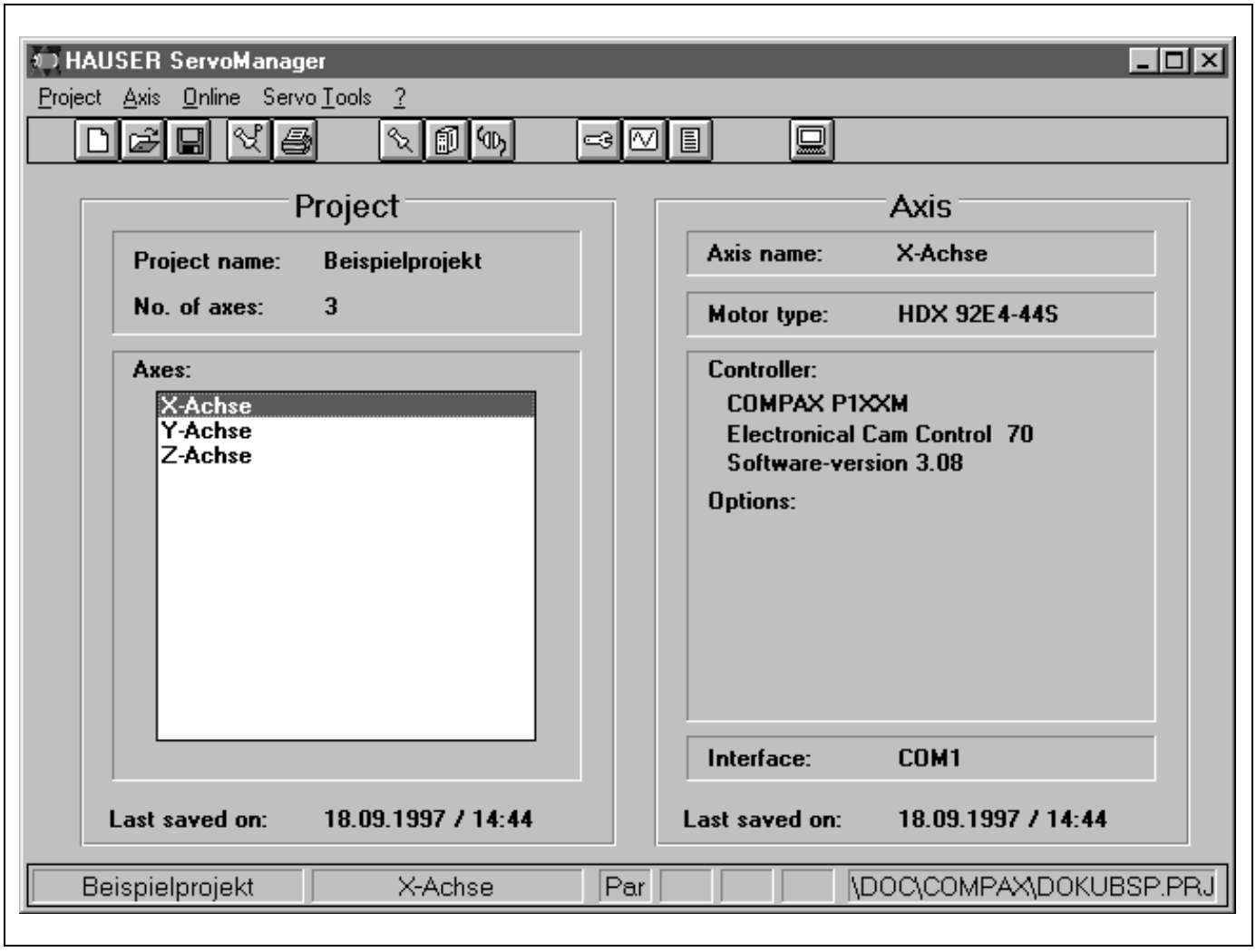
S e r v o M a n a g e r

- with the Servo Tools: ParameterEditor, ProgramEditor and Terminal -

O p e r a t i n g I n s t r u c t i o n s



From ServoManager - Version V3.60 **December 98**

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We automate motion

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1. Device allocation:

This documentation applies for the ServoManager, with the program modules ParameterEditor, ProgramEditor and the Terminal.

The ServoManager can be used to edit the parameters and programs of the following devices:

- **COMPAX 25XXS** COMPAX 2500S, ... 2530S, ... 2550S, ... 2560S, ... 2570S
- **COMPAX 45XXS** COMPAX 4500S, ... 4530S, ... 4550S, ... 4560S, ... 4570S
- **COMPAX 85XXS** COMPAX 8500S, ... 8530S, ... 8550S, ... 8560S, ... 8570S
- **COMPAX P1XXM** COMPAX P100M, ... P130M, ... P150M, ... P160M, ... P170M
- **COMPAX 02XXM** COMPAX 0200M, ... 0230M, ... 0250M, ... 0260M, ... 0270M
- **COMPAX 05XXM** COMPAX 0500M, ... 0530M, ... 0550M, ... 0560M, ... 0570M
- **COMPAX 15XXM** COMPAX 1500M, ... 1530M, ... 1550M, ... 1560M, ... 1570M
- **COMPAX 35XXM** COMPAX 3500M, ... 3530M, ... 3550M, ... 3560M, ... 3570M

