SIEMENS

TELEPERM M

OS 525
Operator Communication and Visualization System

Manual

Order No. C79000−G8076−C522−04

Contents	Reg.
Important Notes Information C79000−R8076−C522 Suggestions/Corrections	
Instructions C79000−B8076−C522 E4 Contents	
Introduction	**1**
Installation and Commissioning	**2**
Configuring with OS−SET	**3**
Description of the Devices	**4**
I/O Devices	**5**
Service and Maintenance	**6**
Applicable Documents	**7**
Index	**8**
Spare Parts List C79000−E8076−C522−04	**9**
Instructions C79145−A3072−X100−1−191) PM54/C2 Color Monitor 6AV8011−1LE62−0FA0	**10**
Instructions C79145−A3070−X100−1−191) CAE Color Monitor SCM2185 6GF6100−1AA	

1) Please take the Instructions from the packaging of the deliv-
ered devices and file it in the corresponding register. These
Instructions does not belong to the Manual. When reorder-
ing please specify the Instructions Order No.

Siemens Aktiengesellschaft

Siemens Aktiengesellschaft

Notes on the CE Symbol for TELEPERM M
OS 525 Operator Communication and Visualization System
(OS Base Unit and OS Terminal)

EC Directive EMC   The following applies to the TELEPERM M operator communication and visualization system described in this manual:

89/336/EEC   Products which carry the CE symbol fulfil the requirements for the EC Directive 89/336/EEC.

The EC declaration of conformity and the documentation relating to this are available to the authorities concerned, according to the above–mentioned EC Directive, Article 10(2), from:

$C\kern-0.3em\epsilon$

> **Siemens AG**
> **Automation & Drives Group**
> **A&D SE S21 S**
> **Siemensallee 84**
> **D–76187 Karlsruhe**

Products which do not have the CE symbol meet the requirements and standards given in the System Manuals under "General Technical Data".

Fields of Application   For the TELEPERM M OS 525 operator communication and visualization system, the following field of application apply according to this CE symbol:

Field of Application	Requirement for	
	Emitted interference	**Noise immunity**
Industry	EN 50081–2:1993	EN 50082–2:1995

Observing the Setup Guidelines   The setup guidelines and notes on safety given in the System Manuals must be observed during startup and when operating the TELEPERM M OS 525 operator communication and visualization system.

Working on Cabinets   To protect the modules from the static electricity, the user must discharge his body's electrostatic charge before opening cabinets.
Observe the general ESD Guidelines.

Notes on the CE Symbol for TELEPERM M
OS 525 Operator Communication and Visualization System
(OS Base Unit and OS Terminal)

Notes on
24–V device variant

A filter must be inserted into the power supply lines (type Schaffner FN660–6/06 or similar). Link the PC housing to the eath with an earthing strip (min. 16 mm^2).

Updated
Technical Data

In addition to the specifications in the "General Technical Data" of the System Manuals, the specifications on noise immunity and electromagnetic compatibility given below apply to modules carrying the CE symbol.

The specifications are valid for systems which are assembled according to the above–mentioned setup guidelines.

Electromagnetic Compatibility (EMC)

Radio interference suppression to EN 55011	
Limit value class	A [1]
Interference by conduction on AC and DC supply lines to EN 61000–4–4 / IEC 1000–4–4 (Burst)	2 kV
Interference by conduction on signal lines to EN 61000–4–4 / IEC 1000–4–4 (Burst)	2 kV
Noise immunity to discharges of static electricity to EN 61000–4–2 / IEC 1000–4–2 (ESD)	4 kV contact discharge 6 kV air discharge
Noise immunity to electromagnetic HF field amplitude modulated to ENV 50140 / IEC 1000–4–3	80 to 1000 MHz 10V/m 80% AM (1 kHz)
Noise immunity to electromagnetic HF field pulse modulated to ENV 50204	900 MHz 10V/m 50 % c.d.f.
Noise immunity to high frequency (sinusoidal) to ENV 50141	0.15 to 80 MHz 10 V 80 % AM

For the supplied keyboard and mouse the following data are valid in accordance to the manufacturer :

Emitted interference to	EN 50081–1
Radio interference suppression to	EN 55022 (class B)
Noise immunity to	EN 50082–1

Guidelines for Handling
Electrostatically Sensitive Devices (ESD)

1 What is ESD?

VSLI chips (MOS technology) are used in practically all SIMATIC S5 and TELEPERM M modules. These VLSI components are, by their nature, very sensitive to overvoltages and thus to electrostatic discharge:

They are therefore defined as

"Electrostatically Sensitive Devices"

"ESD" is the abbreviation used internationally.

The following warning label on the cabinets, subracks and packing indicates that electrostatically sensitive components have been used and that the modules concerned are susceptible to touch:
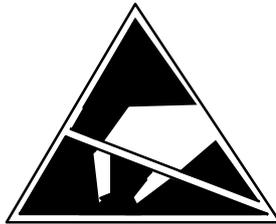
ESDs can be destroyed by voltage and energy levels which are far below the level perceptible to human beings. Such voltages already occur when a component or a module is touched by a person who has not been electrostatically discharged. Components which have been subjected to such overvoltages cannot, in most cases, be immediately detected as faulty; the fault occurs only after a long period in operation.

An electrostatic discharge

— of 3500 V can be felt

— of 4500 V can be heard

— must take place at a minimum of 5000 V to be seen.

But just a fraction of this voltage can already damage or destroy an electronic component.

The typical data of a component can suffer due to damage, overstressing or weakening caused by electrostatic discharge; this can result in temporary fault behavior, e.g. in the case of

— temperature variations,

— mechanical shocks,

— vibrations,

— change of load.

Only the consequent use of protective equipment and careful observance of the precautions for handling such components can effectively prevent functional disturbances and failures of ESD modules.

2   When is a Static Charge Formed?

One can never be sure whether the human body or the material and tools which one is using are not electrostatically charged.

Small charges of 100 V are very common; these can, however, very quickly rise up to 35 000 V.

Examples of static charge:

|	
— Walking on a carpet	up to 35 000 V
— Walking on a PVC flooring	up to12 000 V
— Sitting on a cushioned chair	up to 18 000 V
— Plastic desoldering unit	up to 8 000 V
— Plastic coffee cup	up to 5 000 V
— Plastic bags	up to 5 000 V
— Books, etc. with a plastic binding	up to 8 000 V

3   Important Protective Measures against Static Charge

- Most plastic materials are highly susceptible to static charge and must therefore be kept as far away as possible from ESDs.

- Personnel who handle ESDs, the work table and the packing must all be carefully grounded.

4   Handling of ESD Modules

- One basic rule to be observed is that electronic modules should be touched by hand only if this is necessary for any work required to be done on them. Do not touch the component pins or the conductors.

- Touch components only if

  - the person is grounded at all times by means of a wrist strap

  or

  - the person is wearing special anti—static shoes or shoes with a grounding strip.

- Before touching an electronic module, the person concerned must ensure that (s)he is not carrying any static charge. The simplest way is to touch a conductive, grounded item of equipment (e.g. a blank metallic cabinet part, water pipe, etc.) before touching the module.

- Modules should not be brought into contact with insulating materials or materials which take up a static charge, e.g. plastic foil, insulating table tops, synthetic clothing, etc.

- Modules should only be placed on conductive surfaces (table with anti—static table top, conductive foam material, anti—static plastic bag, anti—static transport container).

- Modules should not be placed in the vicinity of monitors, TV sets (minimum distance from screen > 10 cm).
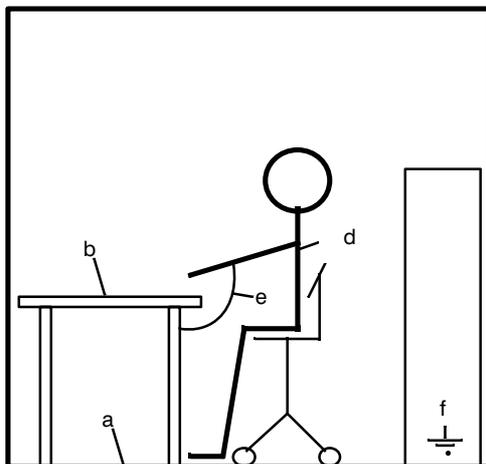
The diagram below shows the required protective measures against electrostatic discharge.
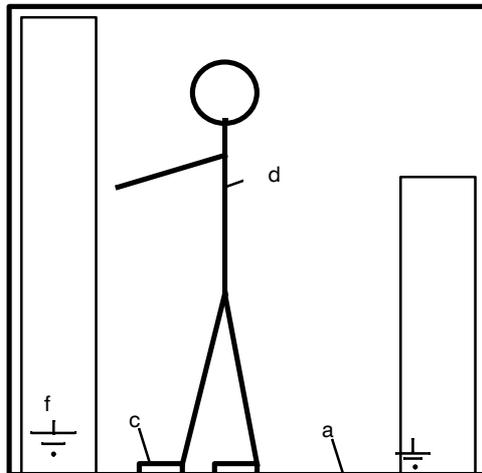
Standing position
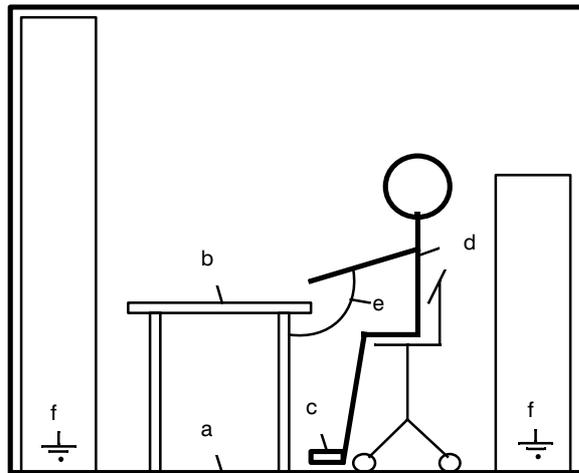
Standing/sitting position

Sitting position

a   Conductive flooring
b   Anti−static table
c   Anti−static shoes
d   Anti−static coat
e   Grounding wrist strap
f   Grounding connection of the cabinets

5   Measurements and Modification to ESD Modules

- Measurements on modules may only be carried out under the following conditions:

  − The measuring equipment is grounded (e.g. via the PE conductor of the power supply system) or

  − when electrically isolated measuring equipment is used, the probe must be discharged (e.g. by touching the metallic casing of the equipment) before beginning measurements.

- Only grounded soldering irons may be used.

6   Shipping of ESD Modules

Anti−static packing material must always be used for modules and components, e.g. metalized plastic boxes, metal boxes, etc. for storing and dispatch of modules and components.

If the container itself is not conductive, the modules must be wrapped in a conductive material such as conductive foam, anti−static plastic bag, aluminium foil or paper. Normal plastic bags or foils should not be used under any circumstances.

For modules with built−in batteries ensure that the conductive packing does not touch or short−circuit the battery connections; if necessary cover the connections with insulating tape or material.

TELEPERM M/ME
Safety—Related Guidelines for the User

1 General

This manual provides the information required for the intended use of the particular product. The documentation is written for technically qualified personnel such as engineers, programmers or maintenance specialists who have been specially trained and who have the specialized knowledge required in the field of instrumentation and control.

A knowledge of the safety instructions and warnings contained in this manual and their appropriate application are prerequisites for safe installation, commissioning and maintenance as well as safe and proper operation of the product described. Only qualified personnel as defined in section 2 have the specialized knowledge that is necessary to correctly interpret the general danger notices and warnings contained in this documentation and implement them in each particular case.

This manual is an inherent part of the scope of supply even if, for logistic reasons, it has to be ordered separately. For the sake of clarity, not all details of all versions of the product are described in the documentation, nor can it cover all conceivable cases regarding installation, operation and maintenance. Should you require further information or face special problems that have not been dealt with in sufficient detail in this documentation, please contact your local Siemens office.

We would also point out that the contents of this product documentation shall not become a part of or modify any prior or existing agreement, commitment or legal relationship. The Purchase Agreement contains the complete and exclusive obligations of Siemens. Any statements contained in this documentation do not create new warranties or restrict the existing warranty.

2 Qualified Personnel

Persons who are **not qualified** should not be allowed to handle the equipment/system. Non—compliance with the warnings contained in this manual or appearing on the equipment itself can result in severe personal injury or damage to property. Only **qualified personnel** should be allowed to work on this equipment/system.

Qualified persons as referred to in the safety guidelines in this manual as well as on the product itself are defined as follows:

- System planning and design engineers who are familiar with the safety concepts of automa— tion equipment;

- Operating personnel who have been trained to work with automation equipment and are conversant with the contents of the manual in as far as it is connected with the actual operation of the plant;

- Commissioning and service personnel who are trained to repair such automation equipment and who are authorized to energize, deenergize, clear, ground and tag circuits, equipment and systems in accordance with established safety practices.

3   Danger Notices

The notices and guidelines that follow are intended to ensure personal safety, as well as protecting the product and connected equipment against damage.

The safety notices and warnings for protection against loss of life (the users or service personnel) or for protection against damage to property are highlighted in this manual by the terms and pictograms defined here. The terms used in this manual and marked on the equipment itself have the following significance:

Danger

indicates that death, severe personal injury or substantial property damage <u>will</u> result if proper precautions are not taken.

Warning

indicates that death, severe personal injury or substantial property damage <u>can</u> result if proper precautions are not taken.

Caution

indicates that minor personal injury or property damage <u>can</u> result if proper precautions are not taken.

Note

is an important information about the product, its operation or a part of the manual to which special attention is drawn.

Important

If in this manual "Important" should appear in bold type, drawing attention to any particularly information, the definition corresponds to that of "Warning", "Caution" or "Note".

4   Proper Usage

- The equipment/system or the system components may only be used for the applications described in the catalog or the manual, and only in combination with the equipment, components and devices of other manufacturers as far as this is recommended or permitted by Siemens.

- The product described has been developed, manufactured, tested and the documentation compiled in keeping with the relevant safety standards. Consequently, if the described handling instructions and safety guidelines described for planning, installation, proper operation and maintenance are adhered to, the product, under normal conditions, will not be a source of danger to property or life.

⚠	**Warning**
	- After opening the housing or the protective cover or after opening the system cabinet, certain parts of this equipment/system will be accessible, which could have a dangerously high voltage level. - Only suitably qualified personnel should be allowed access to this equipment/system. - These persons must be fully conversant with any potential sources of danger and maintenance measures as set out in the instructions contained in this manual. - It is assumed that this product be transported, stored and installed as intended, and maintained and operated with care to ensure that the product functions correctly and safely.

5 Guidelines for the Planning and Installation of the Product

The product generally forms a part of larger systems or plants. These guidelines are intended to help integrate the product into its environment without it constituting a source of danger.

The following facts require particular attention:

> ⚠ **Note**
>
> Even when a high degree of safety−related reliability has been designed into an item of automation equipment by means of multichannel configuration, it is still imperative that the instructions contained in this manual be exactly adhered to. Incorrect handling can render ineffective the preventive measures incorporated into the system to protect it against dangerous process states, and even create new sources of danger.

The following advice regarding installation and commissioning of the product should − in specific cases − also be noted.

> ⚠ **Warning**
>
> ● Follow strictly the safety and accident prevention rules that apply in each particular case.
>
> ● Units which are designed as built−in units may only be operated as such, and table−mounted or portable equipment only with its casing closed.
>
> ● In the case of equipment with a permanent power connection which is not provided with an isolating switch and/or fuses which disconnect all poles, a suitable isolating switch or fuses must be provided in the building wiring system (distribution board). Furthermore, the equipment must be connected to a protective ground (PE) conductor.
>
> ● For equipment or systems with a fixed connecting cable but no isolating switch which disconnects all poles, the power socket with the grounding pin must be installed close to the unit and must be easily accessible.
>
> ● Before switching on the equipment, make sure that the voltage range setting on the equipment corresponds to the local power system voltage.
>
> ● In the case of equipment operating on 24 V DC, make sure that proper electrical isolation is provided between the mains supply and the 24 V supply. Only use power supply units to IEC 364−4−41 or HD 384.04.41 (VDE 0100 Part 410).
>
> ● The I/O modules are designed for operation with safety extra−low voltage acc. to IEC 950 / EN 60950/VDE 0805. Therefore only components whose connection points are separated <u>in a safe manner</u> (by means of the protective measure "Protective separation") from voltages (e.g. mains) may be connected to the inputs/outputs of these modules.
>
> ● Fluctuations or deviations of the power supply voltage from the rated value should not exceed the tolerances specified in the technical specifications. Otherwise, functional failures or dangerous conditions can occur in the electronic modules/equipment.
>
> ● Suitable measures must be taken to make sure that programs that are interrupted by a voltage dip or power supply failure resume proper operation when the power supply is restored. Care must be taken to ensure that dangerous operating conditions do not occur even momentarily. If necessary, the equipment must be forced into the "emergency off" state.
>
> ● Emergency tripping devices in accordance with EN 60204/IEC 204 (VDE 0113) must be effective in all operating modes of the automation equipment. Resetting the emergency off device must not result in any uncontrolled or undefined restart of the equipment.

> ⚠ **Caution**
>
> ● Install the power supply and signal cables in such a manner as to prevent inductive and capacitive interference voltages from affecting the automation functions.
>
> ● Automation equipment and its operating elements must be installed in such a manner as to prevent unintentional operation.
>
> ● Automation equipment can assume an undefined state in the case of a wire break in the signal lines. To prevent this, suitable hardware and software measures must be taken when interfacing the inputs and outputs of the automation equipment.

6 Active and Passive Faults in Automation Equipment

- Depending on the particular task for which the electronic automation equipment is used, both **active** as well as **passive** faults can result in a **dangerous** situation. For example, in actuator control (e.g. press control), an active fault is generally dangerous because it can result in an unauthorized startup of the actuator. On the other hand, a passive fault in a signalling function (alarm signalling system) can result in a dangerous, command—blocking operating state not being reported to the operator.

- This differentiation of the possible faults and their classification into dangerous and non—dangerous faults, depending on the particular task, is important for all safety considerations in respect of the product supplied and the its interaction with the process to be controlled.

> ⚠ **Warning**
>
> In all cases where a fault in an automation equipment can result in severe personal injury or substantial damage to property, ie. where a dangerous fault can occur, safety—related and fail—safe systems (in general prototype—tested by the German Technical Inspectorate (TÜV)) must be used or additional external measures be taken or equipment provided to ensure or force safe operating conditions even in the event of a fault (e.g. by means of independent limit monitors, mechanical interlocks etc.).

7 Procedures for Maintenance and Repair

If measurement or testing work is to be carried out on an active unit, the rules and regulations contained in the "VBG 4.0 Accident prevention regulations" of the German employers liability assurance association (Berufsgenossenschaften) must be observed. Particular attention is drawn to paragraph 8 "Permissible exceptions when working on live parts". Use only suitable electrical tools.

> ⚠ **Warning**
>
> - Repairs to an item of automation equipment may only be carried out by **Siemens service personnel** or **an authorized Siemens repair center.** For replacement purposes, use only parts or components that are contained in the spare parts list or listed in the "Spare parts" section of this manual. Unauthorized opening of equipment and improper repairs can result in loss of life or severe personal injury as well as substantial property damage.
>
> - Before opening the equipment, <u>always</u> remove the power plug or open the disconnecting switch.
>
> - Only use the fuse types specified in the technical specifications or the maintenance instructions of this manual.
>
> - Do not throw batteries into an open fire and do not carry out any soldering work on batteries (danger of explosion). Maximum ambient temperature 100˚C. Lithium batteries or batteries containing mercury should not be opened or recharged. Make sure that the same type is used when replacing batteries.
>
> - Batteries and accumulators must be disposed of as classified waste.
>
> - The following points require attention when using monitors:
>   Improper handling, especially the readjustment of the high voltage or fitting of another tube type can result in excessive X—ray radiation from the unit. The license to operate such a modified unit automatically lapses and the unit must not be operated at all.

Siemens AG

A&D SE S21 S

D–76181 Karlsruhe

Titel/Title/Titre/Título

Absender/From/Expéditeur/Expeditor
Name/Name/Nom/Nombre y apellido

Bestell–Nr./Order No./ N° de réf./N° de ped.

Firma/Dienststelle – Company/department – Firme/service – Empresa/Sección

Anschrift/Address/Adresse/Dirección

Telefon/Telephone/Téléphone/Teléfono

Vorschläge und/oder Korrekturen
Suggestions or/and corrections

Propositions et/ou corrections
Propuestas y/o correcciones

Contents

Contents Section 1

1 Introduction

Application

The OS 525 operator communication and visualization system is a bus–linked component of the TELEPERM M process control system.
It is employed as a central operator communication and visualization system for

  – AS 215, AS 230, AS 235 (S, K, H), AS 220 EAI, AS 488, LR 600 automation systems and SIMATIC S5–150U and S5–155U programmable controller systems that are connected to the CS 275 bus system,
  – AS 388/AS 488 automation systems and programmable controller systems that are connected to the SINEC L2 bus system.

A terminal bus permits the system to be used as a multi–position system with a free selection of devices and system configuration. This permits flexible allocation of base unit (host) and operator input channel (terminal). The structure can be set up under ergonomic and I&C–related aspects.

The OS 525 system is based on AT–compatible hardware. Its advanced software structure provides a graphic operator desktop in window design and object–oriented control and configuration functions. Fig. 1.1 shows the basic structure of a multi–position system.
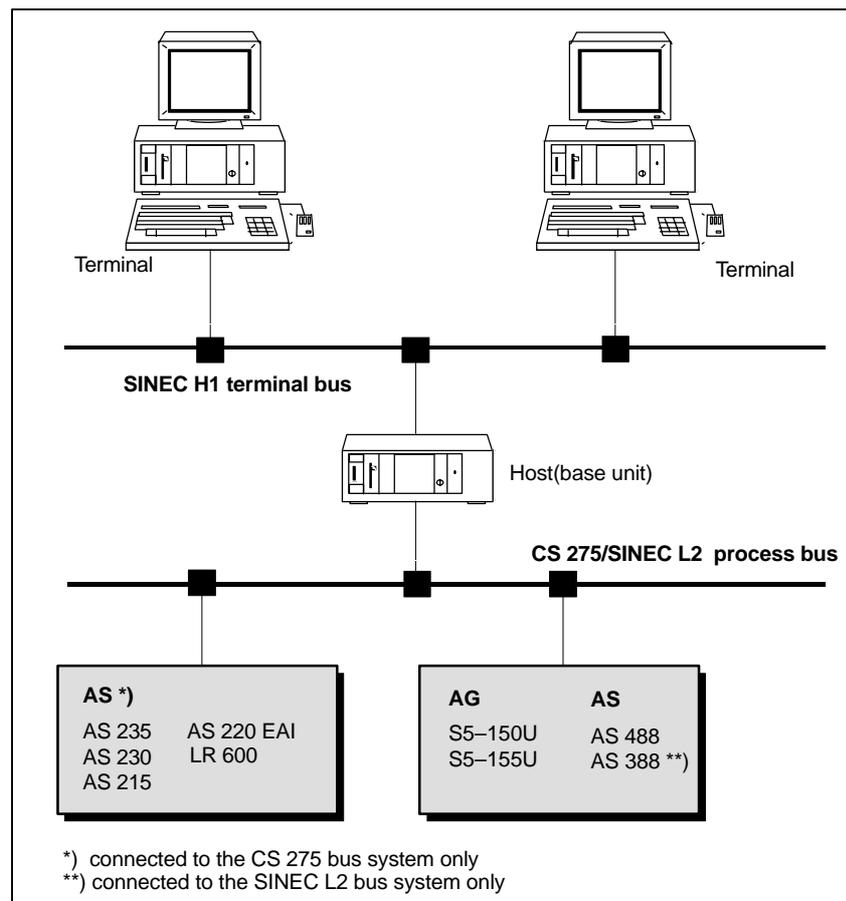
Fig. 1.1   Multi–position system with terminal bus and process bus

Function range   Based on a multitasking and real time operating system, the OS 525 operator communication and visualization system provides all functions that are required for process control and configuration. A mouse and alphanumeric keyboard or an optional touch screen facilitate operator input. The following components are available for process control:

- Graphic system for graphical visualization, including curve display and control elements in window technique.
- Signalling system, with archiving and analysis by selection criteria.
- Logging system for creating user–related reports.
- Process data storage system for user data and measured value archives.

Editors   The operator desktop for process control is defined during configuration. For this purpose the OS 525 contains the CONFIG software package with the following editors:

- GRAPHICS for configuring process displays and curve displays that contain the necessary control elements.
- ALARMS   for message display configuration.
- REPORTS   for report configuration.
- ARCED   for process data storage configuration.
- COMED   for configuring communications to the subordinate automation systems.
- UTILITIES   for supporting configuration tasks, such as configuration uploading and data package compilation.

Description of functions

Basic design   Interconnecting individual computers via the SINEC H1 terminal bus to a network permits a multi–channel OS to be set up. The OS 525 software executes in one of these computers and employs the computers connected to the terminal bus as additional operator positions. The computer that contains the OS 525 software is known as the base unit (host computer).
The OS 525 software has been installed on the hard disk of the host computer. The terminals connected merely contain the OS terminal software. The OS terminal software consists of the EASYS I/O system of the OS 525 software.

Each operator position features a monitor, a keyboard and a mouse (and a trackball as an option).

A printer may be connected to any host and terminal.

XGEM desktop

The OS 525 software in the host computer is a multitasking system that executes under the FlexOS operating system. Likewise, the OS terminal software (EASYS) also runs under the FlexOS operating system.

This permits several applications to be shown on the screen at the same time (each on its own virtual console).
Toggling (topping) between the virtual consoles enables the topped application to be controlled.
A host computer may also be used as an OS terminal. This is supported by the subordinate graphic XGEM resource.
Changing user desktops is possible by changing virtual consoles.
This enables you to perform 'operator communication and visualization' (process control) and 'configuration' (CONFIG) at the **same** operator position (provided that the software protection connector has been installed).

Process control

The major statements about the system response of the process control software with several operator positions are:

- Process control data (on line form, .OSO file) created by configuration and on line setting is not specific to an operator position. This means that it does not possess any information that is related to the device configuration used during process control.
- All operator positions of each host work on the same on line form.
- The device configuration used in process control is set in the OS–SET configuration tool (cf. Section 3.1.6. in this Manual).
- When process control starts, the configured start screen is displayed at all configured and connected operator positions. Afterwards, each operator position permits independent operator input.
- The measured–value and message archives are updated when starting a redundant OS (cf. Section 3.3 in SUPERVISOR C79000–G8076–C524).

   For the measured–value adjustment the measured–value archives are installed in the skip mode i.e. there is a reserved place for each time unit even when the OS does not work at that time.
   So the measured values can be called by the redundancy partner and entered.
   The adjustment is carried out from present to past.

   The message archive is completely transmitted to the redundant partner i.e. when the OS2 comes back the message archive is copied physically by the OS1. After that all unclosed messages from the OS2 are closed and a message adjustment is made to determine the present active messages. From this moment the message acquisition works normally.

- Any operator input privilege level (password protection) selected during process control is only valid for the related operator position.
- The language selected during process control is only valid for the related operator position.

Configuring the system

You define the required number of operator positions and the related network configuration (logic device names) when you configure your system.
Only the defined operator positions may then be used during process control.

OS–SET is used for configuring the system (see Section 3).

1.1   Performance of the OS 525

The OS 525 operator communication and visualization system is based on the industrial Siemens SIMATIC PC RI45.
Several operator positions may be connected via the SINEC H1 terminal bus.

Device configuration

Host computer: :

SIMATIC PC RI45 with

- – Pentium 133 MHz
- – 32 MB main memory,
- – 820 MB hard disk,
- – N–AT to connect to the CS 275 process bus
- – CP 5412 to connect to the SINEC L2
- – CP 1413 to connect to the SINEC H1 terminal bus
- – Keyboard, mouse/trackball, monitor
- – AC 230 V power supply unit
- Graphics:
  - – Internal VGA graphics module
  - – HIGRAF 2 graphics module (option)
- Options:
  - – Signal interface module
  - – SCSI controller (Adaptec AHA–1542 CF)
  - – MO drive
  - – FU–AT radio–controlled clock
  - – 2 printer interfaces
- Software:
  - – OS 525 software in different rating classes protected by a TELE-PERM M software protection connector (dongle)

Terminals:

SIMATIC PC RI45 with

- – Pentium 133 MHz
- – 16 MB main memory
- – 820 MB hard disk,
- – CP 1413 to connect to the SINEC H1 terminal bus
- – Keyboard, mouse/trackball, monitor
- Graphics:
  - – Internal VGA graphics module
  - – HIGRAPH 2 graphics module (not used)
- Options:
  - – 2 printer interfaces
- Software:
  - – OS 525 terminal software protected by a TELEPERM M software protection connector (dongle)

1.2 System Configuration

The figures and features of the following examples show the possible OS 525 system configurations.

1.2.1 Multi–Position System with SINEC H1 Terminal Bus

Enhancing the OS 520 to the OS 525 multi–position system with terminal bus permits free selection of device and system configuration.

The number of operator input terminals and base units in a system and their mutual allocation can freely be configured according to ergonomic aspects and I&C–related requirements. Up to 4 terminals per host can currently be configured (the quantity breakdown is valid for up to 4 terminals per host)..

☞ The host must not have an own operator position if there are more then 2 terminals.

The SINEC H1 terminal bus is logically and physically separated from the CS 275 process bus or SINEC L2.
Fig. 1.1 shows a multi–position system with a terminal bus.

1.2.2 Multi–Position System with Several Independent Host Computers Connected to the Terminal Bus

Within wide limits, the number of hosts and the number of process terminals connected to the same terminal bus can be configured independently of each other. The allocation between host and terminal can be changed via a system function.
Adding further hosts (within the system limits) permits a plant to be extended by additional plant sections without modifying the control room.
Fig. 1.2 shows a multi–position system with a terminal bus and several host computers.

AS *)	
AS 235	AS 215
AS 230	LR 600
AS 220 EAI	

AG	AS
S5–150U	AS 488
S5–155U	AS 388 **)

*) connected to the CS 275 bus system only
**) connected to the SINEC L2 bus system only
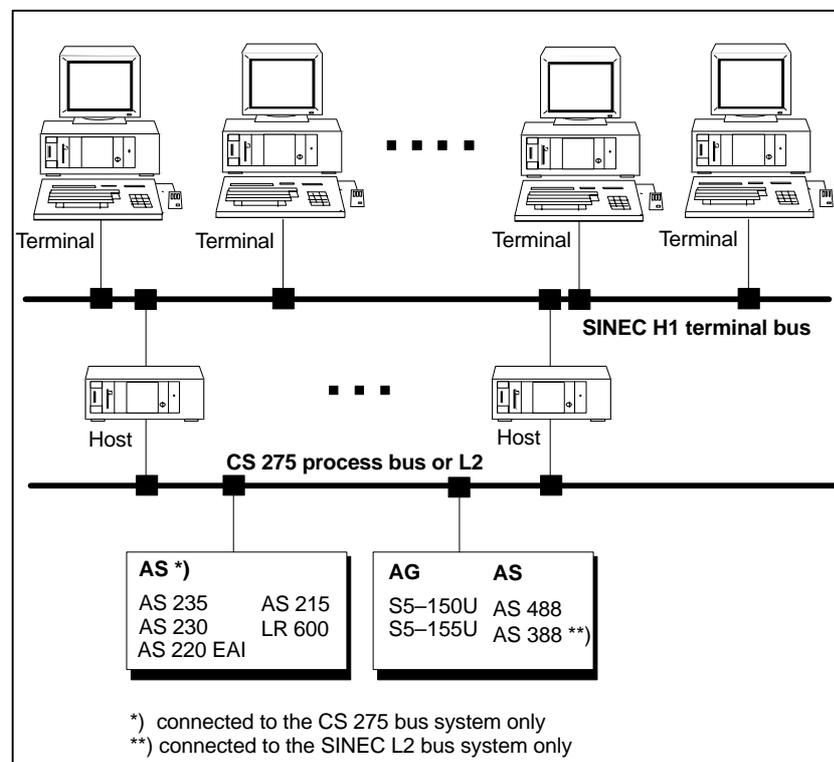
Fig. 1.2   Multi–position system with several independant host computers

1.2.3 Central ES Position for PROGRAF AS and CONFIG

The central ES position (engineering workstation) is connected to the CS 275 bus or SINEC L2 and to the SINEC H1 terminal bus.

Configuring the AS (including central loading and archiving the AS via CS 275) is done in the usual way using PROGRAF AS under the Windows operating system.
CONFIG under FlexOS is used for configuring the OS.

The existing link to the process permits the ES position to be used for performing complete or delta startup and commissioning test.

Configuration data (block lists) is exchanged between PROGRAF AS and CONFIG via central files in the ES position. A change from PROGRAF AS to CONFIG or vice versa requires the operating system to be changed too.
The common ES position centralizes configuration and reduces the time required for commissioning and testing.

Fig. 1.3 shows how a central engineering workstation can be integrated into the OS 525 system configuration.The hardware of the ES position is identical to the hardware of a host with an operator position.
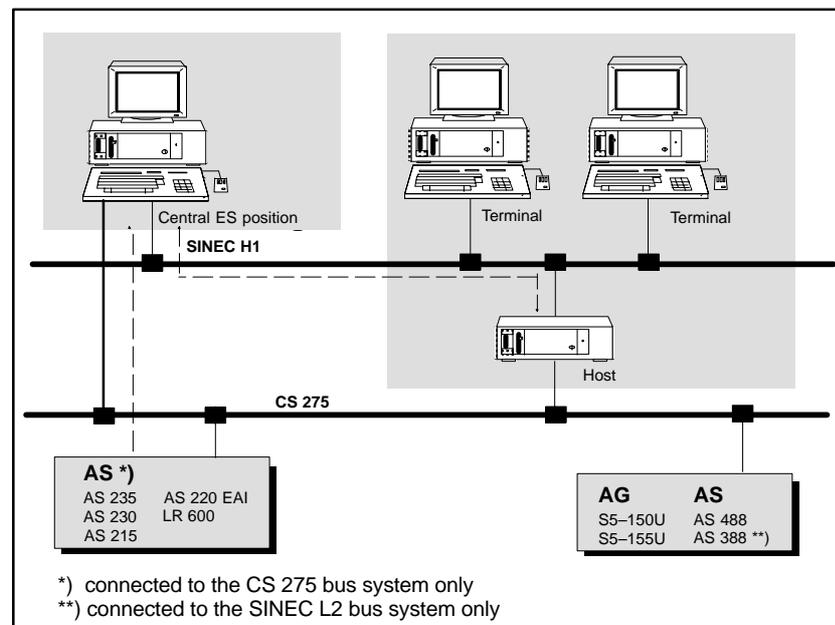
Fig. 1.3   Central ES position for PROGRAF AS and CONFIG

The major features of an ES workstation are:

– Importing the link data from PROGRAF AS via central files on the hard disk.
– Configuring, modifying configuration, on line setting with CONFIG on the ES position.
– Commissioning with complete startup, delta startup and test operation.
– Central administration of all configuration data.

– Loading configuration data into the host while process operation is running.
Note: If a complete startup has been performed in the ES position, the related short addresses *.WDR must be loaded into the host in addition to the *.OSO execution form.
– Process control interruption is limited to the time of an OS restart.

When changing the operating system a correct hardware reset requires a booting by switching off the voltage

.

1.2.4   Local OS 525

As opposed to a single/multi–position system the "Local OS 525" is only connected to one AS via a bus system (SINEC L2 or CS 275), the entire functionality and quantity breakdown being available.
The technical device specifications correspond to that of the multi–position system specified in the preceeding Section 1.1.

☞   The coupling restriction with only one AS is definitive, i.e. an "Local OS 525" cannot be upgraded to a multi–position system with complete functionality.

The OS coupling with the one and only AS is controlled with a software protection connector (dongle).

The bus/device address (BA/TA) corresponding to the AS has to be installed in the "BATA for local AS" connector in the OS–SET (cf. Fig. 3.34 in Section 3.1.7).

After entering the OS establishes a connection to this AS when it starts and only receives values and messages from this AS. All other values and messages on the same bus are ignored.

1.3   SINEC H1 Network Configuration

A SINEC H1 network consists of individual bus segments of a maximum segment length of 500 meters.

Up to 100 bus coupler modules (transceivers) may be connected to a bus segment (see Fig. 1.4).

Additional segments may be added via repeaters if the segment length proves insufficient. Please note that there may not be more than two repeaters (four if fiber optics is used) between any two stations.

Network components

The following components are available for a SINEC H1 network:

- 727–0 bus cable (triaxial cable)
- Fiber optics cable
- Bus coupler modules (transceivers) with one interface
- Bus coupler modules (transceivers) with two interfaces
- Interface multiplexer for 5 or 8 bus devices
- Cable connectors and terminating resistors
- 727–1 connecting cables (up to 50 meters)
- Repeaters for segment links

☞   Note:
      Please refer to the IK10 SINEC Catalog, the AR 463–220 Working Guideline (installation of the SINEC H1 bus system), and the Operating Instructions of the individual components for further details on the SINEC H1 network configuration.
      Fig. 1.4 shows a typical SINEC H1 terminal bus application.

Terminal Host computer central engineering workstation

Terminal Host computer central engineering workstation

Terminal Host computer central engineering workstation

Up to 100 devices per segment

Terminal Host computer central engineering workstation

max. 100 m

Max. bus segment length 50 m

R

Terminal Host computer central engineering workstation

Terminal Host computer central engineering workstation

To a max. of 5 or 8 bus devices
Terminal / Host computer / central engineering workstation

The total length of both 727–1 connecting cables (between bus coupler and terminal) may not exceed 40 m with the SV 775 interface multiplexer 50 m with the SSV 102 A/B interface multiplexer

Terminal Host computer central engineering workstation

R

max. 1000 m

Terminal host computer central engineering workstation

Terminal Host computer central engineering workstation

Terminal Host computer central engineering workstation

R

SINEC – Bridge H1/H1

SINEC concentrator 132

SINEC test and diagnosis system

R	Repeater (bus amplifier)	Interface multiplexer
	Bus coupler with 1 interface (Transceiver)	Optical bus coupler (Transceiver)
	Bus coupler with 2 interfaces (Transceiver)	Terminating resistor

727–0 bus cable

Fiber optics cable

727–1 connecting cable (max. 50 m)

Fig. 1.4   Example of a decentral automation system with SINEC H1

Connecting the Systems

The individual systems are interconnected via SINEC bus coupler mod–ules (transceivers), transceiver cables, interface multiplexers (if neces-sary), and the CP 1413 communication processor in terminal, host workstation, or central engineering workstation (see Fig. 1.4). The individual bus devices (terminal, host, or central engineering workstation) can communicate with one another without bus if an interface multiplexer (or several interface multiplexers connected in series) is used.

☞   Set the switch of the interface multiplexer to 'internal'.

Cables

727–0 bus cable

The 727–0 bus cable can be ordered by the meter (order no. 6ES5 727–0AA11). Both ends must be provided with terminating resis-tors. Every 2.5 meters there is a mark on the cable that shows the posi-tion where a bus coupler unit can be installed. Please refer to the AR 463–220 working guidelines and the IK 10 SINEC catalogue for de-tails.

Fiber optics cable

The fiber optics cable is required for configurations that employ remote repeaters (remote bus amplifiers). Please refer to the AR 464 working guidelines 'Installing the SINEC H1FO bus system' for details.

727–1 connecting cable

The 727–1 connecting cable is required as the link between :

● bus devices (terminal, host, or central engineering workstation) and bus coupler
● bus coupler and repeater
● bus device and interface multiplexer
● interface multiplexer and bus coupler

A maximum length of 500 meters may not be exceeded.

The 727–1 connecting cable consists of four screened twisted pairs with an additional overall screen. It features a 15–way connector (SUB–D, 1x male, 1x female) at either end.
The connecting cable may be ordered in six different lengths (see Sec-tion 2.3.9 "Connecting cable summary").

The order numbers of the different components are in the SINEC IK 10 Catalogue.

Contents Section 2

2   Installation and Commissioning

Refer to the SIMATIC PC RI45 Manual
(Order No. C79000–G7084–C780) for installation and start-up.

☞ The PC has a two-part electronic Manual with a

- User's Guide
  File: U_MANE.PDF *)

and a

- Technical Description
  File: T_DESE.PDF *)

However, in order to read and print the electronic Manual you require the **ADOBE Acrobat Reader** software which is located in the directory c:\acrodos\RI45.

*) The last letter of the file name (e.g. MAN**D** or DES**D)** specifies the language:
D = German, E = English, F = French, I = Italian.

Installation of ADOBEAcrobat

ADOBE Acrobat can **only be installed in DOS.**

☞ You should install the mouse (+ mouse driver) prior to installation of the Acrobat.

Proceed in the following order when installing:

- Start the file **install.exe** in the directory c:\acrodos.

- The following message then appears
  Adobe Acrobat Reader for DOS Installation, Version x.y
  Acknowledge this by pressing any key.

- Acknowledge the subsequent message concerning the license agreement with *Accept*.

- Acknowledge the request to enter your name with ENTER.

- Acknowledge the request to enter your company with ENTER.

- You can ignore the input of your own directory and acknowledge the proposed directory with ENTER instead.

- You can ignore the input of a printer font directory and acknowledge the proposed directory with ENTER instead.

- You can now select whether you wish to install a learn program (it requires approx. 0.5 MB memory). Acknowledge your selection with ENTER.

- You can now select your own working directory or – better – accept the proposed directory with ENTER.

- You should also accept the proposed swap directory with ENTER.

- You will be asked whether the installation program is permitted to modify the CONFIG.SYS and AUTOEXEC.BAT files or whether you wish to carry out the modifications yourself.
  The program carries out the adaptation if you select `Go ahead and modify` (ENTER).

- If you have not yet connected a mouse or loaded the driver, a message will now be output which you should acknowledge with ENTER.

- At the end, you will be requested to re-boot your computer. Acknowledge this request with ENTER and then boot your computer.

Start ADOBE Acrobat with *acrobat.*

2.1 Preparing Commissioning of the N–AT CP5412–A1 bus interface

The preparatory settings of the OS 525 are restricted to the N–AT bus interface. The bus requires bus address, mode, and address of the N–AT bus interface to be selected. To do this you must open the housing of the OS 525 base unit. The individual steps are explained in the PC Manual. In addition, the EMC instructions given must be observed during this work.

⚠	**Warning**
	Hazardous voltages always exist at certain elements inside an electrical device. Improper handling may therefore cause death, serious personal injury or significant damage to equipment. Please observe all notes in this Manual before you start commissioning this product. ● Only qualified personnel may commission the OS 525. ● The OS 525 must be disconnected from the mains before any work on the base unit is startet. ● The Safety Instructions in the first Section of this Manual must be observed.

The individual components of an operator communication and visualization system are connected via suitable interfaces to the local bus of the CS 275 bus system. The local bus is limited to a maximum of 9 devices and a length of 20 meters. The voltage difference on the M signal line may not exceed 0.2 V between the individual devices.

In addition, the Installation Instructions in Chapter 2.3.10 must be ob–served.

The remote bus interconnects the individual local buses.
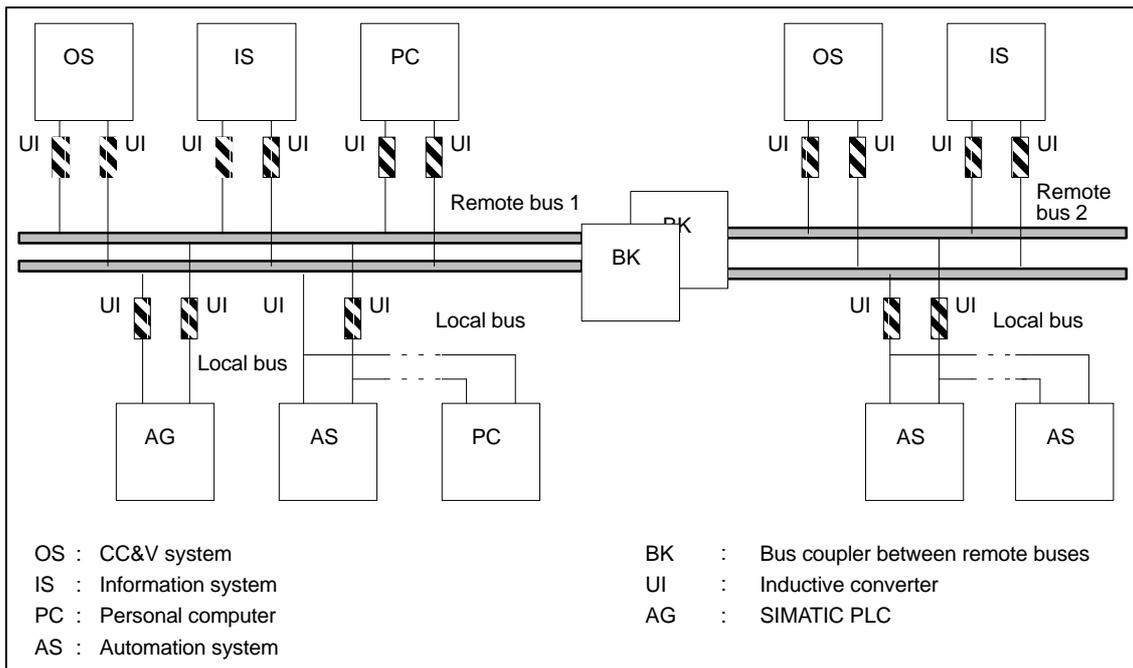
Fig. 2.1   CS 275 bus system CS 275, typical configuration

Each device in a CS 275 bus system can be invoked by its address. The complete address consists of a bus and a device address.

