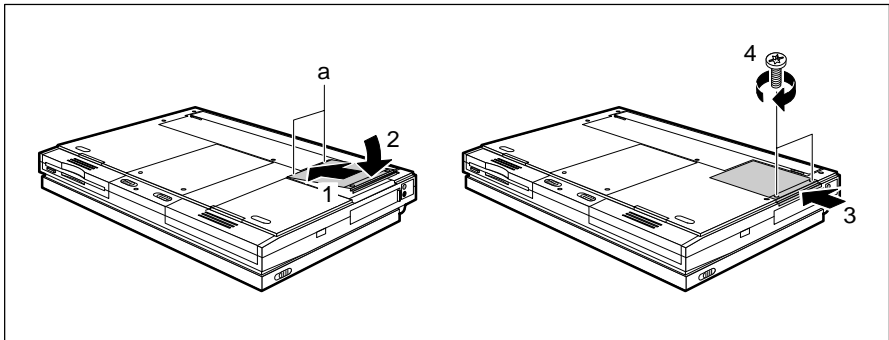
- ▶ Switch off the notebook.
- ▶ Close the cover of the notebook so that it locks into place on the left and right.
- ▶ Disconnect any cables attached to the notebook.
- ▶ Place the notebook bottom-up on a flat surface.



- ▶ Remove both screws (1).
- ▶ Remove the memory slot cover (2) by pulling in direction of the arrow (3).



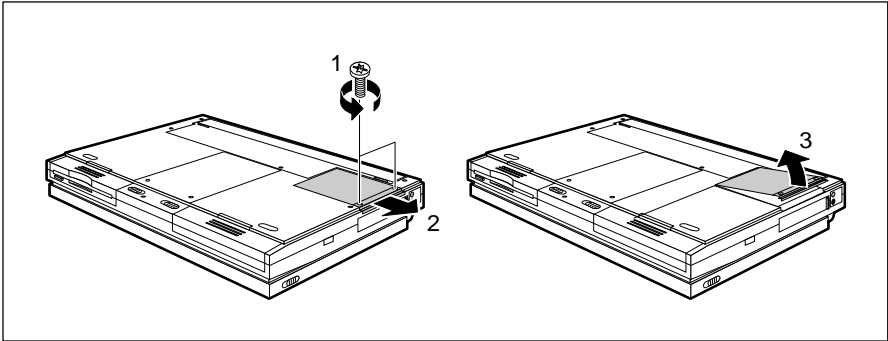
- ▶ Insert the memory module, contacts first, into the slot (1).
The slot on memory module (a) must be in line with the corresponding part at the mounting location.
- ▶ Carefully flap the memory module down (2) until you feel it latch in place.
- ▶ Install the second memory module in the same way.



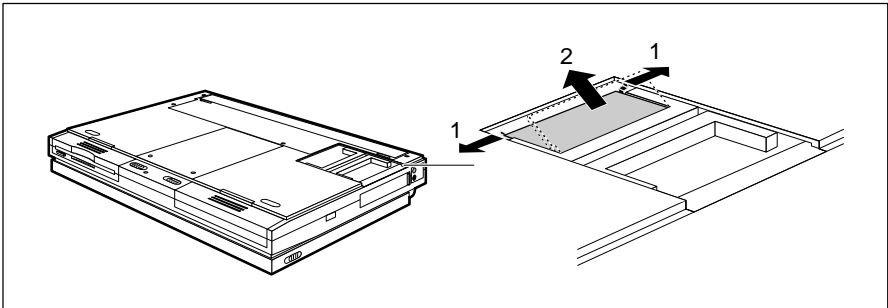
- ▶ Place the cover on its mounting location (1) and flap it into place on the underside of the notebook (2).
- ▶ Push the cover as far as it will go in the direction of the arrow (3).
- ▶ Fasten the cover with the two screws (4).
- ▶ Place the notebook bottom-down on a flat surface.
- ▶ Reconnect the cables you disconnected earlier.

Removal

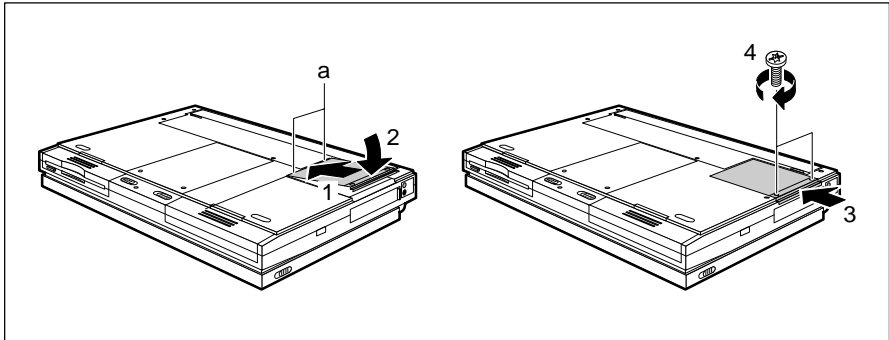
- ▶ Switch off the notebook.
- ▶ Close the cover of the notebook so that it locks into place on the left and right.
- ▶ Disconnect any cables attached to the notebook.
- ▶ Place the notebook bottom-up on a flat surface.



- ▶ Remove both screws (1).
- ▶ Pull the cover in the direction of the arrow (2) and lift it off the notebook (3).



- ▶ Carefully press the two retaining clips outwards (1). The memory module will flap up.
- ▶ Pull the memory module out of the notebook (2).
- ▶ Remove the second memory module in the same way.



- ▶ Place the cover on its mounting location (1) and flip the cover into place on the underside of the notebook (2).
- ▶ Push the cover as far as it will go in the direction of the arrow (3).
- ▶ Fasten the cover with the two screws (4).
- ▶ Turn the notebook over and place it on a flat surface with the underside facing downwards.
- ▶ Reconnect the cables you previously disconnected.

Installing and removing PCMCIA cards

You can install either two 3.3mm (type I) or 5.5mm (type II) PCMCIA cards, or one 10.5mm (type III) PCMCIA card in the notebook.