Software version V2.0 or higher

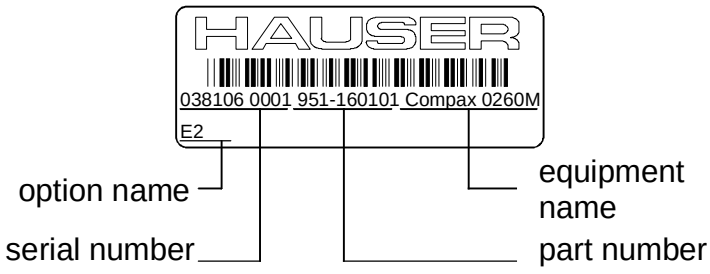
Ordering Key

e.g..: COMPAX 0260M:

COMPAX:	Name			
02:	Power class			
60:	Variant	e.g.	"00":	Standard device
			"50":	Synchro-controller
			"60":	Electronic drive
			"70":	Cam controller
M:	Model type/construction		"M":	Multi-axis model
			"S":	Single-axis model
	...			

HAUSER product label

The product label is found on the upper side of the unit and contains the following:



2. Overview

2.1 PC requirements

Operating system

- MSDOS operating system with Windows V3.1 or higher and appropriate PC.
  (Minimum requirements: 486, 4MB working memory)

2.2 Supported hardware interfaces

- **RS232**

Standard: PC-COM 1
PC-COM 2
PC-COM 3
PC-COM 4

Plug-in card: PC-COM4-ISA-FIFO

Problems with FIFO modules

In Windows, there are problems with FIFO modules (see also Windows manual); e.g. data can be lost. In this case, the UART buffer in the file SYSTEM.INI must be modified to the following settings:
COM1FIFO=FALSE
COM2FIFO=FALSE
COM3FIFO=FALSE
COM4FIFO=FALSE

2.3 Installation of the ServoManager

Preparation

Close all programs.
Before installation, deactivate the following programs:

- Any virus detection software.
- The Miro-Pinboard in Miro graphics cards.

Following installation, the virus software can be reactivated.
Problems can also occur during program execution with the Miro Pinboard.

Installation

Start the "Setup.exe" program on disk 1. Installation is then menu guided.
Following the installation, a Windows program group will appear containing the ServoManager and the Terminal.
The current status of the software, error rectification and other current information can be found in the file readsrv.txt, which can be selected in the program group via the icon "Read me ServoManager".

Win95:

Already present older installations are not automatically displayed, but can be updated by changing the path (path of previously installed version).

2.4 Compatibility

2.4.1 Windows 3.1 / 3.11

The ProgramEditor was designed for Windows 3.1 / 3.11.
The ProgramEditor is started from the ServoManager (using Buttons or Servo Tools menu).
You can change between the Tools using ALT + Tab, using the corresponding Buttons or using the Servo Tools menu.

2.4.2 Windows 95

The ProgramEditor was designed for Windows 3.1 / 3.11 but can also run under Windows 95.
The ProgramEditor is started from the ServoManager (using Buttons or Servo Tools menu).
You can change between the Tools using ALT + Tab or the Task bar.
The change between the Tools using the corresponding buttons or the Servo Tools menu does not function under Windows 95.

2.5 Structure

2.5.1 Program structure

Programs:	Functions:

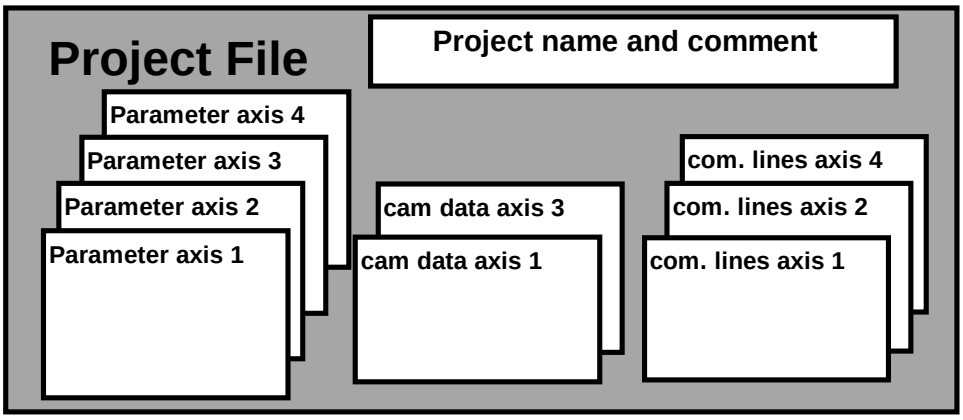
ServoManager	• Project management (New, Open, Save, Print, Comments,...).
	• Axis management.
	  • Insert axis (new, from controller, from other projects).
	  • Delete axis.
	  • Enter axis comments.
	  • Enter device type and built-in options.
	  • Select PC interface to controller.
	• Online functions.
	  • Call up terminal program.
	  • Upload from controller.
	  • Download to controller.
	• Call up additional Servo Tools.
	• Set dialogue language.

ParameterEditor	• Select and save axes.
	• Configuration
	  • Guided configuration (always required for unconfigured axes).
	  • Configuration of individual parameter groups.
	• Parameter
	  • Guided parametrisation.
	  • Input of parameter groups.
	  • Editing complete parameter lists.
	  • Checking parameter lists.
	  • Set default values.
	• Online functions.
	  • Upload of parameters from the controller.
	  • Download of parameters to the controller.
	  • View status values.
	  • Error tracing and error history
	• Arrange windows / Save window arrangement.
	• Call up additional Servo Tools.