The bus address is the same for all devices that are connected to a self–contained bus. The individual bus components are distinguished by their device addresses.

The following Figure shows the location of the adjuster elements on the N–AT module.
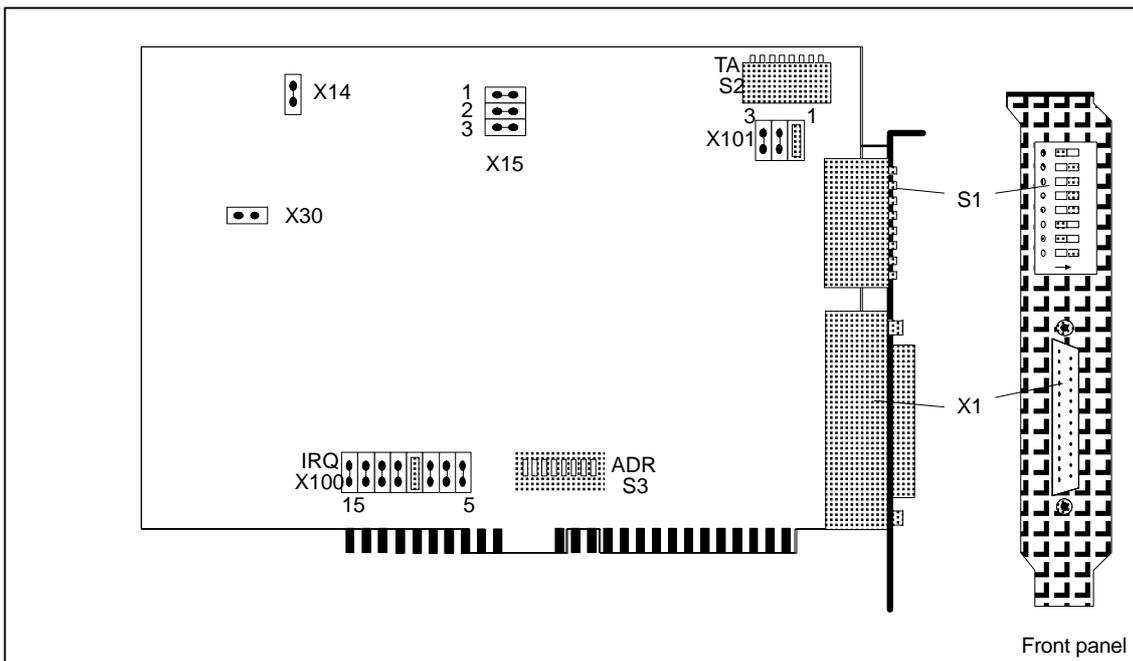
Fig. 2.2   Adjuster elements on the N–AT module

2.1.1   Device Address of the N–AT

The device address of the N–AT local bus interface is selected with the S2 DIL switch (labelled "TA"). This switch can easily be accessed when the module is inserted in the OS 525. The least significant bit (2^0) is set by the switch element on the right–hand side while the switch element on the left–hand side defines the most significant bit (2^7). (Cf. printed label on the board).

Switch position "ON" corresponds to "0", and "OFF" to "1".

Device address 90 ($5A_H$) has been selected when the unit is delivered.
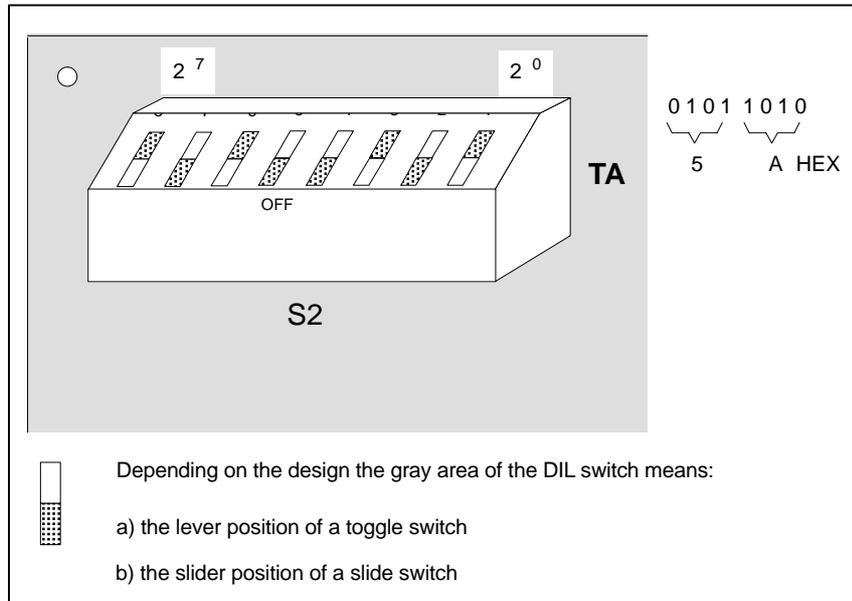
Fig. 2.3   Selecting the device address

2.1.2   Bus Address and Bus Mode of the N–AT

There is a combination element on the front panel of the N–AT that consists of an 8–way DIL switch (S1) and 6 LEDs. Meaning, arrangement and color of the LEDs correspond to the mode indicators of other CS 275 bus interfaces (such as N–8 and N–S5). Not all 8 DIL switch elements have been connected. Switches 1, 2, and 3 are used for setting the bus address (switch 1 selects bit 2^0, position "OFF" means "1"): Any combination between 0 and 7 represents a valid bus address.

CS 275 protocol and bus hardware permit operation on a simple and on a redundant bus system. Switch 5 is used for telling the interface module whether it is connected to a simple or to a redundant bus system ("OFF" = non–redundant bus).
The N–AT transitions to an idle mode if the switch positions (1, 2, 3 or 5) are changed during operation. Actuating switch 8 (enter switch) after the change causes the N–AT to accept the newly set parameters.

The N–AT exits idle mode after this switch has been cycled ON–OFF–ON.

All switches are set to OFF when the system is delivered. This means that the parameters must be selected before commissioning is started.
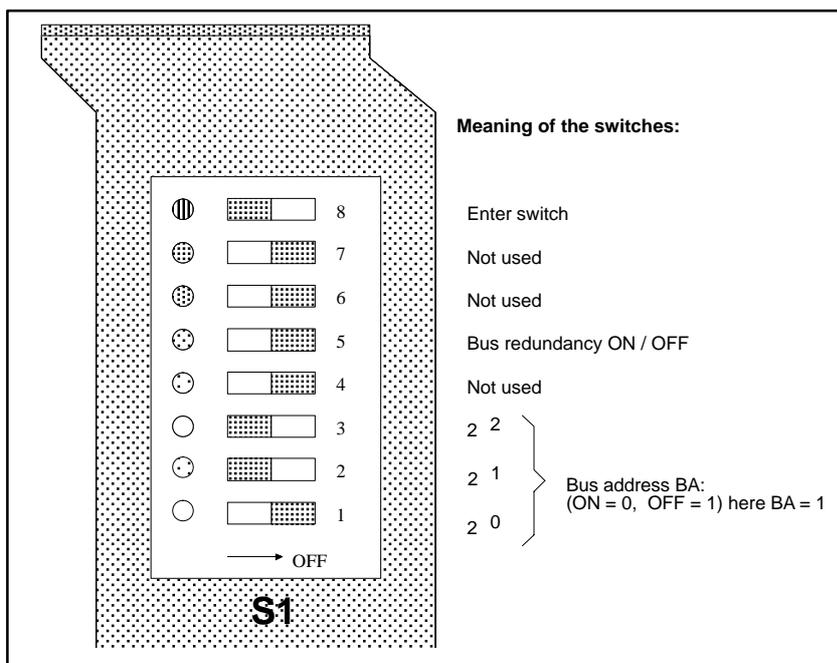
Fig. 2.4   Setting the bus address

2.1.3   Setting the Base Address and Interrupt Allocation

Upon delivery of the OS 525, the base address and the interrupt allocation are set to the following values:

- N–AT base address in the I/O address space: 310_H
- Interrupt allocation to IRQ signal 10

Base address
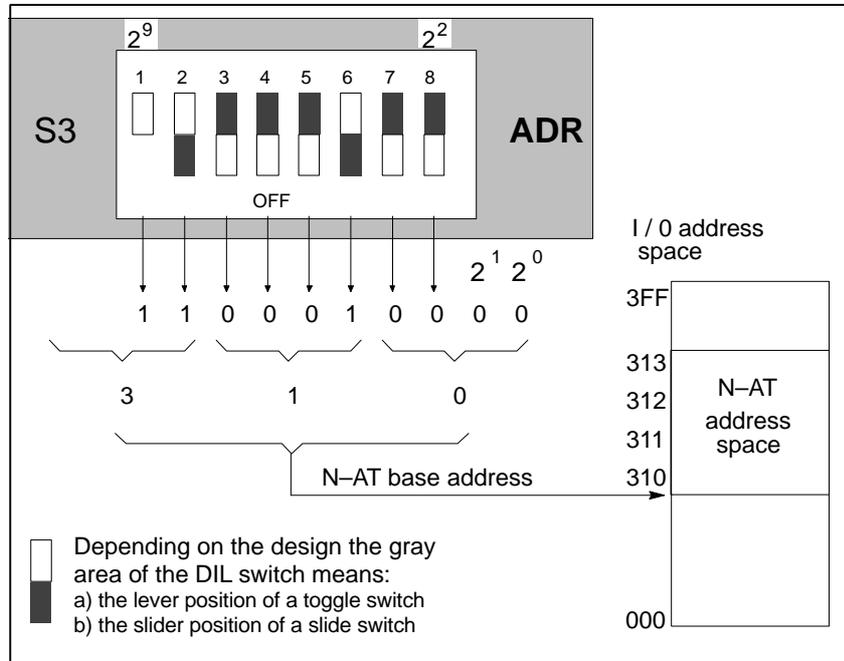
Fig. 2.5   Setting the base address on the N–AT module

Interrupt allocation

Plug–in jumper X100 (labelled "IRQ") selects IRQ 10 for the interrupt signal.
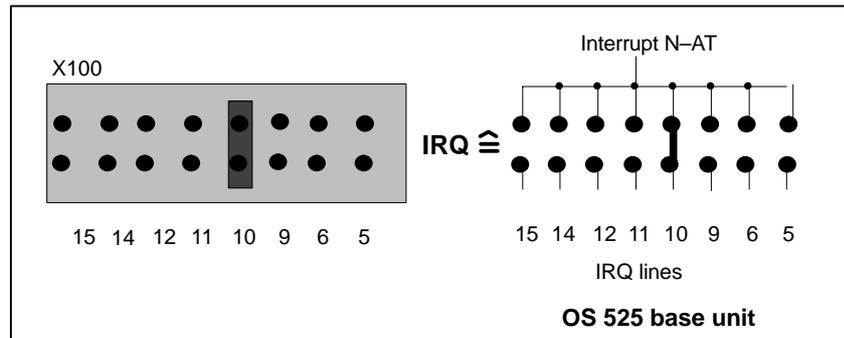
Fig. 2.6   Typical interrupt allocation on the N–AT: IRQ10

⚠ **Caution**

Duplicated allocation of an IRQ signal by several interface modules may cause defects.

Jumpers on the N–AT module that may not be changed

The N–AT local bus interface module features several jumpers that are required during manufacturing and for test purposes. The setting of these jumpers **may never** be changed. These connections are (for reference only, see /10/ for detailed information regarding the N–AT module):

X14	closed	(Wire–wrap link)
X15.1	closed	(Wire–wrap link)
X15.2	closed	(Wire–wrap link)
X15.3	closed	(Wire–wrap link)
X30	open	(If D9, D11 have been equipped with 2812 module:
		◗ D10, D12 empty)
	closed	(Wire–wrap link if D10, D12 have been equipped with 67417 module;
		◗ D9, D11 empty)
X101.2	closed	(Wire–wrap link)
X101.3	closed	(Wire–wrap link)

2.1.4   CP 5412 A1 Communications Module

The settings of the CP 5412 A1 communications module are described in Section 4.5.
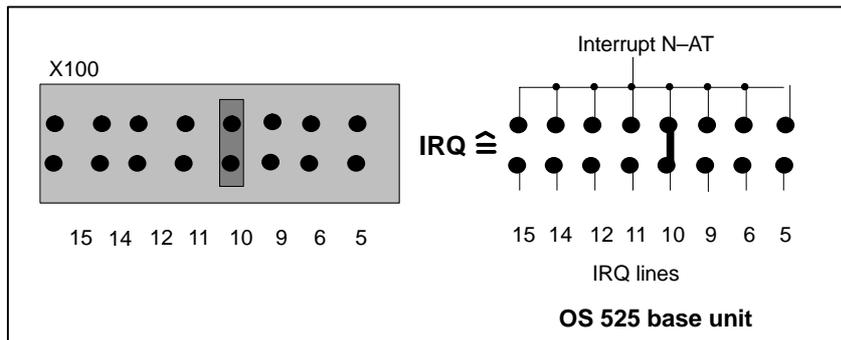
2.2   Power Supply Connection of the OS 525

The PC RI45 is provided for 230/115 V.
Upon delivery, the base unit has been set to AC 230 V. You will find the
voltage selector on the reverse.
The OS 525 base unit is delivered for a 230–V use.

<div style="border:1px solid">

⚠️ **Caution**

Changing the mains voltage also changes the
voltage at the mains voltage output (monitor
connection).

</div>

The base unit can be connected to a normal grounded mains (known as
TN mains to VDE 0100–300 or IEC 364–3).

☞   Connecting the unit to an ungrounded mains or a mains that is
grounded via an impedance (IT mains) is not permitted.

For more details refer to the SIMATIC PC RI45 Manual
(Order No. C79000–G7084–C780).

2.3   Connection of External Devices

2.3.1   Connecting the PM54/C2 and SCM 2185 Process Monitors

Connection to the OS 525 base unit

Connecting cables of different standard lengths (up to 200 meters) are available to connect the monitor to HIGRAPH 2. The length of the connecting cable of the SCM 2185 monitor may not exceed 30 meters.
Only the PM54/C2 monitor can be used for greater distances (see Section 2.3.9 Connecting Cable Summary).
Triaxial cables can be used over distances up to 100 meters. An active cable adapter must be installed if the cable length exceeds 100 meters (see Section 5.1).

Synchronization signal

The synchronization signal must be set at the S1_8 switch of HIGRAPH 2 according to the connecting cables employed (see Section 4.6).

Connecting the monitor power supply

There is a mains output on the rear panel of the OS 525, next to the mains connecting unit. Connect the mains cable of your monitor here. An OS with standard power supply permits a color monitor of a power consumption of more than 120 W to be connected to the mains output.

Switch settings for OS 525 (monitor back panel)

Set the switch S1 and S5 as follows:

- Switch S1

S1.1 = 0 (no 75 Ω termination of HSYNC)

S1.2, S1.3 and S1.4 = 1 (75 Ω termination of R, G, B).

If an additional monitor or color graphics printer are looped in, an 75 Ω termination is not necessary.
S1.2, S1.3 and S1.4 are 0.

- Switch S5
S5.1, S5.2 and S5.4 = 1; S5.3 = 0 (VGA mode via X10).

2.3.2   Connecting the Printer to the OS 525

A parallel interface (LPT1) and a serial interface (COM1) are at disposition.

Compatible printers: DR 215 / 216, DR 235 / 236 or DR 240 / 241

See the instructions of the corresponding printer for the location of the individual switches and jumpers.

General settings

The following 4 settings can be made independent on the used printers:

Baud rate 9600 bits/s

8 data bits

1 stop bit

No parity check

DR 215 / 216 / DR 235 / 236, Centronics (parallel) interface at LPT1

Settings on the interface module:

B5	=	OFF	No connection between GND and frame
B17	=	OFF	(2 MB PROM)
B18	=	ON	(2 MB PROM)
B20	=	OFF	PROM socket empty
B21	=	ON	PROM socket empty
B22	=	OFF	PROM socket empty
B23	=	ON	PROM socket empty

DR 215 / 216 / DR 235 / 236, serial interface (V.24) at COM1

Settings on the interface module (RS–232C and TTY 20 mA):

B5	=	OFF	No connection between GND and frame
B17	=	OFF	(2 MB PROM)
B18	=	ON	(2 MB PROM)
B20	=	OFF	PROM socket empty
B21	=	ON	PROM socket empty
B22	=	OFF	PROM socket empty
B23	=	ON	PROM socket empty

Settings in the printer:
S1 set to position 2
S2 set to position 2

S3.1	=	OFF	connects READY with pin 25
S3.2	=	ON	connects READY with pin 25
S3.3	=	ON	connects TxD with pin 2
S3.4	=	OFF	connects TxD with pin 2
S4.1	=	OFF	no signal at pin 25
S4.2	=	OFF	Protective resistance in R loop
S4.3	=	OFF	Protective resistance in T loop
S4.4	=	ON	RS–232C mode

The OS recognizes if the printer is off line or switched off, and issues an I&C alarm.

Parameter setting in the OS via OS–SET: XON/XOFF mode

The following settings of the switches S3.x and S4.x are required in DTR/DSR mode:

S3.1	=	OFF	connects READY with pin 25
S3.2	=	ON	connects READY with pin 25
S3.3	=	ON	connects TxD with pin 2
S3.4	=	OFF	connects TxD with pin 2
S4.1	=	ON	no signal at pin 25
S4.2	=	OFF	Protective resistance in R loop
S4.3	=	OFF	Protective resistance in T loop
S4.4	=	ON	RS–232C mode

Parameter setting in the OS via OS–SET: DTR/DSR mode

DR 240 / 241, Centronics (parallel) interface at LPT1	Settings in the printer:			
	SW1.1	=	ON	IBM Proprinter
	SW1.2	=	ON	IBM Proprinter
	SW1.3	=	OFF	Parallel interface
	SW1.4	=	ON	Normal image density
	SW1.5	=	ON	Tear off active
	SW1.6	=	OFF	No automatic line feed
	SW1.7	=	ON	No automatic form feed
	SW1.8	=	OFF	Line gauge not active
	SW2.1	=	ON	Character set selection
	SW2.2	=	ON	Character set selection
	SW2.3	=	ON	Character set selection
	SW2.4	=	ON	12–in form
	SW2.5	=	OFF	12–in form
	SW2.6	=	OFF	1/6–in line feed
	SW2.7	=	ON	Print quality (high speed)
	SW2.8	=	ON	Skip over perforation
	SW2.9	=	ON	Paper width sensor inactive
	SW2.10	=	OFF	not used

The OS recognizes if the printer is off line or switched off, and issues an I&C alarm.

DR 240 / 241, Serial interface (V.24) at COM1	Settings in the printer:			
	SW1.1	=	ON	IBM Proprinter
	SW1.2	=	ON	IBM Proprinter
	SW1.3	=	ON	Serial interface
	SW1.4	=	ON	Normal image density
	SW1.5	=	ON	Tear off active
	SW1.6	=	OFF	No automatic line feed
	SW1.7	=	ON	No automatic form feed
	SW1.8	=	OFF	Line gauge not active
	SW2.1	=	ON	Character set selection
	SW2.2	=	ON	Character set selection
	SW2.3	=	ON	Character set selection
	SW2.4	=	ON	12–in form
	SW2.5	=	OFF	12–in form
	SW2.6	=	OFF	1/6–in line feed
	SW2.7	=	ON	Print quality (high speed)

SW2.8	=	ON	Skip over perforation
SW2.9	=	ON	Paper width sensor inactive
SW2.10	=	OFF	not used

Settings on the interface module (XON/XOFF mode):

SW1.1	=	OFF	Baud rate
SW1.2	=	OFF	Baud rate
SW1.3	=	OFF	Baud rate
SW1.4	=	OFF	No parity check
SW1.5	=	OFF	No parity check
SW1.6	=	OFF	Data length
SW1.7	=	OFF	Stop bit
SW1.8	=	OFF	XON/XOFF
SW1.9	=	ON	Buffer capacity
SW1.10	=	OFF	not used

SW2 in right–hand position

SW3 in right–hand position

JP1 = OFF

JP2 = OFF

JP3 = OFF

JP4 = OFF

The OS recognizes if the printer is off line or switched off, and issues an I&C alarm.

Parameter setting in the OS via OS–SET: XON/XOFF mode.

If the OS operates in DTR/DSR mode (provided that the settings of interface and printer are identical), the OS recognizes if the printer is off line or switched off, and issues an I&C alarm but **does not** notice if the printer is reactivated.

2.3.3   Connecting the CDR Color Graphics Printer to the OS 525 (Hardcopy)

Note: An HP 660C may also be connected to the LPT interface instead of the CDR. More details in the HP printer description.

⚠️ **Note**

The CDR color graphics printer may only be connected to the OS after

– the printer has been equipped with the triax hood 6AF1908–0AB10/20, and

– (if multiplex boxes are employed) after the adapter set for triax cables 6AV1908–0AC00 has been connected to the multiplex boxes.

In addition, the following points must be observed:

● Depending on the printer version, video lines and remote control lines for 1 to 4 channels may directly be connected. The video lines are connected via the coaxial adapter KTV (6AV1908–0AP00) to the monitor inputs of the OS 525. The remote control unit connects to connector X2 on the signal module.

☞   The signal module is essential for connection of the remote control.

● If multiplex boxes are used, both systems need the same lines as they do for a direct connection to the CDR color graphics printer. In addition, the links between two multiplex boxes or between a multiplex box and the CDR color graphics printer require the same video lines, and the connecting cable for the control signals that can be found in the CDR scope of delivery.

● An area of the outer screen of the video lines must be connected to the grounding bar of the process monitor. Fig. 2.7 shows how contact is made between the outer screen and the monitor box.

1   Area of the triaxial screen contact
2   Contact cover plate
     (screen contact is established when the plate is fixed)
3   Video cable
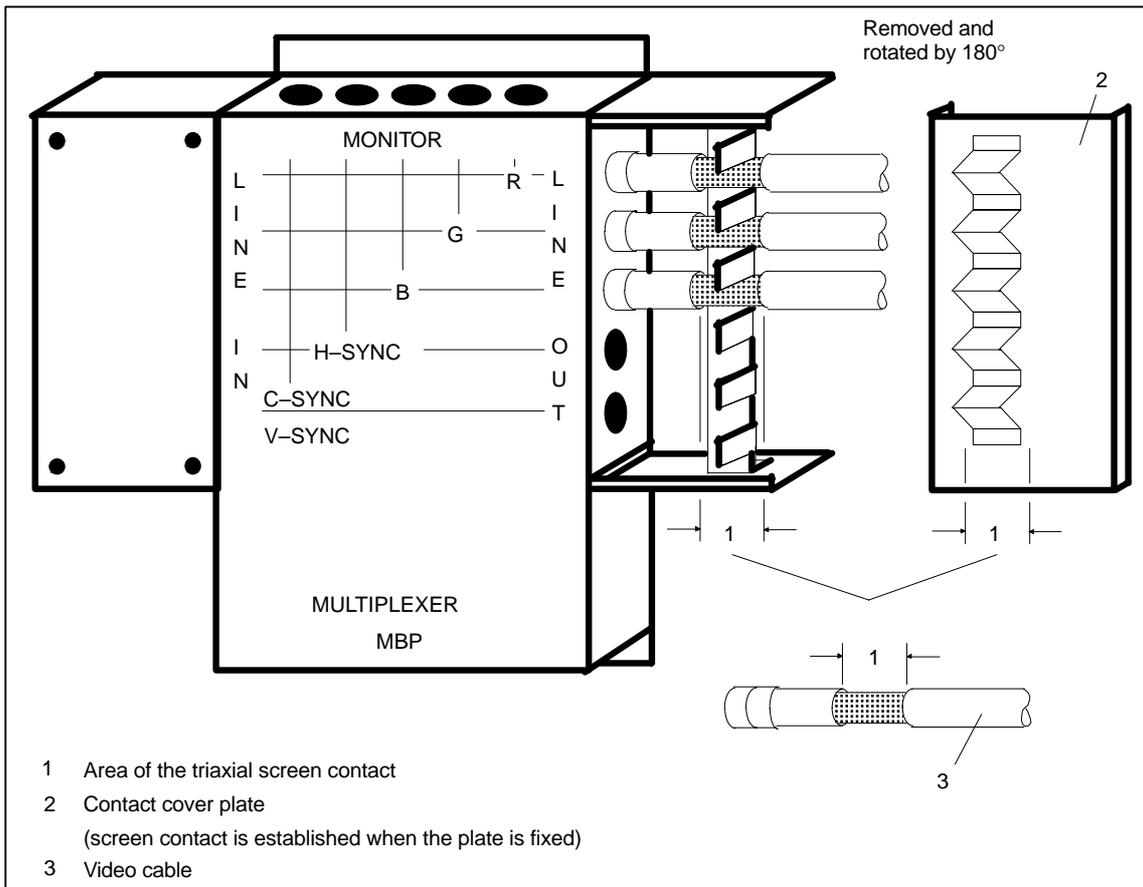
Fig. 2.7   Connecting the video cable to the multiplex box

> ⚠ **Note**
>
> An area of the outside screen of the video cables must always be in contact with the installlation items provided.

As the multiplex box does not have its own power supply unit, power is supplied from the CDR color graphics printer via the control cable. Although additional grounding of the multiplex boxes for interfering radiation suppression is **not** required, each multiplex box must be grounded if the individual channels carry different ground potentials.

If channels in a configuration are used by several systems with different ground potentials, an equipotential bonding conductor (≥ 10 mm^2) between the individual multiplex boxes is required.

OS 525 base unit — Signal module — X1, X2

Video (V)

Remote control cable (F)

FB*

1) V F   CDR 22–10 (D)
CDR 30–10 (D)

Individual connection
with/without
remote control
Printer with one–
channel back panel

2) V4 F4 V1 F1   CDR 22–20 (D)
CDR 30–20 (D)

4–fold connection
with/without
remote control
Printer with
4–channel back panel

3) Vn Fn V1 F1 — SL — MPB n — V — MPB 1 — V4 — SL
T   n=2...16

CDR 22–10 (D)
CDR 30–10 (D)

Multiplex connection
with MPB multiplexers
(up to 16–fold connection)
with/without
remote control
Printer with one–
channel back panel

4) Vn Fn V1 F1 — SL — MPB n — V — MPB 1 — V4 — SL
T   n=2...16   F3 F2 F1 V3 V2 V1

CDR 22–20 (D)
CDR 30–20 (D)

Multiplex connection
with MPB multiplexers
(up to 16–fold connection)
with/without
remote control
Printer with four–
channel back panel

Cabling of configurations 2, 3 and 4 is analogous with Fig. 1)

* The CDR 30 color graphics printer with one–channel back panel cannot be remote controlled

V	= Video cable	MPB	= Multiplex box, passive
F	= Remote control cable	T	= Terminator
SL	= Control line	FB	= Remote control unit

Fig. 2.8   Typical connection variants of the CDR color graphics printer to the OS 525

2.3.4   Connecting Mouse or Trackball and Keyboard

The mouse connects to the "COM2/V24" (COM2 – device rear) connector of the base unit.

☞   A trackball can take the place of the mouse without changing the configuration (with OS–SET select the 3–button mouse; beleow it is always only called mouse).

The keyboard connects to the "Keyboard" connector (PS/2 connection on the device rear with RI45).

2.3.5   Signal Module Connections

There are interfaces for the following functions on the signal module:

● Color graphics printer control
● Watchdog
● Audible indicator

Watchdog and audible indicator outputs are relay contact outputs (single–pole changeover contact). Please refer to Section 4.8 for details.

A connecting cable with connectors for the color graphics printer is available. The pin assignments of both connectors are specified in Section 4.8.3.

2.3.6   Connection to the SINEC H1 Bus

The CP 1413 communication processor in the OS 525 base unit (terminal, host, or central engineering workstation) permits the OS 525 to be connected to the SINEC H1 bus via bus coupler modules.

An interface multiplexer may be installed between bus coupler module and OS 525 base unit (see Fig. 1.4). The individual components (terminal, host, or central engineering workstation) of such a configuration may communicate with one another without a SINEC H1 bus (provided that the switches of the interface multiplexer have been set to 'internal').

Readily available connecting cables (727–1) are used to connect bus coupler module and interface multiplexer, interface multiplexer and bus device, and bus coupler module and bus device (cf. Connecting cable summary). Please refer to Section 4.5 for the connector pin assignments.

2.3.7   Connection to the Local CS 275 TELEPERM Bus or SINEC Process Bus

2.3.7.1 CS 275 TELEPERM Local Bus

The connection between the N–AT interface module and the local TELE-PERM bus is established via a connecting cable with a 25–way trapezoidal socket with metallic hood and screw locks at the N–AT end, and a TELEPERM ES 902 connector with metallic hood and screw locks at the local bus end.

Either connector must carefully be screwed on.

> ⚠️ **Note**
>
> Despite proper connection of central grounding point and mains protective ground there may still be potential differences between PC housing and screen/connector hood of the connecting cable. This will lead to touch potentials when the connecting cable is plugged in.

Please observe the Installation Instructions for the individual components when you install a CS 275 bus system. Power supply connection and grounding via the central grounding point are discussed in Section 2.2.11.

Ensure that proper contact exists between the screen of the connecting cable and the enclosure when you commission the N–AT in the base unit!

Additional cabling between personal computer and grounding bar or central grounding point is not necessary. Ground connection is established via the protective ground conductor of the mains cable.

The bus interface isolation on the N–AT module causes the module's ground potential to be floating with respect to the PC ground potential. The connecting cable pulls the 0–V level of the interface logic to the ground potential of the local bus. This enables the maximum potential difference of 0.2 V between bus ground and device ground to be maintained for each device.
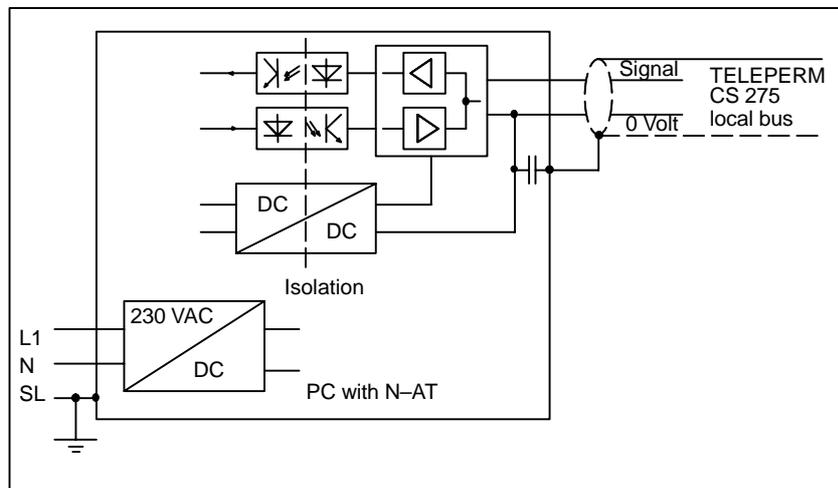
Fig. 2.9   Isolation of the N–AT module

2.3.7.2 SINEC L2 Process Bus

Connection to the SINEC L2 process bus takes place with the CP 5412 A1 communications module.

For more details about the SINEC L2 connection refer to

- SINEC IK10 Catalog
- Working Guideline for installing the SINEC L2 bus system (AR 463–02–220)
- SINEC l2/L2FO Manual (6GK1 970–5CA00–0AA0).

2.3.8   Installing the Software Protection

A software protection module (dongle) is supplied together with the OS 525 program package. This module must be inserted into the LPT1 parallel interface of the base unit. The LPT1 interface is brought out at the rear of this dongle and may be utilized as usual.
Different dongles are delivered, depending on the program package.

> ⚠ **Note**
>
> After starting a CONFIG editor or the process control software the user authorization is checked (dongle inserted). The software is not activated if the dongle is not inserted.

The software protection is cyclically checked during process control. An alarm box is issued as soon as the system detects that the user privilege no longer exists (the dongle has been removed during operation, for example).

The connection between host and terminal is interrupted after acknowledgement of the alarm box with "OK".

2.3.9   Device Cabling

Fig. 2.10 shows the cabling of using OS 525 with standard cable lengths. An active cable adapter (for monitor) and a keyboard extension (for mouse and keyboard) is recommended if longer cables are involved (see Section 5.1).
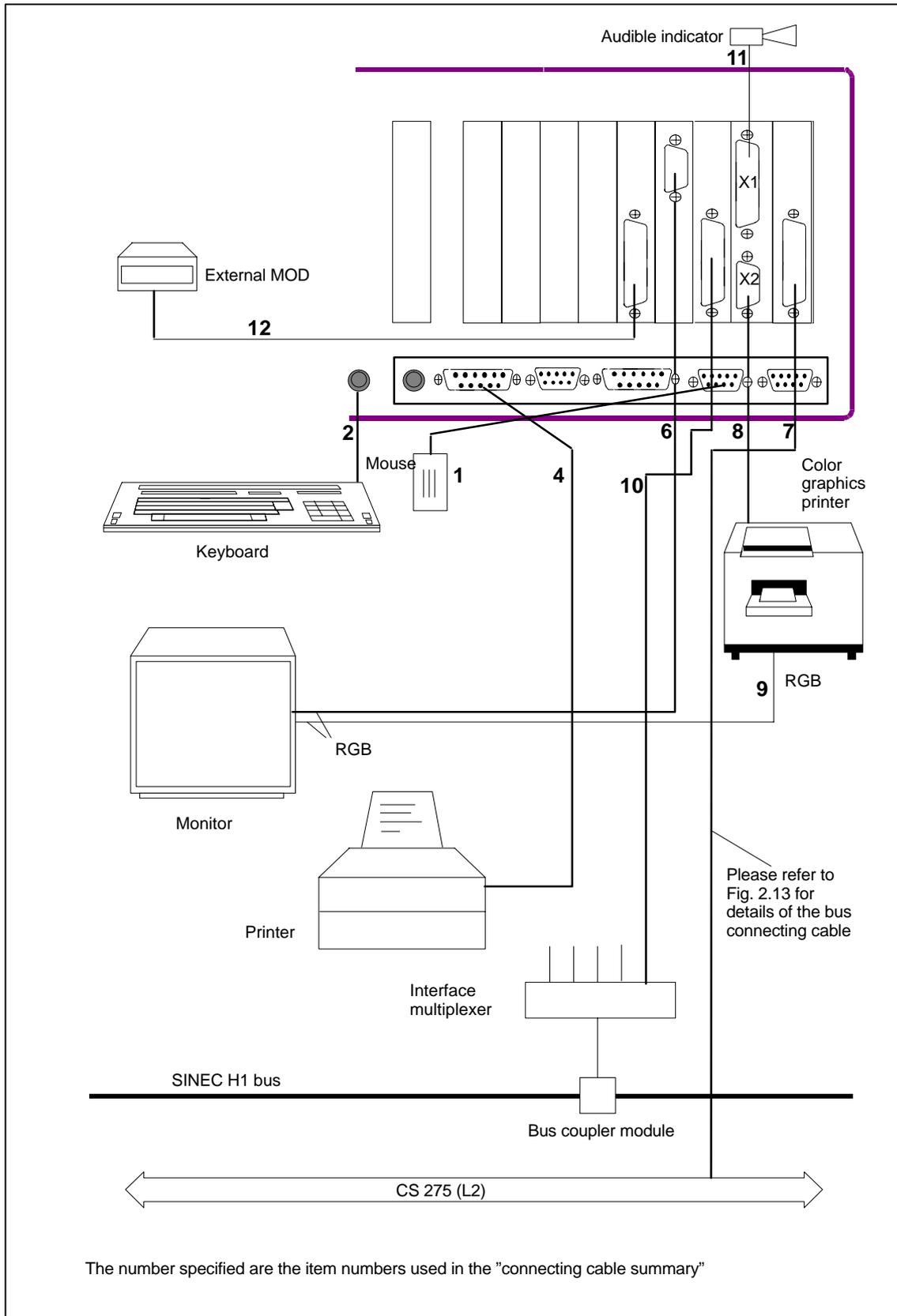
Fig. 2.10   OS 525 cabling (example for a possible equipment)
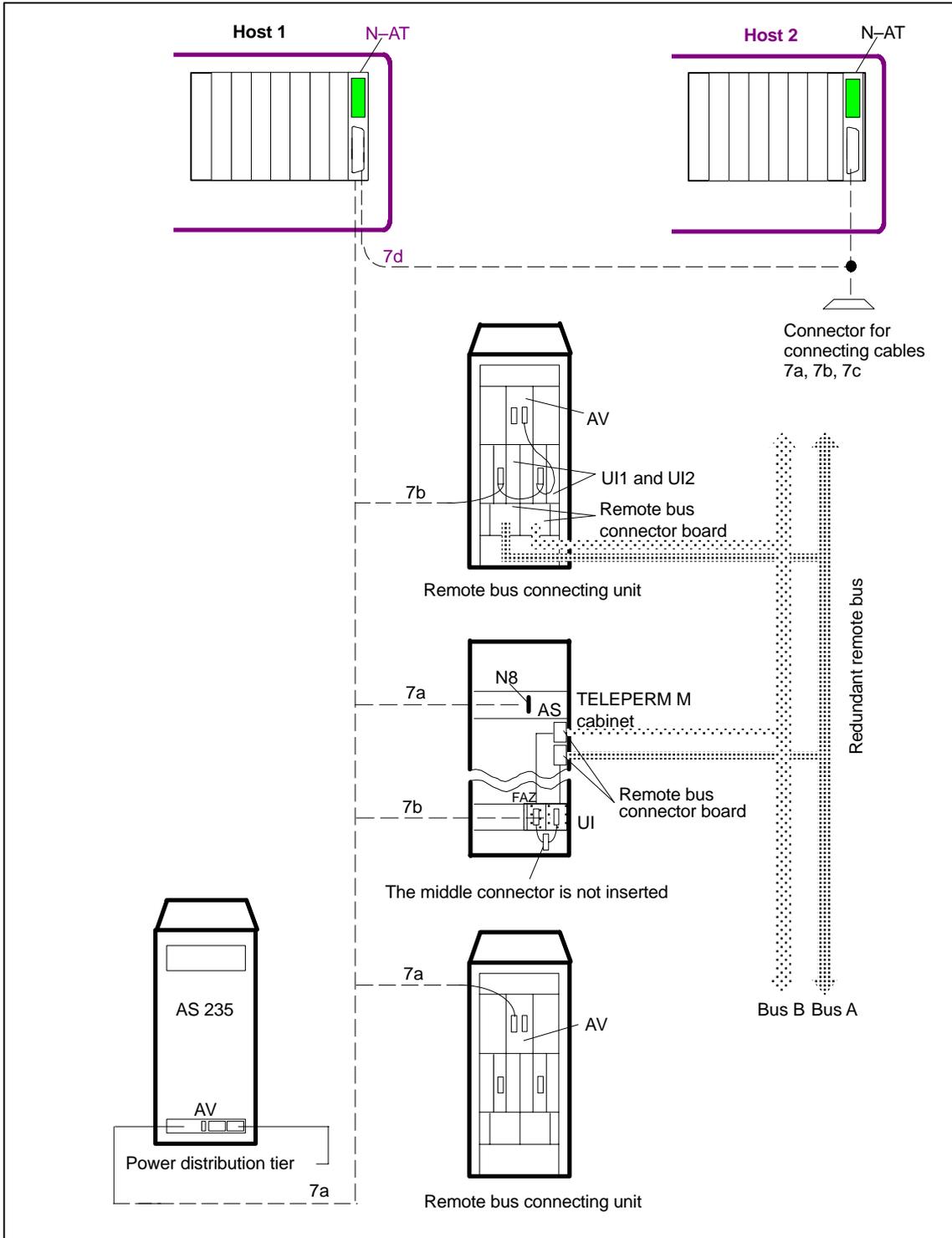
Fig. 2.11   Connecting the several hosts to local and remote bus

Connecting cable summary (standard lengths)

Item no.	Connector 1	Cable	Connector 2	Max. cable length	Order no.	Used at
1	9–way (sub–miniature 'D', female)	fixed to the mouse	Mouse	approx. 2 m	–	COM2 (V.24) mouse
2	PS/2 connector	fixed to the keyboard	Keyboard	approx. 2 m	–	Keyboard connections
3	15–way, (subminiature 'D', male)	LIYCY 5x2x0,.14	15–way, (subminiature 'D', male)	2 m	6XV1441––0AH20	VGA interface ↔ monitor (VGA connector)
4	25–way (subminiature 'D', male)	LIYCY 25x2x0, 0.08	36–way (Centronics connector)	10 m	6XV1406––0CN10	LPT1 ↔ printer
5	9–way (subminiature 'D', female)	LIYCY 2x2x0. 05	25–way (subminiature 'D', male)	32 m	6XV1440––3A...	COM1 ↔ printer
6	15–way (subminiature 'D', male)	5x minicoaxial	5x BNC	approx. 2 m	6XV1441––0BH20	HIGRAPH2 ↔ process monitor (RGB)
7a	25–way (subminiature 'D', female)	LIYCY 12x2x0,.22	ES 902 connector	2.5 m	6DS8208––8KC	N–AT ↔ terminal block (ES 902)
7b	25–way (subminiature 'D', female)	LIYCY 12x2x0. 22	3 ES 902 connectors	5 m	6DS8210––8A...	N–AT ↔ FAE
7c	25–way (subminiature 'D', female)	LIYCY 12x2x0. 22	Open ends	15 m	6DS8211––8A...	N–AT ↔ CS275 bus
7d	2x25–way (subminiature 'D' female)	LIYCY 12x2x0,.22	1x25–way subminiature 'D', male	5 m	6DS8212––8A...	2xN–AT ↔ 1xN–AT

Item no.	Connector 1	Cable	Connector 2	Max. cable length	Order no.	Used at
8	9–way (sub-miniature 'D', female)	LIYCY 2x2x0,.02	9–way (sub-miniature 'D', female)	5 m	6XV2174––8A...	Signal module ↔ multiplexer col.graph.pr.
9	3–fold (BNC connector)	3–fold tria-xial cable 2YCY 1x0.6/3	3–fold (BNC connector)	30 m [1]	6XV1400––4A...	Process monitor ↔ col. graph. pr./ par monit. [2]
10	15–way (sub–minia-ture 'D', male)		15–way (subminia-ture 'D', fe-male)	3.2 m 10 m 15 m 20 m 32 m 50 m	6ES5727– 1BD20 1CB00 1CB50 1CC00 1CD20 1CF00	727–1 con-necting ca-ble
11	25–way		open			Signal module ↔ audible indicator
12	50–way (SCSI Cen-tronics con-nector)		50–way (ADAPTEC controller)	max. 1.8 m		External MOD

[1] The specified maximum length is the overall cable length measured from the video source (HIGRAPH 2).