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

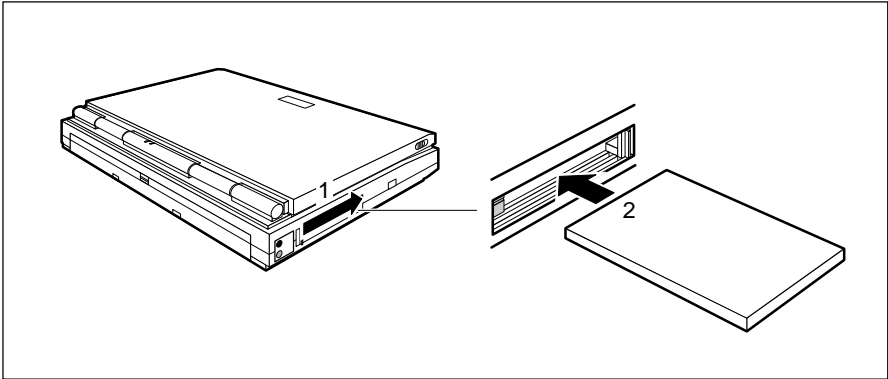
Consult the documentation supplied by the card's manufacturer and follow the instructions provided.

Never use force when inserting or removing a PCMCIA card.

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

Installation

- ▶ Switch off the notebook.



- ▶ Slide the cover in the direction of the arrow as far as it will go (1).
- ▶ Insert the PCMCIA card, contacts first, into the slot guides (2). The labeled side of the upgrade must be facing upwards.
- ▶ Gently push the PCMCIA card into the slot until you feel it click into place.



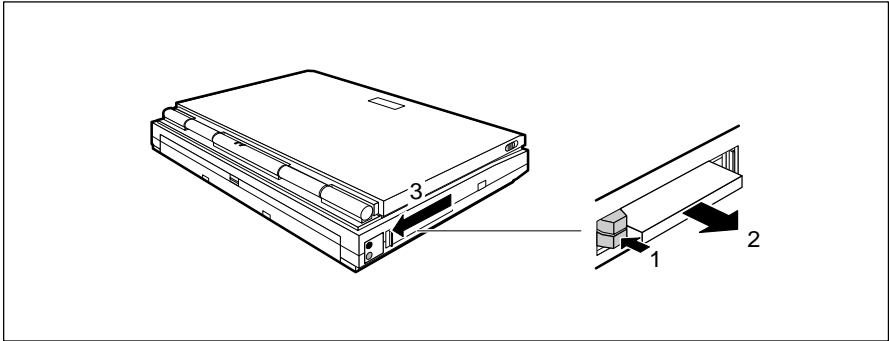
Consult the documentation supplied with the PCMCIA card for information on how to install the necessary device drivers.

For further information refer to the information files (**.txt*, **.doc*, **.wri*) provided with the PCMCIA driver diskette or the information under MS-Windows.

If you are using PCMCIA cards that do not connect to external devices, close the PCMCIA slot cover.

Removal

- ▶ Switch off the notebook.



- ▶ Press the eject button (1). It will project further out of the notebook's case.
- ▶ Pull the PCMCIA card out of the notebook (2).
- ▶ Push the cover in the direction of the arrow (3) to close it.

Connecting external devices



Disconnect all the devices from their respective power sources when you connect or disconnect a device.



Consult the documentation supplied with an external device before attempting to connect it.

Do not connect or disconnect cables during a storm.

When disconnecting cables, always hold them by the connector; do not pull on the cable itself.

When connecting or disconnecting cables, carry out the following steps in the sequence indicated:

Connecting cables

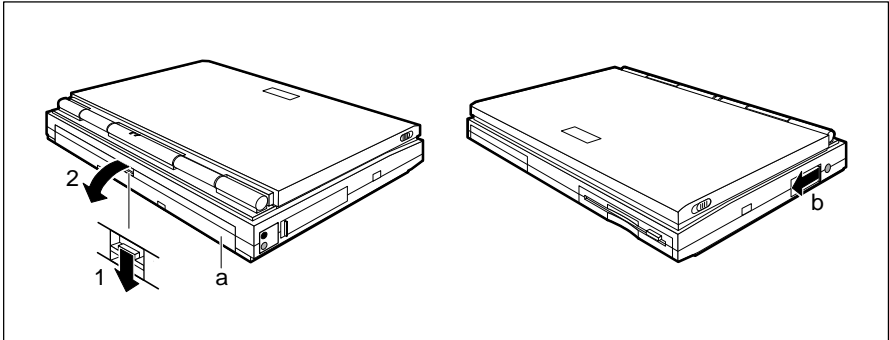
- Switch off all the relevant devices.
- Disconnect the AC power cords of all the relevant devices from the grounded wall outlets.
- Connect all the cables to the notebook and the external devices. Pay attention to the safety information provided in the section "Important notes".
- Connect all the data cables to the relevant data and telecommunications network connectors.
- Reconnect the AC power cords to the grounded wall outlets.

Disconnecting cables

- Switch off all the relevant devices.
- Disconnect the AC power cords of all the relevant devices from the grounded wall outlets.
- Disconnect all the data cables from the various data and telecommunications network connectors.
- Disconnect all the cables connecting the notebook and the external devices.

Port covers and connectors

i If you have not attached any external devices, you should replace the port cover to protect the port connectors from becoming soiled.



a = port cover

b = mouse/keyboard port cover

If you wish to connect an external display, a serial or parallel device, a docking unit or a station box, you must first open the port cover:

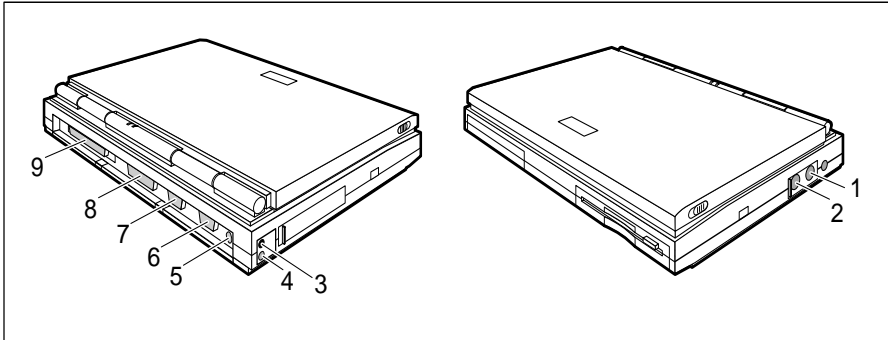
- ▶ Press down the release tab (1).
- ▶ Fold down the port cover (2).

i You fold the port cover away beneath the notebook, where it clips into place.