ProgramEditor	Compiling and modifying COMPAX programs; variables management
CamEditor	Not available in the standard delivery package. Curve figuration for the cam controller COMPAX XX70 (described in a special operating manual).
Terminal	Direct operation with the connected COMPAX. • COMPAX commands directly specified. • Allocate commands to 8 free Buttons. **Note!** ⇨ Modifications in COMPAX, which are implemented via the Terminal, are not recorded by the ServoManager. To transfer these modifications in an axis, the data must be loaded into the PC via Upload in the ServoManager.

2.5.2 Data management

All project data (parameters of individual axes, cam data, program,..) are saved in the project file: this file has the extension prj.



2.5.3 Windowing

The programs work, as is usual in Windows, with various input and display windows. There are 2 basic window types:

1. **Windows with exclusively active status.**
   These are entry windows, which can only be quitted by closing them; i.e. the data must either be confirmed with "OK" or cancelled with "Cancel".
2. **Windows with active and inactive status.**
   These are windows (entry and display windows), which can be quitted without having to close them. The windows are then in an inactive status. Various other program windows can then be edited. Mouse clicking on the inactive application reactivates the window so that it can be edited again.

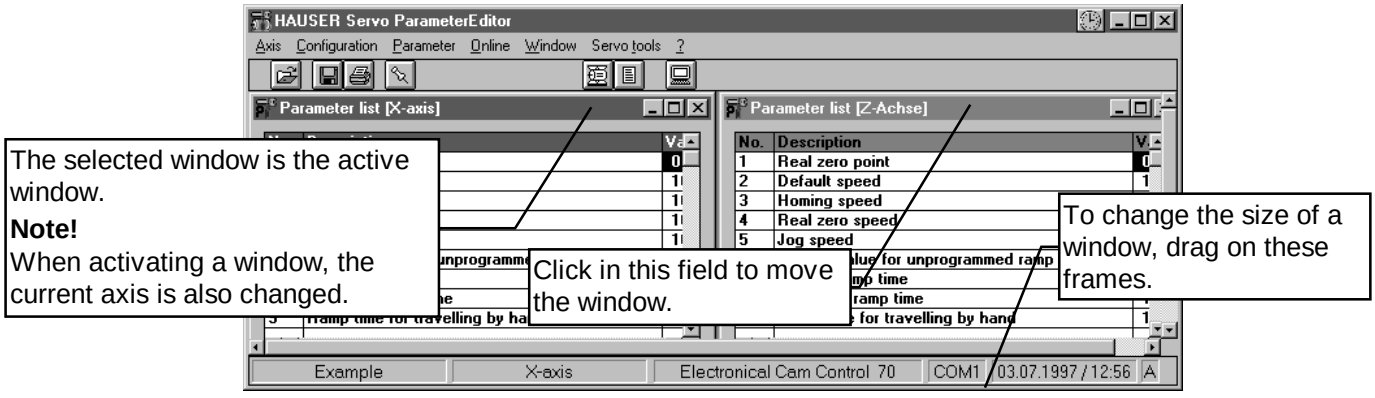
The ServoManager does not have this type of window, but the main window with the project data and the axis characteristics of the current axis is always in the background.
The ParameterEditor has the following windows of this type:

- The parameter list from the menu "Parameter" for editing the current axis parameters.
- The parameter list from the menu "Online" for editing the COMPAX parameters.
- The status list from the menu "Online".
- The results list after the function "Compare" from the menu "Online".
- The command window from the menu "Online".

⇨ All other windows only have an active status.

As normal in Windows, all windows can be changed in size and positioned freely within the screen.

Example: Arrangement of 2 parameter lists



The program "Terminal" is an independent program and not a ServoManager or ParameterEditor window. The Terminal window can therefore not be positioned within this program.
The column width and column order of the tables (parameter lists, status lists) can be modified using the mouse.

2.6 Menu overview ServoManager and ParameterEditor

Project	Axle	Online	Servo Tools	?
Project management.	Axis management.	Transfer of data or commands to COMPAX.	Calling up additional Servo Tools	**Info**
New	**Insert**	**Terminal**	**ParameterEditor**	Short program information.
Create new project.	Create axis: ◆ New axis: Enter new axis. ◆ From controller: Load axis data from controller. ◆ From project: Transfer axis data from another project	Calling up the terminal program	Calling up ParameterEditor for configuring and parameterizing COMPAX.	
Open	**Delete**	**Upload (from controller)**	**CamEditor**	
Open existing project.	Delete selected axis.	Load data (parameter, program, cam data) of the connected COMPAX into the PC.	If present: Calling up the CamEditor to define curves for the cam controller COMPAX XX70.	
Close	**Axis-Info**	**Download (to controller)**	**ProgramEditor**	
Close opened project.	Enter comments on the axis.	Load data (parameter, program, cam data) into COMPAX. (no system parameters).	Calling up ProgramEditor to compile COMPAX programs.	
Delete	**Controller/Options**		**Dialogue language**	
Delete existing project.	Enter device type (performance/variant), software version and the built-in options.		Set dialogue language for the HAUSER Servo Tools.	
Save	**PC interface**			
Save opened project with existing name.	Setting the PC-controller interface.			
Save as				
Save opened project with new name.				
Project Info				
Enter comments on the project.				
Print				
Print project data.				
1 last project **2 second last project** **3 ...**				
Quit				
Terminate ServoManager.				

Axis

Axis management.
Exit programme

Open

Select and load an axis (maximum of 4 open axes).