[2] Use a coaxial 'T' adapter.
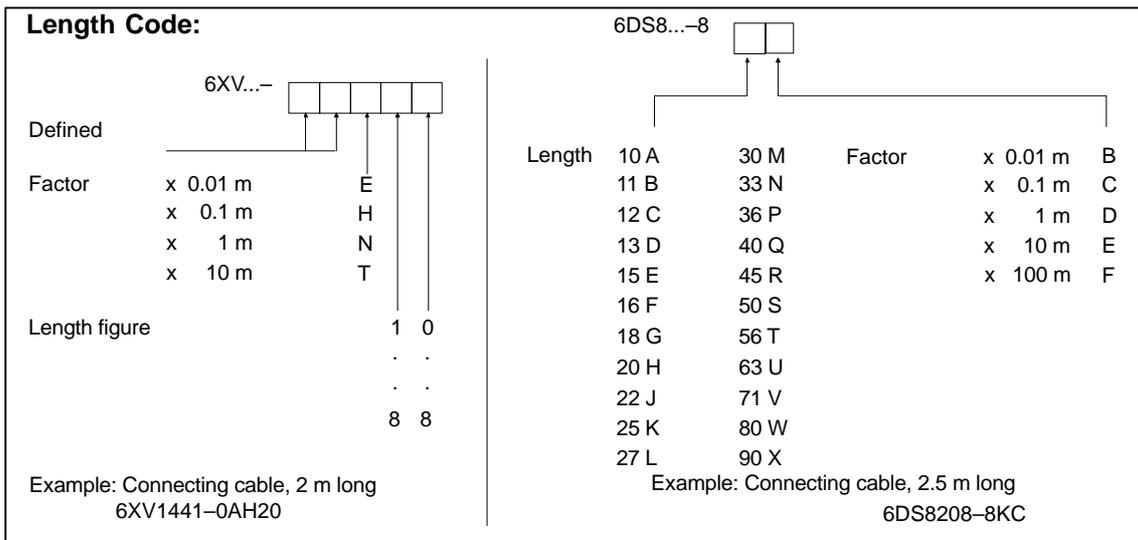
Fig. 2.12   Cable length code

2.3.10   Installation Instructions

The following instruction should be followed to guarantee proper operation of the overall system. Cf. "Instructions and Guidelines for Planning, Installation and Operation" Manual (Order No. C79000–G8076–C417) and installation of SINEC H1 bus system (AR 463–220).

⚠️ **Note**

Please remember that only **screened cables** may be used as signal lines. The cable screens must always be connected via metallic connectors to the unit.
Only connecting cables that have been released for the system may be used.
Connecting cables that do not comply with these requirements may cause system interferences and make void the permission of operation.

All connectors must be locked after they have been plugged in. This ensures that the connector has properly been inserted, and prevents the connectors from loosening by vibrations or cable movements. The contact surfaces of the local bus connector (N 16–M) must be completely clean. Both screws of this connector must firmly be tightened.

Unless otherwise specified, the screens of all signal cables must be connected to the connector shells at both cable ends or, if a cable is open–ended, to the unit.

Notes regarding specific signal cables and system components

**Connection to the
CS 275 bus system**

The link between the OS 525 and the subordinate automation systems can be established via the local or the remote bus of the CS 275 bus system. The following requirements must be satisfied.

● Local bus link

The cable provided for local bus links should not be laid outside cabinets. If a cable route outside cabinets cannot be avoided (as for the OS 525), the unscreened length of the cable outside the cabinet may not exceed 2.5 meters. Longer distances require the cable to be laid in a metallic cable duct that should be connected at several points to the local ground and may only contain the local bus cable. The total cable length of the local bus is limited to 20 meters.

If several systems are linked via the 20–m local bus, it must be ensured that equipment ground and neutral conductor of all systems are on the same potential. Failure to do so will produce malfunctions caused by compensating current on the local bus cable. There are different requirements that depend on the power supply system of the communication partners:

– Local bus links with 230 V AC systems (such as AS 235 K):
Local bus communication is permitted if the hot, neutral and protective ground conductors of the 230 V connection of all systems that are interlinked via the local bus are on the same respective potentials ("supply from one socket outlet").

– Local bus links with 24 V DC systems (such as AS 235):
Local bus communication between OS 525 and the systems of the 24 DC system is permitted if the central grounding point of the local bus island is referenced to the protective ground conductor potential of the floor panelboard. This structure requires a distributed floor–specific 24 V DC supply. Local bus communication across several floors is never permitted.

● Remote bus link

The remote bus connecting unit 6DS4425–8AA can be used for connecting the remote bus. This remote bus connecting unit should be equipped with the connection distribution unit for the 20–m local bus (6DS9207–8AA). The S5 remote bus connecting tier should be used instead of the remote bus connecting unit if the OS 525 is installed in a cabinet.

The following variants of this tier are available:
– Order no. 6DS4426–8AA (24 V DC, simple or redundant)
– Order no. 6DS4426–8BA (230 V AC, simple)
– Order no. 6DS4426–8CA (230 V AC, redundant)

Provided that the grounding instructions have been observed the OS 525 may also be connected to the remote bus via the remote bus connecting tier of an AS cabinet.

**Connection to the
SINEC L2 bus
system**

Connection is via the module CP 5412 A1.
Before fitting the module, check the setting of the interrupt vector and the address set on the DPRAM (see Section 4.5).

**Connection to the
SINEC H1 bus system**

Connection is made via readily available connecting cables that have been fitted with connectors. The AR 463–220 Installation Instructions 'Installing the SINEC H1 bus system' must be observed.

Audible indicator connecting cable

This cable can be used for outputting and interconnecting the audible indicator functions, and for outputting the watchdog signal. one end of this cable is open, i.e. without connector, thus enabling direct connection to a distributing unit. In order to prevent compensating current from flowing, the screen of this open end must be connected to a protective ground that must be on the same potential as the rest of the OS 525 system.

> ⚠️ **Note**
>
> Any inductivity that is switched by the output contacts (audible indicator, watchdog) must be equipped with a quenching diode.
> AC voltages may not be switched by the output contacts.

Mains connections and grounding

> ⚠️ **Note**
>
> All units of the system may be connected to standard grounded power supply mains (known as TN mains, to VDE 0100, part 300 or IEC 364–4).
> They are not suitable to be connected to a non–grounded mains or to a mains with impedance grounding (known as IT mains).

Protective ground and 0 V of the OS 525 are connected with each other inside the power supply unit.
All connecting cables are screened. At either end, the screen is connected to the connector shells. The connector shells are connected with the device enclosure and thus with the protective ground (PE).
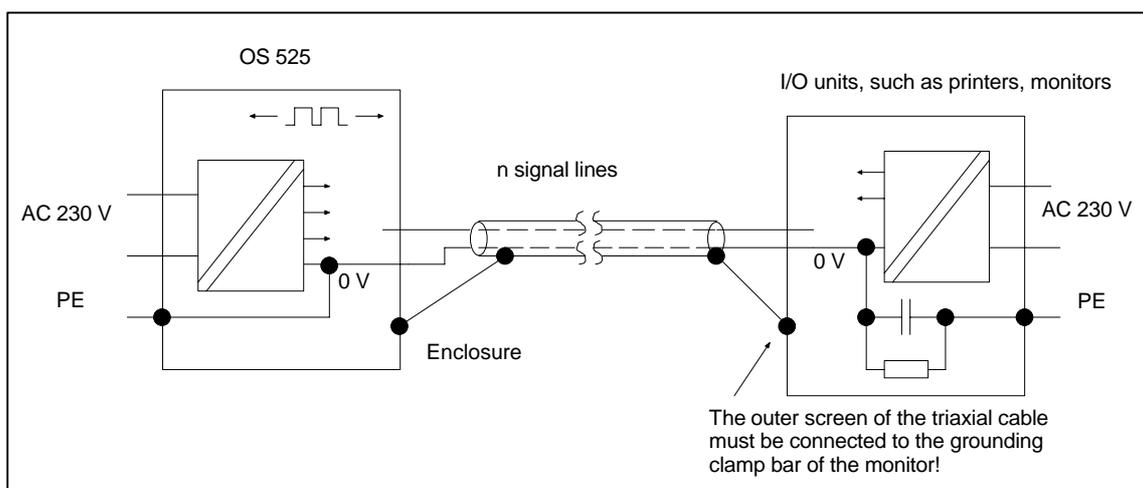
Fig. 2.13   Screening of I/O device connections

Inserting the connecting cables automatically interconnects the ground potentials of the individual units via the screens. Compensating current will flow if these ground potentials are different. In order to minimize this current, installation according to Figs. 2.14 and 2.15 is recommended.
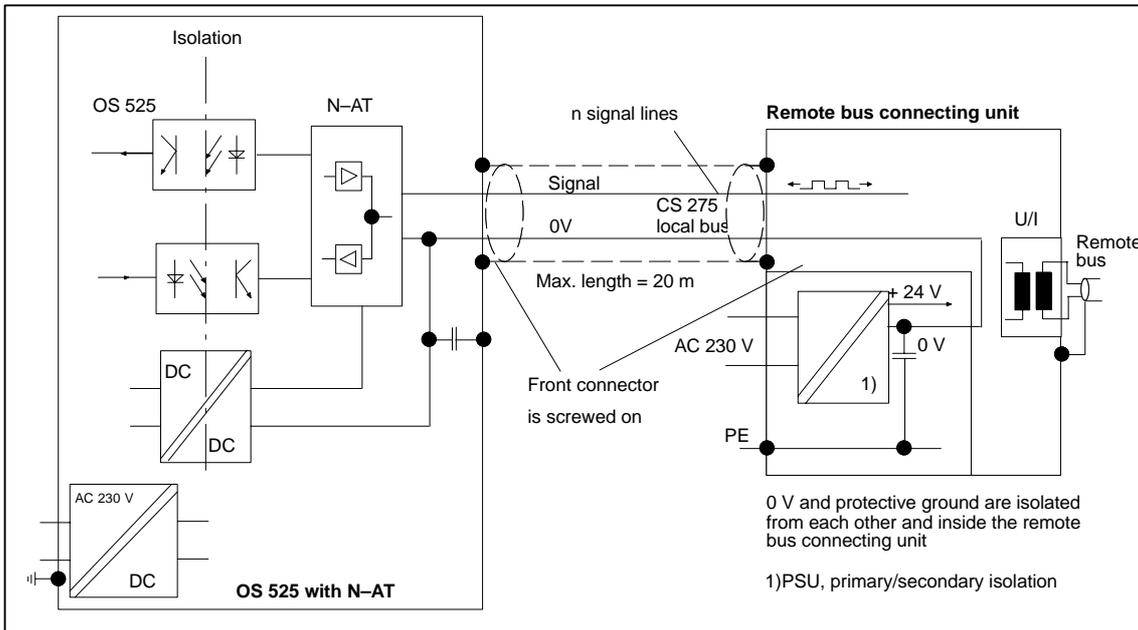
Fig. 2.14   Connecting the OS 525 via the N–AT

The ground wire must adequately be grounded at the distribution cabinet. It will then be routed from here as a spur line to the individual socket outlets.
The enclosures of the individual units may also be connected with each other and with ground via a grounding wire ($\geq 10 \text{ mm}^2$).
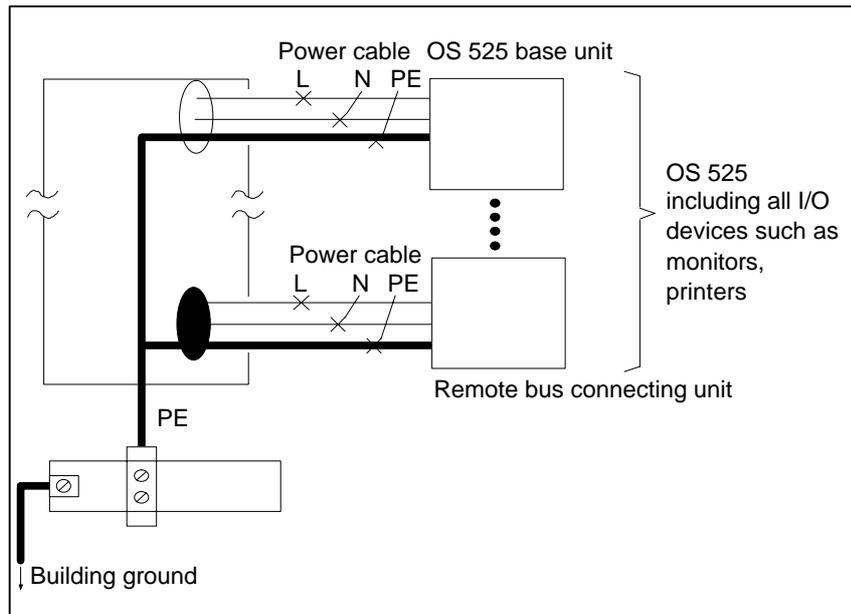
Fig. 2.15   Installation, grounding and protective ground conductor

2.4   Power–Up Check List

Please check the following items before you switch on the OS 525:

1. Is there sufficient space for the warm air to be dissipated?

2. Has the power supply unit properly been connected and the correct tension been selected ?

3. Have all I/O units (such as monitor, keyboard, touch screen, printer) and the software dongle been connected ?

4. Have the required parameters (such as device address, bus address, mode, and printer character set) been selected ?

5. Switch on all I/O units.

6. Switch on the OS 525 base unit.

2.5   Power–Up and Power–Down Response of the OS 525 Multi-position System

To switch on or off the OS 525, observe user's instructions for the SIMATIC PC RI45.

2.5.1   OS Startup

Depending on the selections made with OS–SET, the following startup options exist:

- – Configuration or process control start desktop
- – Explicit start of the OS 525 software by double clicking on the relevant icon in PlantTop.

Result

After statup the following is valid:

- – Provided it exists, the host operator position is activated when the CONFIG software is started. If a host operator position does not exist, the CONFIG desktop is displayed on the previously configured terminal. The monitors of other activated terminals remain blank.
- – The configured start desktop of the on line form is displayed on all activated operator positions when the SUPERVISOR software is started.
- – Merely the 'Configuration' and 'Terminate OS' buttons will be displayed on the host screen after process control has been started if 'host without operator position' has been selected for the host computer.
- – A change from process control to configuration can be initiated via the host operator position.

2.5.2   Switching on the Terminal

'Switching on the terminal' stands for activating the OS terminal software before the OS 525 software in the host computer is activated. This activates the operator position at the terminal (activating the OS terminal software after the OS 525 software has been activated is known as 'subsequent activation').

Depending on the selections made with OS–SET, the following startup modes are possible:

– Automatic start of the OS terminal software:
  SUPERVISOR start desktop
– Explicit start of the OS terminal software by double clicking on the .TR1–TR4 or ALL.TRM icon in PlantTop.

Result

After process control has been started in the host computer, the OS terminal waits for the host computer to establish connections. A blank screen is output on the OS terminal.

☞   Notes

– The OS terminal software is automatically linked with the host computer if the host computer is switched on afterwards.
– The screen of the terminal remains blank if the configuration software is activated via the host computer. The configuration software never runs on more than one channel. This means that the user desktop is displayed either on the host computer workstation or on the terminal that has been configured for this purpose. Any other operator position will not be linked in this case.
– The configured start desktop will also be displayed on the terminal if the process control software is activated later. The process control software employs all operator positions that have been configured for this purpose.

2.5.3   Subsequent Activation of a Terminal

'Subsequent activation of a terminal' describes the process of activating the OS terminal software at a later point in time. The options of 'subsequent activation of a terminal' are the same as the ones of 'switching on a terminal'. The OS 525 configuration or process control software in the host computer has already been activated. The connection to the OS 525 software is established immediately when the OS terminal software is started.

Result

After subsequent activation the following is valid :

– The screen remains blank if the configuration software is active.
– The configured start desktop is displayed on the monitor of the subsequently activated terminal if the process control software is active. This is independent of the currently displayed images on previously activated terminals or the host computer.
– Previously activated operator positions are not influenced if an additional terminal is activated subsequently.

☞   Note
      The OS 525 software recognizes any subsequently activated terminal and integrates it into the running process control operation in a bumpless and non–interacting manner.

2.5.4   Switching off the Terminal

'Switching off the terminal' stands for the process of purposefully (properly) terminating the OS terminal software in a terminal.
This function is only available in the process control software. It is activated by the configurable operator input function 'Terminate terminal' via the user desktop on the OS terminal.

Result

After switching off the following is valid :

– When this function is activated in a terminal, the OS 525 software removes the currently displayed images and causes the OS terminal software to be terminated.
– A restart is carried out on the used OS terminal after a short time.
– Previously activated operator positions are not influenced if an additional terminal is activated subsequently.

☞   Note
The OS 525 software rejects a 'Terminate terminal' input at the host computer operator position. This operator position always remains active.

☞   A terminal reset with the key combination <CTRL><ALT><DEL> is not possible.

2.5.5   Terminating OS

'Terminating OS' stands for the process of purposefully terminating the OS 525 software (configuration or process control software). This function is activated when 'Terminate OS' is selected from the host operator position or from the terminal that has been configured for this purpose. This operator input is only possible if an input field has not been activated on any terminal.

Result   After terminating the following is valid :

– The OS removes the user desktop that is currently displayed on all operator positions.
– The host computer is started in accordance with the OS–SET parameters CONFIG or SUPERVISOR
– The OS terminal software remains active in the terminals connected.
– A blank screen is displayed on all activated terminal operator positions.

☞   Note
The OS software rejects a 'Terminating OS' input at the host computer operator position.

2.5.6   Simultaneous Startup of Several OS Systems

It is ensured that each OS correctly completes its startup with the config-ured AS and that all necessary process connections will be established if several operator communication and visualization systems start up si-multaneously (when power is re–established after a power failure, for ex-ample). Such a joint and parallel (simultaneous) restart of several OS may be the cause of slight delays in the restart process (caused by the simultaneous, increased loading).

2.5.7   Language Selection

The language basic setting is made in the OS–SET.

2.5.8   Setting Date and Time

There are the following alternatives for setting date and time:

– Setting date and time during process control
  The procedure is described in Section 5.3 of the SUPERVISOR
  User's Instructions.
– Using the SETUP program for setting date and time.

2.6   Software of the OS 525 System

2.6.1   Scope of Delivery

When the OS 525 base unit is delivered it already contains all operating systems and software packages that you will need for configuration and process control.

The individual software items on the hard disk are:

- FlexOS 386 multitasking and real–time operating system
- DOS operating system
- OS configuration software CONFIG with configuration tools (editors)
  - GRAPHICS (process display configuration)
  - ALARMS   (message line configuration)
  - REPORTS   (report configuration)
  - ARCED   (archive configuration)
  - COMED   (process link and process variable list configuration)
  - UTILITIES   (configuration support)
- SUPERVISOR process control software with the functional components:
  - Graphic system
  - Signalling system
  - Logging system
  - Data storage system

CONFIG and SUPERVISOR are stored in the C:\OS_CODE directory.

There are 3 different dongles. They decide whether

  - only CONFIG
  - only SUPERVISOR or
  - both (CONFIG and SUPERVISOR)
  - BATCH
  - terminal
  - local OS 525 (SUPERVISOR only)

can be used.

This dongle is plugged in the Centronics interface of the CPU. The interface functions continue to be available.

Chapter 4 of the CONFIG Description explains how you must proceed for utilizing CONFIG or SUPERVISOR after the OS 525 has been switched on for the first time.

2.6.2   **Hard Disk Structure**

Fig. 2.16 shows the basic structure of the OS 525 hard disk.

In addition to all directories that are required by the system, drive C: contains, in the BASISDAT path, all existing dialogs in a clear directory representation and, in the ANWENDER (USER) path, the directories with basic selections for user data:

```
C:                                              C:
    ──── ACRODOS                                    ──── INTK
    ──── ANWENDER                                   ──── INST_INF
    ──── BASISDAT                                   ──── NET
              ──── ALLGBAUS                         ──── OS_CODE
              ──── BEREICHE                                   ──── ANLAUF
              ──── GRAFBOX                                    ──── APPLDISK
              ──── GRUPPEN                                    ──── DIAGNOSE
              ──── HIGHRES                                    ──── REDABGL
              ──── HOSTUEB                                    ──── RUN
              ──── KREIS                                      ──── TOOLS
              ──── KURV                              ──── OS_DATA
              ──── MELD
              ──── NORA_SBB                                   ──── BX_DATA
                        ──── A                                    GRUNDAT
                        ──── B
                        ──── FN                                ──── OSSET
                        ──── M                                 ──── RESOLUT
                        ──── RN                                ──── SYSMASK
                        ──── S
                        ──── V                       ──── OSSPOOL
              ──── ORPA_215                          ──── SINEC
              ──── ORPA_235                          ──── SYSTEM
              ──── PROJEKT                           ──── TEMP
              ──── PROZTAST                          ──── TMP
              ──── STANTAST                          ──── USER
              ──── SYMBOLE                           ──── XGEMAPPS
              ──── UEBERSHT
              ──── ZUSTAND
    ──── BATCH_X
    ──── BATCH_XH
    ──── BEISPIEL
    ──── BIN
              ──── CLIPBRD
              ──── FONTS
              ──── TEMPDIR
    ──── BOOT
    ──── DIAGNOSE 01
    ──── DIAGNOSE 02
    ──── DIAGNOSE 03
    ──── DIAGNOSE 04
    ──── DIAGNOSE 05
    ──── DOS
    ──── DRIVERS
```

Fig. 2.16   Hard disk structure

Laufwerk C: enthält folgende Kataloge bzw. Dateien:

ACRODOS	Help for RI45
ALLGBAUS	General–purpose graphic blocks
ANWENDER	Directory basic setting for user data
BATCH_X	System software for batch processes
BATCH_XH	System software for batch processes (high resolution variant)
BEISPIEL	Includes a BEISPIEL.OSO file
BEREICHS	Area displays that match the overview
BIN	Executable FlexOS programs
BOOT	FlexOS system files
DOS	DOS operating system
DRIVERS	Pertains to BOOT
GRAFBOX	Graphic boxes
GRUPPEN	Suggested group representations of various blocks (7 blocks for a graphic image)
KREIS	Loop displays
KURV	5 base curve types (curve 1 through curve 5)
MELD	Pre–assigned with old page/new page/message chronicle
NET	SINEC H1 communication software
NORA_SBB	Pre–linked graphic blocks (standard image blocks)
ORPA_235	Data records of the AS 230/235 function blocks
ORPA_215	Data records of the AS 215 function blocks
OS_CODE	System software for OS525 *) (including subdirectories)
OS_DATA	System software for OS525 *) (including subdirectories)
PROJEKT	*.TPL and *.OSV files that may be customized as required
PROZTAST	Process key sets Open/Closed, AUTO/MAN etc.
SINEC	SINEC H1 communications software
SYSTEM	Utilities for DOS
STANTAST	Standard key sets for GRAPHICS, KURV, ALARMS
SYMBOLE	Symbols (see Section 13.9 of the CONFIG Manual)
UEBERSHT	Typical overviews
XGEMAPPS	GEM applications for the FlexOS desktop
ZUSTAND	Status indicators that are employed by the blocks

*) Please refer to /2/ and /3/ for a detailed description of the OS 525 software functions.
The batches that make OS–SET available as file (see Section 2.6.4) to OS–SET are comprised in OS_DATA,

2.6.3   User Data Backup

The files of the ”ANWENDER” directory (including all subdirectories) should be saved from time to time during the configuration phase.
(Press <ALT> + c, Return)

Enter:

– C:> backup c:/anwender/ a: – s

to start the backup process.

Syntax:

– BACKUP<Source drive:> <Backup drive:> [– <Option>]

This command permits the following options:

Option	Meaning
–A	Copies files onto the backup floppy disk without deleting data that has previously been stored on this floppy disk.
–D:mm–dd–yy	Only copies files that have been edited on or after the specified data. Enter the date as month (mm), day (dd) and year (yy) (in this order)
–M	Only saves files that have been edited since the last backup.
–S	Saves the directory including all subdirectories that has currently been selected on the source drive.

The following text is displayed after you have pressed RETURN:

Insert backup floppy disk #01 in drive fd0:
Warning! All files on floppy disk #01 will be erased.
Press any key when you are ready...

*** Backing up files to diskette 01 ***
/ANWENDER/xxx.BLD

The last line shows the file that is currently copied.

Once a backup floppy disk has been filled, the BACKUP program prompts you to insert the next formatted floppy disk until all specified files have been saved.

Enter ”LSB” to return to CONFIG.

Section 6.3.2 describes how the saved user data can be loaded back onto the hard disk.

2.6.4   Storing OS–SET Data in File

OS–SET Data

The current OS–SET settings are stored in a separate directory:
C:OS_DATA\OSSET\CONF
This allows to fetch back the once parameterized version (e.g. for a software update).
These secured data may be copied to other hosts or computers via Flex-Net or other medias (diskette, MO drive). Thus parameter setting is only done once.

You have also the possibility to store and re–use several versions since modified settings are stored in *CONF* as independent directory. This is implemented with the tools described below.

Tools

All OS–SET settings may be stored and called up via two batches. The batches are named CONFSET and CONFGET.

☞   **Both tools must only be used in DOS.**

These two tools allow to store and to load several computer configurations.
Storing is implemented with the CONFSET file and reading bak with the CONFGET file.

A new directory containing the identity is created in the directory **C:OS_DATA\OSSET\CONF** during the execution of the CONFSET file. The name of this directory is free and has to be entered behind the CONFSET command (CONFSET FREI). The subdirectory FREI is created automatically. When the CONF directory does not exist at the first call, it is also created.

Reading back is made with CONFGET whereat the directory from that the data are read must be specified.

Contents Chapter 3

3   Configuring with OS–SET

You can use the OS–SET configuration program to set the device configuration for OS 525.

3.1   Start OS–SET

When you start the computer, you will be asked whether you want to start OS–SET or FlexOS. If you do not answer, FlexOS is started automatically after 10 s.
Use <CTRL>+<C> to remain in the MS–DOS operating system. OS–SET is started if you answer the question OS–SET j / n (y / n) with yes.

☞   Inputs can be made using the keyboard and/or mouse.
        OS–SET is only executed under the MS–DOS operating system.

System selection menu

The first menu which appears is the system selection menu:

```
┌─────────────────────────────────────────────┐
│  ┌─ OS system selection ──────────────────┐  │
│  │                                        │  │
│  │   F2:    Start  OS.                     │  │
│  │   F3:    Modify OS–SET configuration.   │  │
│  │   F4:    Stay in DOS.                   │  │
│  │   F5:    Info.                          │  │
│  │   F6:    Language setting.              │  │
│  │   F7:    –                              │  │
│  │   F8:    –                              │  │
│  │   F9:    –                              │  │
│  │   F10:   –                              │  │
│  │                                        │  │
│  └────────────────────────────────────────┘  │
└─────────────────────────────────────────────┘
```
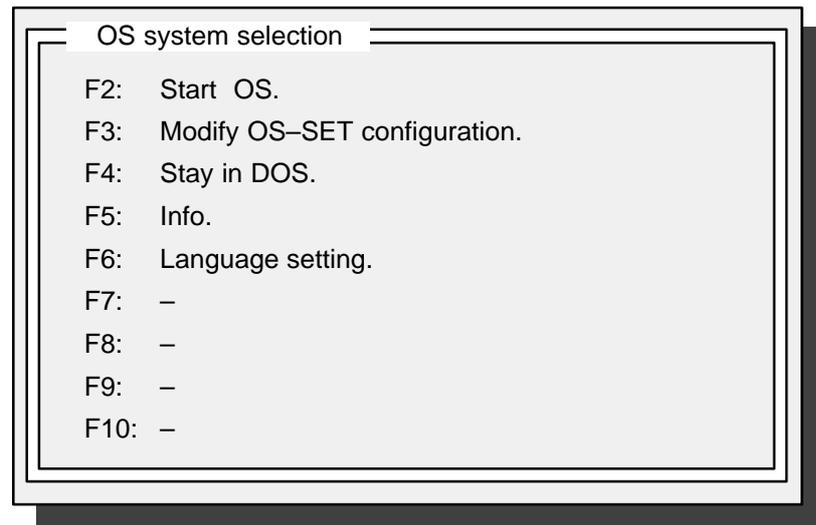
Fig. 3.1   Menu "System selection"

User desktop

The user desktop is largely self–explanatory. A help display can be called using <F1> for the respective position (e.g. a menu item is selected); this display contains additional explanations and limitations.

Start OS

The OS is re–booted and started.

Modify OS–SET configuration

See "Configure OS".

Stay in DOS

OS–SET is terminated but the computer remains in DOS.

Info

A form is output when you select "Info" which indicates the delivery version of the hard disk (software packets).

Language setting

Language setting for OS–SET and keyboard; this setting possibility corresponds to that of the switch <F4> of the following menu Fig. 3.2 (for setting box and setting possibilities see Section 3.1.5).

Configure OS   In order to configure the OS, call the main menu using <F3> or with a
                          double mouse click on "Modify OS–SET configuration". The configura-
                          tion variables are loaded by the system before the main menu is dis-
                          played on the screen.

```
┌─────────────────────────────────────────────────────────┐
│  ┌─ OS–SET menu ──────────────────────────────────────┐ │
│  │                                                     │ │
│  │   F2:    Modify basic hardware.                     │ │
│  │   F3:    Edit ETH.DAT.                              │ │
│  │   F4:    Language setting.                          │ │
│  │   F5:    Set hardware and equipment parameters.     │ │
│  │   F6:    Set OS software parameters.                │ │
│  │   F7:    Switch OS software type: KONTI / BATCHX    │ │
│  │   F8:    Display configuration settings.            │ │
│  │   F9:    Read in old OSCONFIG data.                 │ │
│  │   F10:   Save parameter settings / Quit OS–SET.     │ │
│  │                                                     │ │
│  └─────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────┘
```
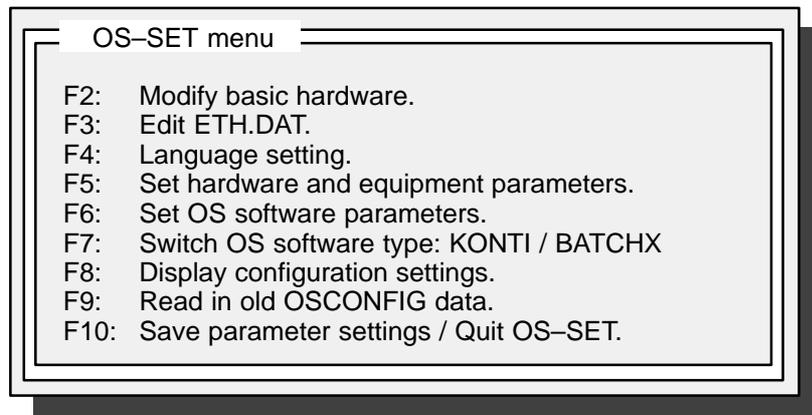
Fig. 3.2   Main menu "OS–SET menu"

3.1.1   Using the OS–SET Desktop

Selecting from the OS–SET main menu

Either press the specified function key, activate the menu item by double clicking or select a link above the cursor keyboard and acknowledge with Return.

Select menu (HW configuration and SW configuration)

Select the menu item using the cursor keys or mouse double click in order to branch to the selection (this is also displayed in the menu line) or the box.

The select menu has three buttons (<Import>, <Cancel> and <Help>). <Import> is used to accept the settings and <Cancel> to reject them, i.e. the old data are retained.

If more menu items are present than are displayed on the screen, you can scroll using the bar on the right of the screen or using the cursor keys in order to access the items which are not yet visible.

Selection list

Make a further selection in this list for a select item or a box variable. A branch is made to a further setting box if this item requires a further setting.
Make the selection using the <Select> key, or reject the made selection using <Cancel>.
If more menu items are present than are displayed on the screen, you can scroll using the bar on the right of the screen or using the cursor keys in order to access the items which are not yet visible.

Boxes

You can accept the set parameters of a box using <OK> and return to the previous menu, or reject the selection using <Cancel> and also return to the previous menu.

Disabled settings

Settings which are already disabled or occupied by other settings are emphasized (displayed in gray or cyan) and can no longer be changed. This is the case e.g. with interface assignments. If you wish to change the assignment, you must first enable the existing assignment.

Input of node names and network addresses

In order to enter a node name or an address, you must first select the input field, enable the input using <RETURN>, and then make the input (write cursor flashes). Terminate using <RETURN>.

Procedure:
Enter the node name and then select the button <Search> in the box. OS–SET then searches the node list for the name and also checks the associated address when found. If the setting had been found but the address is different from the defined one, a box appears in which you can select either of the addresses. The made selection is then accepted.

☞ Node names must always be entered in uppercase letters.

Input of numeric values

Upper and lower limits are checked during an input. The value data are not changed if the input is not within the permissible range.

Selection parameters with several setting possiblities

The non–selected settings are marked by a point, the selected setting by an "o".

Assignment of various keys for OS–SET inputs

F1:
Context–related help for marked selection field.

F10:
Scanning of system status.

ESC:
Aborts the currently initiated activity, e.g. close a selection field without selecting a list element.

RETURN:
Execute a selection and open a selection field.

TAB:
Move from editing/parameterization area to key area.

3.1.2   Procedure

Parameterize net-work module

You should first parameterize the network module of the OS since other-wise all points which contain remote settings are disabled and cannot be parameterized.
(OS–SET menu: —> Set hardware and equipment parameters —>
Box "Hardware parameters": —> Network module)

Create configura-tion list

If you have a more complex host/terminal configuration in your complete system, first generate a plan which contains all host and terminal sta-tions.

Note: You can use the example summary forms as an aid in that you copy the pages and fill them in accordingly or you can use them as a basis for your own plan.

– *Fig. 3.3: Assignment list of OS to terminals*
– *Fig. 3.4: Host configuration list*
– *Fig. 3.5: Terminal configuration list*
– *Fig. 3.6: Host printer configuration list*
– *Fig. 3.7. Terminal printer configuration list*

Remote connections

First enter all remote connections and note how many terminals are con-nected on the host.

Terminal connections

Note the memory configuration for each terminal connection, the max. number of host channels and the host channel to which the connection is to be implemented.
Also note how many host channels are to be simultaneously active with the corresponding remote connections for each terminal.

Consistency test

Check the system configuration for consistency and ensure with several host stations that one terminal channel is not occupied simultaneously by several hosts.

You can use this plan to then parameterize all stations in succession.

Several menu items may be disabled for a terminal, these are then no longer relevant.

Representation

Proper names and node names must always be entered in uppercase letters.

	Host 1	Host 2	Host 3	Host 4
Name or use for: ▶				
Terminal 1				
Terminal 2				
Terminal 3				
Terminal 4				
Terminal 5				
Terminal 6				
Terminal 7				
Terminal 8				
Terminal 9				
Terminal 10				
Terminal 11				
Terminal 12				
Terminal 13				
Terminal 14				

Fig. 3.3   Assignment list of OS to terminals

Host configuration list OS 525

Type **Host**: ☐   Memory: ☐ MB

FlexNet node name: ☐   Ethernet addr.: __,__,__,__,__,__

TCP/IP(Internet) node name: ☐   Internet addr.: __,__,__,__

Start deskt: ☐   OSO: ☐

Resolution: _____*_____   Colors: ☐

CONFIG   Local: ☐   Remote: ☐
Node name: ☐   Addr.: __,__,__,__,__,__   Term. conn.: ☐
Term. memory: ☐ MB   No. host conn.: ☐

SUPERVISOR   Local: ☐   Remote: ☐
Node name: ☐   Addr.: __,__,__,__,__,__   Term. conn.: ☐
Term. memory: ☐ MB   No. host conn.: ☐

Number of terminals (1–6) ☐

Terminal 1:
Node name: ☐   Addr.: __,__,__,__,__,__   Term. conn.: ☐
Term. memory: ☐ MB   No. host conn.: ☐

Terminal 2:
Node name: ☐   Addr.: __,__,__,__,__,__   Term. conn.: ☐
Term. memory: ☐ MB   No. host conn.: ☐

Terminal 3:
Node name: ☐   Addr.: __,__,__,__,__,__   Term. conn.: ☐
Term. memory: ☐ MB   No. host conn.: ☐

Terminal 4:
Node name: ☐   Addr.: __,__,__,__,__,__   Term. conn.: ☐
Term. memory: ☐ MB   No. host conn.: ☐

Terminal 5:
Node name: ☐   Addr.: __,__,__,__,__,__   Term. conn.: ☐
Term. memory: ☐ MB   No. host conn.: ☐

Terminal 6:
Node name: ☐   Addr.: __,__,__,__,__,__   Term. conn.: ☐
Term. memory: ☐ MB   No. host conn.: ☐

Fig. 3.4   Host configuration list for the configuration planning

Terminal configuration list OS 525

Type: **Terminal** ☐ **Single + terminal** ☐
Node name: ☐ Addr.: ☐,☐,☐,☐,☐
Memory: ☐ MB tot. ☐ MB tot. / 2 with s + t
Start desktop: ☐
Resolution: ___*___ Colors: ☐
Number of hosts (1 – 4): ☐

Host 1
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 2
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 3
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 4
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Type: **Terminal** ☐ **Single + terminal** ☐
Node name: ☐ Addr.: ☐,☐,☐,☐,☐
Memory: ☐ MB tot. ☐ MB tot. / 2 with s + t
Start desktop: ☐
Resolution: ___*___ Colors: ☐
Number of hosts (1 – 4): ☐

Host 1
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 2
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 3
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 4
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Type: **Terminal** ☐ **Single + terminal** ☐
Node name: ☐ Addr.: ☐,☐,☐,☐,☐
Memory: ☐ MB tot. ☐ MB tot. / 2 with s + t
Start desktop: ☐
Resolution: ___*___ Colors: ☐
Number of hosts (1 – 4): ☐

Host 1
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 2
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 3
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 4
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Type: **Terminal** ☐ **Single + terminal** ☐
Node name: ☐ Addr.: ☐,☐,☐,☐,☐
Memory: ☐ MB tot. ☐ MB tot. / 2 with s + t
Start desktop: ☐
Resolution: ___*___ Colors: ☐
Number of hosts (1 – 4): ☐

Host 1
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 2
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 3
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Host 4
Node: ☐ Addr.: ☐,☐,☐,☐,☐
Host sel. name: ☐

Fig. 3.5   Terminal configuration list for the configuration planning

Fig. 3.6   Host printer configuration list for the configuration planning

<table>
<tr><th colspan="9" align="center">Terminal printer configuration list OS 525</th></tr>
<tr><th>Terminal: 1</th><th>Type</th><th>Int.</th><th>Loc.</th><th>Excl–usive</th><th>Re–mote</th><th>Sub–int.</th><th>Node name</th><th>Address</th></tr>
<tr><td>Printer 1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Printer 2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Op. rep. pr.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>HC printer</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
</table>

<table>
<tr><th>Terminal: 2</th><th>Type</th><th>Int.</th><th>Loc.</th><th>Excl–usive</th><th>Re–mote</th><th>Sub–int.</th><th>Node name</th><th>Address</th></tr>
<tr><td>Printer 1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Printer 2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Op. rep. pr.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>HC printer</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
</table>

<table>
<tr><th>Terminal: 3</th><th>Type</th><th>Int.</th><th>Loc.</th><th>Excl–usive</th><th>Re–mote</th><th>Sub–int.</th><th>Node name</th><th>Address</th></tr>
<tr><td>Printer 1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Printer 2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Op. rep. pr.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>HC printer</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
</table>

<table>
<tr><th>Terminal: 4</th><th>Type</th><th>Int.</th><th>Loc.</th><th>Excl–usive</th><th>Re–mote</th><th>Sub–int.</th><th>Node name</th><th>Address</th></tr>
<tr><td>Printer 1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Printer 2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Op. rep. pr.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>HC printer</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
</table>

<table>
<tr><th>Terminal: 5</th><th>Type</th><th>Int.</th><th>Loc.</th><th>Excl–usive</th><th>Re–mote</th><th>Sub–int.</th><th>Node name</th><th>Address</th></tr>
<tr><td>Printer 1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Printer 2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Op. rep. pr.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>HC printer</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
</table>

<table>
<tr><th>Terminal: 6</th><th>Type</th><th>Int.</th><th>Loc.</th><th>Excl–usive</th><th>Re–mote</th><th>Sub–int.</th><th>Node name</th><th>Address</th></tr>
<tr><td>Printer 1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Printer 2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>Op. rep. pr.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
<tr><td>HC printer</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>__,__,__,__,__,__</td></tr>
</table>

Int. = interface

!! Only the interface data are of significance for printer 1, printer 2 and op. rep. printer !!

Fig. 3.7   Terminal printer configuration list for the configuration planning

3.1.3   Modifying the Basic Hardware

**Modifying the ba-
sic hardware**

When you activate the menu line "F2: Modify basic hardware" in the main
menu, you receive a box with the following information:

```
OS–B41          PC 32 R / 486     .
OS–B45          RI45 / Pentium    o


  OK                Cancel              Help
```
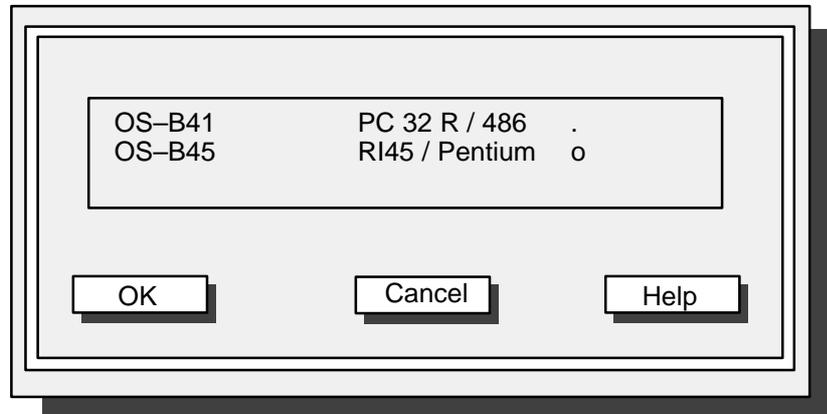
Fig. 3.8   "Modify basic hardware" box

The remaining configuration is carried out depending on the basic
hardware.

☞   A SINEC H1 link is not established if the selection is incorrect.

3.1.4 Editing ETH.DAT

Setting the FlexNet connection

When you activate the menu line "F3: Edit ETH.DAT" in the main menu, a box is displayed for entering the FlexNet connection (Fig. 3.9).

```
┌─────────────────────────────────────────────────┐
│  ┌─ Set free FlexNet connection ──────────────┐  │
│  │                                             │  │
│  │   Node name        :    NEUETHNAM           │  │
│  │   Network address  :    08,00,06,01,00,00   │  │
│  │                                             │  │
│  │   ┌─ Search ... ──┐        ┌─ Set immediately ┐│
│  │   └───────────────┘        └─────────────────┘│
│  │                                             │  │
│  │   ┌── OK ──┐    ┌─ Cancel ─┐    ┌─ Help ─┐  │  │
│  │   └────────┘    └──────────┘    └────────┘  │  │
│  │                                             │  │
│  │  ◄───────────────────────────────────────► │  │
└─────────────────────────────────────────────────┘
```

Fig. 3.9 "Set FlexNet connection" box

Using the button "Search", you can check whether the entered address or name is already present.

☞ Node names must always be entered in uppercase letters.

Confirm entry

A further box (Fig. 3.10) appears when you have made the entries and clicked the buttons <**Set immediately**> and <**OK**>. You can confirm the setting here or still cancel the procedure.

```
┌─────────────────────────────────────────────────┐
│  ┌─ Set free FlexNet connection ──────────────┐  │
│  │                                             │  │
│  │   Node name        :    NEUETHNAM           │  │
│  │   Network address  :    08,00,06,01,00,00   │  │
│  │                                             │  │
│  │   Click <OK> if entry is to be set.         │  │
│  │                                             │  │
│  │   ┌── OK ──┐    ┌─ Cancel ─┐    ┌─ Help ─┐  │  │
│  │   └────────┘    └──────────┘    └────────┘  │  │
│  │                                             │  │
│  │  ◄───────────────────────────────────────► │  │
└─────────────────────────────────────────────────┘
```

Fig. 3.10 Acknowledgement box for network connection

☞ An entry which has been set can no longer be removed using OS–SET. Deletion is only possible at a later time using an standard editor.

3.1.5   Language Setting

When you activate the menu line "F4: Language setting" in the main menu, you obtain a box with the selectable languages.
The same box with an identical function is obtained when selecting the language setting in the main menu (see Fig. 3.1).

You can then switch over the keyboard to the desired national font and output the desktop texts in the selected language.
This setting is valid for the entire DOS environment **and** OS–SET.

So far the OS–SET desktop text are available in German and English; e.g. selecting "French" switches the keyboard over, the desktop text appears in English.
The setting occurs on line and remains for DOS and OS–SET even after switching off and on; it can be changed on line at any time.

In SUPERVISOR a language setting only occurs after saving the entries (modifications) with <F10> ("Set parameter settings/Terminate OS–SET").
The language modifications made after saving the parameter settings in OS–SET have no influence on the set language (SUPERVISOR) but are only valid for DOS and OS–SET.

☞   If Russian (Cyrillic) or Polish is set, exported texts cannot be processed in FlexOS since the fonts do not agree.