If you wish to connect a PS/2 mouse or an external keyboard, you have to open the cover for the mouse and keyboard ports:

- ▶ Slide the cover (b) in the direction of the arrow as far as it will go.

i If you have not connected a PS/2 mouse or external keyboard, close the mouse and keyboard port cover to protect the port connectors from becoming soiled.



1 = Connector for external keyboard
 2 = Connector for PS/2 mouse
 3 = Connector for loudspeaker
 4 = Audio connector
 5 = Microphone connector

6 = Serial port connector
 7 = Display connector
 8 = Parallel port connector
 9 = Connector for docking unit

Connecting serial or parallel devices

- ▶ Connect the device's data cable to the appropriate port connector.

The serial port is configured by default as *COM1*. You can configure it as *COM2* in *System Setup*. The parallel port is configured by default as *LPT1*. You can configure it as *LPT2* in *System Setup*.

Connecting an external display

You can connect a VGA, SVGA (Super VGA) or multisync monitor. The notebook's built-in display controller supports resolutions up to 1024 x 768 with 256 colors. If you wish to use a resolution greater than 640 x 480, you must load the relevant display drivers (see the manuals supplied with your display).

- ▶ Connect the display's video signal cable to the notebook's display connector.
- ▶ Connect the power cable of the external display to a grounded wall outlet and switch on the display.
- ▶ Switch on the notebook.
- ▶ Configure the display output in *Video Setup* or by pressing the key combination **Fn**+**F12**.
- ▶ Select the resolution for the external display.

Connecting a mouse

The trackball and the trackball buttons are disabled when you connect a mouse.

- ▶ Connect the mouse to the appropriate port (PS/2 or serial).
- ▶ Switch on the notebook.
- ▶ In *Video Setup*, set *Pointing Device* to either *PS/2 Type* for a PS/2 mouse or *Serial Type* for a serial mouse.
- ▶ Install the necessary device driver (see the manual supplied with the mouse).

Connecting an external keyboard

Connecting an external keyboard disables the keyboard built into the notebook.

- ▶ Connect the external keyboard to the external keyboard connector. 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.
- ▶ Switch on the notebook.



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 right **Ctrl** key and the **AltGr** key together instead.

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

Connecting a docking unit or station box

The manuals supplied with the docking unit and the station box describe how to connect the notebook.



Read the docking unit or station box manuals carefully before attempting to connect the notebook.

Make sure that neither PCMCIA cards nor the eject button are projecting out of the side of the notebook.



If a VGA or SVGA display controller is installed in the station box, the notebook's display is switched off.

Makes sure that any adapters installed in the docking unit or the station box do not use I/O addresses, interrupts or DMA channels already used by the notebook. Details of the I/O addresses, interrupts and DMA channels are provided in the section "System specifications".

The maximum DMA transfer rate between Docking Unit and notebook is of 5 Mbyte/second.

If necessary, you can make the I/O addresses (e.g., for the display controller) or the interrupts (e.g., for the serial or parallel port) available by disabling the relevant components with the *Setup* program.

- ▶ Close the PCMCIA slot cover.
- ▶ Push the notebook into the docking unit or station box until you feel it click into place.
- ▶ Switch on the docking unit or station box.
- ▶ Switch on the notebook.
- ▶ Select the appropriate settings in *Docking Unit Setup*.

Connecting external audio devices

If you attach an external microphone, the internal microphone is disabled. If you attach an external loudspeaker, the internal loudspeaker is disabled.

- ▶ Connect the audio device (external microphone, external loudspeaker) to the connector of the notebook.

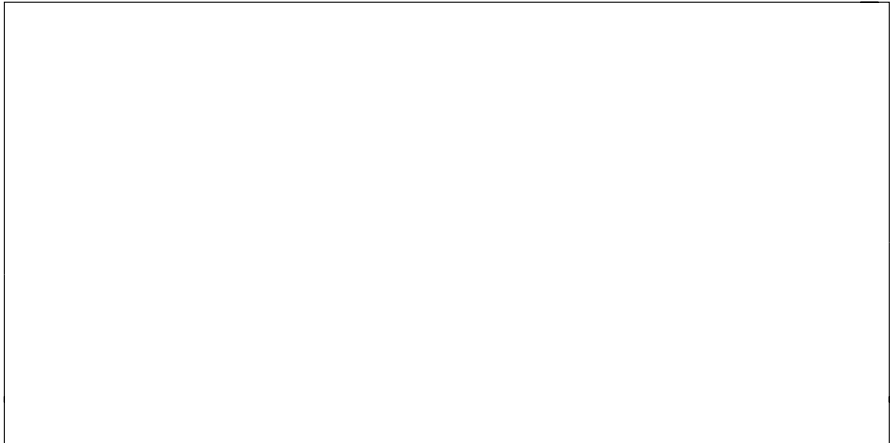
Transferring data with the infrared interface

The infrared interface enables a wireless data transfer.

By default, the infrared interface is set to COM2 in the setup. You can set it to COM1 in the system setup.



The infrared interface can only be used, when the infrared interface (in *Security Setup*) and the associated serial interface are enabled (in *System Setup* and *Security Setup*)



- ▶ Set up your devices as illustrated above. The devices may be no more than one meter apart. The infrared transmitter and receiver operate over a range of 30°.

Changing the keycaps

If the keycaps on the keyboard do not match the country settings (selected when the operating system is installed), you can fit the appropriate keycaps.

Information on which keycaps to change is provided with the replacement keycaps and shows how the keyboard layout should appear once you have switched the caps.

- ▶ Lift off a keycap you wish to replace (e.g., with a screwdriver).
Be careful not to damage the neighboring keys.
- ▶ In the case of the wide keys, hook the wire clip into the slot in the key switch unit and the slot on the underside of the keycap.
- ▶ Press the new keycap onto the key switch unit so that it clicks into place.

Troubleshooting



Pay attention to the safety instructions provided in the "Important notes" and "Installation" sections when connecting and disconnecting cables.