Close

Close selected axis.

Change current axis

Change between open axes.

Save all parameters / axis data

Save changed parameters. The opened axes can be selected individually for saving.

Parameter Info

Enter comments on the parameters.

Load parameter from the project

Load axis parameter from another project.

Save parameters / axis data

Save the parameters of the current axis.

Print parameters

Print the parameters of the current axis.

Quit **Ctrl+Q**

Exit programme

Configuration

Configuring COMPAX - guided or manual.

Guided configuration

Enter all configuration parameters in guided manner.

Motor

Select motor from a list or enter motor data.

Drive type

Set drive type.

- Spindle
- Rack and pinion/timing belt
- Universal drive

or others in accordance with the pre-set device variants

Reference system/ Initiators

Define sense of direction.
Set real zero and software end limits and select initiator system.
Enable absolute value sensor

Encoder input

Set encoder input.
(menu point only when relevant option is available).

Encoder simulation

Define resolution.
(menu point only when relevant option is available).

Parameter

Parametrizing COMPAX - guided or manual.

Guided parametrisation.

Enter all parameters in guided manner.

Set point generator ▶

Set alternate values for: Rates, ramp data and adjustment factors.

Limitations

Set limit values: Tracking errors, positioning zones, speed limits, torque limits.

Interfaces ▶

Setting the existing COMPAX interfaces:

- PLC data interface/Fast start.
- RS232 interface.
- HEDA interface.
- RS485 interface; Profibus; CAN-Bus

Application parameters

Settings (Variant dependent).

Controller ▶

Set optimizing parameters: Stiffness; damping; pre-control values; configuring moment of inertia / monitor / structural variants of the controller (from V3.60).

I/O parameters ▶

Teach-In functions; Mask inputs and outputs.

Monitor ▶

Setting source and gain of the analogue output channels.
Define contents of Status S15.
Set optimizing display.

Error Handling

Disabling error E57; 2. Emergency stop on COMPAX-M

Parameter list

Edit all parameters.

Check parameters

Check all parameters for value range.

Set default values.

Set parameters to default values.

Online

Transfer of data or commands to COMPAX.

Terminal

Calling up the terminal program

Command

Send direct commands to COMPAX.

Parameter

Read and edit COMPAX parameters.

Status

Select and display status values.

Upload (from controller)

Load parameters (including system parameters) of the connected COMPAX into the PC.

Download (to controller)

Load pre-set parameter list into COMPAX.

Duplicate

Download with system parameters

Compare

Comparison of parameters between the current file and connected COMPAX.

Error ▶

Error tracing and error history.

Download option identification

Enter updated options (password protected)

Window

Select and arrange the open windows.

Arrange horizontally

Arrange open windows horizontally.

Arrange vertically

Arrange open windows vertically.

Cascade

Arrange open windows behind one another.

User defined ▶

Load window setting or save current window setting.

...

Select an open window.

Servo Tools

Switch to other existing HAUSER Servo Tools

Servo-Manager

Return to ServoManager

CamEditor

Calling up the CamEditor.

Program-Editor

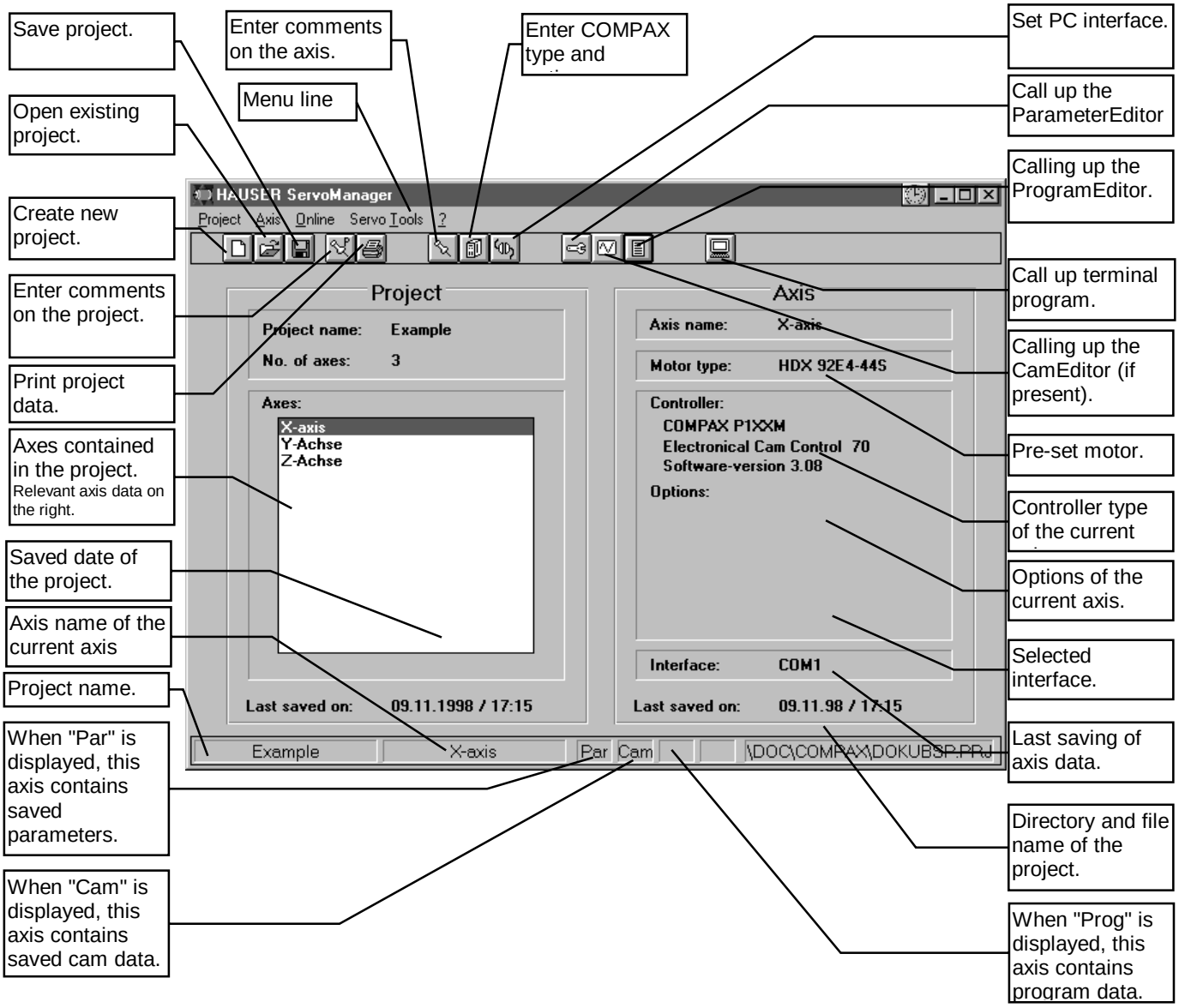
Calling up ProgramEditor to compile COMPAX programs.