3.1.6   Set Hardware Configuration

Set hardware parameters

The following menu appears when you activate the menu line "F5: Set hardware and equipment parameters" :

```
┌─ Hardware parameters ─────────────────────────┐
│                                                │
│   Memory                    : 32 MB            │
│   Graphics card             : HIGRAPH          │
│   Input units               : LOGITECH mouse (3–key) │
│   MODs                  ... :                  │
│   Network module            : CP1413 Ethernet  │
│   Process coupling          : TELEPERM CS 275 BUS │
│   OS printer 1 ...          :                  │
│   OS printer 2 ...          :                  │
│   Oper. report printer  ... :                  │
│   Hard copy printer     ... :                  │
│   Additional modules    ... :                  │
│   UPS                   ... :                  │
│                                                │
│                                                │
│   ┌─────────┐   ┌─────────┐      ┌─────────┐   │
│   │ Import  │   │ Cancel  │      │  Help   │   │
│   └─────────┘   └─────────┘      └─────────┘   │
│  ◄                                          ►  │
└────────────────────────────────────────────────┘
```
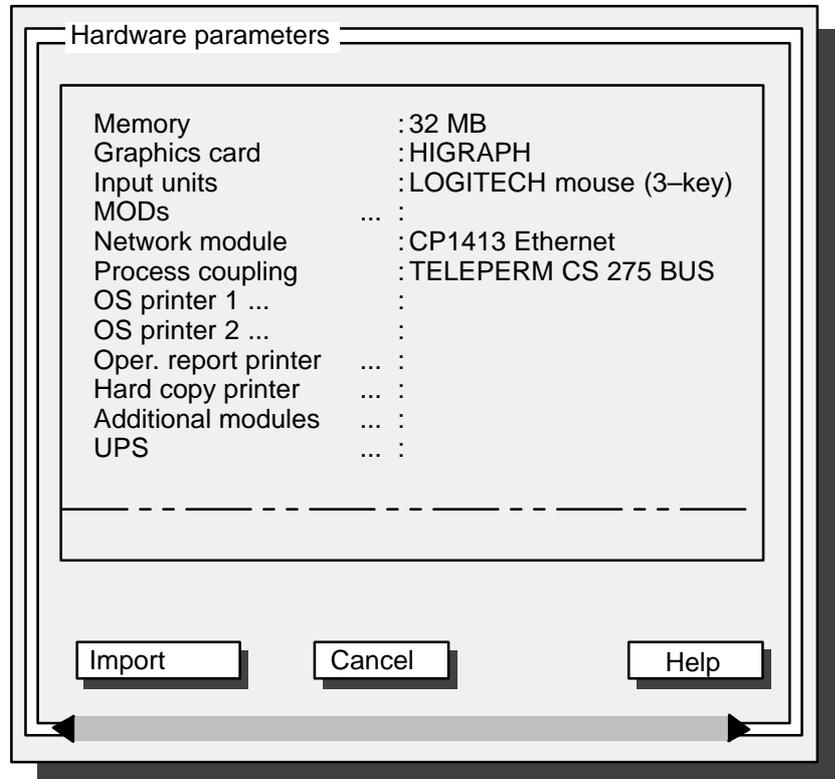
Fig. 3.11   "Hardware parameters" box

Memory

You can specify the size of the main memory here (16, 32 MB).

☞   64 MB cannot be used.

Graphics card

Here you can set the graphics card HIGRAPH (Fig. 3.12) or VGA, the latter with a basic unit without input channel (Fig. 3.13).

HIGRAPH   Double click on "HIGRAPH" to obtain the following box for further settings:

```
┌──────────────────────────────────────────────────────┐
│  ┌─ HIGRAPH ════════════════════════════════════════  │
│  │                                                     │
│  │  Resolution    :  640 * 480   o.    1024 * 768  o   │
│  │  Colors        :  16          .     256         o   │
│  │  Frequency     :  60 Hz       o     70 Hz       .   │
│  │                                                     │
│  │  Cursor size    :  Small      o     Large       .   │
│  │  Cursor edge color     : 7                          │
│  │  Cursor interior color : 12                         │
│  │                                                     │
│  │  Backing store active  : X                          │
│  │                                                     │
│  │  IRQ                   :  11                         │
│  │  ┌────────┐      ┌────────┐        ┌────────┐        │
│  │  │  OK    │      │ Cancel │        │ Help   │        │
│  │  └────────┘      └────────┘        └────────┘        │
│  ◄──────────────────────────────────────────────────►  │
└──────────────────────────────────────────────────────┘
```

Fig. 3.12   "Graphics card" → "HIGRAPH" box

In this box you can define the symbol representations for mouse pointer, hour glass, hand etc. with respect to size and color.

Cursor size: Small 16 x 16 pixels (normal symbol size)
                          Large 32 x 32 pixels

Cursor edge color and **cursor interior color**:
Here you can define the symbol and edge colors. Double click to obtain a box with the list of the selectable colors. This list extends from 0 = white to 15 = dark magenta.

Backing store active: X = yes. Image formatting is carried out in the background with the backing store switched on, i.e. the display only appears when it has been completely generated.

VGA   Double click on "VGA" to obtain the box for setting the VGA card. **The standard settings shown must be used without modifications.**

```
┌──────────────────────────────────────────────────────┐
│  ┌─ VGA ════════════════════════════════════════════  │
│  │                                                     │
│  │  Resolution    :      640 * 480      o              │
│  │  Resolution    :      1024 * 768     .              │
│  │                                                     │
│  │  Colors        :           16        o              │
│  │  Colors        :           256       .              │
│  │                                                     │
│  │  Cursor edge color     : 7                          │
│  │  Cursor interior color : 12                         │
│  │  ┌────────┐      ┌────────┐        ┌────────┐        │
│  │  │  OK    │      │ Cancel │        │ Help   │        │
│  │  └────────┘      └────────┘        └────────┘        │
│  ◄──────────────────────────────────────────────────►  │
└──────────────────────────────────────────────────────┘
```

Fig. 3.13   "Graphics card" → "VGA" box

In this box resolution and color can be set for a host with VGA (although the VGA driver can only represent the low resolution and 16 colors). Nevertheless in this case CONFIG should be set remote to a terminal.

Take over the unchanged displayed representation for resolution (640*480) and colors (256).

Input units

You can select **Mouse** or trackball as the input device.
Only the mouse is listed in the displayed menu, but the selection equally
applies to the trackball.
Two mouse types with different driver selections can be selected:
– LOGITECH   (3-key mouse)
– MICROSOFT   (2-key mouse)

When using a trackball set the LOGITECH mouse.

☞   When using a new mouse (version) pay attention to the system
       compatibility.

MODs

Use this menu item to call a box in which you can set an installed MOD
(parameters: see Fig. 3.14).

```
 ┌─ MODs ──────────────────────────────────────┐
 │                                              │
 │  MOD not installed     .      Installed    o │
 │                                              │
 │  Number of partitions per EOD drive      : 4 │
 │                                              │
 │  Total available partitions of all drives : 8│
 │                                              │
 │  Drive name (min. E, max. Z)                 │
 │  EOD0:  = E          EOD1:   = F              │
 │  EOD2:  = G          EOD3:   = H              │
 │  EOD4:  = I          EOD5:   = J              │
 │  EOD6:  = K          EOD7:   = L              │
 │                                              │
 │  EOD–IRQ :    15                             │
 │                                              │
 │  ┌──────┐        ┌────────┐      ┌──────┐    │
 │  │  OK  │        │ Cancel │      │ Help │    │
 │  └──────┘        └────────┘      └──────┘    │
 │ ◄──────────────────────────────────────────►│
 └──────────────────────────────────────────────┘
```

Fig. 3.14   "Set MO drives" box

☞   Note that during the installation or setting that a max. of two physi-
       cal drives can be supported.

Example 1 for partitioning the MODs:
When you enter 2 under number of partitions per MOD and 4 under the
total partitions of all drives that means that 2 MODs with each 2 partitions
are declared.

 Example 2:
If 4 is entered in each field that means that 1 MOD with 4 partitions is
ready.

Network module

Following activation of the menu item "Network module", the box with the name of the network module appears (if installed).
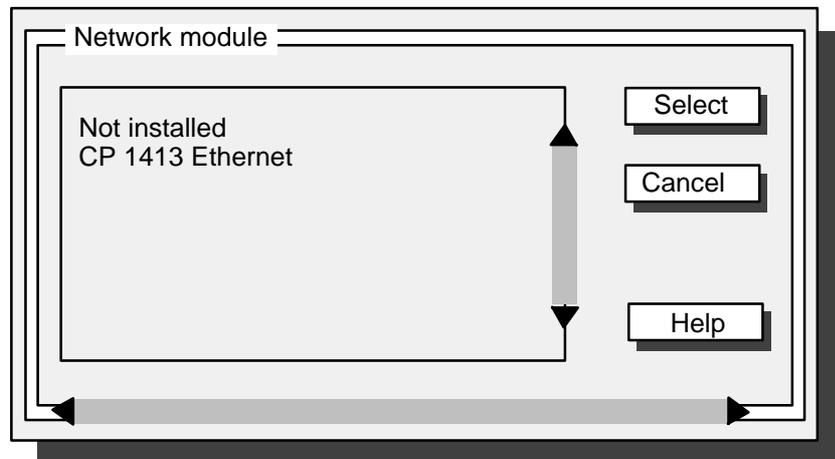
Fig. 3.15   "Network module" box

CP1413 Ethernet   In order to set the parameters, the following box is output when you double click "CP1413 Ethernet":
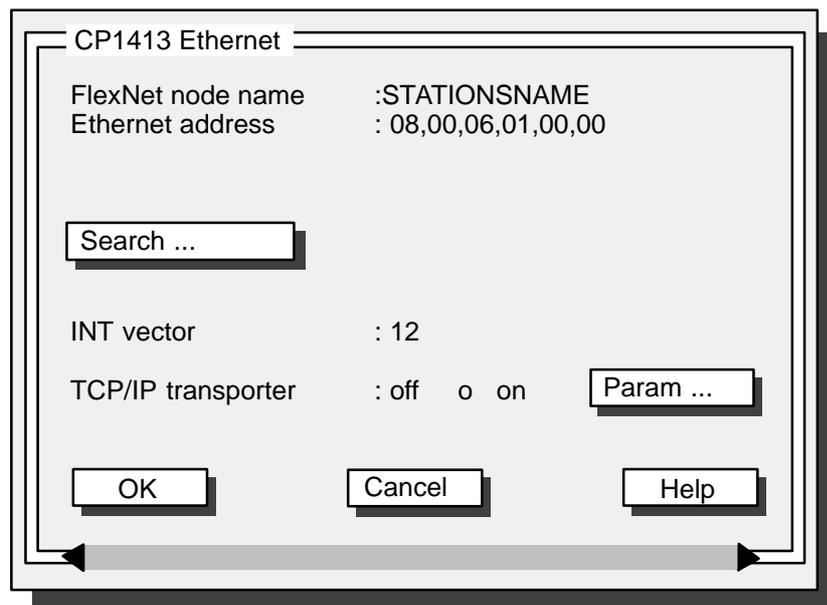
Fig. 3.16   "Ethernet parameters" box

Enter the FlexNet node name and the Ethernet address of your station in this box.

☞   Node names must always be entered in uppercase letters.

Use the button "Search ..." to trigger a search in the network list for the defined node. The result appears in the form of an info box with three possible texts:
–   The node already exists.
–   The node name already exists with a different address. Accept the old or new address?
–   The defined node does not exist. It will be entered into ETH.DAT when configuring.

Set interrupts   You can set the interrupts in the box "INT vector". The text following the
                            vectors identifies the default setting, i.e. it is not the actual setting but is
                            the envisaged (reference) setting.

```
┌─────────────────────────────────────────────────────┐
│  ┌─ INT vector ─────────┐                            │
│  │                        ┌──────────────┐           │
│  │                        │    Select    │           │
│  │ ┌──────────────────┐   └──────────────┘           │
│  │ │ IRQ  5    (DF10)      │                          │
│  │ │ IRQ 10    (CS275/L2)  ┌──────────────┐           │
│  │ │ IRQ 11    (HIGRAPH)   │    Cancel    │           │
│  │ │ IRQ 12    (CP1413)    └──────────────┘           │
│  │ │ IRQ 15    (MOD)       │                          │
│  │ │                  │                               │
│  │ │                  │    ┌──────────────┐           │
│  │ │                  │    │     Help     │           │
│  │ └──────────────────┘    └──────────────┘           │
│  ◄──────────────────────────────────────────────►    │
└─────────────────────────────────────────────────────┘
```
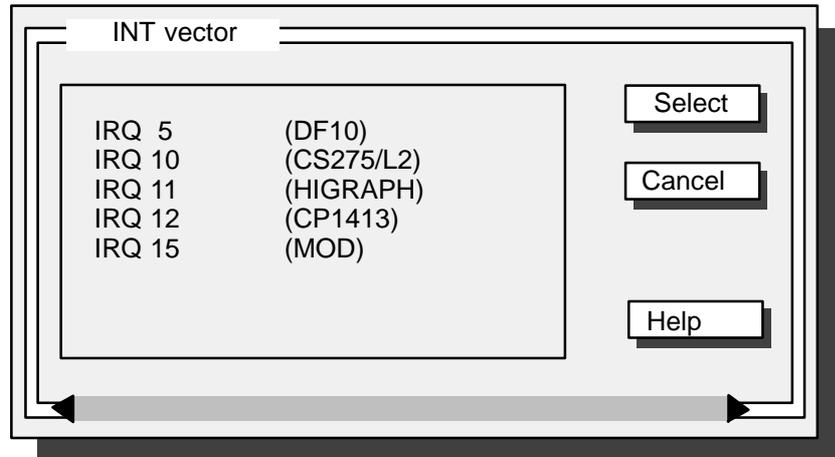
Fig. 3.17   "INT vector" box

☞   The IRQ is not available for other modules if it is already used.

TCP/IP   The TCP/IP transporter can be switched on or off. With "On" you can call
transporter   the following box using the button "Param. ...":

```
┌─────────────────────────────────────────────────────┐
│  ┌─ TCP/IP transporter ─────┐                        │
│  │                                                    │
│  │ TCP/IP node name      : TCPIPLOKNAME               │
│  │ TCP/IP address        : 8E,0B,00,00                │
│  │                                                    │
│  │ ┌──────────────┐                                   │
│  │ │  Search ...  │                                   │
│  │ └──────────────┘                                   │
│  │ ┌────────┐     ┌──────────┐       ┌──────────┐     │
│  │ │   OK   │     │  Cancel  │       │   Help   │     │
│  │ └────────┘     └──────────┘       └──────────┘     │
│  ◄──────────────────────────────────────────────►    │
└─────────────────────────────────────────────────────┘
```
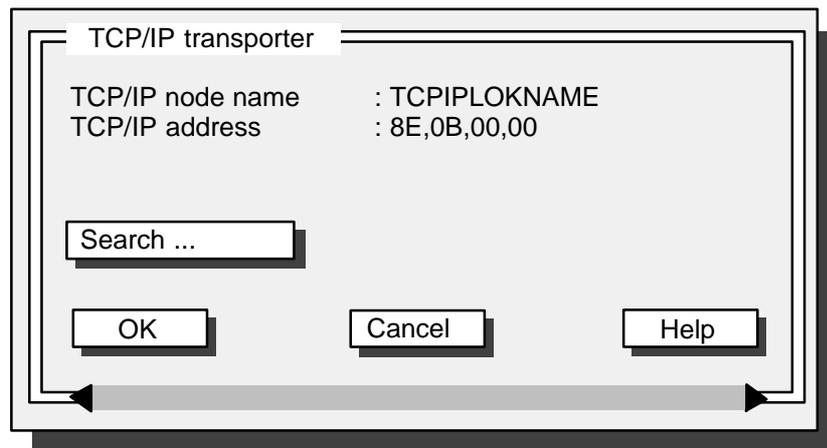
Fig. 3.18   "TCP/IP transporter" box

TCP/IP   Enter the TCP/IP node name of your station here. The name must begin
node name   with a letter and entered in uppercase letters.

TCP/IP address   Enter the Internet address according to the defined format here. It is usu-
                            ally sufficient to modify only the last two values. Permissible values per
                            element are: 00 – FF.

☞   The box is planned for BATCH applications.

Search

You can use the button "Search ..." to search for the defined node in a similar manner to searching in the box "CP1413 Ethernet" (Fig. 3.19 shows an example).

The selected node name was not found in ETH.DAT. The node name will be re–entered to ETH.DAT when configuring !

> OK <

Fig. 3.19   Info box following "Search..."

Process coupling

The menu item "Process coupling ..." is disabled if the station type "Terminal" is selected. The box (Fig. 3.20) appears when you double click on this (not disabled) menu item. Here you can select either the SINEC–L2 bus or the CS275 bus. The module must be inserted.

Process linking

Not installed
SINEC–L2
TELEPERM CS275 BUS

Select

Cancel

Help
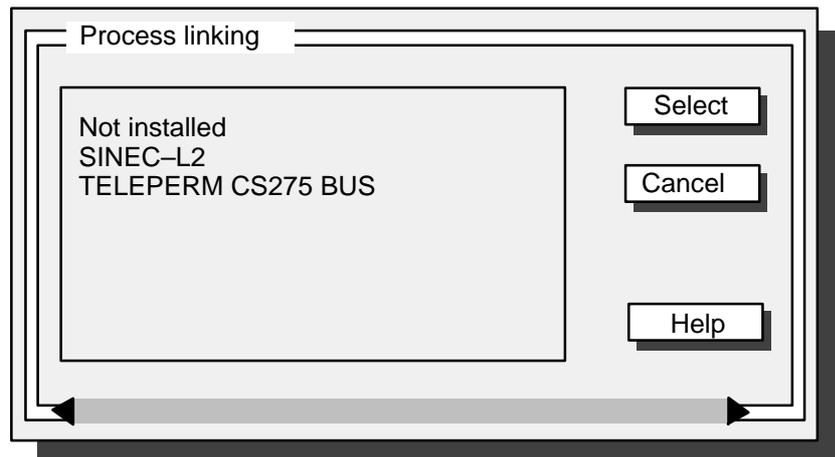
Fig. 3.20   "Process coupling" box

SINEC–L2

A further box is opened (Fig. 3.21) if you select the menu item "SINEC–L2" in the box.
You must edit the parameters "L2 address" and "Number of active participants" as necessary.
With "L2 baud rate" you obtain a box with the permissible baud rates (187500, 500000, 1500000); with L2 CP5412 interrupt you obtain the box with the reference setting.

```
┌─────────────────────────────────────────────────────────┐
│  ┌─ SINEC–L2 ──────────────┐                             │
│  │                                                       │
│  │  L2 address                    : 00                   │
│  │  Number of active participants : 2 *)                 │
│  │  L2 baud rate                  : 1 500000 **)         │
│  │  Bus No. of OS                 : 0                     │
│  │                                                       │
│  │  L2  CP5412 interrupt          : 10                   │
│  │                                                       │
│  │                                                       │
│  │   ┌────────┐      ┌────────┐        ┌────────┐        │
│  │   │   OK   │      │ Cancel │        │  Help  │        │
│  │   └────────┘      └────────┘        └────────┘        │
│  │                                                       │
│  │  ◄                                               ►    │
│  └───────────────────────────────────────────────────────┘
```
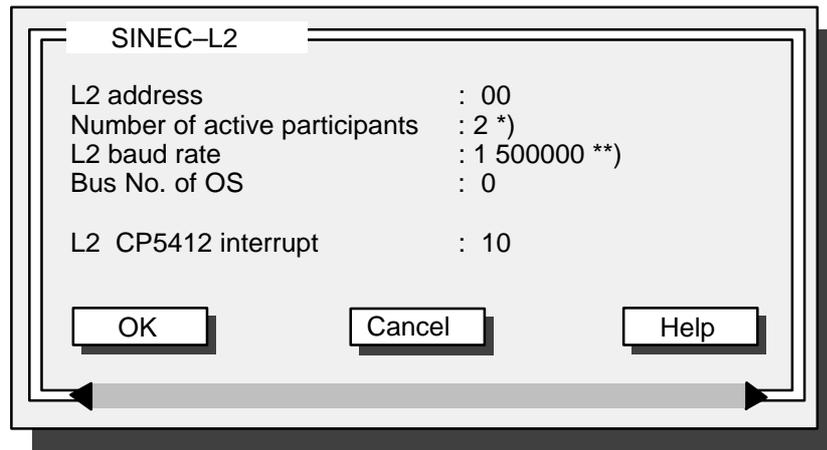
Fig. 3.21   "SINEC–L2" box

*)   This number depends on the actual number of participants.

**) The preset baud rate must not be changed.

Further SINEC L2 parameters are deposited in the following file:
    SINEC/DATA/**SCI_CONFIG.DAT**.

After a new OS–SET configuration It is recommended to control the following parameters (and correct if necessary):

```
boardtyp = 5410
SCP_device = CP_L2_1:
12_hsa =
12_ts =
12_physical_layer = 0
num_channel = 4
numproc = 2,5,5,0
channel_name = ADM,IHI,FLC,SCP
channel_type = ADM,IHI,SCP,SCP
element_size = 384
numhostbuffer = 2,75,75,2
numboardbuffer = 2,1,1,2
dpram_adr = 0xD0000
dpram_size = 0x10000
12_station_type = 1
12_baud_rate = 7
12_medium_red = 0
12_retry_ctr = 1
12_default_sap = 10
12_network_connection_sap = 37
12_tsl = 3000
12_tqui = 0
12_tset = 240
12_max_tsdr = 980
12_min_tsdr = 150
12_ttr =
12_g = 30
12_in_ring_desired = 1
int_vector = 10
server_id = CPADMI
window_size = 8
Download = SINEC:DATA\FW4510
Vendor = SIEMENS
HW_device = PC
```

CS275 BUS

If you select the menu item TELEPERM CS275 BUS in the box "Process coupling", a further box is displayed for setting the NAT parameters. This item is disabled if "Terminal" is selected as the station type.

```
┌─ TELEPERM CS275 BUS ──────────────────┐

   NAT_INTR            : 10
   NAT_IOADR           : 784


   ┌────────┐   ┌────────┐        ┌────────┐
   │   OK   │   │ Cancel │        │  Help  │
   └────────┘   └────────┘        └────────┘

   ◄──────────────────────────────────────►
```
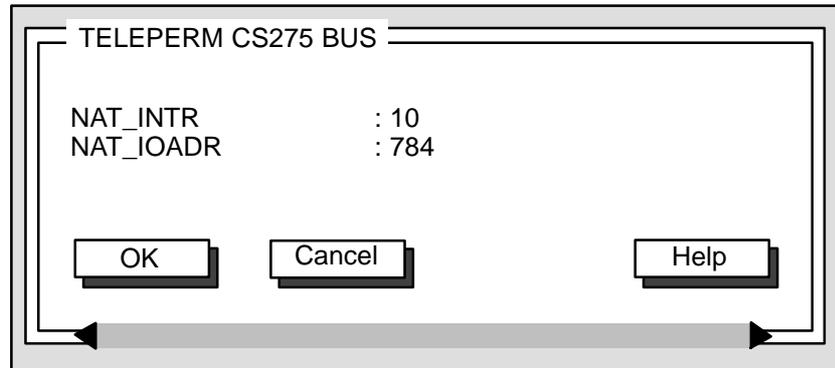
Fig. 3.22   "TELEPERM CS275 BUS" box

Permissible interrupts

You can activate the help function using <F1> at the respective menu item in order to obtain information on the interrupts or addresses which can be set (and which are therefore permissible). The corresponding info box is then displayed.

```
┌──────────────────────────────────────────────┐
│                                              │
│  Caution: Only IRQ 5, 9, 10, 11, 12, 15 permissible. This must │
│  also be jumpered on the module.             │
│                                              │
│            ┌─────────┐                        │
│            │  > OK <  │                        │
│            └─────────┘                        │
│                                              │
└──────────────────────────────────────────────┘
```

```
┌──────────────────────────────────────────────┐
│                                              │
│    Following I/O addresses can be selected:  │
│    784, 800                                  │
│                                              │
│            ┌─────────┐                        │
│            │  > OK <  │                        │
│            └─────────┘                        │
│                                              │
└──────────────────────────────────────────────┘
```
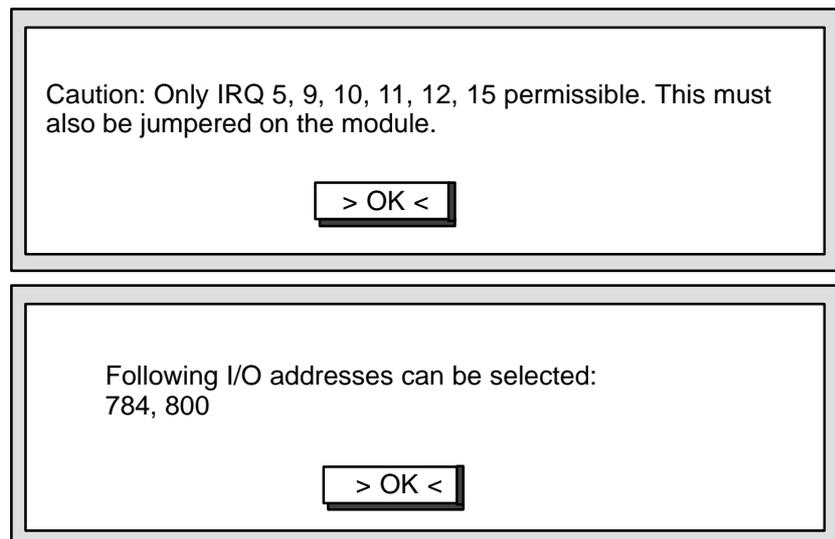
OS printer 1, OS printer 2, operator input reports printer

Selection of these menu items results in each case in a box for setting the printer configuration.
Using additional subboxes, you can enter the printer type (IBM compatible printer, DR210, DR215, DR216, DR235, DR236, DR240, DR241) and the interface (e.g. COM1, file).

You can also set whether the printer is to be accessed as a remote printer via FlexNet. Further data must then be specified such as the node name and address.

```
┌─ OS printer 1 ──────────────────────────────────┐
│                                                  │
│  OS printer 1          :   DR 235                 │
│  Interface             :   NOP                    │
│  ┌────────────────────────────────────────────┐  │
│  │                                            │  │
│  │  Rem. sub–interf.    :   PRN               │  │
│  │  Node name           :   PRINTER1          │  │
│  │  Network address     :   08,00,06,01,00,21 │  │
│  │                                            │  │
│  │  ┌──────────────┐                          │  │
│  │  │  Search ...  │                          │  │
│  │  └──────────────┘                          │  │
│  └────────────────────────────────────────────┘  │
│  Paper length        : 60                         │
│  NOPCHAR             : Yes    o No       .        │
│  EXCLUSIVE           : Yes    . No       o        │
│  Font                : Normal o Condensed  .      │
│  Printer size        : Normal A4  o  Wide A3  .   │
│  ┌────────┐      ┌──────────┐      ┌────────┐     │
│  │  OK    │      │  Cancel  │      │  Help  │     │
│  └────────┘      └──────────┘      └────────┘     │
│  ◄━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━►     │
└──────────────────────────────────────────────────┘
```

Fig. 3.23 "OS printer" box

You can set further parameters for the printer (not with the hardcopy printer):

– Paper length (e.g. 60 lines).
– NOPCHAR   Yes/No.
  With "Yes", a (non–printable) character is sent prior to the transferred text in order to test the connection. The NOP is not set if the transfer is to a file and not via the interface.
– EXCLUSIVE   Yes/No.
  With "Yes", the printer is exclusively used by this station, with "No", it is shared by all stations.

☞   When allocating the printer interface pay attention to **not** establish a double allocation. Otherwise "mixed" printouts can be output, the internal line counting could be in disorder or unintentional page changes occur.

☞   With a terminal station the local interface can only be parameterized with COM1, LPT1 and "Not installed".
     These printers may also be remote accessed from the HOST.

– Font (normal or Condensed font) is a previous printer parameter set-
ting (refer to "Authorization" Fig. 3.41).
– Printer size
Printer size is not determined automatically from printer type.
The printer size can also be set or adapted for wide printers.

Hard copy printer

In a further box you can set the HP DESKJET 550C or a compatible re-
placement type as the printer type for the hard copy.

Additional modules

Here you can install the following module:
– signal module (horn)   addressing

Uninterruptible power supply (UPS)

This selection is only possible with a PC 32.

3.1.7   Set Software Configuration

**Select the
parameter setting**

The following menu appears when you activate the menu line "F6: Set OS software parameters" (the functions below the dashed line are only visible when you scroll):

```
┌─ Software parameters ──────────────────────────────┐
│                                                    │
│   Station type                : Single station     │
│   Start desktop               : XGEM–PLANTTOP    ▲ │
│   FlexOS consoles         ... :                    │
│   Terminal connections    ... :                    │
│   Host connections        ... :                    │
│   Virtual key sets        ... :                    │
│   Standard paths          ... :                    │
│   Miscellaneous switches  ... :                    │
│   Message switches        ... :                    │
│   CURV switches           ... :                    │
│   Archive switches        ... :                    │
│   Archive I&C M switches  ... :                    │
│   MULTI–archive switches  ... :                    │
│  – – – – – – – – – – – – – – – – – – – – – – – –   │
│   Archive adjustment      ... :                    │
│   Operation rights        ... :                    │
│   Time synchronization        :                    │
│   Proc. variable tolerance ...:                    │
│   Intern. structure memory ...:                    │
│   BX – BES connection     ... :                    │
│   BX partner–OS connection ...:                    │
│   Screen saver            ... :                  ▼ │
│                                                    │
│   ┌────────┐   ┌────────┐        ┌────────┐       │
│   │ Import │   │ Cancel │        │  Help  │       │
│   └────────┘   └────────┘        └────────┘       │
│                                                    │
│  ◄ ═══════════════════════════════════════════ ►  │
└────────────────────────────────────────────────────┘
```

Fig. 3.24   Box "Standard paths"

Station type

The following box is displayed when you activate the menu item "Station type":
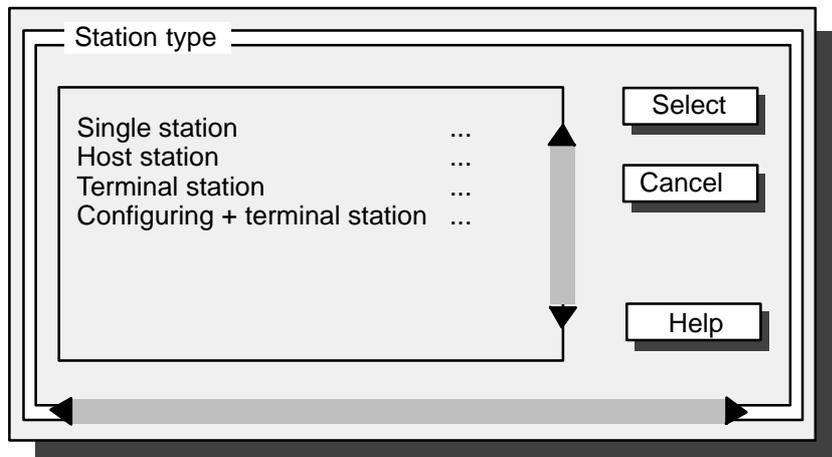
Fig. 3.25   "Station type" box

☞   It is essential here that you also refer to the description of the procedure; see Section 3.1.2, and the aids "Host configuration list" and "Terminal configuration list".

☞   In the case of "Configuring + terminal station", CONFIG can be used parallel to terminal mode.

Station type: single station

If you select "Single station" in the box "Station type", a box is displayed in which you can define for this station whether the virtual key set is to be switched on or off during process control.
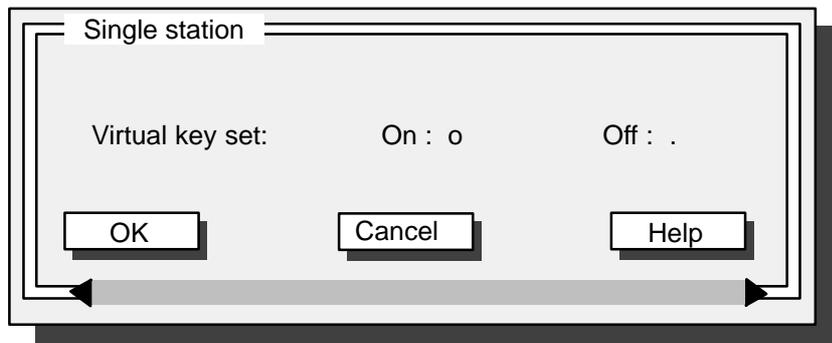
Fig. 3.26   Box "Station type: single station"

Station type:
host station

A box for further settings is displayed when you select the station type
"Host station":

```
┌─ HOST station ──────────────────────────────────────┐
│                                                      │
│  Virtual key set        :     On:  o      Off:       │
│                                                      │
│  HOST as input console  :     On:  .      Off:   o   │
│  CONFIG channel         :     Local: o    Terminal:  │
│  SUPERVISOR channel     :     Local: o    Terminal:  │
│  Number of terminals    :     1                      │
│                                                      │
│  MIN_T (ms) = 3000            MAX_T (ms) = 3000      │
│                                                      │
│                                                      │
│            ┌─ CONFIG ─┐          ┌─ SUPERVISOR ─┐    │
│                                                      │
│                                                      │
│  ┌Terminal1┐ ┌Terminal2┐ ┌Terminal3┐ ┌Terminal4┐    │
│                                                      │
│  ┌Terminal5┐ ┌Terminal6┐                            │
│                                                      │
│                                                      │
│  ┌── OK ──┐  ┌─ Cancel ─┐              ┌─ Help ─┐    │
│                                                      │
│  ◄═══════════════════════════════════════════════►  │
└──────────────────────────────────────────────────────┘
```
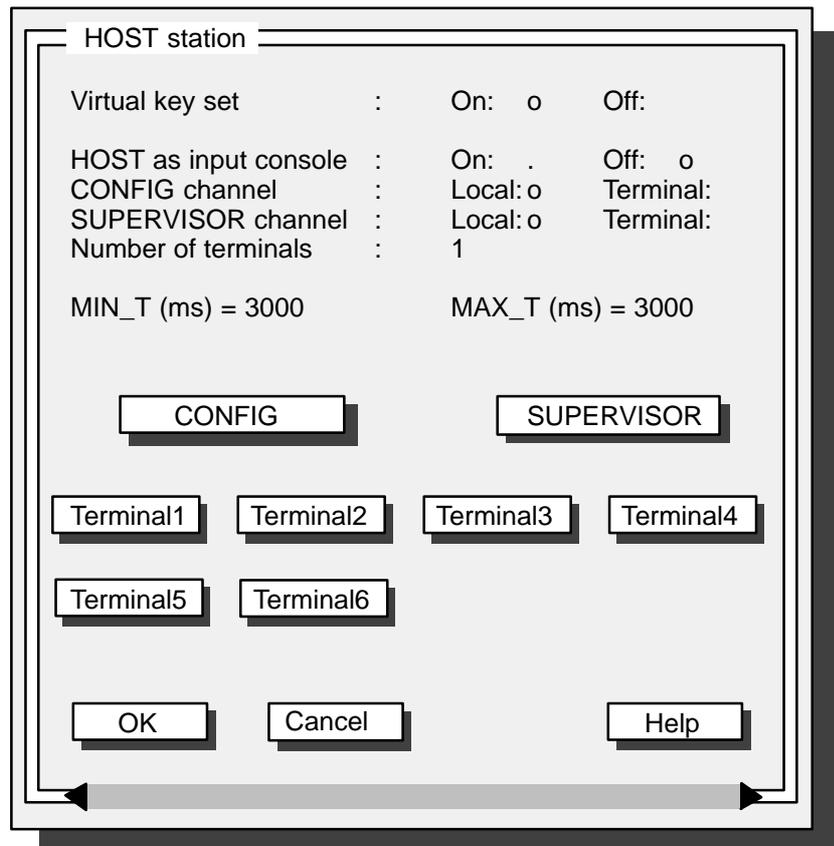
Fig. 3.27   "Station type: host station" box

⚠️ Operation with 6 terminals is technically possible. However, this may re-
sult in a reduced performance and limitations to the quantity breakdown.

Host as input con-
sole

The setting "On" only makes sense when a HIGRAF board is inserted.
Here you can set if the system can also be operated from the host during
operation.
This point cannot be selected and is internally on "On" when SUPERVI-
SOR remote is connected to a terminal.

CONFIG/
SUPERVISOR
channel

You can use the parameters CONFIG channel and SUPERVISOR chan-
nel to define whether the respective channel is to run on the host or termi-
nal.
When a terminal has been selected as CONFIG and/or SUPERVISOR
channel the node name (in uppercase letters) must be entered below the
CONFIG / SUPERVISOR keys. The host connection number of the ter-
minal must also be specified. In addition the box allows to set the screen
resolution, the number of colors and the virtual key set.
Special parameter setting: CONFIG and SUPERVISOR can both be
connected to the same host connection (alternative operation); never-
theless this connection cannot be used for the terminals 1 to 6.

**Number of termi-
nals**

Enter here the number of terminals connected to the host (max. 6).
The indicated quantity breakdown is for max. 4 terminals.

☞   If SUPERVISOR and/or CONFIG is swapped to a remote
terminal, this terminal must not be included in the parameter input
"Number of terminals"!

MIN_T / MAX_T

You can use the parameters MIN_T and MAX_T to set the minimum and
maximum waiting times for the terminal connection (in ms). The default
time is 3000 ms; you can select a value between 300 and 3000 ms.

Terminal keys

You can use the Terminal keys to call a further box for setting the termi-
nals (shown here for terminal 1):

Terminal 1 parameter:

Node name	: TERM1
Network address	: 08,00,06,01,00,01

Search ...

Virtual key set   On   o   Off   .

Terminal memory   8 MB   16 MB   32 MB
No. of host connections to terminal: 3
Host connection number to terminal: 1

OK   Cancel   Help

Fig. 3.28 "Host station: Terminal parameters" box

Using "Terminal memory" you can define the exclusive memory for this
terminal. If the terminal is also defined as a configuring terminal, you
must ensure when defining the memory that sufficient space is still avail-
able for configuring.
Tip: always select the next lower stage of the physically present memory,
e.g. 8 MB memory with a capacity of 16 MB.

☞   32 MB must not be set.

Specify the total number of hosts under Number of host connections to
the terminal (max. 4 hosts). Host connection number means on which
channel the host is/was parameterized on the terminal.

**Station type:
terminal station**

Following selection of the station type "Terminal station", a box is dis-
played for further settings:
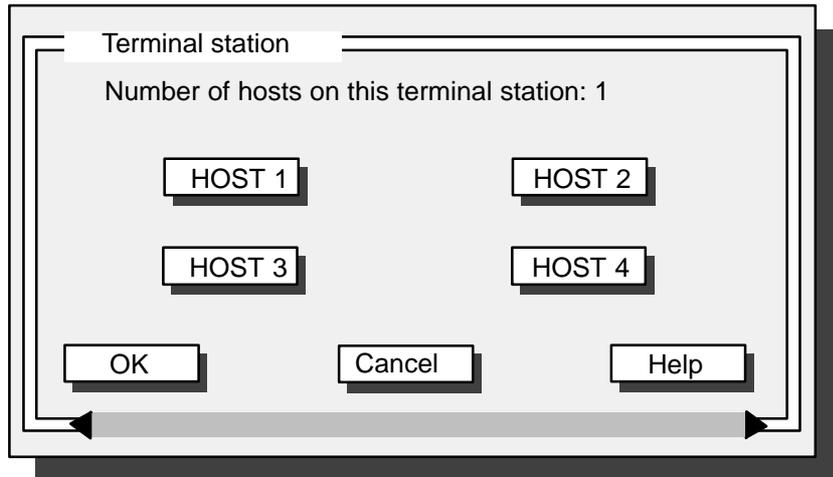
Fig. 3.29   "Terminal station" box

Settings are made as described with "Terminal station".

Station type:
configuring +
terminal station

Following selection of the station type "Configuring + terminal station", a box is displayed for further settings:
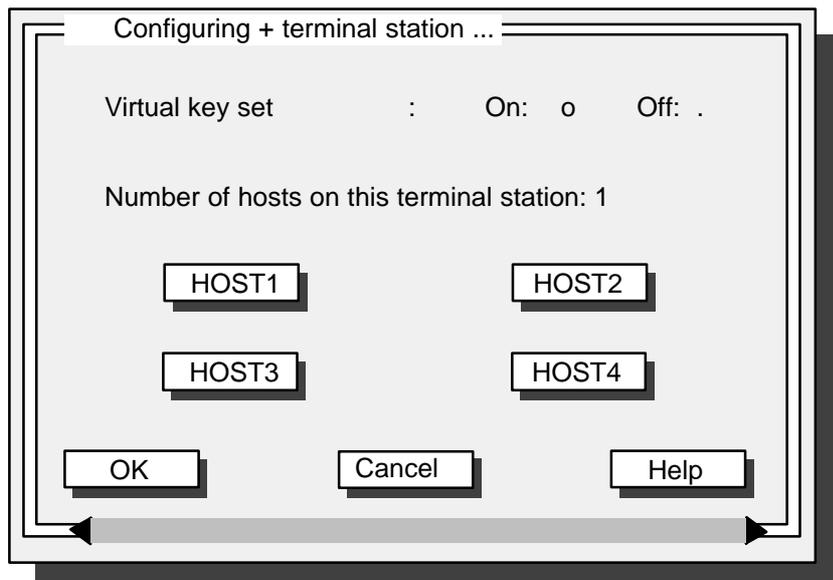
Fig. 3.30   Box "Station type: configuring + terminal station"

In this box you can define how many hosts are to be connected to this terminal.

If you have already set host station parameters for this terminal pay attention to the entered host connection number.

You can call a further box using the buttons HOST1 to HOST4 in order to set the corresponding host connections to this terminal (Fig. 3.31).

```
┌─────────────────────────────────────────────────────────┐
│  ┌══ HOST 1 connection: (flicker–free) ══════════┐       │
│  │  ┌──────────────────────────────────────────┐ │       │
│  │  │  Node name           :   HOST1           │ │       │
│  │  │  Network address     :   08,00,06,01,00,11│ │       │
│  │  │                                          │ │       │
│  │  │  ┌──────────────────┐                    │ │       │
│  │  │  │ Search ...       │                    │ │       │
│  │  │  └──────────────────┘                    │ │       │
│  │  └──────────────────────────────────────────┘ │       │
│  │                                                │       │
│  │   Application name    :    HOST1               │       │
│  │                                                │       │
│  │   Link faulty box     :        OFF: .   ON:  o │       │
│  │  ┌──────────┐    ┌──────────┐    ┌──────────┐  │       │
│  │  │   OK     │    │  Cancel  │    │   Help   │  │       │
│  │  └──────────┘    └──────────┘    └──────────┘  │       │
│  │  ◄█████████████████████████████████████████►  │       │
└─────────────────────────────────────────────────────────┘
```

Fig. 3.31   "Host station: terminal parameters" box

The user name must always be entered in uppercase letters and must not exceed 8 characters.

Link faulty box: you can define here whether the fault message box for the hosts present in the background is to appear in the event of a faulty connection in process control or not.
In the event of a faulty connection the foreground host connection displays the link faulty box.
Host connections with remote CONFIG (SUPERVISOR) do not output a link faulty box in the event of a faulty connection and do not terminate immediately; normally they are re–started in the background (except with PlantTop start).

☞   Only the terminal connection to the first host is flicker–free.
     Flicker–free means that e.g. the curve grid is not output again when updating the curve display.

Start desktop

With this menu item you obtain a box in which you can define which desktop is to appear on the screen when starting up. In the case of "OS process control" a further box appears for setting the path for the standard OSO file.

```
┌─────────────────────────────────────────────────┐
│  ┌─ Start desktop ─────────────┐                 │
│  │                            │    ┌─────────┐  │
│  │  OS configuring          ▲ │    │ Select  │  │
│  │  OS process control        │    └─────────┘  │
│  │  Terminal process control  │    ┌─────────┐  │
│  │  XGEM–PLANTTOP             │    │ Cancel  │  │
│  │  Config. + term proc.    ▼ │    └─────────┘  │
│  │                            │    ┌─────────┐  │
│  │                            │    │  Help   │  │
│  │  ◄                      ►  │    └─────────┘  │
│  └────────────────────────────┘                 │
└─────────────────────────────────────────────────┘
```
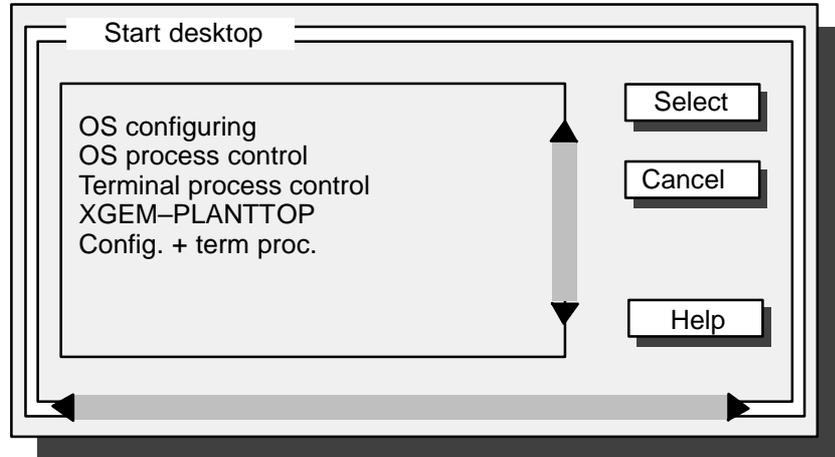
Fig. 3.32 "Start desktop" box

Terminal connections

Here you can make the settings for the respective terminal channel of the host. The same box (Fig. 3.28) is displayed as when you click a terminal button in the box "Host station" (Fig. 3.27). The menu item is disabled if the station is a terminal.