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

- ▶ Switch off the notebook.
- ▶ Make a note of the steps and the circumstances that led to the fault. Also make a note of any error messages displayed.
- ▶ Contact your sales office or customer service.

The POWER LED does not light up when the notebook is switched on

If the POWER LED remains off, it can have the following causes:

The battery is not installed correctly

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

The battery is dead

- ▶ Recharge the battery or install a fully charged battery.

The power supply unit is not connected properly.

- ▶ Switch off the notebook.
- ▶ Check that the power supply unit is connected to the notebook properly.
- ▶ Check that the AC power cord is connected properly to the power supply unit and the grounded wall outlet.
- ▶ Switch on the notebook. The LED on the power supply unit should light up.

The notebook's display remains blank

If the display remains blank, it can have the following causes:

The display is switched off

- ▶ Press a key or enter the system password.

If the notebook is connected to a docking unit or station box in which a VGA or SVGA adapter is installed, the notebook's display is always switched off.

The display's contrast or brightness has been turned down

- ▶ Increase the contrast by pressing **[Fn]** + **[←]** or increase the brightness with **[Fn]** + **[↑]**.

The notebook has been configured to drive an external display

- ▶ Press the key combination **[Fn]** + **[F12]** or change the *Display Device* in *Video Setup* setting to *LCD* or *LCD&CRT*.



A DSTN color display does not allow a display output at external and notebook display at the same time.



The notebook's display is difficult to read

If the display is difficult to read:

Reflexes

- ▶ Turn the notebook or alter tilt of the display.

The contrast is too low or too high

- ▶ With a monochrome or DSTN color display:
Increase the contrast with **Fn**+  or reduce it with **Fn**+ .

The brightness is too low or too high

- ▶ Increase the brightness with **Fn**+  or reduce it with **Fn**+ .

The external display remains blank

If the display remains blank, it can have the following causes:

The display is switched off

- ▶ Switch it on

The display has been blanked

- ▶ Press a key to reactivate it.

The brightness control is turned down

- ▶ Adjust the brightness control to increase the brightness. For further details, consult the manual supplied with the display.

The notebook has been configured to drive the internal display


- ▶ Press the key combination **Fn**+ **F12** or set *Display Device* in *Video Setup* to *CRT* or *LCD&CRT*.

The external display's power cable or signal cable is not connected properly

- ▶ Switch off the external display and the notebook.
- ▶ Check that the external display's power cable is connected correctly to a grounded wall outlet.
- ▶ Check that the signal cable is connected correctly to the notebook and to the display itself (if it is not permanently mounted).
- ▶ Switch on the external display and the notebook.

The external display is blank or the image is unstable

The wrong display resolution has been set for the external display or the application.

- ▶ Exit the application in Microsoft Windows by pressing **Alt + F4** . If the error persists when you exit the program, switch off the external display and then switch it on again after a pause of at least three seconds.
- ▶ Use *Windows Setup* to select the correct display resolution for the application.

The notebook seems to have locked up (crashed)

If the notebook seems to have locked up or crashed, it can have the following causes:

The notebook is in Standby or Suspend mode

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

The application has locked up

- ▶ Close the application or restart the notebook by power-cycling it or with a warm boot.

The battery is dead.

- ▶ Recharge the battery or install a fully charged battery.

The trackball does not respond

If the trackball does not work, it can have the following causes:

Incorrect settings in System Setup

- ▶ Ensure that *Pointing Device* in *System Setup* is set to *PS/2 Type*.

No mouse driver installed

- ▶ Ensure that the correct mouse driver has installed correctly before starting the application.

The trackball or its mechanism is soiled

- ▶ Switch off the notebook.
- ▶ Clean the trackball and its mechanism.
- ▶ Switch on the notebook.

The mouse does not respond

If the mouse does not work, it can have the following causes:

Incorrect settings in System Setup

- ▶ Check the *Pointing Device* setting in *System Setup*.
If a PS/2 mouse is connected to the notebook, the field should be set to *PS/2 Type*.
If a serial mouse is connected, it should be set to *Serial Type*.
- ▶ Check the correct *Com Port* setting in *System Setup*. The serial interface must be enabled.
- ▶ Check the correct *Serial Interface* setting in *Security Setup*. The serial interface must be enabled.

No mouse driver installed

- ▶ Ensure that the correct mouse driver has installed correctly before starting the application. For information on the mouse driver, consult the manuals supplied with the mouse or your application.

The mouse is not properly connected

- ▶ Switch off the notebook.
- ▶ Check to ensure that the mouse cable is connected to the notebook properly. If you are using an adapter or extension cable, check the connections here, too.
- ▶ Switch on the notebook.

The notebook will not write to floppy disk

- ▶ Check whether that floppy disk is OK and is not write-protected.
- ▶ Ensure that *Diskette Write* in *Security Setup* is not set to *Enable*.

The battery drains quickly or becomes hot

- ▶ Deep-discharge and recharge the battery.

If this does not correct the problem, the battery should be replaced. When disposing of the old battery, pay attention to the safety instructions in the section "Important notes".

The PC's date or time is incorrect

- ▶ Change the time and/or date in *System Setup*.



If the date and time are repeatedly incorrect when you switch on the notebook, the backup battery that supplies the internal clock is dead. Connect the notebook via its power supply unit to a grounded wall outlet or install a fresh battery. The backup battery will charge fully in roughly two days.

The printer does not print

- ▶ Makes sure that the printer is switched on and on-line (see the manuals supplied with the printer).
- ▶ Check that the printer cable connecting the notebook and the printer is connected properly.
- ▶ Make sure that the port you are using to address the printer has been configured correctly in your application, in Microsoft Windows and in MS-DOS.
- ▶ Check that the correct printer driver is installed.
- ▶ Check *System Setup* and *Security Setup* to ensure that the port you are using is configured correctly. The *COM Port* or *LPT Port* setting, or the *Serial Interface* or *Parallel Interface* setting, should match the settings in your application, in Microsoft Windows and in MS-DOS.

The battery symbol is flashing



The battery is dead or no battery is installed

If the BATTERY LED is flashing, the battery is empty. If the BATTERY LED is off, there is no battery in the notebook.

- ▶ Ensure that the battery has been installed correctly.