?

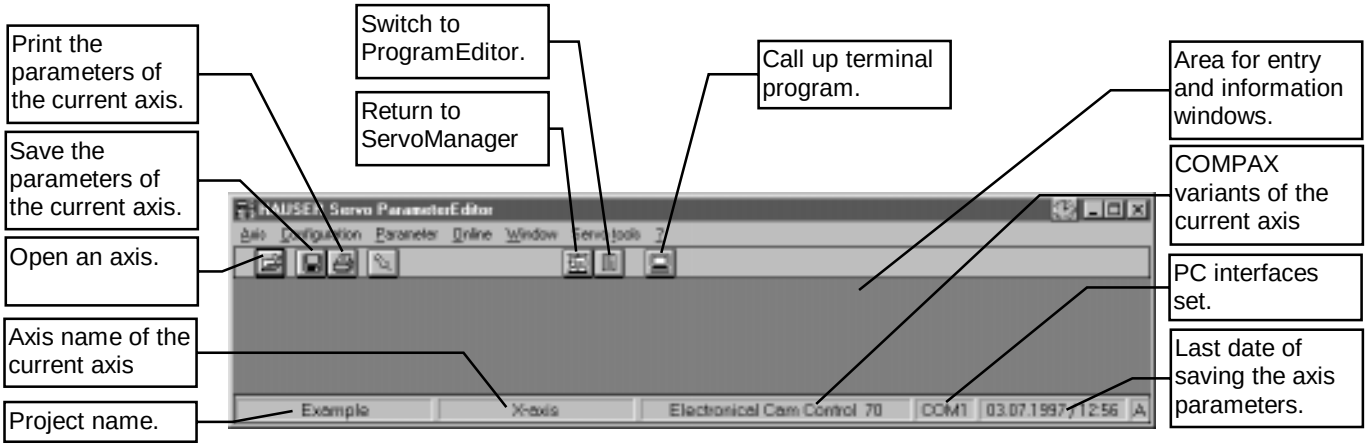
Info

Short program information.

2.6.1 Window content of ServoManager



2.6.2 Window content of ParameterEditor



2.6.3 Keyboard operations

Program user interface

- Call up the menu line using the "Alt" key.
  The 1st menu is selected (indicated by highlighting).
- Call up the desired menu using the letter underlined in the menu text.
  The "pull down" menu will open.
- Call up the desired window in the same way using the letter underlined in the menu text.

Entry window

Using the Tab key (⇆), switch between the individual entry positions within the entry window and the existing buttons (if the buttons are selected, they can be activated using the Enter key (↵).
Additional keyboard functions:

- Buttons can be activated using the ALT key and the underlined letter (pressed simultaneously).
- Enter (↵) is used to accept the window contents and close the window (not in Online and Info windows).
- In those entry fields, which are displayed as selection windows, individual setting options are selected with the arrow keys (↑,↓).

Window change in the case of several open windows

In addition to using the menu (Alt+f "Window number"), it is possible to switch to the next window using Ctrl+F6.

Setting the scanning rate for status values (menu "Online: Status" in the Parameter-Editor)

Select bars with the Tab key (⇆) and adjust with the arrow keys (↑,↓).
Fast adjusting with "Figure ↑" and "Figure ↓".
"Pos1" and "End" can be used to approach the smallest and largest values.

Cancelling functions

Use the Esc key to cancel functions such as Upload, Download, Save.

2.6.4 Transfer parameter in program start

Program start settings can be selected by entering special data in the command line (this can be found in the properties of the program icon).

Select language

Command line: "...\srvman.exe /Sdeutsch"

Call up project

Command line: "...\srvman.exe /PProjectdirectory"
Ex.: "...\srvman.exe /PC:\srvtools\verpack"

3. ServoManager menuss

3.1 Project

Project management. All functions that concern the whole project are listed under this menu point.
To start you must

- either create a new project or
- open an existing project.

Note! Only one project at a time can be opened.