☞ If CONFIG is accessed from a terminal (remote), you can define a screen resolution and number of colors here which differ from the host.

Host connections

Here you can make the settings for the respective host channel of the terminal. The menu item is disabled if the station is a host.

Virtual key sets

Here you can select whether the virtual key set is to be displayed for this station. In the case of host stations, you can set the virtual key set of each assigned terminal.
The virtual key set is only active on line when the *.OSV file is converted correspondingly.

☞ The virtual key set is also set on line when selecting a virtual key set for the German, English or French language switchover (refer to Section 12.3.6.1 in the CONFIG Manual, Order no. C79000–G8076–C523).

Standard paths

The following box with the current standard paths is displayed when you activate the menu item "Standard paths":

```
┌─ Standard paths ... ──────────────────────────┐
│                                                │
│  Standard OSO file:                            │
│  C:/ANWENDER                                   │
│  Path of OS archive data export:               │
│  C:/ANWENDER/XXXX.DBF                           │
│  Path of OS tasks:                             │
│  C:/OS_CODE/RUN/                               │
│  Path of OS data:                              │
│  C:/OS_DATA/                                   │
│  Path of OS start–up programs:                 │
│  C:/OS_CODE/ANLAUF/                            │
│  Path of OS diagnosis:                         │
│  C:/OS_CODE/DIAGNOSE/                          │
│  Path of OS WDR file:                          │
│  C:/ANWENDER/XXXX.WDR                           │
│                                                │
│   ┌───────┐    ┌─────────┐      ┌───────┐      │
│   │  OK   │    │ Cancel  │      │ Help  │      │
│   └───────┘    └─────────┘      └───────┘      │
│  ◄                                          ►  │
└────────────────────────────────────────────────┘
```
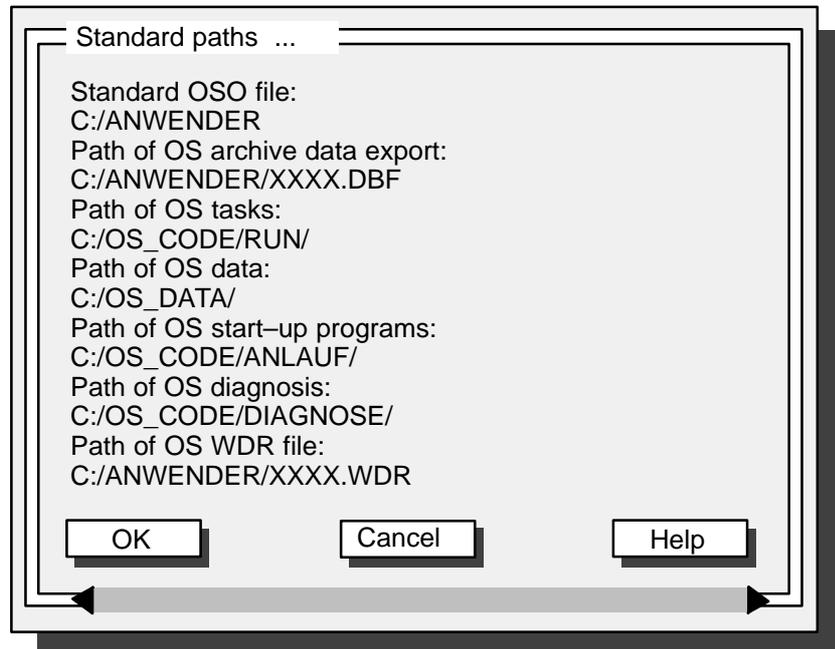
Fig. 3.33 "Standard paths" box

Miscellaneous switches

Miscellaneous switches

Here you can make additional settings concernng the OS styling and program run.

```
┌── Miscellaneous switches . ────────────────────────────┐
│                                                        │
│  Menu mode            : Drop–down .   Pull–down o       │
│  Menu with SUPERVISOR : Disabled o    Enabled .         │
│  Switching cursor     : Off o         On .              │
│                         S fields .    E/A/S fields o    │
│  Copy digital value   : No o          Yes .             │
│  Sign–of–life monitor. : Off .        Active o          │
│  Background task      : Yes o         No .              │
│  Save record parameter : Off .        On o              │
│  Collect. display prio : Acknlg. o    Status .  Level: 7│
│  Marking top view     : Inverse o     Corners .         │
│  Other marking        : Inverse .     Corners o System .│
│  BATA for local AS      0                               │
│   ┌───────┐    ┌─────────┐      ┌───────┐               │
│   │  OK   │    │ Cancel  │      │ Help  │               │
│   └───────┘    └─────────┘      └───────┘               │
│  ◄                                                   ►  │
└────────────────────────────────────────────────────────┘
```

Fig. 3.34 "Miscellaneous switches" box

– **Menu mode**:   Drop–down / Pull–down
Here you can define whether the menus are to be opened when touching with the mouse pointer (drop–down) or only when touched and clicked (pull–down).
With the XGEM PlantTop start desktop, Drop–down is selected even when Pull–down is set in OS–SET.

– **Menu with SUPERVISOR:**   Disabled / Enabled
Accessing of the menu line is disabled or enabled here in process control (e.g. for switching over the host).

☞ The setting "Disabled" is essential on the host and can only be made on this.

– **Switching cursor**:   Off / On
                                    S fields / E/A/S fields
Here you define whether the switching cursor is to be effective only in system fields or also in input and output fields.

– **Copy digital value**:   no / yes
With "yes", the digital value can be directly changed in the display without using the key set.

– **Sign–of–life monitoring**:   Off / Active
"Active*" means that all participants present on the process bus are monitored.*

– **Background task**:   Yes / No
"Yes" permits background processing, e.g. event–controlled logging.

– **Save record parameter**:   Off / On
With "On", the setting of the parameters made online is stored instead of the configured logging parameters.

– **Collective display priority**   Acknowledgement / Status/Level
"Acknowledgement" is the standard setting for TELEPERM M, "Status" for TELEPERM ME.
"Level" allows to determine the collective display level depth (area 1–7).
The level indicates up to which hierarchy levels collective events can be formed.
Level 7 is preset.

☞   Only modify when the max. number of collective events is exceeded.

– **Marking top view**:   Inverse / Corners / System
When "Inverse" is active the keys are in inverse form when used. This is only meaningfull if the keys and their labeling contain the colors "Black", "White" and "Gray". Other colors are falsified.
When "Corners" is active the keys are marked with a border and squares in the corners.
With "System" the object is bordered with a pointed–dashed line.

– **Other marking**:   Inverse / Corners / System
As for *"Marking top view".*

– **BATA for local AS**:
When the OS is only operated with one AS enter here the bus/partici-pant address (BA/TA) corresponding to the AS.

3 – 35

Other switches in **OSCONFIG.OS**

Bus saver
BUSSCHONER = EIN
The figures/views displaced in the background are no longer updated and supplied with values; this reduces the bus load (with the CS 275 or H1).

BUSSCHONER = AUS
All the selected figures/views (including those in the background) are up-dated.

Disable BATCH X recipe
BXREZSP = 1
BES batches are automatically disabled.

BXREZSP = 0
BES batches are not disabled when starting.

Starting timeout
BXSTARTZEI = 1
A starting timeout is indicated with an I&C message and diagnosis.

BXSTARTZEI = 0
A starting timeout is not indicated.

Comment as MKZ variable name
Comment in PROGRAF AS data may be entered as MKZ variable name (with AKS interconnections).

AKS_KOM_AUS = 0
Comment remain as comment.

AKS_KOM_AUS = 1
Comment are entered als variable name in the MKZ.

Message switches

Here you define the number of messages for which the message buffer is to be designed.

```
┌─────────────────────────────────────────────────────┐
│  ┌─ Message switches  ... ─────────────────────────┐ │
│  │                                                 │ │
│  │  Message surge size:                            │ │
│  │  Normal (100)      .  Mean (300)      .  Large (500) o │
│  │                                                 │ │
│  │  Number of messages present simultaneously:     │ │
│  │  Small (1000)      .  Large (2000)       o      │ │
│  │                                                 │ │
│  │  Showing update on screen:      Off   On   o    │ │
│  │  1. showing message chronicle:  No   o    Yes   │ │
│  │  ┌────────┐     ┌────────┐      ┌────────┐       │ │
│  │  │  OK    │     │ Cancel │      │  Help  │       │ │
│  │  └────────┘     └────────┘      └────────┘       │ │
│  └─────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────┘
```
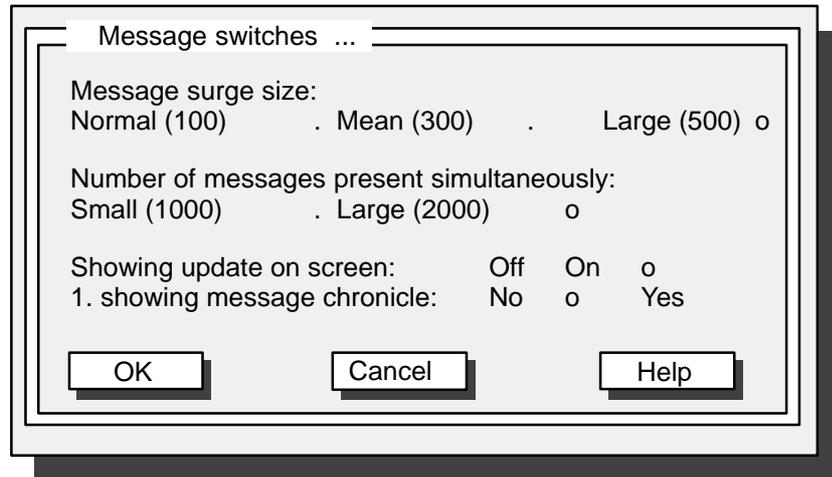
Fig. 3.35   "Message switches" box

Showing update on screen

With "On" the once generated status message remains on the screen.

With "On" the status message is updated.

1. showing message chronicle

With "Yes" the message chronicle is displayed at first, then the selection in case of a set message selection.

With "No" a message chronicle is not output.
The user must organize a file specific action for each message display.

CURV switches

```
┌─ CURV switches ... ───────────────────────────────────────┐
│  Continuous curve  showing:              No ∘  Yes         │
│  Showing box time overlap:        Yes    No ∘  Not by upd. │
│  Showing box end of archive:             No ∘  Yes         │
│  Conversion of curve amplit.    No scaling    ∘  With scalimg│
│                                                            │
│  Parameter takeover in CURV                                │
│      0 = No import                            ∘            │
│      1 = OAB–UAB dimension from group                      │
│      3 = OAB–UAB from def. by ARCED                        │
│      5 = Dimension from def. by ARCED                      │
│      7 = OAB–UAB dimension from def. by ARCED              │
│                                                            │
│    ┌─────────┐       ┌─────────┐       ┌─────────┐         │
│    │   OK    │       │ Cancel  │       │  Help   │         │
│    └─────────┘       └─────────┘       └─────────┘         │
└────────────────────────────────────────────────────────────┘
```
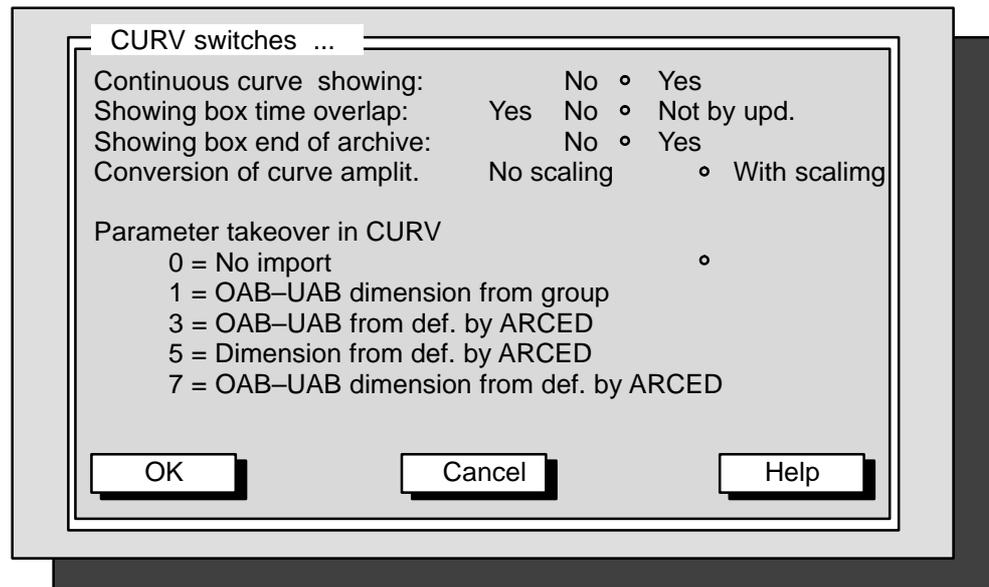
Fig. 3.36 "CURV switches" box

Continuous curve showing

This switch permits to separate the curve values of the overlapping period as if overlapping were not present. When this function is switched off the curve is shifted to the zero line in case of time overlapping.

☞ **Note:** The time axis continues without displaying a time overlapping.

Showing box time overlap

With "Yes" the box is output if a time overlapping is present in at least one curve within the visible frame.
When "Not by upd." is selected the box is not output when a time ocerlapping occurs during the dynamic curve output.

Conversion curve amplitude

When the switch is not set the values are read from AS.
With an active switch the curve values can be scaled.

Parameter takeover in CURV

Setting of range from which the OAB (Upper Display Range), the UAB (Lower Display Range) and the dimension are read (the parameter are assigned either to the group or to the measuring point).

0 = Importing parameters to measuring point deactivated.

1 = Importing of OAB, UAB and dimension from the selected group.
When replacing the three values are read from the parameters to the measuring point (ARCED).

3 = The OAB and UAB are imported from the parameters to the measuring point, the dimension from the selected group.
When replacing the three values are read from the parameters to the measuring point (ARCED).

5 = The dimension is imported from the parameters to the measuring point, the OAB and UAB from the selected group.
When replacing the three values are read from the parameters to the measuring point (ARCED).

7 = OAB, UAB and the dimension are always imported from the parameters to the measuring point (ARCED).

Archive switches

```
┌─────────────────────────────────────────────────────────┐
│  ┌────────── Archive switches ... ──────────────────┐    │
│  │                                                  │    │
│  │  Setting for archive and sub–archive:            │    │
│  │                                                  │    │
│  │  Eject key of EOD drive:      Enabled  Disabled○ │    │
│  │  Announce EOD for sub–arch.  Never  Always   Autom. ○ │
│  │  Projected message sub–archive:    Off    ○  Active  │
│  │  Projected value sub–archive:      Off       Active ○ │
│  │                                                  │    │
│  │  Autom. write sub–arch. if problems:  Stop ○  Repeat │
│  │  Sub–archive INFO–CALL           Normal   Fast   ○ │
│  │                                                  │    │
│  │  ┌────────┐      ┌────────┐        ┌────────┐    │    │
│  │  │   OK   │      │ Cancel │        │  Help  │    │    │
│  │  └────────┘      └────────┘        └────────┘    │    │
│  └──────────────────────────────────────────────────┘    │
└─────────────────────────────────────────────────────────┘
```
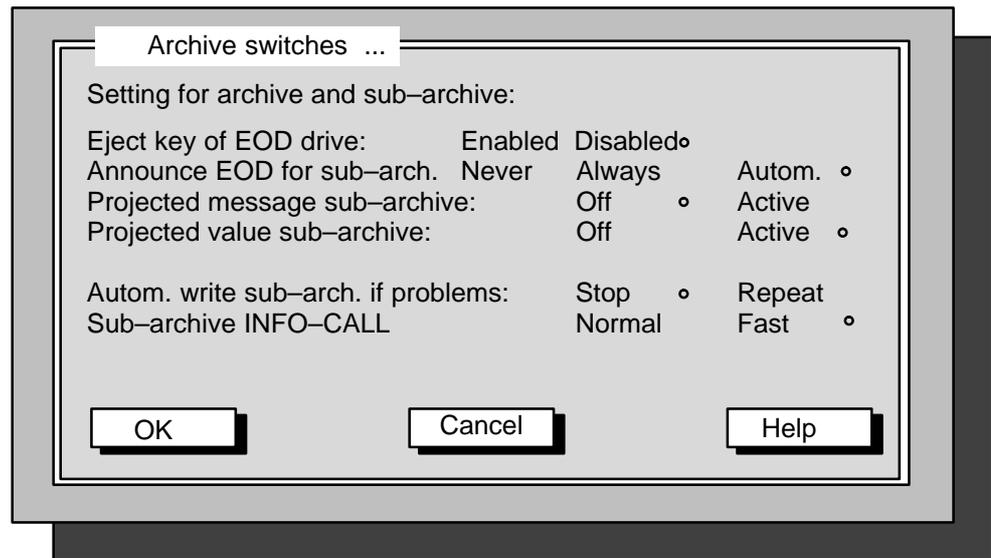
Fig. 3.37   "Archive switches" box

Eject key EOD drive

This switch disables the eject key of the EOD drive in case of swapping in the process control. This prevents data loss.

☞   When the key is not disabled and released during an EOD access data can be lost and the bookkeeping may be destroyed.

This point cannot be used if no EOD drive is parameterized in the hardware configuration.

Announce EOD for sub–archive

Define here if data saving is initiated directly when the drive is announced or with a special configured key.

Projected messages sub–archive

Configured sub–archives may be switched off or activated clearly with these two points.

Autom. write sub–archive if problems

Define here if swapping is stopped or if it is tried to continue storing (e.g. with MOD) when problems appear .

Sub–archive INFO–CALL

Specify here if all sub–archives are displayed or only two of them.

– "Normal" All sub–archives of the drive are opened and searched according to the concerned period; this setting takes a lot of time.
– "Fast"   Only the oldest and the more recent sub–archives are opened and searched for the concerned period.

☞   **The default setting must not be modified.**

Archive I&C switches

```
┌────────────────────────────────────────────────────────────┐
│ ┌─ Archive I&C switches   ... ─────────────────────────────┐ │
│ │                                                          │ │
│ │  I&C messages to archive functions:                      │ │
│ │                                                          │ │
│ │  Sub–archive seccessfully created:     Never   Always   ○│ │
│ │  Expport period overwritten:           Never   Always   Once  ○│ │
│ │  Export period filled:                                1  │ │
│ │  Time interval between 2 I&C messages if overloaded:  120000│ │
│ │                                                          │ │
│ │   ┌──────────┐      ┌──────────┐      ┌──────────┐       │ │
│ │   │   OK     │      │  Cancel  │      │   Help   │       │ │
│ │   └──────────┘      └──────────┘      └──────────┘       │ │
│ └──────────────────────────────────────────────────────────┘ │
└────────────────────────────────────────────────────────────┘
```
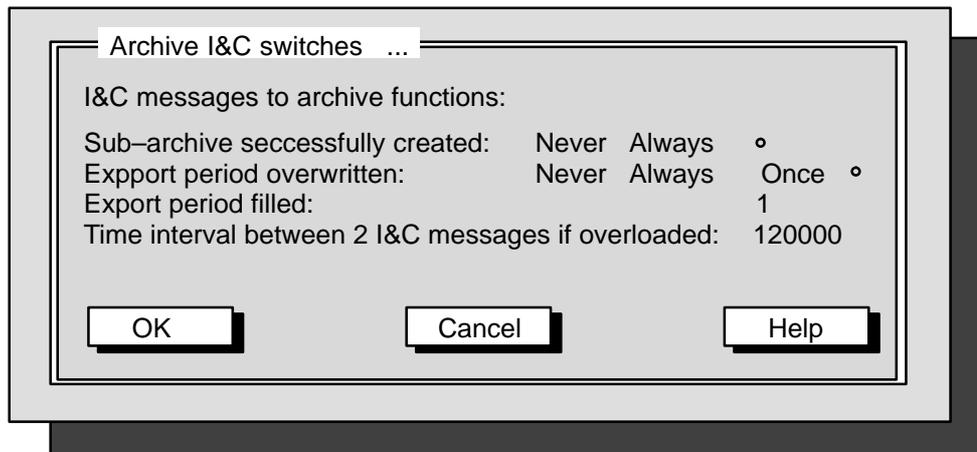
Fig. 3.38   "Archive I&C switches" box

The two first selection points permit to switch on or off the corresponding point for the I§C message output.

Export period filled   A value between 1 and 32766 can be entered in the menu line. This value specifies when the message re–appears after the first display. Counting occurs for each measuring point.

Time interval   Set here the time interval between two outputs of the I§C message "Overload when saving curves" in milliseconds. If zero is specified, each recorded overload is output.
Default = 120000 (2 min) $\Rightarrow$ Max. 864000 (1 day).

MULTI–archive switches

```
┌─────────────────────────────────────────────────┐
│  ═══ MULTI–archive switches ═══                  │
│                                                  │
│  Fusion of value sub–archives to optimized       │
│  multi–archives:                                 │
│                                                  │
│  (Normal) one config. filling in one file:    o  │
│  Period in seconds               : 3600          │
│  Number of config. fillings      : 20            │
│  Number of bytes                 : 524288        │
│                                                  │
│  Changing the size of message sub–archives:      │
│                                                  │
│  (Normal) every config. filling results in one file: o │
│  Number of config. fillings      : 20            │
│  Number of bytes                 : 262144        │
│                                                  │
│   ┌────────┐      ┌────────┐      ┌────────┐     │
│   │   OK   │      │ Cancel │      │  Help  │     │
│   └────────┘      └────────┘      └────────┘     │
└─────────────────────────────────────────────────┘
```
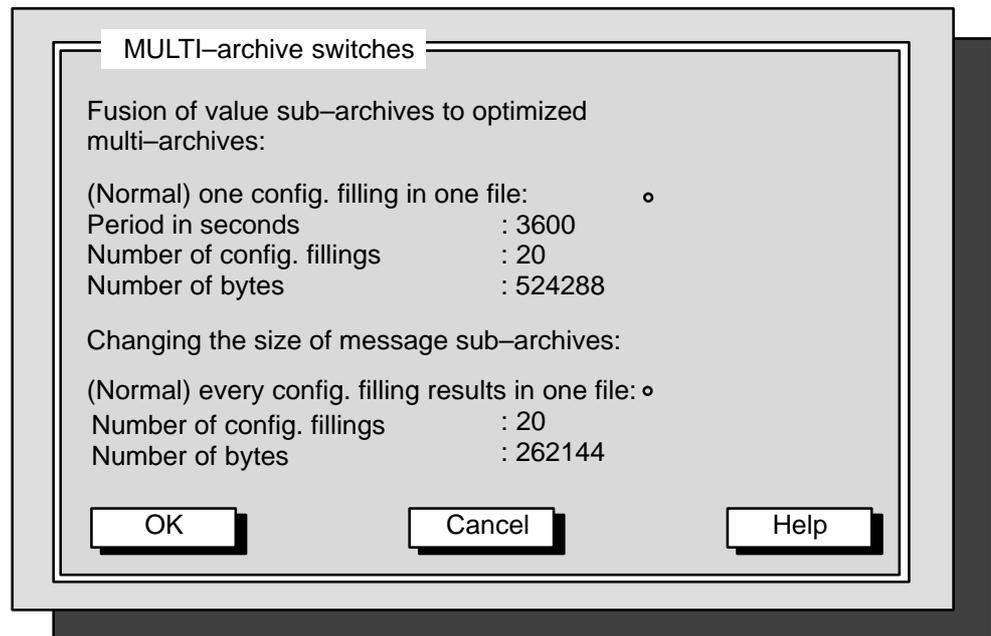
Fig. 3.39 "MULTI–archive switches" box

Multi–archives are files with several fillings. A conventional sub–archive always contains only the data of a single filling. The performance when accessing improves as the number of fillings in a multi–archive increases. However, if the number is selected to be too high, the multi–archive files become too large and thus difficult to handle.

The following rule–of–thumb can be used to calculate the size of a sub–archive file:
(Length of data type + 3 bytes) x Number of values per measuring point x Number of measuring points
The size of the multi–archive can be determined using this calculation as well as the number of sub–archives or fillings which have space in a multi–archive.
It is recommendable to combine 20 to 100 sub–archives on a data carrier.

Period in seconds   Define here the period of values which can be accepted by a multi–archive.

Number of configured fillings   This function specifies the number of configured fillings that can be accepted by a multi–archive.

Number of bytes   The multi–archive size in bytes is defined here.

The "Number of configured fillings" and the "Number of bytes" are also valid for the message sub–archives. Both specifications are provided for a later optimization.

Archive adjustment

Here you can define a partner (redundancy partner) OS for the archive adjustment.

```
┌─────────────────────────────────────────────────────────────────┐
│  ┌──────────────────────────────────────────────────────┐        │
│  │══ Archive adjustment  ... ══                          │        │
│  │                                                       │        │
│  │  Archive adjustment:               Off  ∘      On     │        │
│  │                                                       │        │
│  │  Node name      : RED_NODE                            │        │
│  │  Network address : 08,00,06,01,00,41                  │        │
│  │                                                       │        │
│  │    ┌──────────────────┐                               │        │
│  │    │  Search  ...      │                               │        │
│  │    └──────────────────┘                               │        │
│  │  Partner check time15                                 │        │
│  │  Adjust. operate time:   Normal ∘  Whole archive  Passive │    │
│  │  Difference adjustment:  Off       On ∘          Always │      │
│  │                                                       │        │
│  │  Diag. depth:            Default ∘    User defined     │        │
│  │  Diag. limit counter: 10                              │        │
│  │                                                       │        │
│  │  Diag. levels           0x07 ∘  0x0F     0x1F    0x3F  │        │
│  │                                                       │        │
│  │                                                       │        │
│  │  ┌──────────┐      ┌──────────┐      ┌──────────┐     │        │
│  │  │   OK     │      │  Cancel  │      │   Help   │     │        │
│  │  └──────────┘      └──────────┘      └──────────┘     │        │
│  └──────────────────────────────────────────────────────┘        │
└─────────────────────────────────────────────────────────────────┘
```

Fig. 3.40 ”Archive adjustment” box

Node name / Network address

Enter here the name of the redundancy partner and its network address.

☞   The node name has to be entered in uppercase letters.

Partner check time

Specify here the second period to check if the partner is still present.

Adjust. operate time

There are following adjustment possibilities;

– **Normal (Default)**
  Only the downtime of the measured value archive is adjusted.
  A complete adjustment is made in case of a first system start, an OSO change and a partner change.
– **Whole archive**
  The measured value archive is always completely adjusted in any status.
– **Passive**
  In this status the adjustment can only be made by the partner, not by the computer.

Difference adjust-ment
The measured value archive creates a difference list when the difference adjustment is activated. This list contains all common test points of the partner. But this list is only established when the partner runs with another OSO. The archive adjustment is thereby accelerated, because the not present test points are skipped. The switch "always" sets this mode of operation permanently.

Diagnosis depth
The following may be selected in this menu line:
– "Default"
   Diagnosis output in \OS_CODE\DIAGNOSE\REDABGL.LST with default level 0x07 without limitation
– "User defined"
   Diagnosis output in \OS_CODE\DIAGNOSE\REDABGL.LST with selected level (0x07 to 0x3F) with limitation

☞ The "Default" setting should first be kept up. The switch position may be changed later for diagnosis reasons.

Diagnosis limit counter
This switch permits to specify after which number of diagnosis outputs the level has to be switched to the next lower level. A number between 1 and 99 can be entered.

Diagnosis levels
The diagnosis level defines how detailed the diagnosis is output in the file. The smallest level is 0x07, the largest 0x3F. Observe that a higher level requires a longer OS start.

Operation rights

```
┌─ Operation rights ──────────────────────────────────────┐
│                                                          │
│  Changing operation rights:                              │
│  With password: ∘      With user name + password         │
│                                                          │
│  Output operation report:                                │
│  Without chan. number    ∘   With channel number         │
│  Without user name           With user name    ∘         │
│  Caution:   If you change the output operation report,   │
│             all OSOs with another output operation       │
│             report must be set anew ONLINE.              │
│                                                          │
│  Rights validity life time:                              │
│  Off ∘   After new rights input        Since last operation │
│                                                          │
│  Time interval for rights validity in min:        60     │
│  Warning time for ending rights validity in min:   5     │
│                                                          │
│   ┌────────┐        ┌────────┐        ┌────────┐         │
│   │  OK    │        │ Cancel │        │  Help  │         │
│   └────────┘        └────────┘        └────────┘         │
└──────────────────────────────────────────────────────────┘
```

Fig. 3.41 "Operation rights" box

Changing opera-tion rights
You may either made the rights dependent from the correct password in-put or link the rights in addition with the user.

☞ Before starting OSO ensure that the PASSWT.TXT file for the entry "User name + password" has been created (refer to Section 4.4 of the SUPERVISOR Manual C79000–G8076–C524).

Output operation report

Here you define if the report contains the channel number of the input device and/or the user name.

☞   When the switch is on output operation report "With user name" the printer is automatically set on condensed print independent of the previous hardware configuration setting for the operator report printer.

Caution: When the operator input report output has been modified, all OSOs which have to run with the new adjustment must be reset ONLINE. OSOs without ONLINE reset hold their old adjustment.

Rights validity life time

Following settings are possible:
–   Off
     The input privilege is unchanged.
–   After new rights input
     The operation right is reduced to the lower level when the set time has elapsed.
–   Since last input
     The run time restarts with every input.

Time interval

Define here the validity period of the rights after that the privilege level is reduced to the lower level.

Warning time

You are informed that the rights validity has elapsed according to the set time.

Time synchronization (clock module)

You can set the following operating modes:
–   With/without radio–controlled clock or
–   With/without minutes pulse or
–   As time master or not

The time synchronization is mandatory in case of time synchronous message processing.

Process variable tolerance time

The box "Process variable tolerance time" permits to define the period within which the synchronous read and write call of process variables has to be terminated. In detail:
–   the PKS control time (AKS and BKS monitoring time)
–   the tolerance time for "Read process variable"
–   the tolerance time for "Write process variable"

Internal structure memory
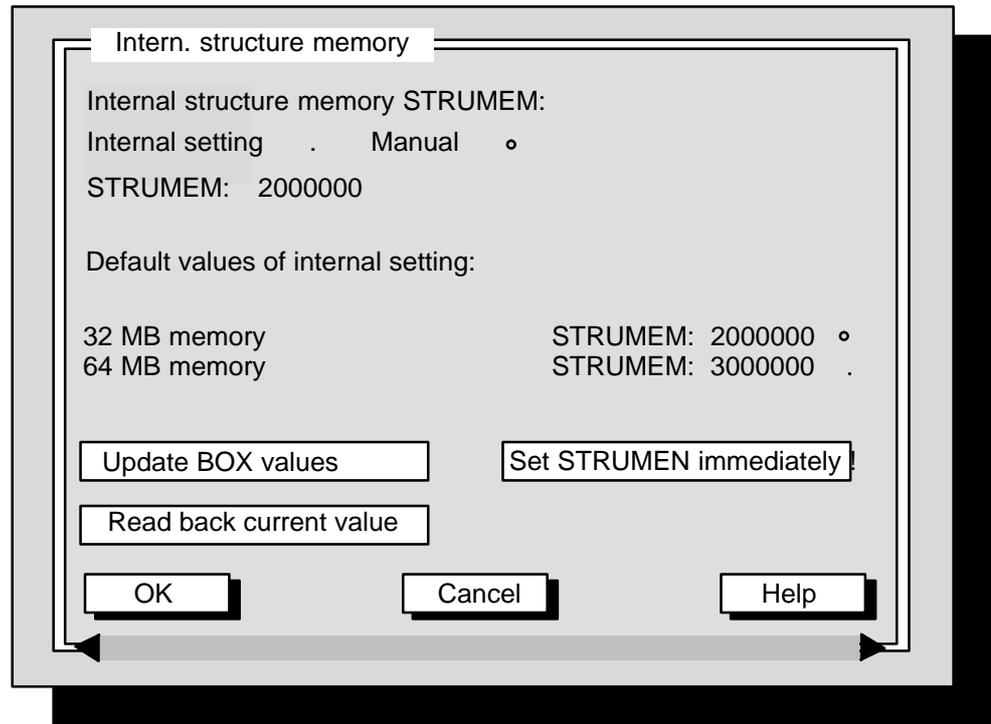
Fig. 3.42 "Internal structure memory" box

This box permits to directly reset or check the setting in the internal structure memory in OSCONFIG.

Internal setting Manual

STRUMEM memory setting may be specified here:

– Internal setting: The current internal setting in OSCONFIG remains.

– Manual: The current internal setting in OSCONFIG may be changed. The displayed value behind STRUMEM can only be changed with this selection.

STRUMEM

An individual setting between 500000 bytes and 9999999 bytes can be made here. The result is also shown here.
The selection circle disappears after selection of the "Update box values" box when a value different from the default value is input manually.

Update box values

The displayed default value setting is updated.
Causes a value refresh and is displayed behind "STRUMEM".

Set STRUMEM immediately

Here the modified value is entered directly in OSCONFIG.

Read back current values

The current value contained in OSCONFIG is read back and displayed.

BATCH X – BES connection


```
┌─────────────────────────────────────────────────────────┐
│ ┌═ BX – BES conn. ═══════════════════════════════════┐   │
│                                                          │
│   BES conn.            :   Off   o   On   .              │
│                                                          │
│   TCP/IP node name     :   BESPC                         │
│   TCP/IP address       :   8E,08,00,00                   │
│                                                          │
│                                                          │
│   ┌──────────────┐                                       │
│   │ Search ...   │                                       │
│   └──────────────┘                                       │
│   ┌──────────┐      ┌──────────┐      ┌──────────┐       │
│   │   OK     │      │  Cancel  │      │   Help   │       │
│   └──────────┘      └──────────┘      └──────────┘       │
│  ◄                                                    ►   │
└─────────────────────────────────────────────────────────┘
```
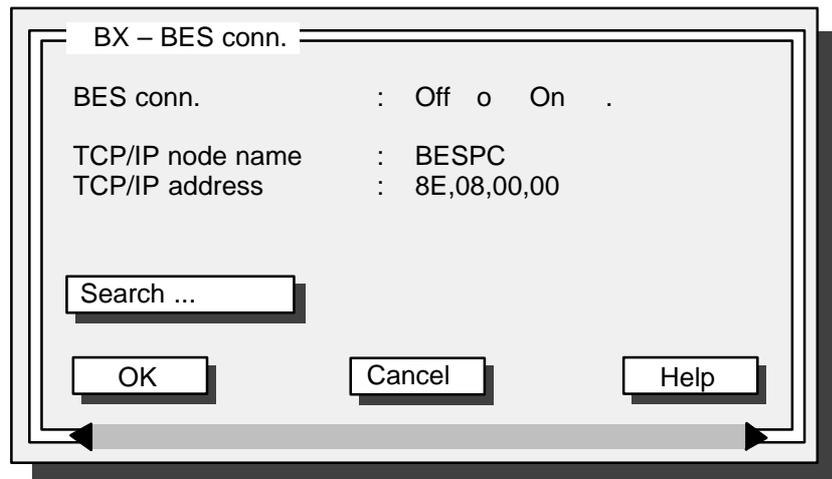
Fig. 3.43   "BX – BES connection" box

In this box you can switch the BES connection on or off, and enter the corresponding TCP/IP(Internet) node names and the TCP/IP(Internet) address.

BATCH X – partner OS connection

The box for setting the BATCH X – partner OS connection only differs in the first parameter line from the box "BATCH X – BES connection" (Fig. 3.43). Here you can switch on the connection to the partner OS, and specify the Internet node name and the Internet address.

Screen saver

Not effective with OS 525 for SUPERVISOR.

FlexOS consoles

Here you can set whether one or more FlexOS consoles are permitted.

3.1.8   OS Software Variant

The menu bar OS software variant calls a box to select if the OS has to operate normally (default) or in BATCH X.

☞   **Caution:** After modification of the OS software variant reset ON-LINE the used OSO.

3.1.9 Display Configuration Settings

When you activate the menu line "F8: Display configuration settings" in the main menu, a box appears with the selectable configuration settings such as:

– Display hardware configuration
– Display software configuration
– Display OSCONFIG.OS configuration
– Display OSCONFIG.OS–BATCH X–TCP/IP configuration.

A box with a list of current settings (can be scrolled) appears for each of these menu items when selected.

3.1.10 Read in old OSCONFIG Data

Please observe the following before activating the menu line "F9: Read in old OSCONFIG data":

You should only call this item if a new UPDATE has been transferred and if OS–SET is also available with new, reset variables.

It is then possible to update the previous configuration without having to carry out the complete configuration again. It is recommendable to check the read–in setting before you restart parameterization.

A warning box is initially displayed which informs you that the current setting will be lost. The procedure can be stopped at this point (<Cancel>). If you select <OK>, some settings are read out of the OSCONFIG.OS and some out of the previous configuration.

3.1.11 Save Parameter Settings / Exit OS–SET

Once you have made the settings and activated the menu item "F10: Save parameter settings / Exit OS–SET" in the main menu, a box is displayed which asks you whether the settings are to be saved. Select <OK> to make the settings active, select <Cancel> to reject the new setting.

A further box is then displayed which asks whether you wish to exit. Select <OK> to exit the desktop and, if you acknowledged the saving in the previous box with <OK>, to start parameterization. Select <Cancel> to return to the main menu.

During the parameterization, all FlexOS startup batches (CONFIG.BAT, OS_PREP.BAT and LSB_POREP.BAT) as well as the startup batch of the OS software (ANLAUF.BAT) and the OS printer settings (EAPRINIT.SYS) are regenerated. The OSCONFIG.OS and ETH.DAT are modified. In addition, drivers and other files are copied or modified depending on the configuration.

3.2 OS 525 Connected to Novell Server

Novell Server
The OS 525 can be connected to a Novell server via the existing SINEC H1. The measured value and message archives can be exported by means of a manual input or event–controlled. The Novell server is independent of FlexOS.

Note: The Novell NetWare connections are not configured using the OS–SET configuring program.

Restrictions
The following restrictions must be observed when operating with the Novell server:

– Sub–archives cannot be created.
– An implicit logon cannot be carried out on the netware server; an explicit logon must be carried out.
– Not all remote access operations are permissible.
– Interactions with the driver packet TCP/IP may occur in conjunction with TCPIP.DRV and host redundancy adjustments (BATCH X functions).

PG–NET Plus
In order to be able to execute the OS 525 as the client of a Novell NetWare server, you require PG–NET Plus including the additional software NFC (NetWare FlexOS Client). FlexOS applications then have transparent access to disk drives and printer queues of a netware server.

Requirements
The following are required:

● **Software:**
– FlexOS V2.3 or later
– FlexNet 2.11 or later

● **Hardware:**
– ETHERNET module (e.g. CP1413)

Installation
To obtain installation guidelines and detailed information, please contact:

IEZ TELEPERM M
D–76181 Karlsruhe
Tel. 0721 / 595 6380
Fax 0721 / 595 6383

Contents Section 4

4   Description of the Devices

The base unit is described in the Manual for the SIMATIC PC RI45 (Nr. C790000–G7084–C781).   4 – 3

4.1   Self–test

A self–test is carried out when the OS 525 is switched on. The functions of the main memory, connections and all important components of the OS 525 are checked.

If an error is detected, an error message with appropiate information is output. The monitoring functions for the operating safety and the possible error messages are explained in PC RI45 Manual.

4.2   Drives

4.2.1   Hard Disk and Floppy Disk Drives

Details for drive installing and removing are given in the SIMATIC PC RI45 Manual (Technical Description).

4.2.2   Magneto–Optic Drive SMO F541 (with AHA–1542CP SCSI Controller)

Magneto–optic disks are recordable, replaceable data media. They combine the properties of hard disks with the transportability of floppy disks and the insensitivity typical to optical systems.

The magneto–optic drive is used to store comprehensive data e.g. user data or programs (external archiving). You can also save a complete hard disk as a backup on an MO drive.

MO disks with a diameter of 5.25" and a storage capacity of 2.3 GB are used (both sides of disk).

Settings   Jumper settings for magneto–optic drive: see Section 4.13.6.1 Installing of MO drive.

⚠	**Note**
	The MO disk must not be removed when the operation indicator (LED) of the MO drive is lit. The eject button on the MOD can be locked in the OS–SET (see. "Archive setting" box, Fig. 3.37).

4.2.3   Drive Partitioning and Formatting

A disk is initialized in two different steps:

- Setting up logical disks on a physical drive using the FDISK program. A logical disk is known as a partition. Each partition (logical drive) has a specific code letter allocated.
- Formatting each partition using the FORMAT program. This creates the storage format required by the operating system.

⚠ **Note**

Do not format any partition that has been created under MS DOS using FDISK.

Data will be lost when you delete or modify a partition. Save your data onto another data carrier before you do this.

Creating a partition   Command: FDISK dr: –C –Sn –Nn

Parameter	Effect
dr:	Drive designation
–Sn	n is the start cylinder
–Nn	n is the cylinder number

The term 'cylinder' stands for a certain area of the disk that is used for storing data.

☞   When a drive is changed the last entered cylinder number is preserved. For safety reasons after a partitioning and a computer reset, check if the cylinder number matches with the partitioning.

Enter CTRL–C to terminate. The next partition may now be created.

Once partitioning has been terminated, you must perform a warm restart to notify the operating system of the partition data.

All partitions remain to be formatted.

Deleting a partition   Command: FDISK dr: –Dn

Parameter	Effect
dr:	Drive designation
–Dn	D = Delete n is the partition number

Enter CTRL–C to terminate. The next partition may now be deleted.

Once deletion has been terminated, you must either initiate a change of data carrier or perform a warm restart to notify the operating system of the partition data.

Displaying partition information

Command: FDISK dr: –I

Parameter	Effect
dr:	Drive designation
–I	I = Output information

The following information concerning the different partitions are output:

– Partition: Shows the sequence of the partitions.
– Status: shows whether the partition is active (ACTIVE), inactive (INACT) or extended (EXTEND). "Extended" means that the partition is not a boot partition.
– Type: Shows the partition category.
FLEX = Partition of more than 32 MB.
DOS = Partition of less than 32 MB (DOS compatible medium).
???? = Unknown partition type
– The remaining columns contain start and end cylinders of the partition, the total number of cylinders that make up a partition, and the size of the partition in MB.

Formatting a partition

Once you have created a partition you must format it. Use the FORMAT program to do this. FORMAT checks the partition for defective tracks and initiates the data carrier such that data can be stored onto it.

Command: FORMAT [dr:] [–V] [–Cn]

Parameter	Effect
dr:	Drive designation
–V	FORMAT asks for a name of the partition that is to be formatted and and enquires whether or not the formatted partition is to be protected against access. The name may consist of up to 11 characters. Any character permitted for file name may be used. Access protection can only be activated if a name have been assigned. The name is also be used for identification purposes.
–Cn	FORMAT defines the cluster size of the partition. n is a power of 2 between 2 and 128. FORMAT defines the cluster size according to the size of the partition if you do not specify the –Cn option.

☞ Formatting destroys all data on the partition. To avoid inadvertent destruction of data, always specify the drive designation (dr:) in the FORMAT command (even if it the active drive).

Once formatting with the –Cn option has been terminated, you must perform a warm restart to notify the operating system of the new cluster size.

4.3   N–AT Local Bus Interface

The N–AT local bus interface permits the OS 525 to be connected to the 20–meter local bus of the CS 275 bus system. This enables computer performance and visualization capabilities of the OS 525 system to be utilized in the TELEPERM M system.