Or

- ▶ Recharge the battery.



The battery is defective

The number next to the battery symbol indicates which battery has failed: 1 means the standard battery; 2 means the second battery.

- ▶ Deep-discharge and recharge the battery.

If this does not correct the problem, the battery should be replaced. When disposing of the old battery, pay attention to the safety instructions in the section "Important notes".

Acoustic warnings

A beep sounds every few seconds

The battery is almost drained.

- ▶ Recharge the battery.

A single continuous beep

The notebook cannot switch to Standby or Suspend mode because the hard disk or floppy disk is being accessed, or because there is insufficient space on the hard disk.

- ▶ Wait until the read/write operations to the hard disk or floppy disk have finished or clear some space on the hard disk.

Three long beeps

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

On-screen error messages

This section describes the error messages displayed by the system BIOS. Error messages displayed by the operating system or programs are described in the relevant manuals.

Diskette read failure - press F1 to retry boot
The system disk is defective.

- ▶ Insert a working system disk.
- ▶ Press the function key **F1**.

Incorrect diskette, insert the utility diskette.
Press ENTER key after ready to backup.

- The password cannot be saved to the disk you have inserted.
- ▶ Insert the disk *System Utilities*.
 - ▶ Press the Enter key.

No boot device available - press F1 to retry boot

The operating system will not load because the hard disk is not connected is has failed.

The operating system can be loaded from drive A: or from a PCMCIA card. Which, depends on whether *Boot Device* is set to *Floppy Drive* or *PCMCIA* in *System Setup*.

If the notebook is connected to a docking unit with floppy disk drive, the operating system cannot be loaded from a PCMCIA card. If you wish to boot from drive A:, the *Diskette Boot* setting has to be changed to *Internal* or *External*.

- ▶ Insert a system disk or a bootable PCMCIA card.
- ▶ Press the function key **F1**.

Troubleshooting

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

The hard disk is not bootable or it has not been formatted.

The operating system can be loaded from drive A: or from a PCMCIA card. Which, depends on whether *Boot Device* is set to *Floppy Drive* or *PCMCIA* in *System Setup*.

If the notebook is connected to a docking unit, the operating system cannot be loaded from a PCMCIA card. If you wish to boot from drive A:, the *Diskette Boot* setting has to be changed to *Internal* or *External*.

- ▶ Insert a system disk or a bootable PCMCIA card.
- ▶ 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 the 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**.
- ▶ Reconfigure the system.

If the error message is displayed again, the notebook's backup battery is empty.

Connect the notebook via its power supply unit to a grounded wall outlet or install a fresh battery. The backup battery will charge fully in roughly two days.

Resume not possible in the docking unit.

Please, switch off, disconnect the notebook from the docking unit for resume

OR

press <F1> for continue and lose the suspended state.

If the notebook is connected to a docking unit, it cannot restore the programs that were active when it switched to Suspend mode.

If you press function key **F1** , the suspended system status will be lost.



- ▶ Switch off the notebook and the docking unit.
- ▶ Remove the notebook from the docking unit.
- ▶ Switch on the notebook.

Verification of your password was incorrect!

The original password remains unchanged.

Press any key to continue.

You have entered the wrong password in confirmation.

- ▶ Press any key.
- ▶ Press the cursor key .
- ▶ Press the cursor key .
- ▶ Enter the password again and confirm it.

System specifications

Notebook PCD-4ND

CPU:	SL enhanced processor i486 SX, i486 DX2 or i486 DX4
Math coprocessor:	integrated in i486 DX2 and i486 DX4
Cache:	8 Kbytes, integrated in i486 SX, i486 DX2 16 Kbytes, integrated i486 DX4
Memory (RAM):	4 Mbytes, upgradable to 8 or 20 Mbytes
System ROM (flash EPROM):	128 Kbytes for system and video BIOS
Disk drives:	Floppy disk drive for 3 1/2-inch floppy disks Hard disk
Display:	Backlit liquid-crystal transmissive display
– Resolution:	640x480, or 25 80-character lines
– Monochrome, 64 gray scales:	24 cm diagonal (9.5 inches)
– Color (DSTN), 256 colors:	26 cm diagonal (10.2 inches)
– Color (TFT), 256 colors:	24 cm diagonal (9.5 inches)
– Color (TFT), 256 colors:	26 cm diagonal (10.2 inches)
Display controller:	WD 90C24A2 on VESA local-bus with Windows accelerator
– Video memory:	1 Mbyte
– Resolutions: (on external display)	up to 1024x768 with 256 colors and 60 Hz
Audio:	Soundchip ES688
– Compatibility:	Soundblaster Pro, MS-Soundsystem
– A/D and D/A conversion:	16 bit, stereo
Input devices	
– Keyboard:	86 keys
– Trackball:	19 mm diameter
Slots	
– PCMCIA:	2 x type I/type II or 1 x type III
– Memory:	4 Mbytes or 16 Mbytes

Ports

– PS/2 mouse port:	6-pin mini DIN female connector
– External keyboard connector:	6-pin mini DIN female connector
– Docking unit connector:	200-pin female connector
– Parallel port:	25-pin female connector, bi-directional, EPP-capable
– External display connector:	15-pin female connector
– Serial ports:	9-pin male connector, 16550-compatible
– Microphone connector:	connector, mono
– Audio connector:	connector, stereo
– Connector for external loudspeaker:	connector, stereo
– Infrared interface	

Power consumption:	30 W max. (notebook on with battery charging)
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Temperature

– Operation:	5 °C 35 °C
– Transportation:	-20 °C 60 °C

Dimensions (W x D x H)

– with monochrome display:	297 mm, 220 mm, 46 mm
– with color display:	297 mm, 220 mm, 49 mm

Weight without battery

– with monochrome display:	3 kg (29.43 N)
– with color display:	3.3 kg (32.37 N)

Notebook PCD-5ND

CPU:	Pentium P54C/LM processor
Math coprocessor:	integrated in processor
Cache:	16 Kbytes, integrated in processor 256 Kbytes second-level cache
Memory (RAM): Mbytes	8 Mbytes, upgradable to 16, 24 or 40
System ROM (flash EPROM):	128 Kbytes for system and video BIOS
Disk drives:	Floppy disk drive for 3 1/2-inch floppy disks Hard disk