3.1.1 Project: New

Create a new project. The project name and comments are requested here.

3.1.2 Project: Open

In this window, the disk drive, directory and file name are selected.

3.1.3 Project: Close

Closes the current opened project. If you have carried out changes and these are not yet saved, a request for you to state which axes are to be saved appears.
In principle, all changed axes are selected.

3.1.4 Project: Delete

Deletes a saved project; the current opened project cannot be deleted.

3.1.5 Project: Save

Saves the current opened project. If you have carried out changes and these are not yet saved, a request for you to state which axes are to be saved appears.
In principle, all changed axes are selected.

3.1.6 Project: Save as

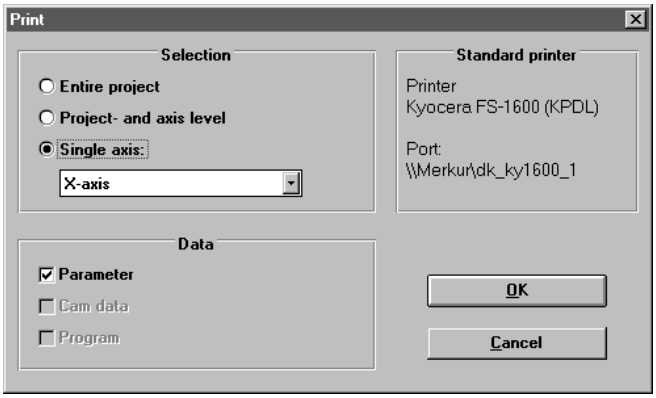
Saves the current opened project under a new name.

3.1.7 Project: Project Info

Each project can be assigned a symbolic name (maximum 16 characters) and a comment (maximum 32 000 characters).

3.1.8 Project: Print

Prints the axis data.



The printout header contains the file name, comments and the data from the status line.

The parameters are printed with the number, value, description and any value meanings.

3.1.9 Project: List of previously selected projects

The last 4 projects can be called up directly from here.

3.1.10 Project: Quit

Closes the program and the current opened project. If you have carried out changes and these are not yet saved, a request for you to state which axes are to be saved appears.
In principle, all changed axes are selected.

3.2 Axis

Once a project is opened, the main axis data of the current axis can be entered or changed (the current axis is highlighted in the window "Axes").

3.2.1 Axis: Insert

There are 3 methods of entering an axis:

1. **New.**
   A new axis is entered into the project.
   The menu points "Axis Info" and "Controller/Options"
   are called up.
2. **From the controller.**
   A request is made regarding which data should be loaded.
   A new axis with the axis data (parameters, program and cam data, if available) of the connected COMPAX is entered into the project.
   The PC interface must first be pre-set (see below).
   Note
   If parameters alone are to be loaded from the COMPAX, this can be done in the ParameterEditor using the menu "Online: Upload".
3. **From the project.**
   A new axis with the axis data of another project is entered into the project.

3.2.2 Axis: Delete

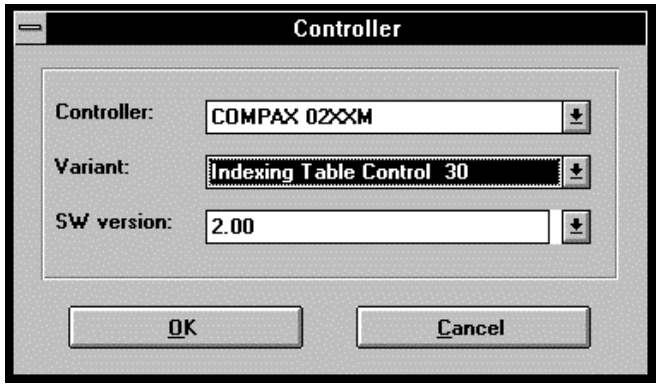
Deletes the current axis.
This change is only implemented during the next project save.

3.2.3 Axis: Axis-Info

Enter the axis name and an axis comment.

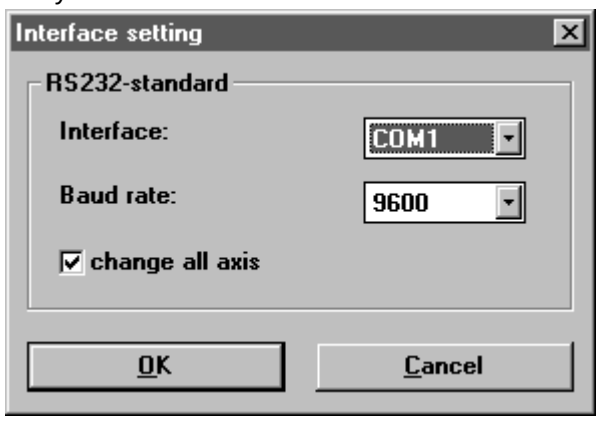
3.2.4 Axis: Controller/Options

Requests the precise COMPAX type and the options included.
Entry window:



3.2.5 Axis: PC interface

Setting the PC interface to which the current axis is connected.
This PC interface is then linked to the specific axis.
Entry window:



3.3 Online

Direct communication with the connected axis.
The commands, parameters and status values that are available depend on the actual device variants and the existing options.

Note regarding Upload / Download

If there are differences in the controller type, the version, the device variants or the options, an Upload / Download procedure is interrupted.

3.3.1 Online: Terminal

This enables a terminal mode, similar to other terminal programs. The functions of the four menu points Command, Parameter, Program and Status can be used. However, no information is provided regarding the meaning of the parameters or status values.
The terminal is used for rapid viewing and editing.