4.3.1   Structure of the N–AT Local Bus Interface

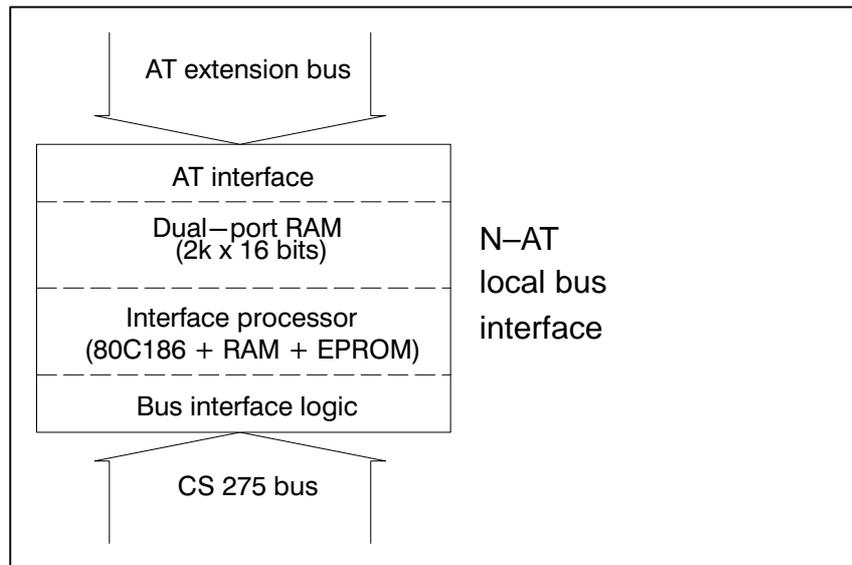The N–AT local bus interface can roughly be subdivided into four blocks.

```
        ┌──────────────────────────────────────┐
        │        AT extension bus               │
        │                                       │
        │     ┌─────────────────────┐           │
        │     │    AT interface     │   N–AT    │
        │     │ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ │           │
        │     │   Dual−port RAM     │   local bus│
        │     │   (2k x 16 bits)    │           │
        │     │ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ │   interface│
        │     │ Interface processor │           │
        │     │(80C186 + RAM + EPROM)│          │
        │     │ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ │           │
        │     │  Bus interface logic │          │
        │     └─────────────────────┘           │
        │          CS 275 bus                   │
        └──────────────────────────────────────┘
```

Fig. 4.1   Function block structure of the N–AT

The functions of the lower layers of the CS 275 bus protocol have been implemented in the **bus interface logic**.
The operational sequence is controlled by separate receive and transmit controllers. Two FIFO memories perform series–parallel conversion and provide timing decoupling between the CS 275 bus and the rest of the interface.

The **interface processor**, which has been set up on a 80C188 processor, transports the data between bus interface logic and dual–port RAM. It performs sequence control, sets the necessary administrative pointers and event cells, and monitors all functions of the module. It also co–ordinates the activities with the PC.

The **dual–port RAM** forms the link between the interface processor and the PC. The transmit and receive buffers are located here, together with their pointers and event cells, and may be accessed from either side. The 4 kB of the dual–port RAM are organized as 2 k•16 bits.

The **AT interface** forms the link to the AT extension bus. From the PC's perspective, the N–AT interface is an interface with two 16–bit registers in the I/O address space. The address selector register is used for selecting a 16–bit cell in the dual–port RAM.

Addressing the data register enables the selected 16–bit word in the dual–port RAM to be read or written.

Please refer to the N–AT Operating Instructions /12/ for details.

4.3.2 Status Indicators and Selected Parameters

The executing user software controls the interface and the reception and transmission of message frames during system operation. The six other control LEDs on the N–AT front panel have the same meaning, layout, and color as the status indicators on other CS 275 bus interface modules (such as N–8 or N–S5).
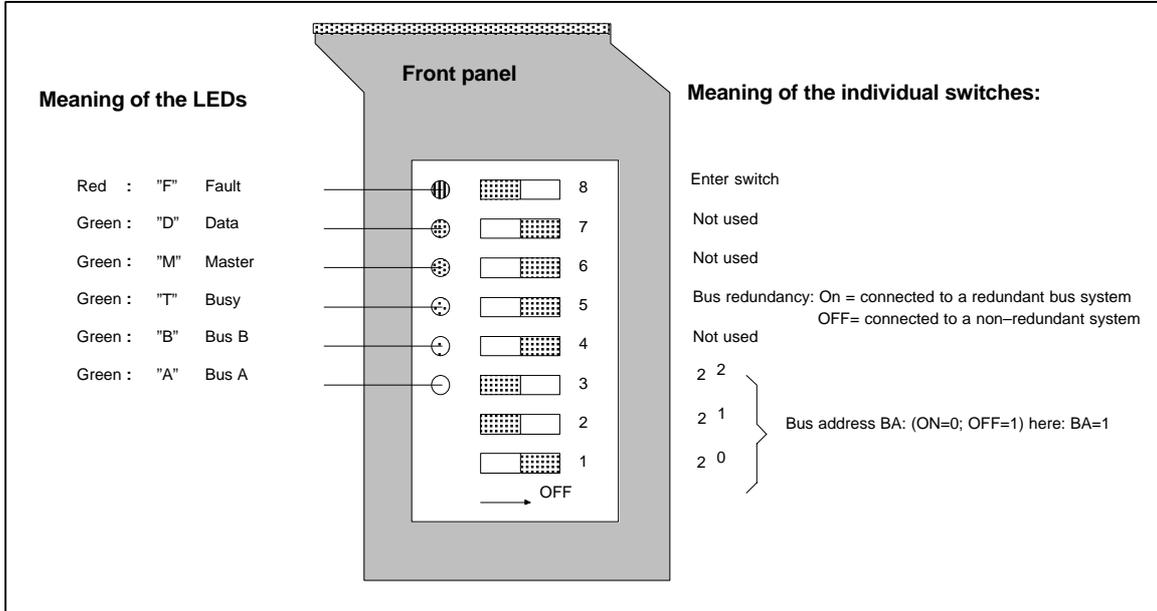

Meaning of the LEDs

Red :	"F"	Fault
Green :	"D"	Data
Green :	"M"	Master
Green :	"T"	Busy
Green :	"B"	Bus B
Green :	"A"	Bus A

Front panel

Meaning of the individual switches:

Enter switch — 8

Not used — 7

Not used — 6

Bus redundancy: On = connected to a redundant bus system — 5
OFF= connected to a non–redundant system

Not used — 4

2^2 — 3

2^1 — 2   Bus address BA: (ON=0; OFF=1) here: BA=1

2^0 — 1

OFF

Fig. 4.2   LEDs and switch assignments on the N–AT

Switch functions

Enter switch
The interface bus addresses and the mode ("redundant" or "not redundant") can be selected while the system is running.
The N–AT module transitions to idle mode when one of these switches is actuated.
Cycling the enter switch from ON to OFF to ON enters the previously selected parameters and the N–AT exits idle mode.

Bus redundancy
Selection:

ON   =   connected to a redundant bus system
OFF   =   connected to a non–redundant bus system

BA bus address
Allocation:

The TA device address (see Section 2.1.1) is employed for distin–guishing between interfaces that have been connected to a self–con–tained bus system. The BA bus address is required additionally if several buses are to be distinguished that are interlinked via bus coupling units (see Section 2.1.2).

Valid values of the bus address: 0....7

– The significance of the switches is as follows:

Switch 1 = 2^0
Switch 2 = 2^1
Switch 3 = 2^2

– ON   = "0"
OFF = "1".

The switches in Fig. 4.2 have been set for bus address "1".

Meaning of the LEDs

The LEDs are used for diagnostics and status indication.

"F" (red)   = Fault: Fault indication from the bus interface logic

"D" (green) = Data: General data traffic on the local bus

"M" (green) = Master: The module is currently bus master

"T" (green) = Busy: The 80C188 processor performs read cycles

"B" (green) = Bus B: Bus B is the active bus

"A" (green) = Bus A: Bus A is the active bus

The **"F" indicator** is ON if there is a malfunction on the local bus or on the bus interface. A blinking LED indicates a sporadic malfunction.

Possible causes of a malfunction:

– Incorrect frames due to wrong qualifiers or parity errors
– Receive buffer overflow (e.g. defective bus processor)
– Mismatch between transmit data and bus information (e.g. defective line driver)

The **"D" indicator** blinks and is more or less dimmed, depending on the density of the data traffic.

The **"M" indicator** in ON as long as the module possesses mastership. This is indicated by a faster or slower blinking frequency, that depends on the number of connected devices.

The **"T" indicator** signals at almost full brightness that the CPU performs a command or an I/O cycle.

The **"A" and "B" indicators** blink in the rhythm of the bus alternations. The brighter LED indicates the currently active bus.

4.3.3   Pin Assignments of the CS 275 Bus System Connector

Bus connector 25–way (sub–miniature 'D', male)

Pin	Signal	Bus	Level	Pin	Signal	Bus	Level
1	Clock	A	1	2	Qualifier	A	1
3	Data	A	1	4	Control	A	1
5	–		0V	6	–		0V
7	–		0V	8	–		0V
9	–		0V	10	Clock	B	1
11	Qualifier	B	1	12	Data	B	1
13	Control	B	1	14	Clock	A	0
15	Qualifier	A	0	16	Data	A	0
17	Controlö	A	0	18	–		0V
19	–		0V	20	–		0V
21	–		0V	22	Clock	B	0
23	Qualifier	B	0	24	Data	B	0
25	Control	B	0				

Please refer to the Operating Instructions of the N–AT local bus interface /10/ for details.

4.4   The CP 1413 Communications Module

Application

The CP 1413 communications processor permits an OS 525 terminal, a host computer, or a central engineering workstation to be connected to the SINEC H1 bus via an interface multiplexer and a bus coupling module.

Slot

The module requires one AT slot on the OS 525 bus module.

Connection

Connection to the interface multiplexer is made via a 15–way connector (subminiature 'D', female) with shift lock.
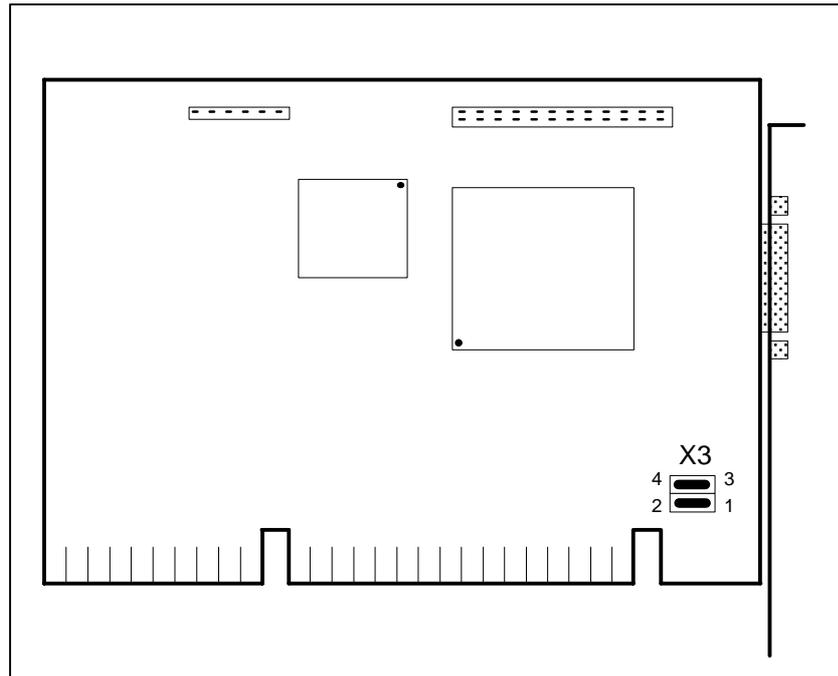
Fig. 4.3   The CP 1413 communications processor (block diagram)

Jumper settings

Merely the configuration register need to be set on the module (X3 jumpers). Fig. 4.3 shows the location of these two jumpers.
The configuration register has been preset to the hexadecimal number 03E0H.

Other values may be selected (see Fig. 4.4).

Configuration register	X3 jumpers	
	1 – 2	3 – 4
03E0H	▬	▬

Fig. 4.4   Configuration register jumper settings

☞   The default setting must not be modified.

**Connector pin as-
signments**

The following table shows the pin assignments of the external interface
to the interface multiplexer/bus coupler module.

Pin	Signal	Meaning	Pin	Signal	Meaning
1	M_ext	Screen	9	CLSN –	
2	CLSN +	–	10	TRMT –	Transmitter –
3	TRMT +	Transmitter +	11	not used	
4	not used	–	12	RCV –	Receiver –
5	RCV +	Receiver +	13	+ 12V	
6	12V ground	–	14	not used	
7	not used	–	15	not used	
8	not used	–			
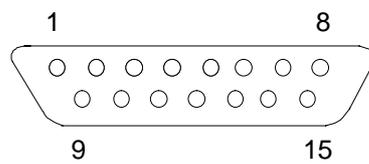
15–way, subminiature D,
female

4.5   The CP 5412 A1 Communications Module

Application

The CP 5412 A1 communications processor permits an OS 525 host to be connected to the SINEC L2 for communication with the AS 488 and AS 360 automation systems.

Slot

The module occupies one AT slot of the bus module as an alternative to the N–AT module (see Section 3.10 for slot assignment).
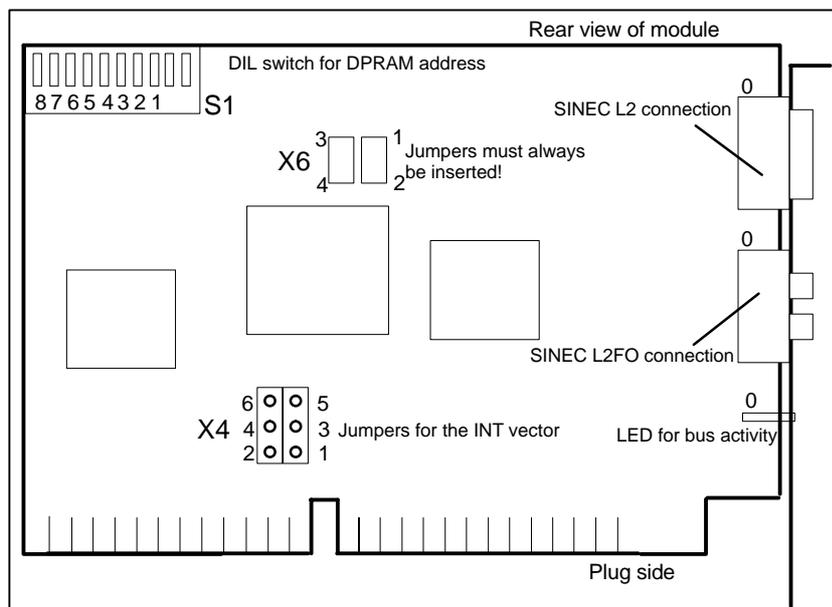
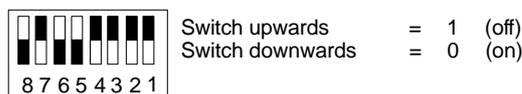*Fig. 4.5   Simplified representation of the CP 5412 A1 bus interface module*

Settings

Before fitting the CP 5412 A1 module, check the jumper setting of the interrupt vector and the address of the dual-port RAM.

- Interrupt vector

Jumper   1 – 3: Interrupt 10 (OS)
          3 – 5: Interrupt 11
          2 – 4: Interrupt 12 (factory setting)
          4 – 6: Interrupt 15
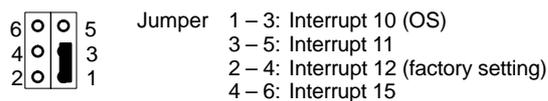
The interrupt vector 10 must be set.

- DPRAM address

Switch upwards   = 1   (off)
Switch downwards   = 0   (on)

8 7 6 5 4 3 2 1

Switch upwards

DPRAM address to be set: D0000
Switch position: 00001101

4.6   HIGRAPH 2 Graphics Interface

The graphics interface contains a VGA part for standard applications and a GSP part (GSP = Graphics System Processor) for sophisticated graphics applications.

To control the monitor, GSP part and VGA part use the same video output (X4 connector in Fig. 4.6). The GSP port performs the changeover.
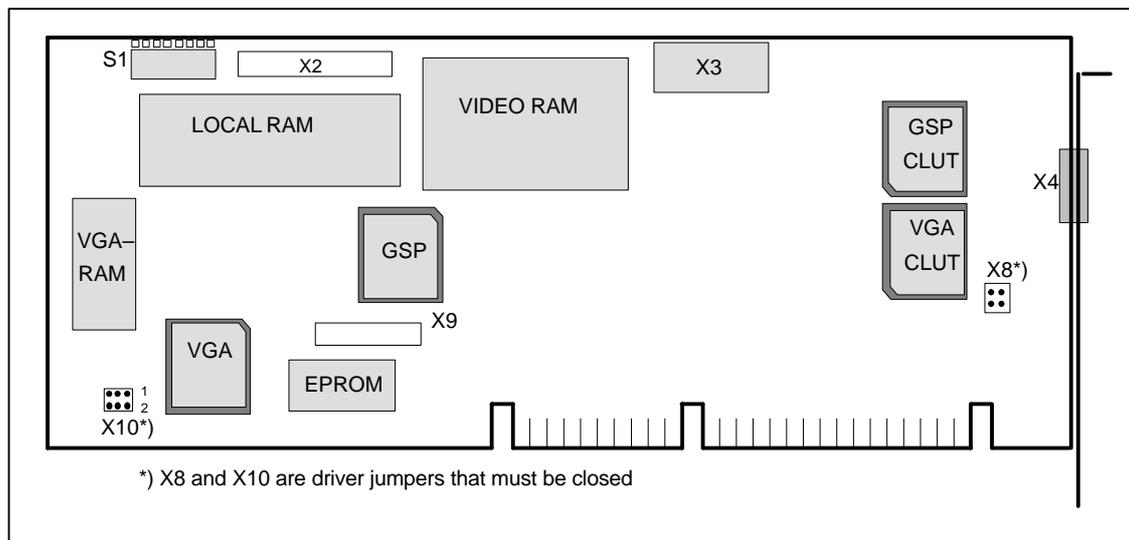

Fig. 4.6   The HIGRAPH 2 graphics interface

Connector pin assignments of the external X4 interface:

Pin	Designation	Meaning	IN/OUT	Pin	Designation	Meaning	IN/OUT
1	R_EXT	Red	Output	9	– – – –	not used	
2	G_EXT	Green	Output	10	M	Ground	Ground
3	B_EXT	Blue	Output	11	– – – –	not used	
4	– – – –	not used		12	– – – –	not used	
5	– – – –	not used		13	EXT_H	Horizontal synchronous	Output
6	M	Ground	Ground	14	EXT_V	Vertical synchronous	Output
7	M	Ground	Ground	15	– – – –	not used	
8	M	Ground	Ground				
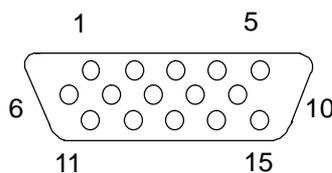
X4 VGA connector
15–way (subminiature D, female)

Identification

In OS 525, the graphics interface can be identified. This means that the system is able to interrogate the interface connector and to detect whether or not a graphics interface has been installed in the OS 525, and which specific features it possesses.

In the identification inquiry, the module issues a code under subaddress 0 that specifies that the module setting is encoded in a further byte. This coded setting is performed using the S1_1 through S1_8 DIL switches. Fig. 4.7 shows the functions of the individual switches.

The switches S1_5 and S1_6 only become effective after a hardware reset.

Switch settings
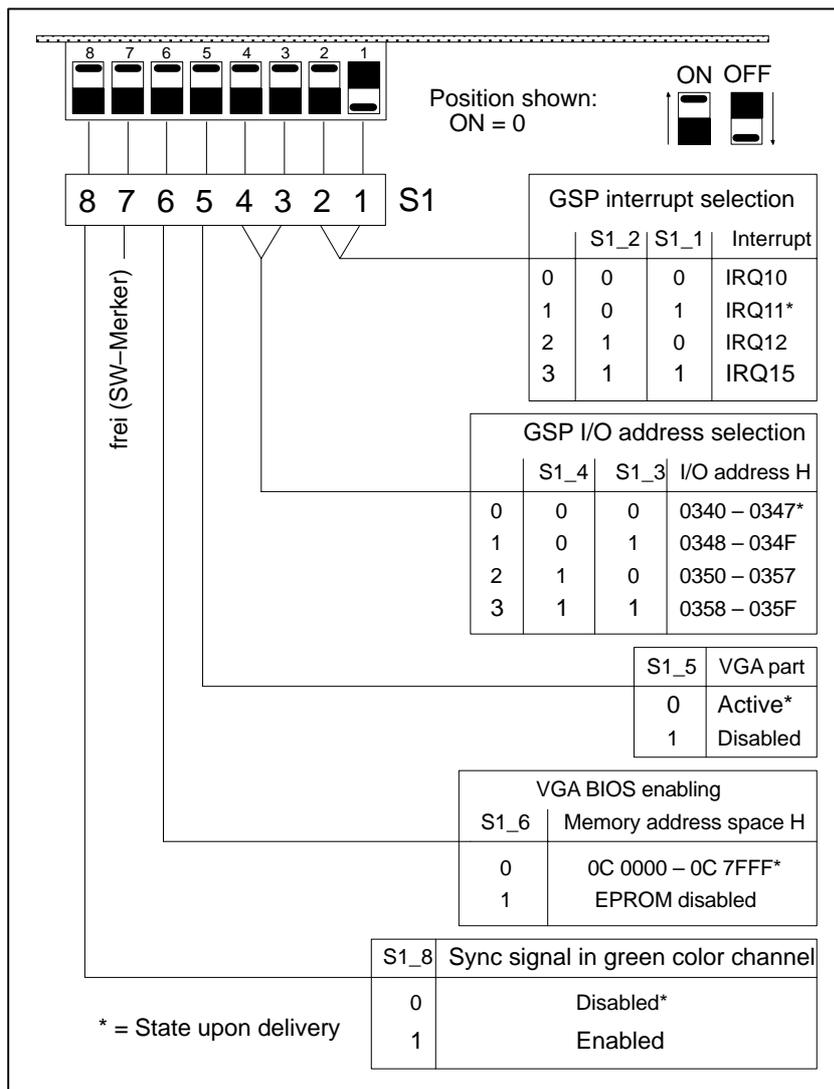
Fig. 4.7   Functions of the S1 identification switch

Preferred settings   IAll switches but S1_1 are ON in the preferred setting.
This setting means in detail:

      – GSP interrupt   IRQ 11
      – GSP I/O address 0340H through 0347H
      – VGA part   Active with IRQ 9
                             (SW–routed to IRQ 2)
      – VGA BIOS   Active from 0C0000H through 0C7FFFH
      – Sync signal in
         color channel   Disabled

    ☞   The sync signal in the green color channel must be enabled if a
3–fold coaxial cable (6XV1441–0N) is used (S1_8 = OFF).

4.7 The Signal Module

A free slot on the bus board of the OS 525 base unit permits a signal module to be used (see Section 3.10).

This signal module performs the following functions:

– Triggering the audible indicator
– Watchdog function
– Color graphics printer control (hard copy remote control)

There are two connectors on the front panel, one 25–way and one 9–way sub–miniature 'D' connector. The watchdog function and the audible indicator signal for future extensions are accessible via the 25–way connector. The hard copy remote control connects to the 9–way connector.

Fig. 4.8 shows a simplified diagram of the signal module layout.
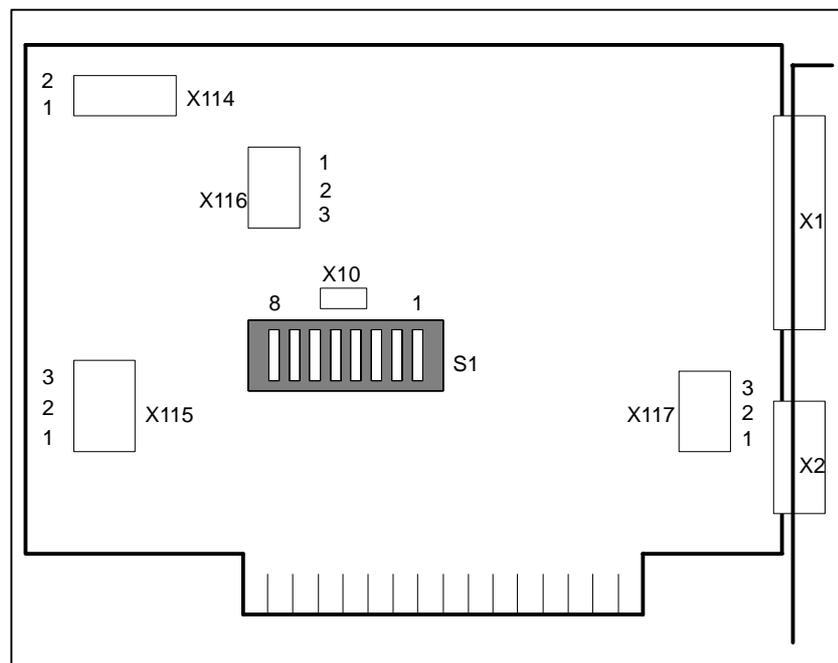

Fig. 4.8   Simplified representation of the signal module

4.7.1   Function of the Signal Module

The block diagram in Fig. 4.9 shows the function of the signal module.

All signals on these two connectors are floating either as relay contacts or via optical couplers.

The DC 24 V voltage supplying externally the relay contacts or the signal module optocouplers has to be protected with 1–A fuse by the customer.
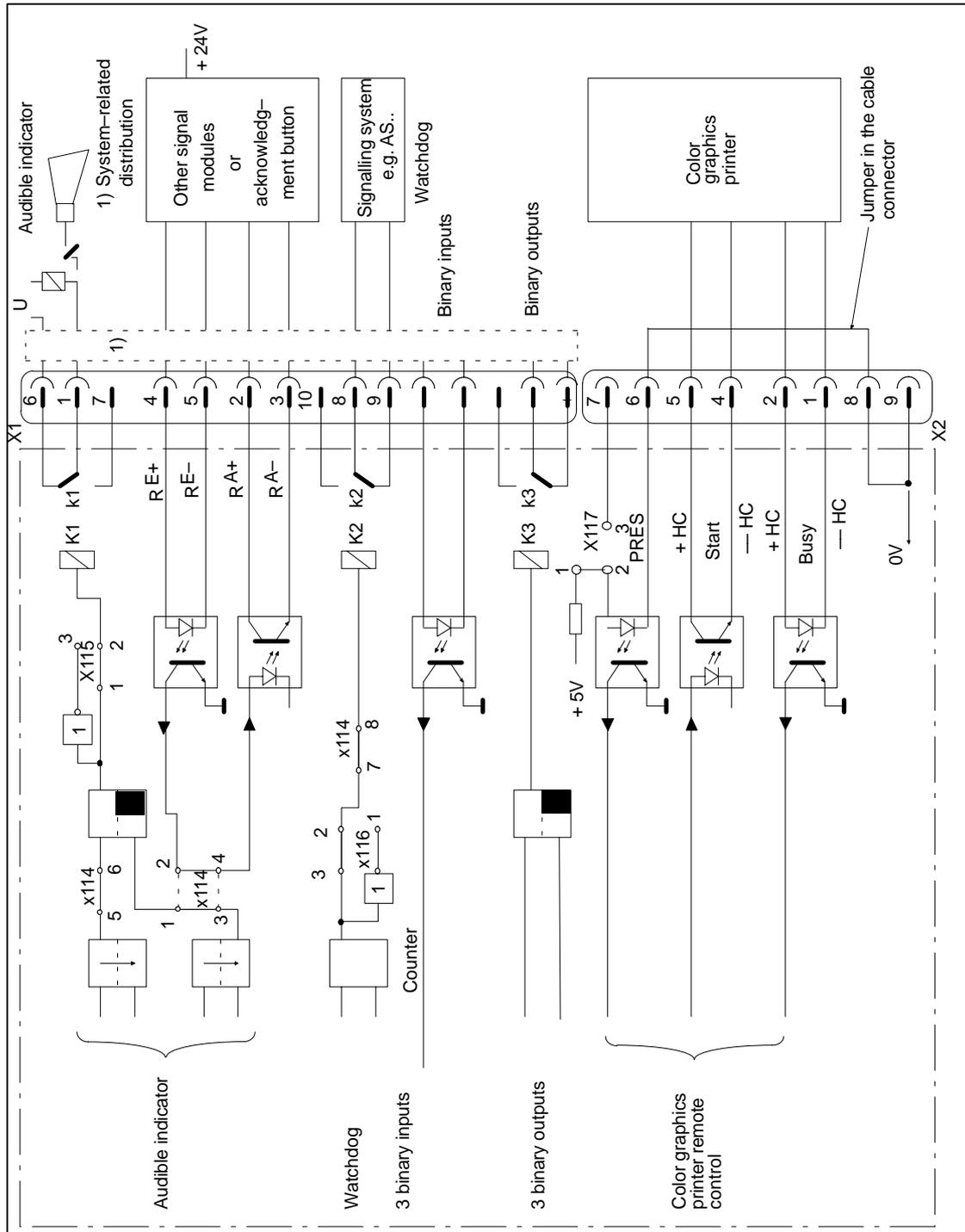

Fig. 4.9   Signal module function

Audible indicator   The audible indicator function is triggered if a classified event has arrived at the OS 525 base unit. The audible indicator can be acknowledged.

Up to 6 signal modules in mixed operation (OS 525 and OS 265) or up to 10 signal modules with OS 525 only may be connected to a parallel bar (distribution unit).
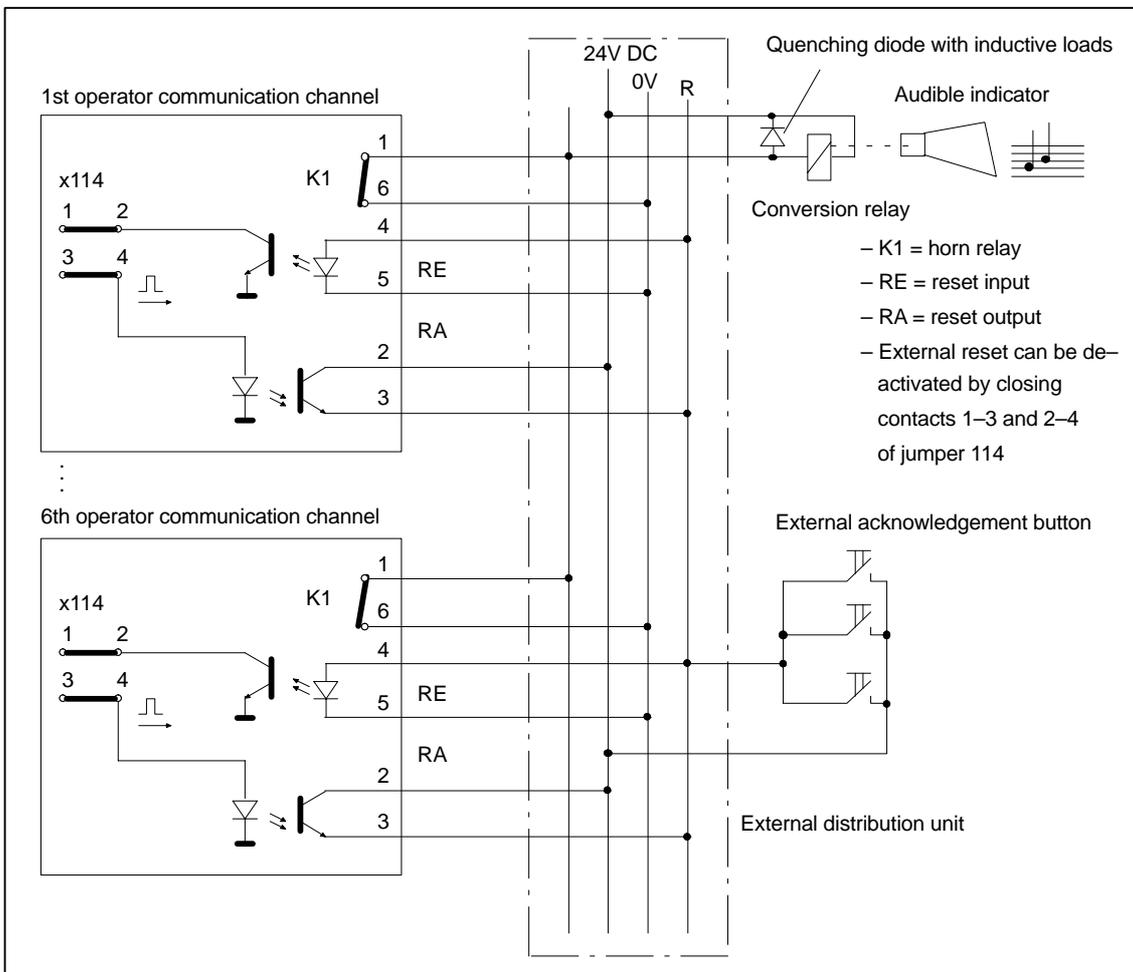

Fig. 4.10   Interconnecting several operator communication channels with additional external acknowledgement buttons

Function of the audible indicator output   The NO contact of the audible indicator output is open when the OS 525 has been switched off. The relay contact remains open when the OS 525 is switched on. The contact is closed when a classified event occurs during process control. Further events only trigger the audible indicator output after it has been acknowledged. This can be done by the "QH" key on the OS 525 or by an external "QH" button. The NC contact may be employed for inverting the function.

Acknowledging the audible indicator

The following acknowledgments are possible:

– By mouse if the horn is triggered from one channel only.
Jumper X114: 1–3 and 2–4 closed (configuration upon delivery).

– By mouse or external acknowledgment button if several channels are connected (see Fig. 4.10).
Jumper X114: 1–2 and 3–4 closed.
In this case, the acknowledgment signal is looped via several signal modules.

The audible indicator function is de–activated when the link between pins 5 and 6 of the X114 jumper is removed (Fig. 4.9).

Watchdog

The watchdog function is used for monitoring proper operation of the OS 525 (Fig. 4.9).

After power to the OS 525 has been switched on, a monostable element on the signal module is triggered cyclically. The normal trigger intervals are such that the element does not change state.

If the OS 525 base unit fails to function properly during process control, the monostable element on the signal module changes state 3.5 seconds after the last triggering impulse has occurred. The watchdog function may be inverted by appropriate setting of the X116 jumper.
2–3 of X166 are connected when the unit is delivered.

The contact may be used, for example, for triggering a binary input.

If an external audible indicator is to be connected, the watchdog output triggers a miniature contactor which in turn activates the horn (provide a quenching diode if you connect an inductive load).

Hard copy remote control

This function enables hard copy printout to be started on a CDR–series printer that has been connected to the monitor of the host. It also permits the copy function to be monitored.

Signals: PRES =   insertion control
(jumper 6–8 in the cable connector)

Start =   starts the copy

Busy =   return signal from the printer

Binary inputs/outputs

The binary inputs and outputs cannot be used at present.

4.7.2 Jumpers and Switches

Addressing and the audible indicator, watchdog and insertion control functions are selected by plug–in jumpers.
The following functions may be selected:

Slot	Jumper	Meaning
X 114	1–3*) 2–4*)	Audible indicator acknowledgment via bus interface
	1–2 3–4	Audible indicator acknowledgment by external signal
	5–6*)	Audible indicator function activated
	7–8*)	Watchdog function activated
X 115	1–2*)	Audible indicator relay makes upon an event
	2–3	Audible indicator relay breaks upon an event
X 116	2–3*)	Normal watchdog function
	1–2	Inverted watchdog functio
X 117	1–2 *)	Insertion control active by jumper 6–8 in connector
	2–3	Insertion control active by +5 V from printer
X 10	Inserted *)	Addressing in I/O range
	Not insert.	Addressing in memory range

*) State upon delivery

The signal module is addressed in the I/O range (delivery state), and occupies 16 bytes. The base address is selected by the 8–way S1 DIL switch.

If addressing in the I/O range has been selected, switch 1 defines the A4 address bit, and switch 8 the A11 address bit.

If addressing in the memory range has been selected, switch 1 defines the A10 address bit, and switch 8 the A17 address bit.

If addressing in the memory range has been selected, modify the default settings of the signal module's addresses in the configuration file (OS_CONFIG.OS) accordingly.

The following base addresses have been defined in the I/O range for OS 525:

Module 1   Base address 120H

Switch setting for OS 525: Signal module 1

1	2	3	4	5	6	7	8	
A4	A5	A6	A7	A8	A9	A10	A11	I/O base address 120 H
0	1	0	0	1	0	0	0	

S1

1 = ON   0 = OFF
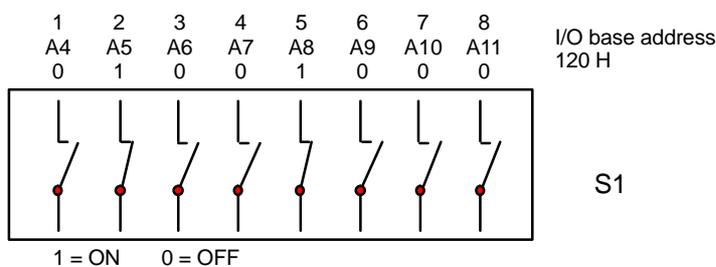
4.7.3   Connector Pin Assignments of the External Interfaces

Hard copy interface   This interface controls the output of a video hard copy on a color graphics printer.

Connector pin assignments (X2):

Pin	Signal	Description
Gehäuse	Screen	Opto–coupler
1	–HC busy	Opto–coupler
2	+HC busy	Opto–coupler
3	(not used)	_____
4	–HC start	Opto–coupler
5	+HC start	Opto–coupler
6	–Input insertion control	Opto–coupler
7	+Input insertion control	Opto–coupler
8	0 V	Opto–coupler
9	0 V	Opto–coupler

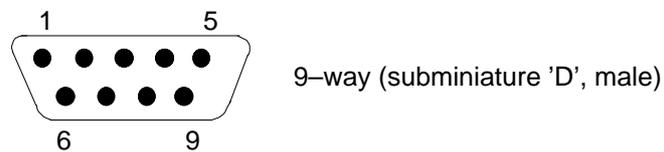9–way (subminiature 'D', male)

Fig. 4.11   Connector pin assignments of the hard copy interface

Watchdog and audible indicator interface

Connector pin assignments (X1):

| Pin	Signal	Description
1	Audible indicator M	Relay center contact
2	+ reset output	Opto–coupler
3	– reset output	Opto–coupler
4	+ reset input	Opto–coupler
5	– reset input	Opto–coupler
6	Audible indicator R	Relay NC contact
7	Audible indicator A	Relay NO Contact
8	Watchdog M	Relay center contact
9	Watchdog R	Relay NC contact
10	Watchdog A	Relay NC contact
11	+ BE 1	Opto–coupler
12	– BE 1	Opto–coupler
13	+ BE 2	Opto–coupler
14	– BE 2	Opto–coupler
15	+ BE 3	Opto–coupler
16	– BE 3	Opto–coupler
17	Output 1 M	Relay center contact
18	Output 1 A	Relay NC contact
19	Output 1 R	Relay NC contact
20	Output 2 M	Relay center contact
21	Output 2 A	Relay NC contact
22	Output 2 R	Relay NC contact
23	Output 3 M	Relay center contact
24	Output 3 A	Relay NC contact
25	Output 3 R	Relay NC contact
Housing	Screen	

25–way (subminiature 'D', male)
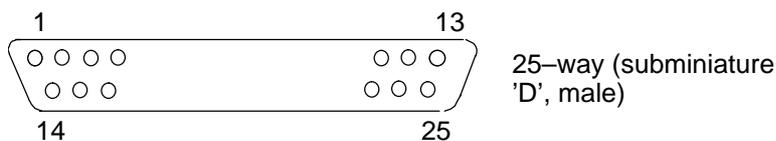
Fig. 4.12   Pin assignments of the X1 connector

Color assignment see Section 6.4.

4.8   SCSI Controller

Application   The SCSI controller is a high–performance multitasking interface be-
tween AT bus and SCSI bus (SCSI = small computer system interface).
The SCSI controller is required as a drive controller in conjunction with
the magneto–optic drive (MOD).

You can connect one or two internal drives.

Slot   The MOD controller requires one AT slot of the OS 525 bus module.

Connection   The 50–way cable provided connects the SCSI controller with the MO
drive.

Configuration   The SCSI controller is configured if an MOD is retrofitted in the OS 525.
The SCSI controller contains a menu–controlled SCSI *Select* program
that permits the major functions of the SCSI controller to be set without
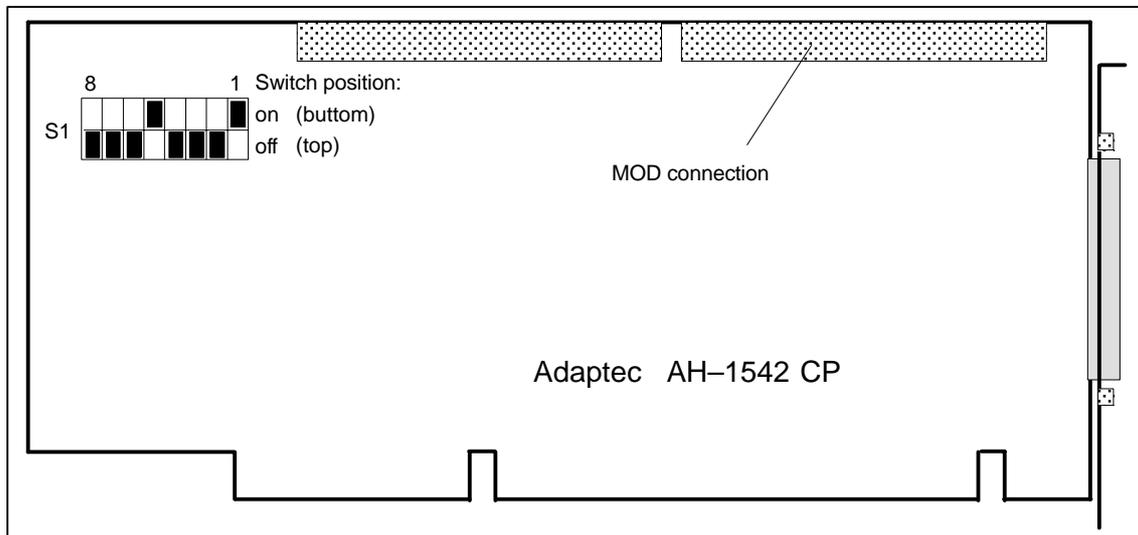actually opening the OS 525 enclosure or manipulating the module.

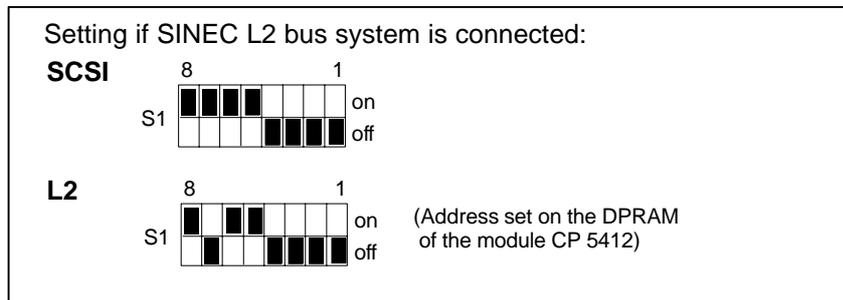*Fig. 4.13   S1 switch of the SCSI controller*

Fig. 4.14   S1 switch of the SCSI controller and the CP 5412 module with L2 operation

Note

The ambient temperature may not exceed 35 °C!

4.8.1   Configuration for an Internal MO Drive

Proceed as follows to configure the SCSI controller:

- Set switch S1 according to ig. 4.13.
- SCSI–Controller auf vorgesehenen Steckplatz stecken.
- Install the SCSI controller in the planned slot.
- Connect the MOD to the OS 525 power supply (the necessary cable exists in the OS 525).
- Connect the 50–way data cable to the MOD and the SCSI controller.
- Switch on the OS 525.
  First of all, a self–test executes.
- Once the self–test has been passed, the following message appears:

  ◄◄◄   Press <CTRL><A> for SCSI Select (TM) Utility   ►►►

  Press Ctrl–A before the message disappears. The first SCSI *Select* menu is displayed.

  Use the arrow keys ↑↓   and the <RETURN> button for selection. Press ESC to return to the previous menu.
  If you have failed to press CTRL–A in time, you must use the key switch to reset the OS 525 or cycle power to the unit off and back on.

- Press <RETURN> to confirm the displayed host adapter port address 330 (default) in the SCSI *Select* menu 1 (see Fig. 4.15).