Display:	Backlit liquid-crystal transmissive display
– Resolution:	640x480 or 800x600
– Color (DSTN), 256 colors:	26 cm diagonal (10.2 inches)
– Color (TFT), 256 colors:	24 cm diagonal (9.5 inches)
Display controller:	C&T 65545 on VESA local-bus with Windows accelerator
– Video memory:	1 Mbyte
– Resolutions: (on external display)	up to 1024x768 with 256 colors and 60 Hz
Audio:	Soundchip ES688
– Compatibility:	Soundblaster Pro, MS-Soundsystem
– A/D and D/A conversion:	16 bit, stereo
Input devices	
– Keyboard:	86 keys
– Trackball:	19 mm diameter
Slots	
– PCMCIA:	2 x type I/type II or 1 x type III
– Memory:	8 Mbytes, 16 Mbytes or 32 Mbytes
Ports	
– PS/2 mouse port:	6-pin mini DIN female connector
– External keyboard connector:	6-pin mini DIN female connector
– Docking unit connector:	200-pin female connector
– Parallel port:	25-pin female connector, bi-directional, EPP-capable
– External display connector:	15-pin female connector
– Serial ports:	9-pin male connector, 16550-compatible
– Microphone connector:	connector, mono
– Audio connector:	connector, stereo
– Connector for external loudspeaker:	connector, stereo
– Infrared interface	
Power consumption:	30 W max. (notebook on with battery charging)
Temperature	
– Operation:	5 °C 35 °C
– Transportation:	-20 °C 60 °C

Dimensions (W x D x H)

– with color display: 297 mm, 220 mm, 49 mm

Weight without battery

– with color display: 3.3 kg (32.37 N)

Power supply unit

Primary

– Rated voltage: 90 V to 269 V
– Rated frequency: 47 Hz to 63 Hz
– Max. rated current: 0.5 A (at 180 V) / 1 A (at 90 V)

Secondary

– Rated voltage: 22.8 V
– Max. rated current: 1.5 A

Dimensions (W x D x H):

112 mm, 58 mm, 29 mm

Weight without AC cord:

256 g (2.45 N)

Battery

Rated voltage: 14.4 V

Rated capacity: 1.8 Ah

Dimensions (W x D x H): 105 mm, 110 mm, 20 mm

Weight: 510 g (5 N)

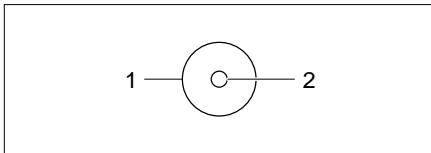
I/O addresses, interrupts and DMA channels

Function	I/O address	Interrupt	DMA
DMA controller #1, 8237	000H – 01FH		DRQ0
Interrupt controller #1, 8259	020H – 030H		
Timer, 8254	040H – 050H	IRQ0	
Keyboard and mouse controller	060H – 06FH	IRQ1, IRQ12	
Real-time clock/NMI controller	070H – 07FH	IRQ8	
DMA register	080H – 09FH		
Fast A20 gate and CPU reset	092H		
Interrupt controller #2, 8259	0A0H – 0BFH		
DMA controller #2, 8237	0C0H – 0DFH		
Clear FPU	0F0H		
Reset FPU	0F1H		
ACC2066 register	0F2H – 0F3H		
FPU	0F8H, 0FCH, 0FEH		
Hard disk controller	1F0H – 1F8H	IRQ14	
Soundchip ESS688	220H – 22FH	IRQ5	
	388H – 38BH		
	278H – 27FH	IRQ5	
Parallel port LPT2	278H – 27FH	IRQ5	DRQ2
Serial port COM2	2F8H – 2FFH	IRQ3	
Parallel port LPT1	378H – 37FH	IRQ7	
Display controller	3B0H – 3DFH		
PCMCIA controller	3E0H – 3E3H		
Floppy disk controller	3F0H – 3F7H	IRQ6	
Serial port COM1	3F8H – 3FFH	IRQ4	

Pin assignment

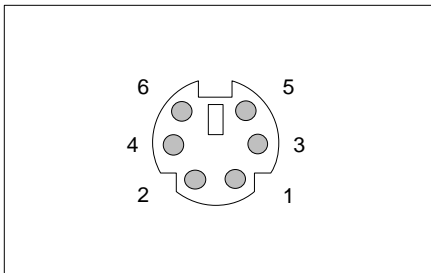
The pin assignments of external ports are described on the following pages.

DC input connector

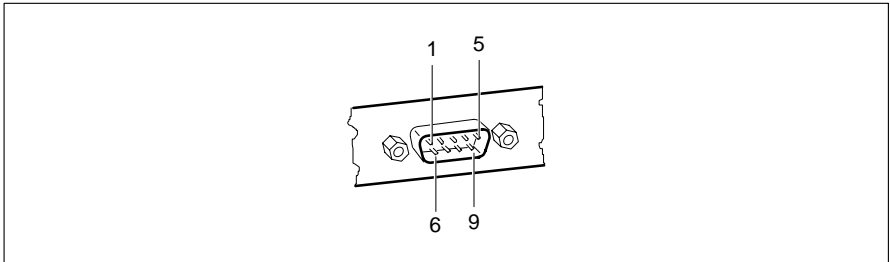


No.	Description
1	0 V
2	+22.8 V

Port for external keyboard and PS/2 mouse

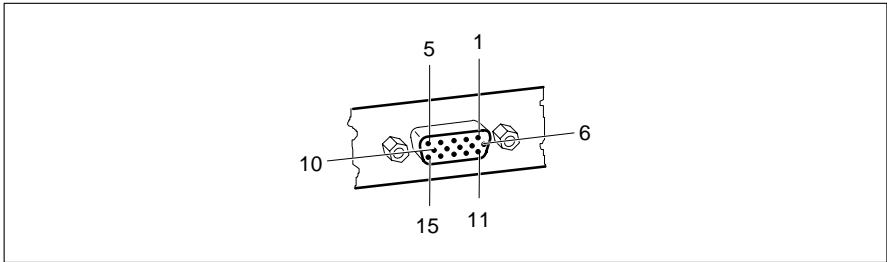


Pin	Signal/Description
1	DATA
2	NC
3	0 V
4	+5 V
5	CLOCK
6	NC

Serial port

Pin	Signal	Description
1	DCD	Data Carrier Detect
2	RxD	Receive Data
3	TxD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	RING	Ring Indicator