Any modifications to parameters undertaken here are independent of the current opened axis and are not saved in the PC.

3.3.2 Online: Upload from controller.

The selected axis data (parameters, program and, if present, cam data) are uploaded from the device. A safety question is asked if data that is not saved would be overwritten.

3.3.3 Online: Download to controller.

The selected axis data (parameters, program and, if present, cam data) of the current axis are downloaded to the device.
Finally, the parameters are set to valid with VC and VP.

3.4 Servo Tools

3.4.1 Servo Tools: ParameterEditor

Calling up the ParameterEditor.
The first call up also opens the current axis.
If the ParameterEditor is already open, then the settings are kept, i. e. the current axes of both programs are independent of each other.

3.4.2 Servo Tools: CamEditor

Calling up the CamEditor; if present.

3.4.3 Servo Tools: ProgramEditor

Calling up the ProgramEditor.

3.4.4 Servo Tools: Dialogue language

A choice can be made between German, English and French (other languages on request). The language selection is made as follows:

- Permanent dialogue language.
The selected language is saved. At the next program start, the program will automatically be shown with this language.
- Temporary dialogue language.
In the temporary setting, the selected language is only used during the current program work and is not saved.

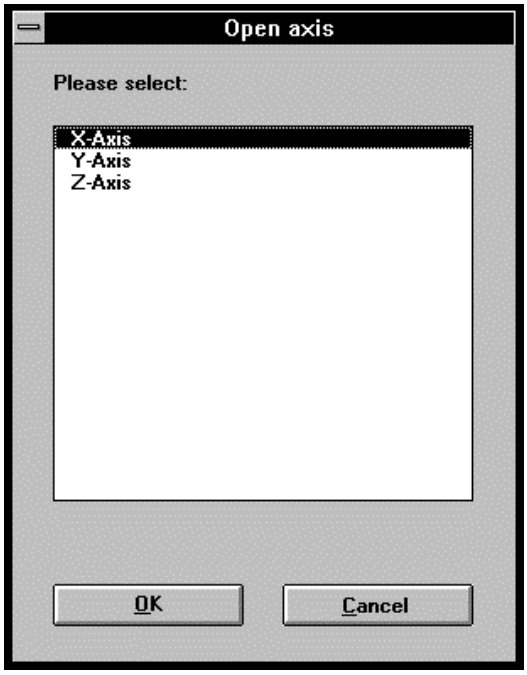
Entry window:

4. ParameterEditor menus

4.1 Axis

4.1.1 Axis: Open

Opens an axis of the opened project. A maximum of 4 axes can be opened simultaneously; however only one axis is the current one.
Entry window:



4.1.2 Axis: Close

Closes an open axis.

4.1.3 Axis: Change current axis

Sets an open axis as the current one.
Settings made via the menus always apply to the current axis.

4.1.4 Axis: Save all parameters / axis data

Save parameters. If you have carried out changes and these are not yet saved, a request for you to state which axes are to be saved appears.
In principle, all changed axes are selected.

4.1.5 Axis: Parameter Info

Enter comments on the parameters of the current axis.

4.1.6 Axis: Load parameter from the project

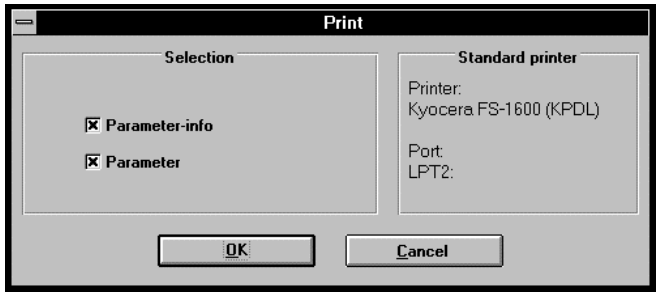
Load a parameter from an existing project into the current axis.
Old parameter files (Software status <V2.0) can also be loaded, after the file type "*.RPA“ has been selected.

4.1.7 Axis: Save parameters / axis data

Save the current axis.

4.1.8 Axis: Print parameters

Print the current axis.
Entry window:



4.1.9 Axis: Quit

Quit ParameterEditor.

4.2 Configuration

The configuration parameters can be
- entered via guided menus or
- logically linked configuration parameters via individual menus.

The first configuration of an axis must always be processed in a guided manner so that all important settings are made.

4.2.1 Guided configuration

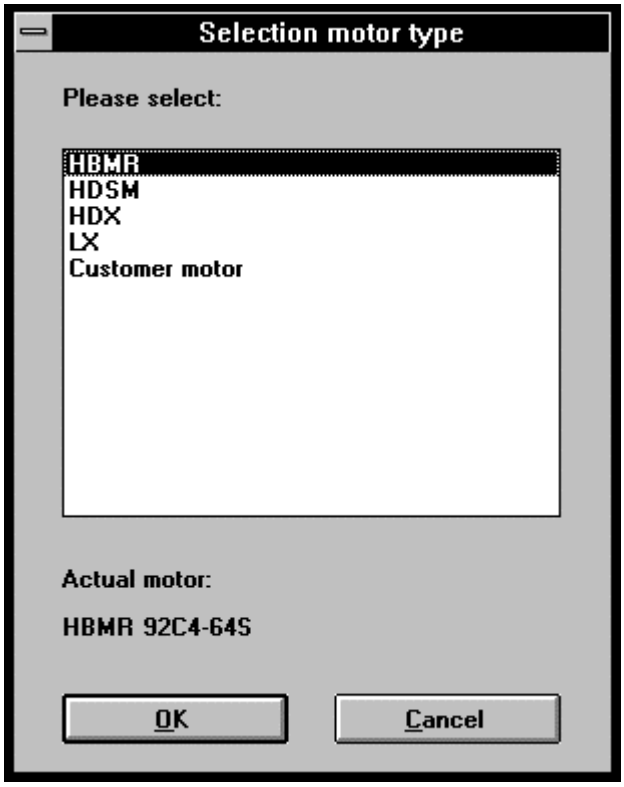
Depending on the device variant and the availability of options (e.g. encoder input or encoder simulation), the user is guided through all relevant parameter windows. With a new axis, only guided configuration is possible.