Adaptec AHA–1540CP/1542CP ◄ SCSI Select (TM) ► Utility V2.01

- If you have only one AHA–1540CP/1542CP host adapter, press <Enter>.

- For multiple host adapters, move the cursor to the port address of the one to be configured and press <Enter>.

  <F5> – Toggle color/monochrome
  <Esc> – Exit utility

Host Adapter
Port Address
130
134
230
234
330
334

Arrow keys to move cursor, <Enter> to select option. <ESC> to exit (* = default)
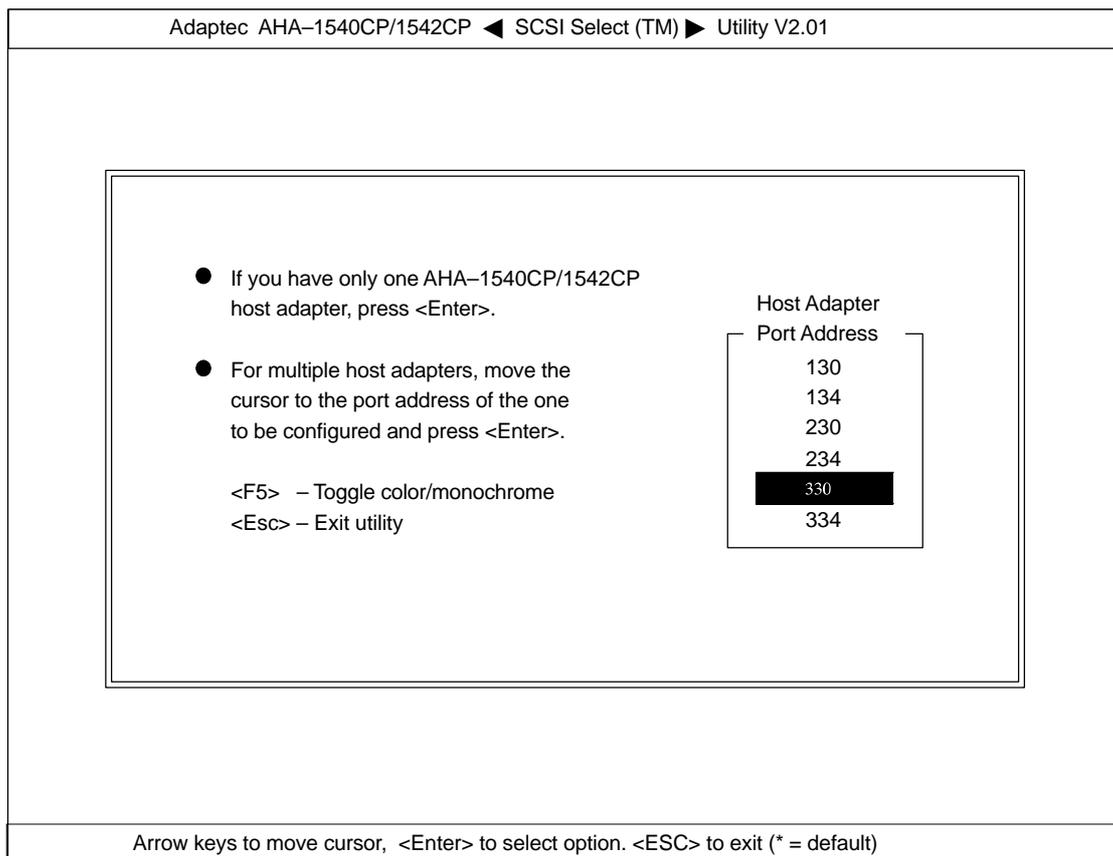

Fig. 4.15   SCSI Select menu 1

● Press <RETURN> to confirm the 'Configure/View Host Adapter Set-
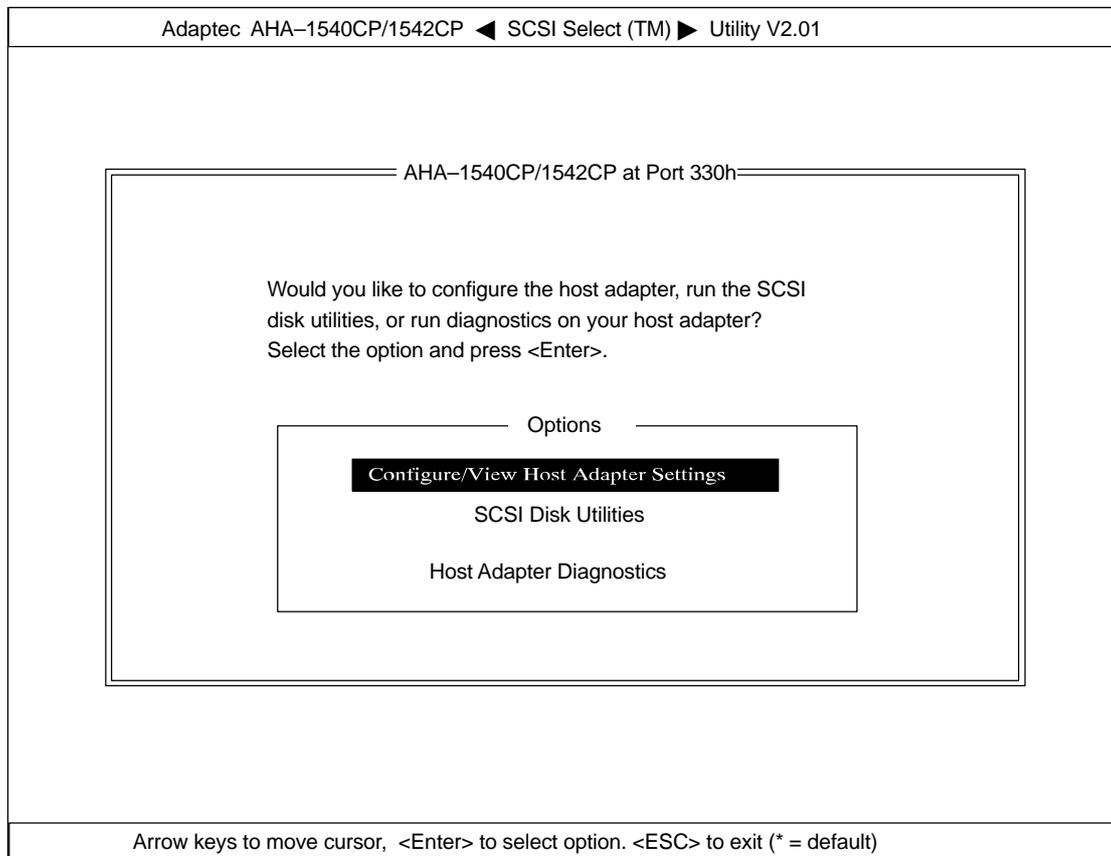tings' default selection in the subsequently displayed SCSI *Select*
menu 2 (see Fig. 4.16).

```
┌──────────────────────────────────────────────────────────────────────────┐
│          Adaptec  AHA–1540CP/1542CP  ◄  SCSI Select (TM)  ►  Utility V2.01 │
├──────────────────────────────────────────────────────────────────────────┤
│                                                                            │
│                                                                            │
│      ┌═══════════════════ AHA–1540CP/1542CP at Port 330h ═══════════════┐  │
│      │                                                                   │  │
│      │                                                                   │  │
│      │      Would you like to configure the host adapter, run the SCSI   │  │
│      │      disk utilities, or run diagnostics on your host adapter?     │  │
│      │      Select the option and press <Enter>.                         │  │
│      │                                                                   │  │
│      │                                                                   │  │
│      │              ┌───────────────── Options ─────────────────┐        │  │
│      │              │ ▓▓▓▓Configure/View Host Adapter Settings▓▓ │        │  │
│      │              │                                           │        │  │
│      │              │            SCSI Disk Utilities            │        │  │
│      │              │                                           │        │  │
│      │              │          Host Adapter Diagnostics         │        │  │
│      │              └───────────────────────────────────────────┘        │  │
│      │                                                                   │  │
│      └───────────────────────────────────────────────────────────────────┘  │
│                                                                            │
├──────────────────────────────────────────────────────────────────────────┤
│       Arrow keys to move cursor,  <Enter> to select option. <ESC> to exit (* = default) │
└──────────────────────────────────────────────────────────────────────────┘
```

Fig. 4.16   SCSI Select menu 2

- Perform the following selections in the SCSI *Select* menu 3 (see Fig. 4.17).

```
┌─────────────────────────────────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────────────────────────────────┐  │
│  │ Adaptec  AHA−1540CP/1542CP  ◄  SCSI Select (TM) ►  Utility V2.01       │  │
│  └───────────────────────────────────────────────────────────────────────┘  │
│  ┌───────────────────────────────────────────────────────────────────────┐  │
│  │ ┌─────────────────────── AHA−1540CP/1542CP at Port 330h ─────────────┐ │  │
│  │ │ ┌─ Configuration ──────────────────────────────────────────────┐   │ │  │
│  │ │ │                                                              │   │ │  │
│  │ │ │ Host Adapter Interrupt (IRQ) Channel . . . . . . 2 . . .  ▐15▌│   │ │  │
│  │ │ │ Host Adapter DMA Channel . . . . . . . . . . . . . . .     5  │   │ │  │
│  │ │ │ Host Adapter SCSI ID . . . . . . . . . . . . . . . . . .   7  │   │ │  │
│  │ │ │                                                              │   │ │  │
│  │ │ │ SCSI Parity Checking . . . . . . . . . . . . . .    Enabled  │   │ │  │
│  │ │ │ DMA Transfer Rate . . . . . . . . . . . . . . . .  5.0 MB/sec │   │ │  │
│  │ │ │ Host Adapter SCSI Termination . . . . . . . . . .   Enabled  │   │ │  │
│  │ │ │                                                              │   │ │  │
│  │ │ │ ▶ SCSI Device Configuration . . . . . . . . . . . Press <Enter> │ │  │
│  │ │ │ ▶ Advanced Configuration Options . . . . . . . .  Press <Enter> │ │  │
│  │ │ │                                                              │   │ │  │
│  │ │ │         <F6> − Reset to Host Adapter Defaults                │   │ │  │
│  │ │ └──────────────────────────────────────────────────────────────┘   │ │  │
│  │ │ ┌─ BIOS Information ───────────┐  ┌─ Firmware Information ─────────┐ │ │  │
│  │ │ │                              │  │                               │ │ │  │
│  │ │ │ Revision . . . . . . .  2.01 │  │ Revision . . . . . . .   C.O  │ │ │  │
│  │ │ │ Base Address . . . . DC000h  │  │ Checksum . . . . . . .  563Dh │ │ │  │
│  │ │ └──────────────────────────────┘  └───────────────────────────────┘ │ │  │
│  │ └───────────────────────────────────────────────────────────────────┘ │  │
│  └───────────────────────────────────────────────────────────────────────┘  │
│  ┌───────────────────────────────────────────────────────────────────────┐  │
│  │ Arrow keys to move cursor,  <Enter> to select option. <ESC> to exit (* = default) │
│  └───────────────────────────────────────────────────────────────────────┘  │
└─────────────────────────────────────────────────────────────────────────────┘
```

Fig. 4.17   SCSI Select menu 3

'Host Adapter Interrupt Channel' has been set to the default value of 11. Click on 11 to display the possible interrupt channels. Use the arrow keys to select interrupt channel 15 and press <RETURN> to confirm.

- Perform the following actions to terminate the SCSI *Select* program and to save the selections.
    - Press ESC until the following message is displayed (see Fig. 4.18).

```
┌──────────────────────────────────────────────────────────────────┐
│  Adaptec  AHA–1540CP/1542CP ◄ SCSI Select (TM) ► Utility V2.01     │
├──────────────────────────────────────────────────────────────────┤
│                                                                    │
│   ●  If you have only one AHA–1540CP/1542CP        Host Adapter    │
│      host adapter, press <Enter>          Port Address             │
│                              ┌─────────────────┐      130          │
│                              │   Exit Utility? │                   │
│   ●  For multiple host ada   │                 │      134          │
│      cursor to the port ad   │      Yes        │      230          │
│      to be configured and    │      No         │      234          │
│                              └─────────────────┘      330          │
│      <F5>  – Toggle colo                              334          │
│      <Esc> – Exit utility                                          │
│                                                                    │
├──────────────────────────────────────────────────────────────────┤
│   Arrow keys to move cursor,  <Enter> to select option. <ESC> to exit (* = default) │
└──────────────────────────────────────────────────────────────────┘
```
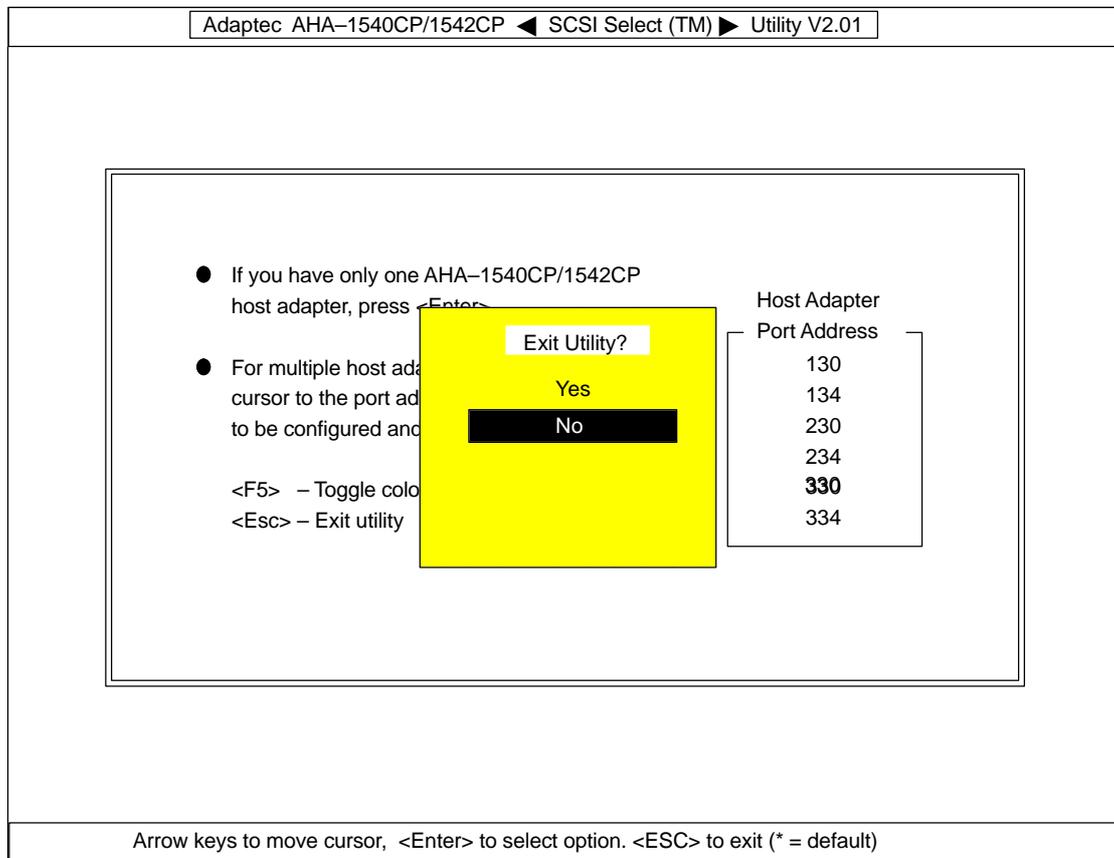
Fig. 4.18   SCSI Select menu 4

- Use the arrow keys to select YES and press RETURN to confirm.
- Press any key to confirm the message 'Please press any key to reboot'. The system performs a warm restart.
- Switch off the OS 525.
- Set the S1 switch as shown in Fig. LEERER MERKER.

```
        8            1  Switch position:
    ┌──────────────┐
S1  │ ■ ■ ■        ■ │ on  (buttom)
    │       ■ ■      │ off  (top)
    └──────────────┘
```

Fig. 4.19   S! switch of the SCSI controller

⚠ **Note**

Switch position to switch off the BIOS.
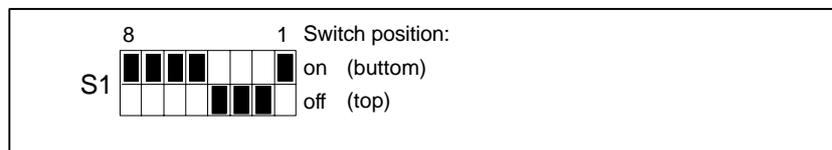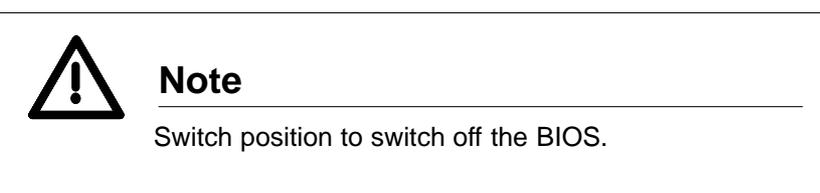
- Switch on the OS 525. The system configuration requires certain settings to be made after the system has started up (see Section 3).

4.9   Radio–Controlled Clock Module

The radio–controlled clock module (FU–AT) must be installed in a free AT slot of the OS 525 base unit.

4.9.1   FU–AT Function

The radio–controlled module FU–AT comprises a radio–controlled clock (radiotransmission submodule), a battery–buffered crystal–controlled real–time clock (RTC) and a 4–bit digital input on one board (Fig. 4.20). In the case of radiotransmission clock mode, the signals of the DCF 77 time signal transmitter or the crystal–controlled real–time clock are used for synchronization purposes; in the case of minutes pulse mode, synchronization is via the digital inputs.
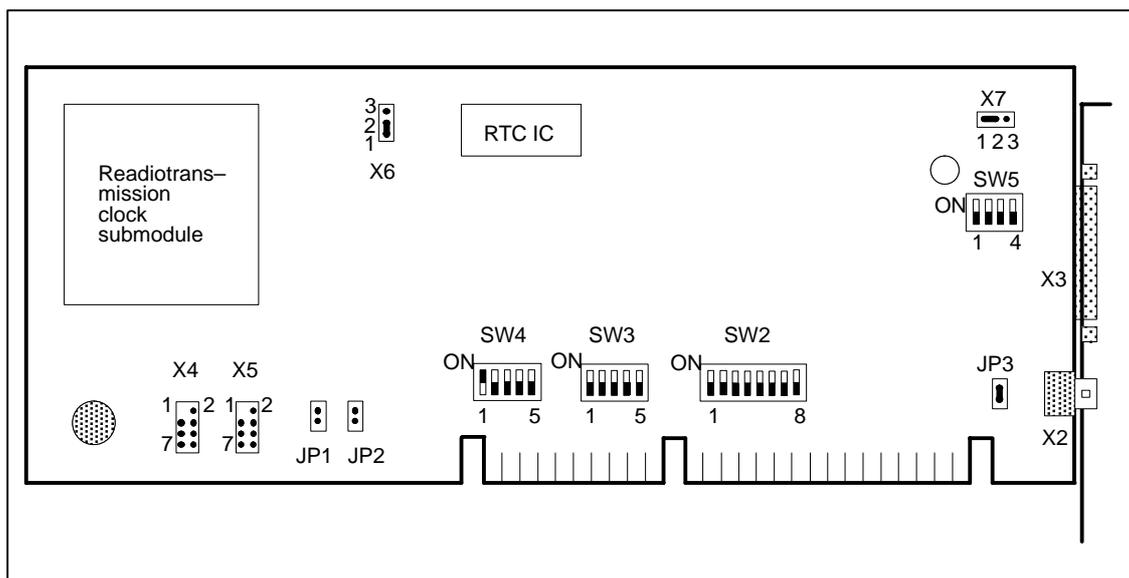
Fig. 4.20   Radio–controlled clock module FU–AT (switch positions for radio–controlled clock mode)

The FU–AT consists of a printed–circuit board with long AT format and a ferrite antenna with a 10–m triaxial connection cable.

The radiotransmission submodule is present on the left side of the module (Fig. 4.20). There are two connections on the front panel on the right side of the module:

– A BNC socket (X2) for connecting the antenna for reception of signals from the DCF 77 time signal transmitter in Frankfurt/Main.
– A 25–way connector (subminiature 'D', female) as an external interface for the digital inputs (X3).

Radio– controlled clock modes

- If the time signals from the DCF 77 transmitter are received without interferences for a complete minute, the crystal–controlled clock in the submodule (not to be confused with the crystal–controlled real–time clock (RTC) on the radiotransmission clock module (FU–AT)) is synchronized with this time.
This operating state of the radio–controlled clock is referred to as "Single precision" (+/– 8 ms).

- Provided the DCF 77 signal is still received perfectly, the crystal–controlled clock seconds in the submodule are synchronized by a special control function. **This operating state of the radio–controlled clock is referred to as "High precision" (+/– 1 ms).**
Depending on the position of reception, up to 10 minutes may pass before this operating state is attained.

- If the DCF 77 transmitter fails of if reception is faulty, synchronization of the crystal–controlled clock in the submodule with the absolute time is automatically suppressed. The clock function then continues with the crystal accuracy.
This operating state of the radio–controlled clock is referred to as "Crystal mode".

- The internal crystal–controlled clock of the radiotransmission clock submodule contains a voltage buffer for approx. 3 days. The buffer capacitor of the radiotransmission clock submodule is still empty when commissioning for the first time or following a longer shut–down period.
This operating state of the radio–controlled clock is referred to as "Invalid time".
Up to 3 minutes may pass until the "Crystal mode" of the radiotransmission clock submodule is activated.

Changes to the operating mode, if applicable, always take place when the minutes change.

The 4 possible operating states of the radio–controlled clock are summarized below:

- High precision (+/– 1 ms)
- Single precision (+/– 8 ms)
- Crystal mode
- Invalid time

4.9.2   Switches and Plugs on the FU–AT

The positions and settings of the switches and plug–in jumpers (plug connectors) on the radiotransmission clock module FU–AT are shown in Fig. 4.20 (switch positions for radio–controlled clock mode).

Explanation of plugs, switches and jumpers:

X2	BNC socket for connection of antenna
X3	25–way connector (subminiature 'D', female), see Section 4.10.3 for pin assignments
X4, X5	Plug connectors
JP1, JP2	These jumpers must never be inserted with the OS 525.
JP3	This jumper must always be inserted.

The following jumper and switch positions depend on the operating mode of the OS 525.

Radio–controlled clock mode

The possibility of using a cyclic interrupt is available in order to be able to synchronize processes oriented according to the absolute time.

Using switches SW4.1 to SW4.5, one of the interrupts can be assigned to the base units IRQ09 to IRQ12 or IRQ15.
IRQ 9 is used for the OS 525.

Jumper X6 must be set to position 1–2 in addition so that the interrupt signals of the radiotransmission clock are connected to the currently assigned interrupt line of the base unit.

X6: Position 1–2:   Interrupt source: Radio–controlled clock
(the hardware interrupt is assigned to the base unit using SW4.1 = IRQ 9)

X7: Position irrelevant for OS 525.

SW4.1 to SW4.5:   DIP switches to assign the interrupt signals of the radio–controlled clock (X6 in position 1–2) to the interrupt line of the base unit (IRQ09)

–	SW4.1 → IRQ9	ON
–	SW4.2 → IRQ10	OFF
–	SW4.3 → IRQ11	OFF
–	SW4.4 → IRQ12	OFF
–	SW4.5 → IRQ15	OFF

Minutes pulse mode

This mode uses an externally generated pulse which is repeated every minute to achieve synchronization or to generate an interrupt. The conductor with the pulses can be connected to any digital input of the radio-transmission clock.

The table of Fig. 4.20 shows the pin assignments of the 25–way connector.

Each of the 4 digital inputs DI0 to DI3 can be used to generate the interrupt. This is configured using switches SW2.5 to SW2.8 (corresponding to DI0 to DI3, respectively).

The interrupt is generated by a positive or negative edge of the input signal.

The edge polarity can be set using switches SW2.1 to SW2.4 (corresponding to DI0 to DI3, respectively).

The pulse duration must be at least 1 μs in order to generate an interrupt.

SW2.1 to SW2.8:   DIP switches for interrupt generation via the digital inputs DI0 to DI3.

– SW2.1 $\rightarrow$ DI0   ON: Generate interrupt with positive
– SW2.2 $\rightarrow$ DI1   edge at digital input DIx (provided SW2. (x+4) in
– SW2.3 $\rightarrow$ DI2   switch position ON)
– SW2.4 $\rightarrow$ DI3   OFF: Generate interrupt with negative edge at digital input DIx (provided SW2.(x+4) in switch position ON)

– SW2.5 $\rightarrow$ DI0   ON: The signal at digital input DIx
– SW2.6 $\rightarrow$ DI1   should generate an interrupt.
– SW2.7 $\rightarrow$ DI2   OFF: The signal at digital input DIx
– SW2.8 $\rightarrow$ DI3   should not generate an interrupt.

SW3.1 to SW3.5:   DIP switches for assignment of interrupt signals of digital inputs to one of the interrupt lines of the basic unit (IRQ09 to IRQ12, IRQ15).
IRQ 9 is used for the OS 525.

SW3.1 $\rightarrow$ IRQ9   ON
SW3.2 $\rightarrow$ IRQ10   OFF
SW3.3 $\rightarrow$ IRQ11   OFF
SW3.4 $\rightarrow$ IRQ12   OFF
SW3.5 $\rightarrow$ IRQ15   OFF

SW5.1 to SW5.4:   DIP switches for definition of trigger signals (bipolar or TTL level) of digital inputs (DI0 to DI3).
Bipolar is set for the OS 525.

– SW5.1 $\rightarrow$ DI0   OFF
– SW5.2 $\rightarrow$ DI1   OFF
– SW5.3 $\rightarrow$ DI2   OFF
– SW5.4 $\rightarrow$ DI3   OFF

4.9.3 Pin Assignments of External Interface

The 25–way connector (subminiature 'D', female) of the external interface is located on the front panel on the right side of the FU–AT. The external connection is established via this plug. If the FU–AT is fitted in the base unit, the plug is accessible at the rear of the basic unit.

The following table shows the pin assignments of the 25–way connector.

Pin	Signal	Pin	Signal
1	Minutes pulse output	14	Minutes pulse output
2	Watchdog signal	15	Watchdog signal
3	Digital output 0 (DO0)	16	Digital output 0 (DO0)
4	Digital output 1 (DO1)	17	Digital output 1 (DO1)
5	Digital output 2 (DO2)	18	Digital output 2 (DO2)
6	Digital output 3 (DO3)	19	Digital output 3 (DO3)
7	GND	20	**Digital input 3** (DI3) bipolar
8	Digital input 3 (DI3) TTL	21	**Digital input 3** (DI3) bipolar
9	**Digital input 2** (DI2) bipolar	22	Digital input 2 (DI2) TTL
10	**Digital input 2** (DI2) bipolar	23	**Digital input 1** (DI1) bipolar
11	Digital input 1 (DI1) TTL	24	**Digital input 1** (DI1) bipolar
12	**Digital input 0** (DI0) bipolar	25	Digital input 0 (DI0) TTL
13	**Digital input 0** (DI0) bipolar		

The digital inputs printed in bold type are provided for the minutes pulse.

25–way (subminiature 'D', female) Screw locking
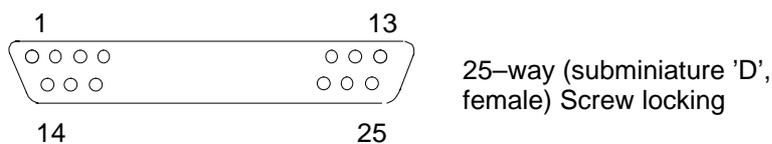
Fig. 4.21   Pin assignments of external interface

Minutes pulse output   Not used by OS 525.

Watchdog signal   Not used by OS 525.

Digital outputs   Not used by OS 525.

Digital inputs   4 digital inputs are available. Each input is triggered by a floating, bipolar signal

–	+12V to +60V	→	logical "1"
–	–12V to –60V	→	logical "1"
–	–5V to +5V	→	logical "0"

The input current is between 2.5 mA at +12 V and 25 mA at +60 V in the case of bipolar triggering.

The date/time information is imported by the OS 525 at every complete minute.

When receiving a pulse for minutes synchronization, a differentiation is made as to whether the seconds counter is less than or greater than 30.

Seconds counter < 30   →   Seconds counter set to 0

Seconds counter $\geq$ 30   →   Seconds counter set to 0 and minutes counter incremented by 1.

Examples:

12 : 34 : 30   →   12 : 35 : 00

12 : 23 : 48   →   12 : 24 : 00

08 : 17 : 07   →   08 : 17 : 00

© Siemens AG C79000–B8076–C522 E4

4.10 Extensions

You may enhance and thus customize the OS 525 functions by connecting external devices and extending the hardware.

4.10.1 Installing Extension Modules, Slot Assignments

Provided that there are enough free slots for modules on the base unit bus module, the modular structure of the OS 525 permits the OS 525 base model to be modified or upgraded.

The PC RI45 has 5 vacant slots.

The following modules can be used:

- – Local bus interface N–AT
- – Bus interface SINEC L2 (CP5412 A1)
- – Terminal bus interface SINEC H1 (CP1413)
- – Signal module (SBG)
- – Graphic interface HIGRAF 2
- – Radiotransmission clock FU–AT
- – SCSI controller for connection of a MOD
- – Monitoring module SAVE–Card (always at slot 6)

The following table shows you the possible slot assignments. Refer to Fig. 4.22 for the slot positions.

Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
N–AT	FU–AT	CP1413	HIGRAF 2	SCSI	SAVE–Card
CP5412	SBG		SBG	SBG	
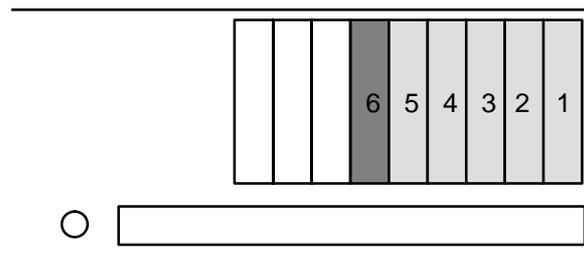
PC RI45 Rear view

Fig. 4.22   Slot positions of the PC RI45

Please observe the following instructions before you unpack one of these modules or install them in the base unit:

As the electronic components on the printed circuit boards are very sensitive to static electricity, certain precautions must be taken when they are handled. These measures are specified in the "Guidelines for Handling Electrostatically Sensitive Devices".

Static–sensitive components are identified by the following label:
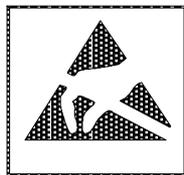
Fig. 4.23   Warning label for static–sensitive components

Removing and installing components are described in the SIMATIC PC RI45 Manual.

4.10.2   Installing the HIGRAPH 2 Graphics Interface

The supplementing of a host with an input channel means that it is also necessary to insert the HIGRAF 2 graphics interface. Insert the module into slot 4 (see Section 4.10.1 for slot assignments).

(For information on the internal VGA, please refer to the Technical Description SIMATIC PC RI45.)

Settings required on the HIGRAPH 2 module

The S1 DIL switch on the graphics interface module is used for module identification. Only this switch need to be set on the module.

Fig. 4.6 shows the location of the S1 witch.
The functions of the individual switches S1_1 through S1_8 are described in Section 4.6.

Software configuration

Perform the concerned settings with OS–SET after HIGRAPH 2 installing (see Section 3).

4.10.3   Installing the N–AT Local Bus Interface

The N–AT module is inserted in slot 1 (see Section 4.10.1 for slot assignments).

Jumper and switch settings

For jumper and switch setting cf. Section 2.1.

Software configuration

Perform the concerned settings with OS–SET after N–AT installing (see Section 3).

4.10.4   Installing the Signal Module

The signal module is inserted in a free AT slot.

Slot 2, 4 or 5 depending on configuration (see Section 4.10.1 for slot assignments).

Jumper and switch settings

The functions of the jumpers and switches is described in Section 4.7.2 (signal module).

Software configuration

Perform the concerned settings with OS–SET after the signal module installing (see Section 3).

4.10.5   Installation of Radio–Controlled Clock FU–AT

The FU–AT module is inserted in slot 2 (see Section 4.10.1 for slot assignments).

☞   As the FU–AT module is a piggyback module the terminal bus interface SINEC H1 (CP1413) has to be inserted in slot 3.

Switch and jumper and switch settings for OS 525

The switch and jumper settings of the FU–AT as well as their functions for OS 525 are described in Section 4.12.2.
Set all switches and jumpers of the FU–AT **before** inserting the module as appropriate for use in the OS 525 base unit.

Antenna installation

The BNC socket for the antenna connection is located on the front panel of the radio–controlled clock module FU–AT (see Fig. 4.23).

Following installation of the radiotransmission clock module, this BNC socket on the rear panel of the basic unit points to the outside.

Connect the supplied antenna to this socket with the base unit switched off.

The following points must be observed:

–   The supplied antenna (for internal installation, not weatherproof) has a 10–m cable.
–   The antenna must be installed perpendicular to the propagation direction of the transmitter. The arrow on the antenna housing must be pointed to the location of the transmitter (Frankfurt/Main).
–   Display units and TV sets may interfere with reception! It may therefore be necessary to install the antenna at least 5 m away from sources of interference.
–   Reinforced concrete structures as well as ferromagnetic screens (e.g. corrugated iron roofs) are largely impervious to RF.
    It may be advisable to install the antenna outdoors in such cases. Weatherproof outdoor antennas are then required, however. The use of an indirect lightning protector is advisable if the antenna is fitted outdoors.
    A ”indirect lightning protection” is recommended in case of an outdoor antenna.

Software configuration

Perform the concerned settings with OS–SET after FU–AT installing (cf. Section 3).

4.10.6   Installing Magneto–Optic Drive and SCSI Controller

The retrofitting of a MOD means that it is also necessary to install the SCSI controller (AHA–1542CP).

The following MOD is used: SMO F531

4.10.6.1 Installing of MO Drive

An MO drive requires an FP slot on the device front.

The power supply connection is already prepared in the basic unit. Loosen the connection of the power supply cable and connect the 4–pin plug to the power supply connection in the top right corner at the rear of the MO drive (Fig. 4.24).

Fig. 4.25 shows the pin assignments.
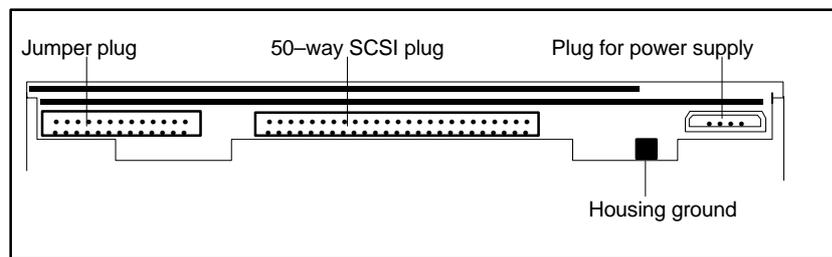
Fig. 4.24   Rear view of MO drive

Pin No.	Voltage
1	+ 12 V DC +/– 5 %
2	12 V DC (return line)
3	5 V DC (return line)
4	+ 5 V DC +/– 5 %

Fig. 4.25   Pin assignments of power supply plug

The 50–way ribbon cable with the two 50–way connectors (contained in retrofitting set) is used to connect the SCSI controller. The counterplug on the SCSI controller is located on the top edge of the module.

Jumper settings on MO drive

A connector with 10 plug pairs for plug–in jumpers is located at the top left corner on the rear of the MO drive (counted from left to right).
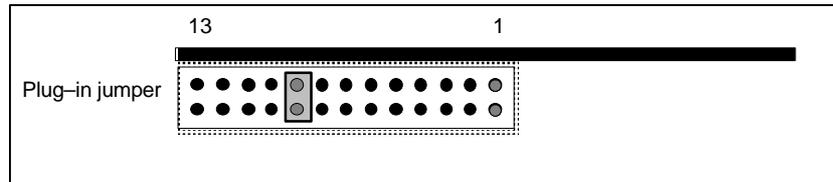
Fig. 4.26   Jumper plug on the rear of the internal MO drive

Jumper settings

Jumper setting for an internal drive:

only insert jumper 9 (termination)

☞   Refer to Section 4.8 for the settings in the SCSI set.

External MOD

The Sony RMO–S594 device type can be used as external MOD.

Settings

SCSI setting:

The SCSI–ID has to be set to 6 on the rear of the device.

RMO setting:

Set the function switch on the rear as shown Fig. 4.27.

Fig. 4.27   Function switch on the rear of the external MO drive

Refer to the Instructions supplied with the device for more details.

4.10.6.2 Installation of SCSI Controller

The SCSI controller requires an AT slot on the bus module.
It is inserted in slot 5 (see Section 4.10.1).

Installation

Proceed as follows to install the SCSI controller:

– Dismount the module retainer.
– Remove the slot cover and store in a safe place (the cover must be fitted again to ensure correct cooling should you remove the module again).
– Insert the module into the provided slot.
– Screw the slot cover of the SCSI controller onto the rear panel of the housing.
– Connect the 50–way ribbon cable to the SCSI controller (the brown conductor of the ribbon cable belongs to pin 1 of the plug) and route it downwards and then to the side.
– Connect the counterplug to the SCSI plug of the MO drive (ensure correct polarity, brown conductor to pin 1 of plug).
– Re–install the module retainer.

Software configuration

Software configuration settings are required (cf. Section 4.11).

4.10.6.3 Settings in the System Configuration

You must still carry out settings in the system configuration following in-stallation of the SCSI controller and MO drive (cf. Section 3).

4.10.6.4 Fitting of monitoring module SAVE–Card

Always insert the monitoring module into slot 6.
Please refer to the Manual or the Technical Description of the PC RI45 for fitting, driver installation and a description.

4.11   Technical Specifications

OS 525

Refer to the SIMATIC PC RI45 Manual
(Order No. C79000–G7084–C780) and the
Technical Description
(Order No. C79000–G7084–C781).

MO drive

Disk format	5.25 ”
Storage capacity	2.3 GB (512 Byte / Sector)
	1.2 GB (512 Byte / Sector)
Data transfer	
(1024 Byte / Sector)	1.0 – 2.0 MB/s
(512 Byte / Sector)	0.94 – 1.8 MB/s
Power consumption	DC +5 V, 1.0 A
	DC +12 V, 0.6 A typ.
PC ambient temperature	$\leq$ 35 °C

N–AT module

Local bus interface	20–m local bus, input/output, redundant, wired–or, asymmetrical, isolated
Levels on 20–m local bus	
Input:	$\geq$ 2.0 V = High
	$\leq$ 0.8 V = Low
Output:	$\geq$ 2.7 V = High
	$\leq$ 0.7 V = Low
Data rate	40 kbits/s (self–contained local bus)
	250 kbits/s (remote bus interface via inductive converter)
Devices	20 m local bus: max. 9 (voltage difference between device ground $\leq$ 2 V)
Data integrity	Block parity (d=4)
Mode	Half–duplex

CP 5412 A1

Connection to SINEC L2	9–way (sub–miniature 'D', female)
Connection to SINEC L2FO	HP duplex socket for fibre–optic line
Supply voltage	DC + 5 V
Space	Short AT
Ambient temperature	$\leq$ 30° C
– Operation	0 to 55° C
– Storage	– 40 to + 70° C
Humidity class to DIN 40040	F (max. 95% at 25° C)

**HIGRAPH 2
graphics interface**

Grafics processor	TMS 34010 (TI), 50 MHz
Main memory	2 MB DRAM
Image memory (video RAM)	1 MB RAM
Resolution	640x480, 1024x768 pixels
Image refresh rate	60 Hz
Colors	256 attribute combinations (blinking frequency 0.5; 2; 8 Hz)

CP 1413 communication processor	Circuitry structure:	
	Microprocessor	80386 SX
	ETHERNET controller	82596 SX
	ETHERNET serial interface	82C501 AD
	Memory configuration:	
	Dynamic RAM	Max. 1.768 MB
	DPRAM	Max. 256 KB
	Connectors:	
	PC/PG connection	AT connector
	SINEC H1 connection	15–way subminiature "D" connector
	upply voltage	+ 5 V, + 10%
	Current consumption	Approx. 1.5 A (at + 5 V)

Signal module	Audible indicator	
	– Relay output	Contact load DC 24 V, max. 200 mA
		If you switsch inductive load you have to fit suppressor diodes
	– Reset output	Transistor output DC 24 V, max. 100 mA
		Up to 6 signal modules in mixed operation (OS 525 and OS 265)
		Up to 10 signal modules with OS 525 only
	– Reset input	Input voltage low –33 V to + 5 V
		Input voltage high + 13 V to + 33 V
		Input voltage DC 24 V
		Input current + 2 mA to 7,5 mA
		Operating frequency max. 100 Hz
	Cable length	Max. 50 m
	Watchdog	
	– Relay output	Contact load DC 24 V, max. 200 mA
		If you switsch inductive load you have to fit suppressor diodes
	Hardcopy	
	– Output	Transistor output DC 24 V, max. 100 mA
	– Input	Input voltage low –33 V to + 5 V
		Input voltage high + 13 V to + 33 V
		Input voltage DC 24 V
		Input current + 2 mA to 7,5 mA
		Operating frequency max. 100 Hz

Radiotransmission clock (FU–AT)	Time signal receiver (radiotransmission submodule) with capacitor backup of internal crystal–controlled clock	
	Backup time	Max. 3 days
	4–bit digital output	Via relay contacts
	Loading capacity of relay contacts	60 V / 1 A
	4–bit digital input	
	Bipolar	Input current 2.5 mA at 12 V, 12 mA at 60 V
	TTL level	Max. input current 4 mA at 0 V
	Interrupt generation	Edge–controlled via digital input selectable for each input, edge polarity selectable
	Teal–time clock (RTC) with lithium battery backup	
	Basic accuracy	+ /– 20 ppm
		can be adjusted and read by OS
	Antenna	For indoor installation
	Length of connection cable	10 m

Contents Section 5

5   I/O Devices

This chapter provides an overview of the I/O devices that can be connected to the OS 525 system.   5 – 3

The OS 525 needs the following I/O devices for operation:

- Monitor
- Keyboard
- Mouse/trackball
- Printer

5.1   The PM54/C2 Multi–Standard Color Monitor

Brief description

The high–resolution low–radiation multi–standard 54–cm color monitor has been designed to meet the high requirements of industrial applications.

Its wide synchronization range permits connection to a variety of monitor systems to be made.

The unit boasts the following special features:

- Multi–standard operation (up to 20 different standards can be stored from the outside)
- Anti–glare black matrix tube, dark glass, antistatic coating
- Line frequency between 15.6 and 58 kHz
- Image refresh rate between 45 and 120 Hz
- Resolution up to 1280 x 1024 pixels
- Low radiation to MPR II recommendation
- A microprocessor controls all major functions
- Automatic color representation stabilization provides for ageing of the tube
- Automatic contrast control with external light sensor (–0FA0 only)
- 24–h de–gauss automatic for continuous operation
- Isolation between video ground and protective ground
- Integrated cable equalizer for up to 500 m coaxial cable

**Technical Speci-
fications**

Mechanical data

Enclosure	PU compact foam, color "ergo" gray
Dimensions (w x h x d)	484 x 421x 503
Weight	Approx. 30 kg

CRT

Format	54 cm (21 inch)
Distance between color triples	0.31 mm
Optical resolution	Max. 1100 x 800 (h x v) pixels
Phosphor	P22, medium–short persistence
Convergence	Max. 0.3 mm in the screen center
	Max. 0.5 mm at the screen margin
De–magnetization	When the unit is switched on
	Automatically every 24 hours

Power connection

Mains voltage	230 V, +15%/–15%, internal selector for 115 V, +15%/–15%
Mains frequency	47 – 63 Hz
Power consumption	Approx. 140 W / 200 VA
Switch–on current	Max. 10 A at 230 V

Signal inputs

R, G (S), B, H/S, V, M	6 x BNC input
RGB, analog and TTL	15–way subminiature 'D' socket
Rated RGB level	0.7 V_{pp} to 75 Ω (without S)
Rated G(S) level	1.0 V_{pp} to 75 Ω (S in green = 0.3 V_{pp})
R (S), B (S)	S signal component in R and B does not interfere
Rated H/S level	1.0 V_{pp} to 75 Ω, any polarity
75–Ω terminators	Selectable
S source	S to green, S_{ext} automatically selected

Integrated cable repeater for a maximum distance of 500 meters from the video source.