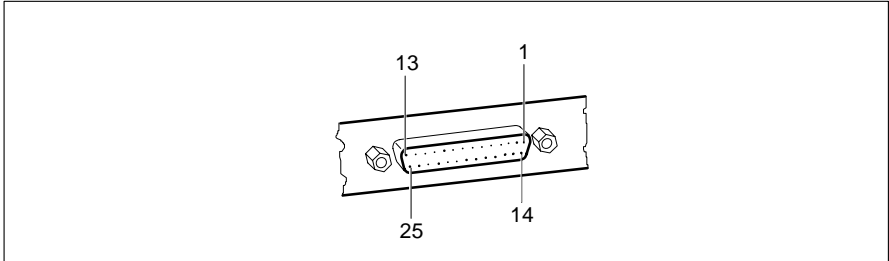
Port for external display



Pin	Signal/Description
1	Red
2	Green
3	Blue
4	reserved
5	GND
6	GND
7	GND
8	GND

Pin	Signal/Description
9	NC
10	GND
11	reserved
12	reserved
13	HSYNC
14	VSYNC
15	reserved

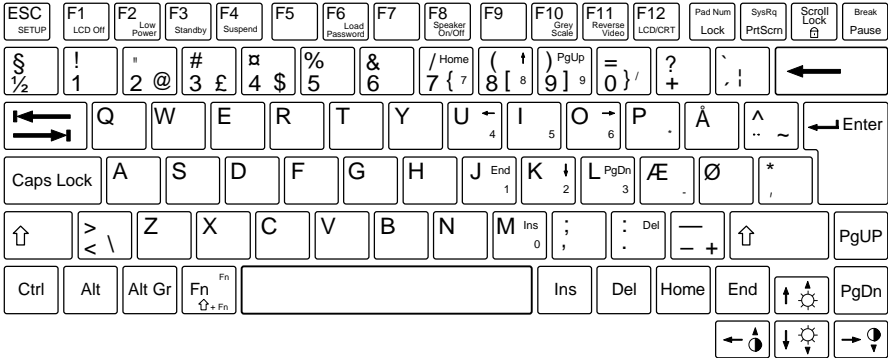
Parallel port



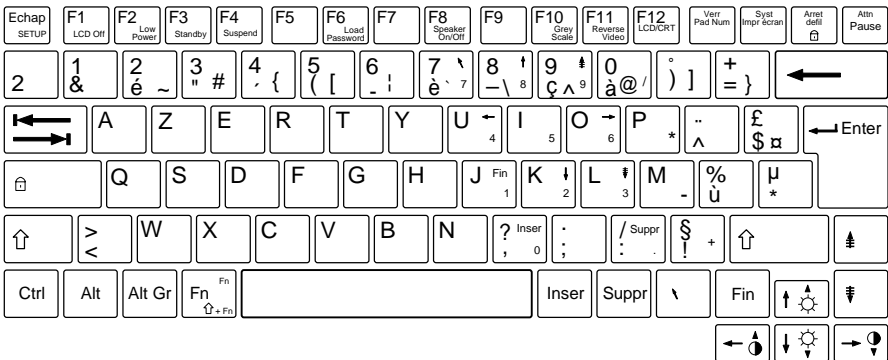
Pin	Signal name	Description
1	STROBE	Data message
2-9	Data Lines 0-7	Data lines 0-7
10	ACKNOWLEDGE	Data acknowledgement
11	BUSY	Not ready to receive
12	PE	End of paper
13	SELECT	Device selection
14	AUTO	Automatic new line
15	ERROR	Device error
16	INIT	Reset/initialize
17	SELECT IN	Printerselection
18-25	GROUND	Ground

Keyboard layouts

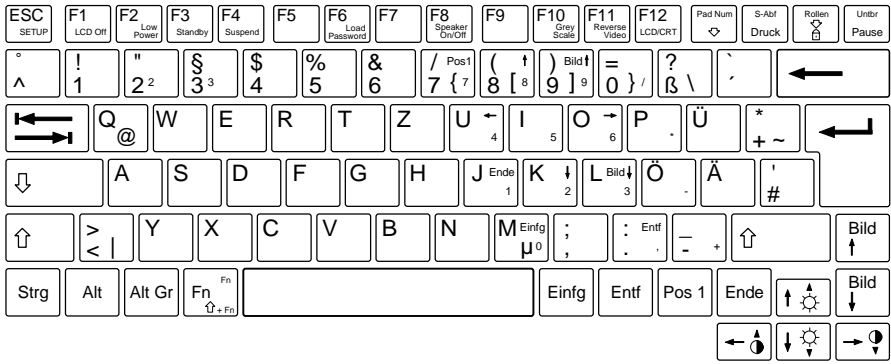
Danish



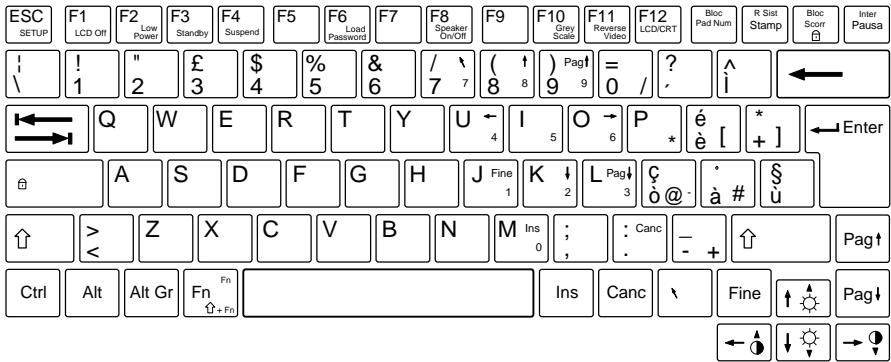
French



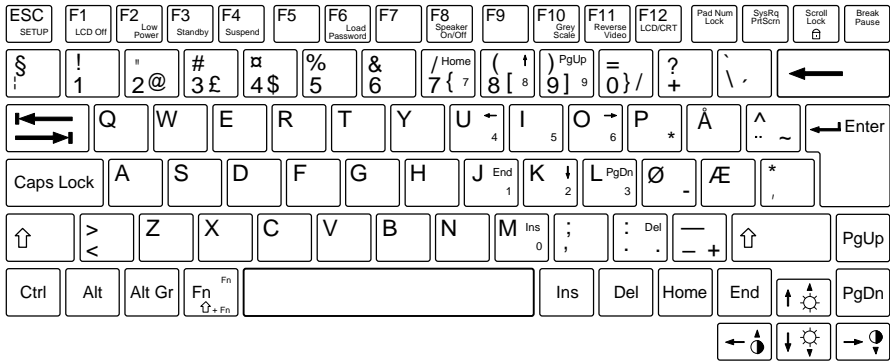
German



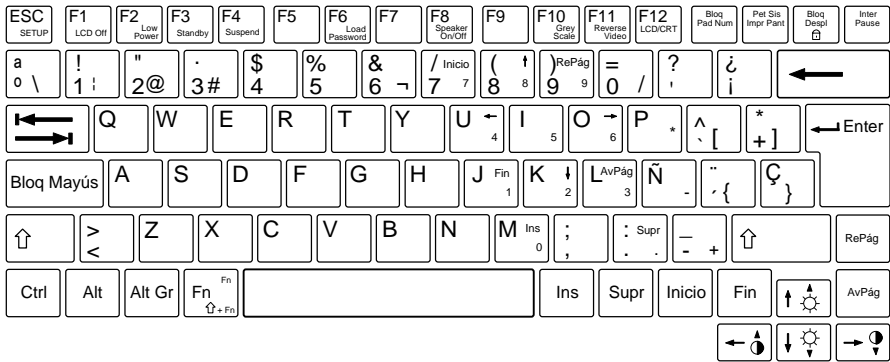
Italian



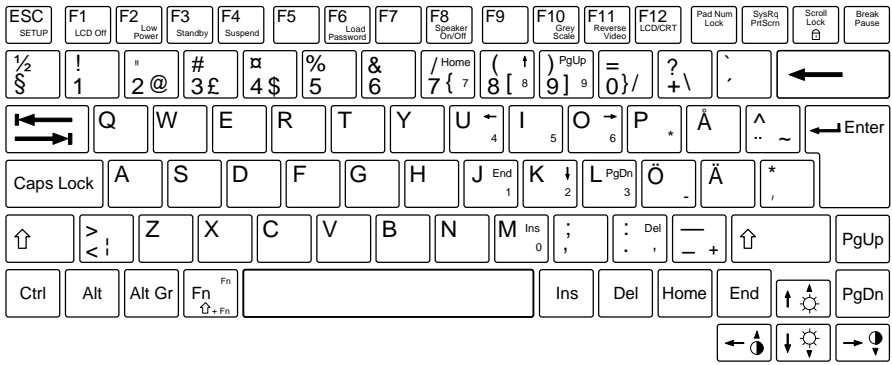
Norwegian



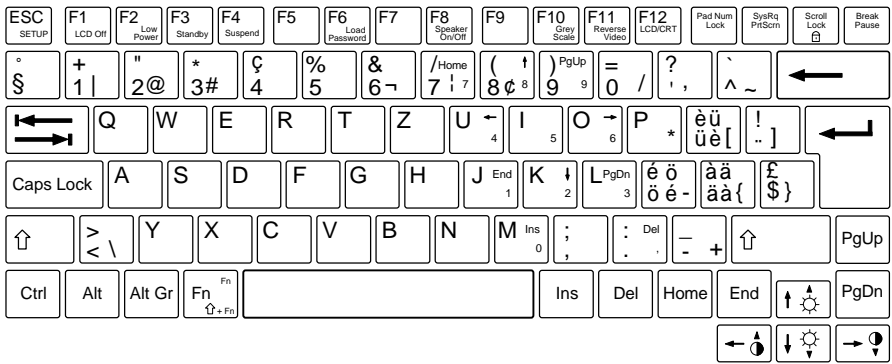
Spanish



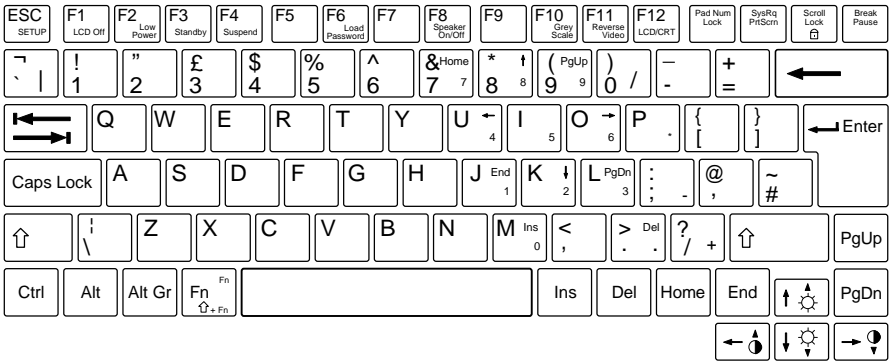
Swedish



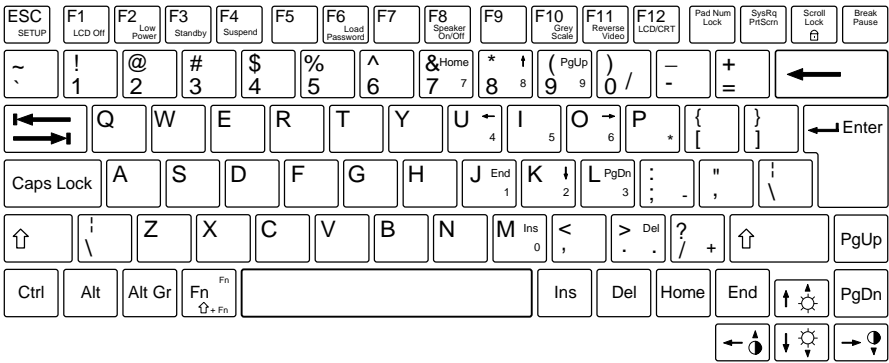
Swiss



UK English



US English



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