Synchronization range

Line frequency	15.6 – 58 kHz
Image refresh rate	45 – 120 Hz

Video amplifier

Band width	80 MHz / –3 dB

Ambient conditions

Temperature	+ 5 °C to + 40 °C ii operation
Humidity	95 % at 25 °C
Degree of protection	IP 30 to DIN 40050

Safety and EMC

Safety	VDE 0805, EN 60950, IEC 950
Interference suppression symbol	To decree 1064/1984
Interference radiation	To VDE 0871/curve B
X–ray radiation	Max. 1.0 μSv/h (intrinsically safe tube)

1	X2; Remote control connector
2,3,4	Connectors for the R, G, B color signals
5	S1 switch: For R, G, B color signals and horizontal synchronization
	(I = 75 Ω added)
6	S5 switch: Selector for analog/TTL signal inputs
7	Cable equalizer for R, G, B (cable lengths between 100 and 500 meters)
8	X1: Key switch connector
9	X4: Touch screen connector
10	Fuses
11	Power cable connector
12	VGA input (analog) / TTL input
13	Mod. signal, analog/TTL (video input) selection
14	Separate vertical sync impulse
15	Separate horizontal sync impulse

Fig. 4.1   Connector field of the PM54 process monitors

Please refer to the Operating Instructions
(Order no. C79145–A3072–X100) for details.

5.2   SM 2185 Multi–Standard Color Monitor

The SM 2185 high–resolution multi–standard color monitor has been designed for applications with particularly high requirements placed upon the image quality.

It boasts the following special features:

- Multi–standard operation (up to 20 different standards can be stored from the outside)
- Anti–glare black matrix tube, dark glass, antistatic coating
- Line frequency between 30 and 85 kHz
- Image refresh rate between 45 and 120 Hz
- Resolution up to 1600 x 1200 pixels
- Low radiation to MPR II recommendation
- Power–down management
- A microprocessor controls all major functions
- Automatic color representation stabilization provides for ageing of the tube
- Selectable white adjustment (6500*K, 7500*K, 9300*K)
- Automatic contrast control with external light sensor (–0FA0 only)
- 24–h de–gauss automatic for continuous operation
- Disconnectable link between video ground and protective ground

Technical Specifications

Mechanical data

Enclosure	PU compact foam, ergo–gray
Dimensions (w x h x d)	490 mm x 470 mm x 510 mm
Weight	Approx. 28 kg

CRT

Format	54 cm (21 inch)
Screen diagonal	500 mm
Distance between color triples	0.29 mm
Optical resolution	Max. 1100 x 800 (h x v) pixels
Phosphor	P22, medium–short persistence
Convergence	Max. 0.3 mm in the screen center
	Max. 0.4 mm at the screen margin
De–magnetization	– When the unit is switched on
	– Automatically every 24 hours

Power connection

Mains voltage	230 V, +15%/–15%, internal selector for 115 V, +15%/–15%
Mains frequency	47 – 63 Hz
Power consumption	Approx. 120 W / 180 VA
Switch–on current	Max. 10 A at 230 V

Signal inputs

R, G(S), B, H/C, V, M	5 x BNC input
RGB, analog and TTL	15–way subminiature 'D' socket
Rated RGB level	0.7 V_{pp} to 75 Ω (without S)
Rated G(S) level	1.0 V_{pp} to 75 Ω (S in green = 0.3 Vpp)
R (S), B (S)	S signal component in R and B does not interfere

Rated H/S level	1,0 V_{pp} to 75 Ω, any polarity
75–Ω terminators	Selectable
S source	S to green, S_{ext} automatically selected

Synchronization range

Line frequency	30 to 85 kHz
Image refresh rate	45 to 120 Hz

Video amplifier

Band width (–6 dB limit)	140 MHz / 30 V_{pp} (BNC–input)
	80 MHz / 30 V_{pp} (submin. 'D' input)

Ambient conditions

Temperature	+ 5 to + 40 °C in operation
Humidity	95 % at 25 °C
Degree of protection	IP 30 to DIN 40050

Safety and EMC

Safety	VDE 0805, EN 60950, IEC 950
Interference radiation	To VDE 0871/curve B
X–ray radiation	Max. 1.0 μSv/h (intrinsically safe tube)

Fig. 4.2   Connector field of the SM 2185 process monitor

1	Power cable connector
2	Fuses
3	X2: Remote control connector
4	Separate vertical sync impulse
5	Separate horizontal sync impulse
6; 7; 8;	Connectors for the R, G, B color signals
9	S1 switch: For R, G, B color signals and horizontal synchronization
10	VGA input (analog) / TTL input
11	S5 switch: Selector for analog/TTL signal inputs
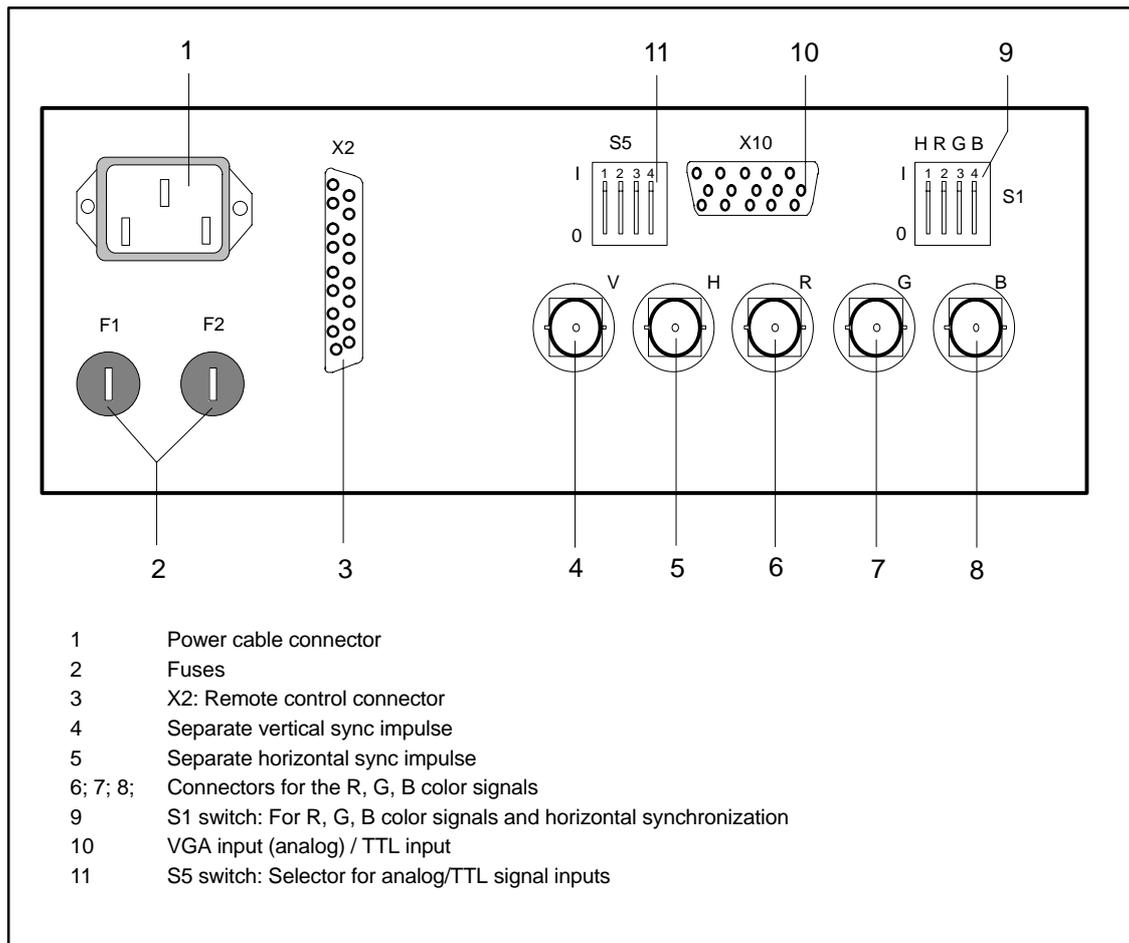
Please refer to the Operating Instructions
(Order no. C79145–A3070–X600) for details.

5.3   Keyboard

Five different keyboards are available for the user to be connected to the OS 525 base unit (see Parts List).
In case of rough environmental conditions (IP65), membrane or full impact keyboards can be used each with German or international layout. A standard keyboard with layout selection German/international is available for control rooms.

The keyboard layout is GERMAN/INTERNATIONAL

Pressing the keys "Alt", "Ctrl", and "F1" at the same time selects the international keyboard layout.
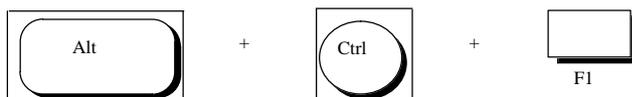
Alt	+	Ctrl	+	F1

Pressing the key combination "Alt", "Ctrl", and "F2" at the same time selects the German keyboard layout.

Alt	+	Ctrl	+	F2

The keyboard consists of four key fields:

The numeric keypad is not supported by the OS 525. Numeric inputs are not possible.

> ⚠ **Note**
>
> Each key can be removed vertically from the top. The pertaining key function is no longer accessible if the removed key is replaced with a blind key (without label). This enables certain key functions to be inhibited.

5.4   Mouse / Trackball

The system uses a normal mouse/trackball.

The mouse cursor moves on the screen as you move the mouse on your desk or the trackball. Pressing the left–hand mouse button triggers the OS function while the right–hand button is used for moving elements on the screen.

Please refer to the "OS 525 CONFIG" and "OS 525 SUPERVISOR" Manuals for details.

Connection and commissioning

The mouse/trackball can either be connected to the 9–way connector of the terminal or to the COM2 connector of the base unit.

☞ The short connecting cable (approximately 2 m) does usually not require any particular interference suppression measures to be taken.

5.5   Printer

The following printer types may be conected:
DR 215//216, DR 235/236, DR 240/241.

In the standard configuration, the report printer conects to the base unit. The printers used for operator input reports and hard copies (remote printers) connect to the terminals.

Please refer to Sections 2.3.2 and 2.3.3 for the settings of the individual printers.

Contents Section 6

6   Service and Maintenance

All service and maintenance work is performed via the FlexOS desktop.

6 – 3

6.1   Opening Additional Desktops

Upon delivery, one FlexOS desktop has been set up in your OS 525 system. Use the following procedure to install additional FlexOS desktops that may be used for working with the text editor, for example:

Change from CONFIG to the FlexOS desktop.

The following selection of commands appears on the screen when you press the keys <Alt> and <+> at the same time:

Commands:

> *C – CREATE Screen*
>
> *D – DELETE Screen*
>
> *<HELP> – HELP INFORMATION (Ctrl+Insert)*
>
> *<number> – Screen number to select*

☞   The key combination <Ctrl>+<Insert> must not be used to call the HELP INFORMATION because it leads to system errors.

Entering <C> and <Return> opens a new desktop that is displayed above the command field, together with a new window number.

When you enter <D> and <Return>, the system asks you what desktop is to be deleted.

The desktop is deleted once you have entered the window number and <Return>. The procedure is cancelled when you press <Return> without specifying a window number.

Use the key combinations <Ctrl> and <+> and <Ctrl> and <–> to switch back and forth between the desktops.

6.2   The Configuration Menu

Your OS 525 has a pre–configured device configuration. Changes using the SETUP program are only required if you want to alter the hardware structure of after a malfunction has occurred during power–up.

The SETUP program is located in the ROM–BIOS. SETUP is employed for transferring information regarding the system structure into the bat- tery–backed OS 525 memory.

The configuration menu can only be started during the startup phase.

SETUP call

Calling the SETUP menu and further settings with the SETUP menu are described in detail in the RI45 Manual.

Modified device configuration with SETUP

Note the modified SETUP configuration or make a hard copy to keep it with the log/configuration report: data of the SETUP configuration could be needed after a CPU module exchange.

6.3   Replacing the Hard Disk and Installing the Software

Please refer to SIMATIC PC RI45 Manual to replace the hard disk drive.

Activate the configuration menu (see Section 6.2) once the new hard disk has been installed. Edit the entries in the configuration menu if the new hard disk requires different parameters.

SW installation   Now you may start the MS–DOS (cf. 6.3.1).

Partitioning the   You must partition the hard disk after you have installed MS–DOS.
hard disk   Enter **fdisk**.

at the DOS prompt. The fdisk program displays its main menu when it starts:

<div align="center">

MS–DOS Version x.y

Hard disk Setup Program

(C) Copyright Microsoft Corp. 1983–1991

FDISK–Options

</div>

Current fixed disk drive: 1

Choose one of the following:

1. Create a DOS partition or Logical DOS Drive

2. Set active partition

3. Delete partition or Logical DOS Drive

4. Display partition information

Enter choice: [1]

Press ESC to exit FDISK.

As you have only one partition on your hard disk, you must enter the option number "1" before you press <ESC> to exit the FDISK program.

Formatting the   The hard disk must be formatted before you can start loading the backup
hard disk   floppy disks. Enter the command

<div align="center">

format c: /s

</div>

This command formats the hard disk partition and transfers the MS–DOS system files from the start floppy disk to the installed partition.

☞   For a hard disk change install the BIOS diskette from the OS diskette set.

6.3.1   Installing the System Software

Delivered software   The delivered software comprises a boot diskette (1/28) and 4 packages
                          that are to be installed separately:
                          – MS DOS   4 diskettes   (2/30 ... 5/30)
                          – FLEXOS   6 diskettes   (6/30 ... 11/30)
                          – OS 525 SW   17 diskettes   (12/30 ... 28/30)   OS software
                          – OS 525 ST   2 diskettes   (29/30 ... 30/30)   OS–SET
                          Installing the 4 packages in host and terminal is mandatory.

Previous settings   OS–SET reads all previous settings except the settings concerning the
                          printer and the signal module. Note these settings before installation and
                          then check the parameter settings after.

Before Installation   Before installation make sure that there is sufficient memory space on the hard disk; a first installation necessitates about 60 MB, a further installation about 8 MB. If possible format the hard disk before a first intallation. Previously save all the user data. At least delete the directory c:\OS_CODE\RUN if formatting is not possible.

☞   When using an ES500 save the "config.sys" and "autoexec.bat" files before installation.

Installation   Perform the installation of all the packages with MSBACKUP.

1.   Insert the boot diskette in the drive (1/30), reset the PC and enter INSTALL, then remove the diskette, boot again and enter MOU-SE.COM.
2.   Insert the last diskette of the MS DOS package (5/30).
3.   Enter MSBACKUP.
4.   Activate the RESTORE function and select CATALOG.
5.   With entering of RETRIEVE read the directory information from the diskette (answer the question OVERWRITE with "yes").
6.   Activate the LOAD function.
7.   Activate the c: drive 8(with blank) in the form RESTORE FILES; ALL FILES appears beside the drive designation.
8.   After that activate START RESTORE.
9.   Insert further package diskettes if required (pay attention to the acoustic signal).

Repeat step 2 to 9 for the other packages. The last package diskette specified in step 2 has to be selected correspondingly.

After installation   After installation reset the computer and then activate OS–SET.

6.3.2   Loading User Data onto the Hard Disk

The FlexOS desktop is used for loading user data from the backup floppy disks onto the hard disk.
To start loading, enter the command

C:>restore a: c: –s

RESTORE only permits files that have been created by the MSBACKUP function to be handled. The option "S" also restores all subdirectories. The following text is displayed after you have terminated your input by RETURN:

Insert backup diskette #01 in drive fd 0:
Press any key when you are ready...
*** files were backed up 05/25/1994
*** Restoring files from diskette 01 ***
/ANWENDER/xxx.BLD

All the backup diskettes can now be interactive loaded.

6.4   Connecting Cable Pin Assignments

The item numbers refer to the "Connecting cables summary" in Section 2.3.9, Fig. 2.10 and Fig. 2.11.

Item 2: Signal module ⟺ Audible indicator   Order no. 6XV2175–8A...

Connector A 25–way (SUB–D, female)	Bundle	Open cable end core color	Connector A 25–way (SUB–D, female)	Bundle	Open cable end core color
1	red	white/green	14	white	brown
2	red	gray	15	white	white
3	red	pink	16	white	green/gray
4	red	blue	17	white	yelow
5	red	red	18	white	pink
6	red	brown	19	white/blue	blue/white
7	red	yellow	20	white	red
8	green	white/green	21	blue	brown
9	green	brown	22	blue	green/gray
10	green	yellow	23	blue	yellow
11	green	blue	24	blue	pink
12	green	red	25	green	gray
13	green	pink	shell	screen	

Item 4: VGA ⟺ Monitor   Order no. 6XV1441–0AH20

Connector A 15–way (SUB–D, male)	Core color	Connector B, 15–way (SUB–D, male)	Connector A, 15–way (SUB–D, male)	Core color	Connector B, 15–way (SUB–D, male)
1	red	1	9	not used	
2	green	2	10 *)	gray	10
3	violet	3	11	white	11
4 *)			12	not used	
5	not used		13	brown	13
6	blue	6	14	pink	14
7	yellow	7	15	not used	
8	black	8	shell	screen	shell

*) Jumper between pins 4 and 10

Item 5a: LPT1⇔ DR 215/216, DR 235/236   Order no. 6XV1406–0CN10
DR 240/241 (Centronics)

Connector A 25–way (SUB–D, female)	Core color	Connector B, 36–way (Centronics connector)	Connector A 25–way (SUB–D, female)	Core color	Connector B, 36–way (Centronics, connector)
1		1	6		
2		3	7		7
3		2	8–24		
4			25		5,6
5		20	shell		shell

Item 5b: COM1 ⇔ DR 215/216, DR 235/236,   Order no..: 6XV1440–3A...
DR 240/241 (V.24)

Connector A 9–way (SUB–D, female)	Core color	Connector B, 25–way (SUB–D, male)	Connector A 9–way (SUB–D, female)	Core color	Connector B, 25–way (SUB–D, male)
1			5		7
2		2	6 *)		
3		3	8 *)		25
4		5	shell		shell

*) Jumper between pins 6 and 8

Item 6: HIGRAPH 2 ⇔ Process monitor   Order no.: 6XV1 441–0BH20

Connector A, 15–way (SUB–D, male)	Core color	Connector B, 5xBNC	Connector A 15–way (SUB–D)	Core color	Connector B 5xBNC
1			9		BNC
2		BNC	10		
3			11		
4		BNC	12		
5			13		
6		BNC	14		
7			15		
8		BNC	shell		

Item 7a N–AT ⇔ Connection distributor (CS 275 bus)   Order no.: 6DS8208–8KC

Connector A, 25–way (SUB–D, female)	Bundle	Core color	Connector B ES 902	Connector A, 25–way (SUB–D, female	Bundle	Core color	Connector B, ES 902
1	B3	brown	b 28	14	B3	green	b 26
2	B3	red	b 20	15	B3	blue	b 18
3	B2	brown	b 12	16	B2	green	b 10
4	B2	red	b 4	17	B2	blue	b 2
5	B1	blue	d 2	18	B1	brown	d 12
6	B1	red	d 4	19	B1	white	d 14
7	B1	gray	d 6	20	B1	black	d 16
8	B1	yellow	d 8	21			
9	B1	green	d 10	22	B3	white	b 30
10	B3	black	b 32	23	B3	gray	b 22
11	B3	yellow	b 24	24	B2	white	b 14
12	B2	black	b 16	25	B2	gray	b 6
13	B2	yellow	b 8	shell	screen		

Item 7b: N–AT ⇔ FAE (CS 275 bus)   Order no.: 6DS8210–8..

Connector A, 25–way (SUB–D, female)	Bundle	Core color	Connector B 3xES 902 parallel	Connector A, 25–way (SUB–D, female	Bundle	Core color	Connector B, 3xES 902 parallel
1	B3	brown	b 28	14	B3	green	b 26
2	B3	red	b 20	15	B3	blue	b 18
3	B2	brown	b 12	16	B2	green	b 10
4	B2	red	b 4	17	B2	blue	b 2
5	B1	blue	d 2	18	B1	brown	d 12
6	B1	red	d 4	19	B1	white	d 14
7	B1	gray	d 6	20	B1	black	d 16
8	B1	yellow	d 8	21			
9	B1	green	d 10	22	B3	white	b 30
10	B3	black	b 32	23	B3	gray	b 22
11	B3	yellow	b 24	24	B2	white	b 14
12	B2	black	b 16	25	B2	gray	b 6
13	B2	yellow	b 8	shell	screen		

Item 7C: N–AT ⇔ CS 275 bus   **Order no.: 6DS8211–8..**

Connector A, 25–way (SUB–D, female)	Bundle	Core color	Open cable end	Connector A, 25–way (SUB–D, female	Bundle	Core color	Open cable end
1	B3	brown		14	B3	green	
2	B3	red		15	B3	blue	
3	B2	brown		16	B2	green	
4	B2	red		17	B2	blue	
5	B1	blue		18	B1	brown	
6	B1	red		19	B1	white	
7	B1	gray		20	B1	black	
8	B1	yellow		21			
9	B1	green		22	B3	white	
10	B3	black		23	B3	gray	
11	B3	yellow		24	B2	white	
12	B2	black		25	B2	gray	
13	B2	yellow		shell	screen		

Item 7d 2 x N–AT ⇔ 1 x N–AT (CS 275 bus)   Order no.: 6DS8212–8..

Connector A, 2x25–way (SUB–D, female)	Bundle	Core color	Connector B 25–way (SUB–D, male	Connector A, 2x25–way (SUB–D, female	Bundle	Core color	Connector B 25–way (SUB–D, male)
1	B3	brown	b 28	14	B3	green	b 26
2	B3	red	b 20	15	B3	blue	b 18
3	B2	brown	b 12	16	B2	green	b 10
4	B2	red	b 4	17	B2	blue	b 2
5	B1	blue	d 2	18	B1	brown	d 12
6	B1	red	d 4	19	B1	white	d 14
7	B1	gray	d 6	20	B1	black	d 16
8	B1	yellow	d 8	21			
9	B1	green	d 10	22	B3	white	b 30
10	B3	black	b 32	23	B3	gray	b 22
11	B3	yellow	b 24	24	B2	white	b 14
12	B2	black	b 16	25	B2	gray	b 6
13	B2	yellow	b 8	shell	screen		

Item 8: Signal module ⇔ Color graphics printer   Order no.: 6XV2174–8A...

Connector A 9–way (SUB–D, female)	Core color	Connector B, 9–way (SUB–D, male)	Connector A 9–way (SUB–D, female)	Core color	Connector B, 25–way (SUB–D, male)
1	yellow	5	6 *)		
2	green	4	7		
3			8 *)		
4	brown	5	9		
5	white	2	shell	screen	shell
shell					

*) jumper between pins 6 and 8

6.5   The DR EDIX Text Editor

DR EDIX[TM] is the text editor of the FlexOS desktop. To start the editor, enter the file name DREDIX.286 or the mnemonic ED. Fig. 6.1 shows the screen layout after the OSCONFIG.OS file has been activated.
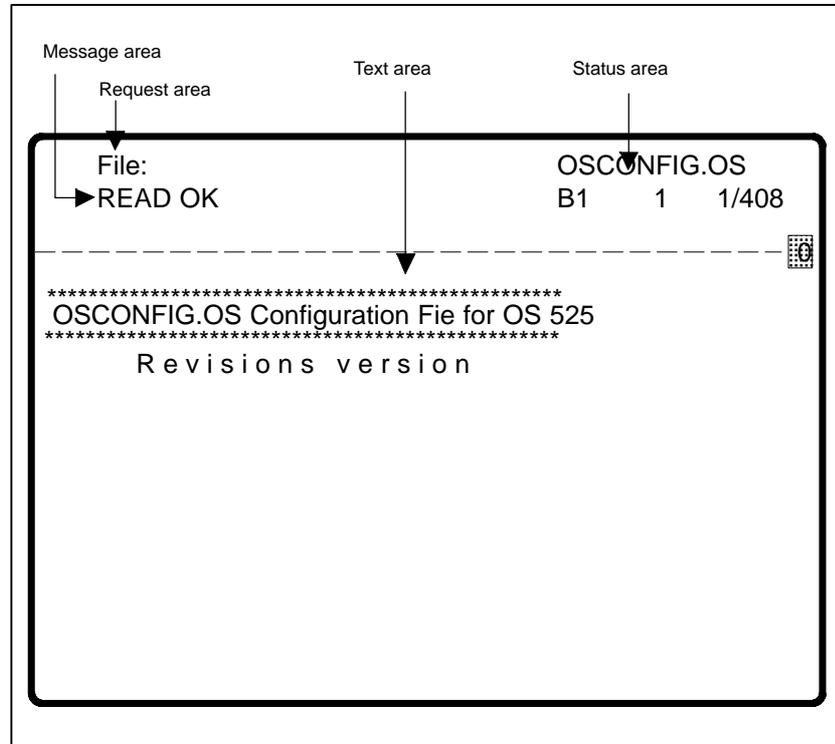
Fig. 6.1   DR EDIX screen areas

Text area   Here you enter your text and commands, and move the cursor.

Request area   Some DR EDIX commands prompt you to make additional entries.
                       If, for example, you wish to enter a file and press the keys <Ctrl> + <K>, followed by <E>, DR EDIX will ask you for the file name. Your reply may not exceed 50 characters in length. Press the <RETURN> key to terminate your input.
                       Press <Ctrl> + <K> and <Q> if you wish to abort a command after the system has prompted you to enter additional information. Pressing <Ctrl> + <J> displays help after a message.

Message area   DR EDIX displays messages in highlighted representation in the message area.

Status area   In the status area, DR EDIX permanently displays information regarding the currently active window. The following example shows a typical message in the status area.

OSCONFIG.OS
B1 1   1/408

The following information is displayed in the status area:

OSCONFIG.OS   Name of the file in the active buffer
B1   Buffer 1 (active buffer)
1   Column that contains the cursor
1   Line that contains the cursor
408   Size of the active buffer in number of lines

The status area always shows the status of the active window. The new window status will immediately be displayed when you change windows.

The insert/overtype mode is indicated at the right–hand bottom margin (insert mode "–", overtype mode ∅). Enter <Ctrl> + <V> to toggle between the two modes.

6.5.1   Entering and Editing Text

To enter a text, merely type it in. DR EDIX echoes each typed character on the screen and stores it in the active buffer.

Terminate each line by pressing the <RETURN> key. The cursor is then re–positioned at the beginning of the next line.

Pressing the key combination <Ctrl> + <K> and <S> saves the entered text.

Entering <Ctrl> + <K> and <E> cancels the edit and DR EDIT prompts you to specify a new file.

<Ctrl> + <K> and <Q> interrupts this input or exits the file without saving it.

6.5.2   Help

Pressing <Ctrl> + <J> provides you with a 4–page help.

The following table shows **page 1** with the cursor positioning commands.

CURSOR MOTION COMMANDS
KEY   ACTION:

<Ctrl> + <E>	Up
<Ctrl> + <X>	Down
<Ctrl> + <S>	Left
<Ctrl> + <D>	Right
<Ctrl> + <R>	Page Up
<Ctrl> + <C>	Page down
<Ctrl> + <A>	Word left
<Ctrl> + <F>	Word right
<Ctrl> + <Q> and <R>	Beginning of buffer
<Ctrl> + <Q> and <C>	End of buffer
<Ctrl> + <Q> and <E>	Beginning of window
<Ctrl> + <Q> and <X>	End of window
<Ctrl> + <Q> and <S>	Beginning of line
<Ctrl> + <Q> and <D>	End of line
<Ctrl> + <Z> and <G>	Go to line (prompts)

Page 2 shows the text editing commands. These commands are listed in the following table.

EDITING COMMANDS
KEY   ACTION:

Backspace	Delete character to left of cursor
<Ctrl> + <G> or <Del>	Delete character at cursor
<Ctrl> + <Y>	Delete entire line
<Ctrl> + <Q> and <Y>	Delete line to right of cursor
<Ctrl> + <Z> and <U>	Insert last deleted line above cursor
<Ctrl> + <Z> and <A>	Get blank line below cursor
<Ctrl> + <Z> and <I>	Get blank line above cursor
<Ctrl> + <V> and <V>	Toggle between insert and overstrike mode

FILE COMMANDS
KEY   ACTION:

<Ctrl> + <K> and <E>	Edit new file (prompts)
<Ctrl> + <K> and <F>	Change file name for next write (prompts)
<Ctrl> + <K> and <R>	Read file into buffer below cursor (promts)
<Ctrl> + <K> and <S>	Write contents of buffer to file (might prompts)

Page 3 contains the commands for block operation and for search and search/replace functions.

BLOCK COMMANDS
KEY ACTION:

<Ctrl> + <K> and <B>	Mark lines to copy, move or delete
<Ctrl> + <K> and <C>	Copy marked lines below cursor
<Ctrl> + <K> and <V>	Move marked lines below cursor
<Ctrl> + <K> and <Y>	Delete marked lines

SEARCH AND TRANSLATE COMMANDS
KEY ACTION:

<Ctrl> + <Q> and <F>	Search for characters that match a pattern (prompt)
<Ctrl> + <I> and <I>	Continue search
<Ctrl> + <Q> and <A>	Translate characters that match a pattern (prompts)

Page 4 shows the remaining commands

WINDOW AND BUFFER COMMANDS
KEY ACTION:

<Ctrl> + <Z> and <1>	Edit in window 1
<Ctrl> + <Z> and <2>	Edit in window 2 (split screen if necessary)
<Ctrl> + <Z> and <O>	Restore screen to one window (letter O, not zero)
<Ctrl> + <Z> and <B>	Swap to different buffer (prompts)

MISCELLANEOUS COMMANDS
KEY ACTION:

<Ctrl> + <K> and <Q>	Exit from DR EDIX or exit from prompt
<Ctrl> + <Z> and <S>	Display status of files, buffers, windows, etc.
<Ctrl> + <J>	Get help

Hit the "space bar" to exit the help menus.

6.5.3   Typical Application of the DR EDIX Editor

You wish to check the directory for the "Include ORPA" function that has been selected in the OSCONFIG.OS file.

Enter the command C:>CD/OS_CODE/RUN to change to the directory OS_CODE/RUN. Use the abbreviation ED to activate the file OSCON-FIG.OS:

> ED OSCONFIG.OS

Enter <Ctrl> + <Q> and <F> DR EDIX then prompts you to enter the search pattern. If, for example, we look for the line ORPA_INF, we enter: ORPA_INF "RETURN". DR EDIX replies that the first matching information has been located on line 6. Enter <Ctrl> + <L> to continue the search. The line with the default value of the "Include ORPA" function is then displayed:

> ORPA_INF=C:/OS_DATA/ORPA/

If, for example, you wish to refer to a separate directory that contains the special *.ORP descriptions of this system, you may type

> ORPA_INF=C:/BASISDAT/ORPAB1/

and enter <Ctrl> + <K> and <S> to save this selection. Enter <Ctrl> + <K> and <Q> to exit DR EDIX.

This new selection is available after you have started CONFIG again.

6.6   The Graphic PlantTop Operator Desktop

PlantTop® is the graphic user desktop and interface of the FlexOS^{TM} 386 operating system.

PlantTop makes your work on the FlexOS desktop of your OS 525 system easier. Objects (such as files, directories, and devices) are represented as icons thus making the abstract thinking obsolete that has been required by entering elements in the command line. PlantTop permits commands to be entered under menu control. You need not to know them by heart.

6.6.1   Changing to PlantTop

Each menu line contains a drop–down menu with the command lines of the started editors and PlantTop. The menu is opened with the current editor name from the right of the menu line so that, if started, you can directly branch to all started applications (screen change) and return to PlantTop.
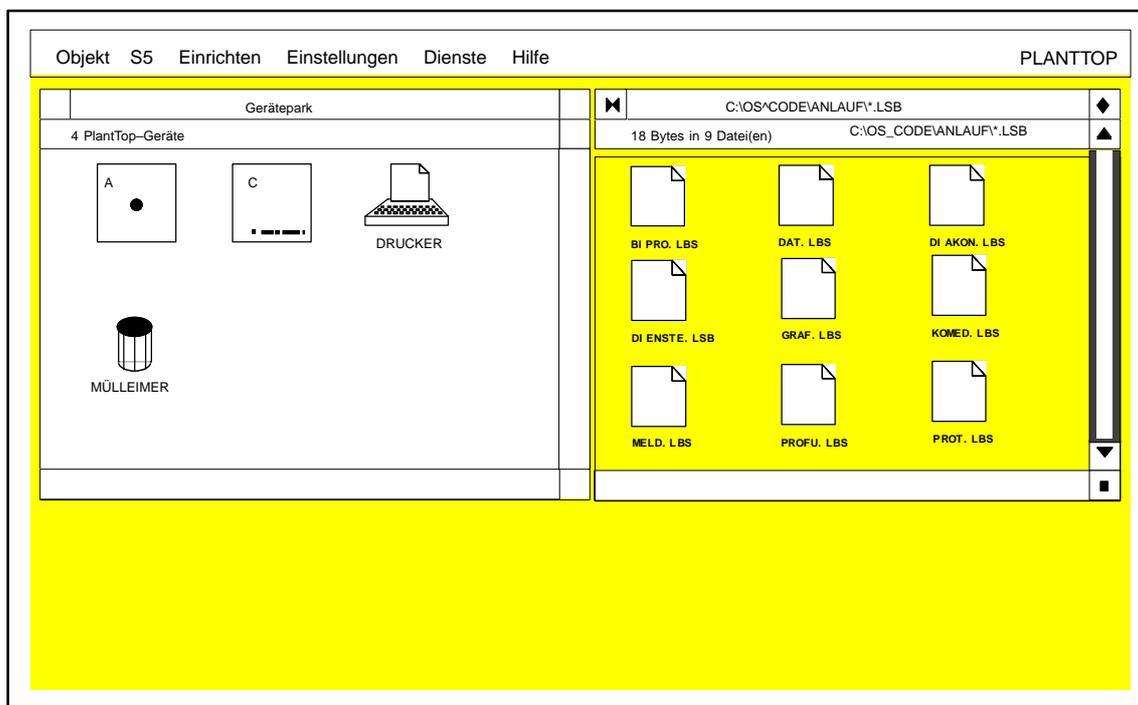
Fig. 6.2   Typical PlantTop interface

6.6.2   Handling PlantTop

Nearly all operator activities in PlantTop require a mouse. Only use the left–hand mouse button. PlantTop does not respond to the other mouse buttons.

All commands that are selected from the PlantTop menus by mouse operation may also be invoked by pressing specific key combinations on the keyboard.

PlantTop offers the following menus:

6.6.2.1 Object Menu

Information ...	informs on currently selected object (device or file / program).
Rename...	The selected file can have a new name allocated.
Open...	Opens the selected object (icon)
To output...	Transfers the selected files to the "Output" output program.
Close...	Backtracks the topmost window by one level, or closes this window if the highest directory level is displayed.
Close window...	Closes the active window.
Delete...	Irrevocably deletes all selected elements.
Terminate PlantTop...	Terminates PlantTop after a prompt has been confirmed.
Terminate S5DOS/MT	– without function for OS 525 –

6.6.2.2 Create Menu

New directory...	Creates a new directory in the active window (not possible in the device window).
Applications...	Permits the selected FlexOS appli–cations (create. delete) to be configured (document type, parameters, icon)
PlantTop devices...	Permits a device to be created, deleted, or reconfigured.
System configuration...	Starts the FlexPrep application that can be used by a Super User or System Manager for defining the FlexOS and X/GEM configuration that is employed for the next booting.

6.6.2.3 Config Menu

PlantTop...	This command permits PlantTop to be configured (icons, layout, languages).
Display...	Enables you to select the PlantTop re presentation (sorting mode of devices and files, display mode of text/icons
Change language...	Toggles to the other 2 pre–selected language.
Save PlantTop values...	Stores all PlantTop settings in a configuration file that has the file name extension .INF.

6.6.2.4 Utilities Menu

FlexOS commands...	Starts the "X/GEM shell" in a separate window in which you may enter FlexOS commands.
Search file...	Searches for one, or more, files in the specified drive or directory. You may use the wildcard characters ?, *, and ^ in the file name specification.
Text editor	Opens the selected text editor for the selected text file.

6.6.2.5 PlantTop Menu

INFO...	Displays information regarding the PlantTop version.

All other menu lines designates the allready started editors or PlantTop. The editors can be activated from this menu.

6.6.2.6 Help Menu

Permits to activate the information of all the displayed objects / functions etc. in boxes that can be scrolled partially.

6.6.2.7 Terminate PlantTop

To terminate PlantTop, select the command "Terminate PlantTop" from the "Object" drop–down menu.

A box is displayed that prompts you to confirm the termination of Plant-Top. Clicking on "YES" takes you back to the last started editor or, if no editor was started, to the FlexOS operating system.

6.7   Diagnostics

Procedure after a malfunction has occurred

OS 525 process control and configuration both feature a self–diagnosis function that is activated when a malfunction occurs. Whenever the system detects any irregularity, it enters information regarding status and system response in several diagnostics files in a diagnostics directory. These files can be retrieved as required by service personnel.

There are two different diagnostics file types that are distinguished by their file name extensions (.LST or .DIA):

LST: Active files
These are the files that have currently been created and are valid for the current malfunction. The OS 525 base unit need not be reset.

DIA: Diagnostics files that were saved when the system was started up
These files are created when the system is started. They are copies of the files with the file name extensions .LST. After a malfunction that requires the system to be restarted, these diagnostics files must be viewed for fault analysis.
(Extension in further "predecessor" files is in preparation)

The following should be done after a malfunction:

- Record the editor or process control section in which the malfunction has occurred.
- Describe the fault image on the monitor.
  What was expected? How did the system react?
- Describe the last operator activities.
- Terminate CONFIG/SUPERVISOR if the system is no longer controllable or responds in an unpredictable manner with unexpected hard disk access.
  Operator input: Terminate process control or select the menu item "Terminate file" in CONFIG to terminate configuration. Perform a hardware reset of the base unit if the sytem is no longer controllable before you terminate.
  Reaction: Blue image on the monitor.

- Change to the directory that contains the diagnostics files.
  Operator input: cd/os_code/diagnose <RETURN>
  Reaction: Prompt c:/os_code/diagnose/
- Display files
  Operator input: dir <RETURN>
  Reaction: All diagnostics files are displayed.
- Copy files onto a floppy disk
  Operator input: copy *.* a: <RETURN>
  Reaction: "copying" – each copied file is displayed on the monitor.

- The files listed by the *dir* command may also be printed if a printer has been connected to the parallel interface (PAR).

Operator input:	type <filename> .LST >prn:
	or
	type <filename> .DIA >prn:
Reaction:	The file is printed. The c:os_code/diagnose/> prompt re–appears on the screen once printout has come to an end.
Alternative:	Printing these diagnostics files (ASCII format) on another PC system.

- The DR EDIX editor in the FlexOS operating system also permits the files to be viewed during telephone diagnostics.

Operator input:	ed <filename> .LST (or .DIA)
Reaction:	The file contents are displayed.

- The arrowhead keys of the cursor control blocks on the keyboard are used for scrolling the file.

Operator input:	<Ctrl> + <K> and <Q> for closing the file.
Reaction:	The c:/os_code/diagnose/> prompt is re–displayed.

- Perform a hardware reset of the base unit (key switch). The system is re–booted and the CONFIG configuration desktop displayed automatically.

- Please inform your nearest Service Department of any malfunctions in your system. Specify the fault as precisely as possible.

6.8   Error Messages

6.8.1   Status indicator

The system automatically performs a self–test after the OS 525 base unit has been switched on. This self–test includes various individual tests. The currently running individual test is indicated on the status indicator, a two–digit hexadecimal display on the front panel. The last individual test to have been performed remains visible after the self–test has been terminated.

In the event of a malfunction, this status indicator shows the test step in which the fault has been detected. The possible indications, their meaning and the appropriate remedy are given in the Technical Description of the RI45 Manual.

6.8.2   Error Messages on the Screen

Error messages output by the processor module are displayed in English.

The possible indications and their meaning are given in the Technical Description of the RI45 Manual.

7 Applicable Documents

/1/	FlexOS 386, User's Manual Order No. 6EA9200–0AA10–0AA0
/2/	CONFIG, Configuration Instructions Order No. C79000–G8076–C523
/3/	SUPERVISOR, Operating Instructions Order No. C79000–G8076–C524
/4/	PM54/C2 Color Monitor, Operating Instructions Order No. C79145–A3072–X100
/5/	CAE SCM 2185 Color Monitor, Operating Instructions Order No. C79145–A3070–X600
/6/	SIMATIC PC RI45 Manual Order No. C79000–G7084–C780 SIMATIC PC RI45 Technical Description Order No. C79000–G7084–C781
/7/	FP 200–3A Hard Disk Drive Order No. 6ZB5130–0ET01–0BA0
/8/	FD 0.72/1.55 Floppy Disk Drive Order No. 6ZB5130–0DN01–0BA0
/9/	Keyboard (Alphanumeric) Order No. 6ZB5130–0DP01–0BA0
/10/	N–AT Operating Instructions Order No. 6DS1222–8AA11
/11/	Manual: Instructions and Guidelines for Planning, Installation and Operation Order No.: C79000–G8076–C417
/12/	Instructions: SICOMP Printer, Interface Modules Order No.: 6ZB5130–0FU01–0BA0
/13/	Installation Instructions: Extension of Operation Channel VB 100 Order No.: 6AV9070–1AD00
/14/	Installation Instructions: Extension of Operation Channel VS 100 Order No.: 6AV9070–1AC00
/15/	Working Guidelines "Installation of the SINEC H1 Bus System" Order No.: AR 463–220

8 Index

SIEMENS

TELEPERM M

OS 525
Operator Communication
and Visualization System

9   Spare Parts List OS 525

Item	Designation	Order No.	Spare part cat. *)	Qty.	Remarks
1	**Operator input devices**				
2	Membrane keyboard German	6GF6710–2AB	N	1	
3	Membrane keyboard international	6GF6710–2BB	N	1	
4	Mouse	6GF6810–1AA	N	1	
5	TK200 standard keyboard German / international	6GF6710–1AA	N	1	
6	Pres.–sens. keyboard German	6GF6710–2AA	N	1	
7	Pres.–sens. keyboard internat.	6GF6710–2BA	N	1	
8	**I/O modules**				
9	CP1413 (SINEC–H1)	C79458–L2343–A2	R1	1	
10	CP5412 (SINEC L2)	6GK1541–0AB01	R1	1	
11	FU–AT radio–contr. clock	6AD1017–0AA01	N	1	
12	HIGRAF II	C79458–L2350–A1	R1	1	
13	Local bus interface N–AT	6DS1222–8BA	R1	1	
14	SCSI controller	C75451–Z1349–U1	R1	1	
15	Signal module	6DS1916–8AA	R1	1	
16	**Drives**				
17	3.5" floppy disk drive	C79451–Z1–U125	N	1	
18	5 1/4" floppy disk drive	6AB1013–4GA10	N	1	For ES500 only
19	3.5" hard disk drive IDE 850 MB	C79451–Z1423–K3	R1	1	
20					
21	MO drive 2.3 GB	C75451–Z1468–U2	R0	1	
22	**Monitor**				
23	SCM 2185 color monitor	6GF6100–1AA	N	1	
24	PM54/C2 process monitor, desktop unit	6AV8011–1LE62–0KA0	R7	1	

Item	Designation	Order No.	Spare part cat. *)	Qty.	Remarks
25	**PC RI45**				9 – 3
26	Display RI45 (with loudspeaker)	C79451–Z1538–K4	N	1	
27	Battery 3.6 V	W79084–E1003–B1	N	1	
28	Bus module 6ISA/2PCI BBG–ISA/PCI–01	C79451–Z1538–K3	N	1	
29	Filter mat	6AP1948–0AV00	N	1	
30	Fan	W79087–E9004–A74	N	1	
31	Pentium 133 MHz	W79038–A3041–T296	N	1	
32	RI25/45–AIO without processor, without RAM	C79458–L7003–B124	R1	1	Use the installed type
33	RI25/45–AIO without processor, without RAM	C79458–L7003–B338	R1	1	Use the installed type
34	Monitoring module Safe Card	C79458–L7000–B126	N	1	
35	**RAM module**				
36	SIM module 8 MB (EDO)	C79458–L7113–B321	N	[1]	[1] 2 or 4
37	**Power supply**				
38	Power supply 220 W (with 4 screws)	C75451–Z1550–K1	N	1	

Delivered from:	*) R0	: Repairable, no allowance part
Item 21: AUT 7 PL P Karlsruhe	R1..R6	: Repairable, allowance part
Items 23 and 24: AUT 31 P AZ Karlsruhe		
all other items: ANL A434–ED Erlangen	N	: Not repairable