4.2.2 Motor

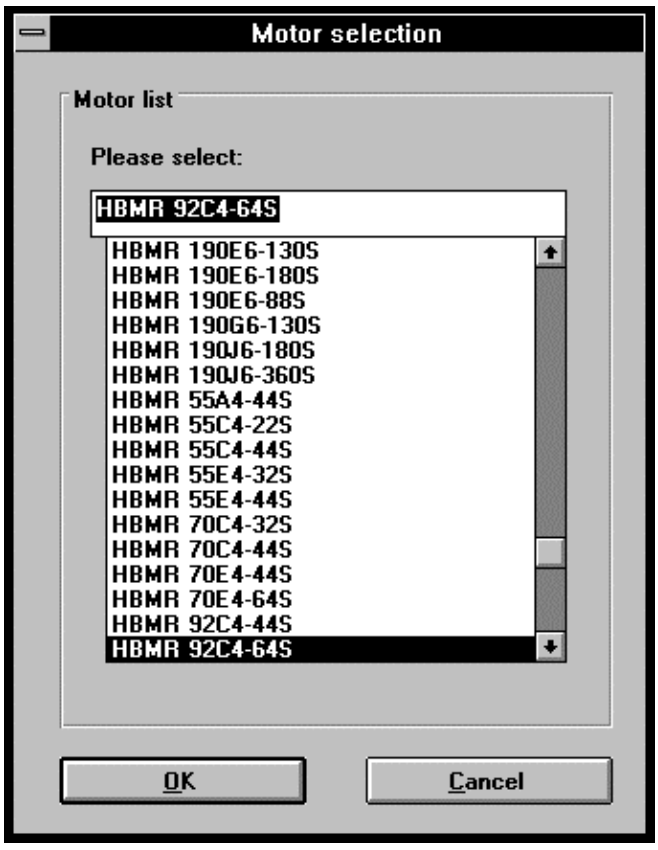
A selection must be made from:
- HBMR motor,
- HDX motor,
- HDSM motor or
- a client motor; i.e. a motor supplied by the user.

A selection must then be made from:
- the existing standard motors (HBMR, HDX and HDSM motors), or
- the list of existing client motors.
  This list can be expanded by using "Add". This calls up the window for entering the motor parameters.
  Note:
  If a similar motor was selected previously, then the motor parameters are pre-set with that data.

Entry window:



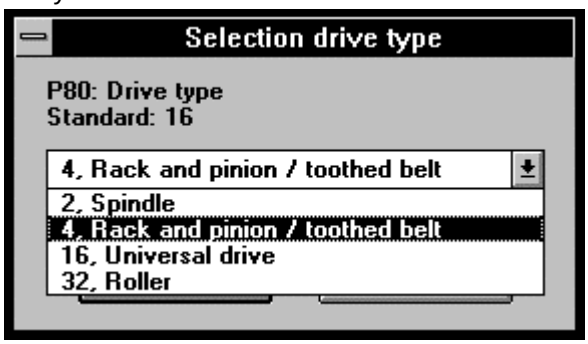
Entry window for HDX motor list:



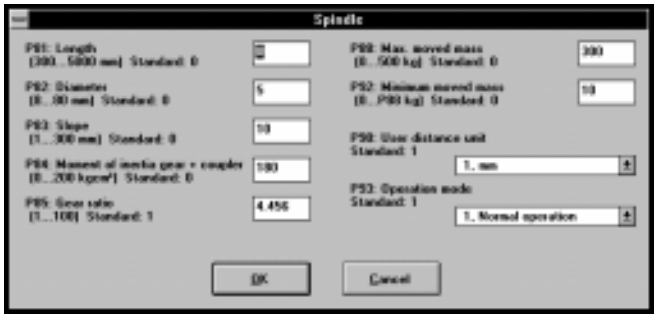
4.2.3 Drive type

Following the selection of the drive type (selection is based on the drive types available for the selected COMPAX variant), parameters must be entered according to the configuration and device variants.

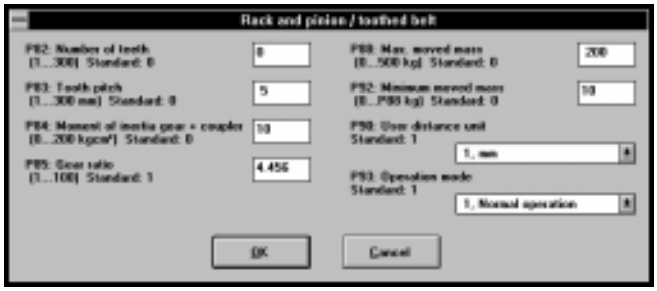
Entry window:



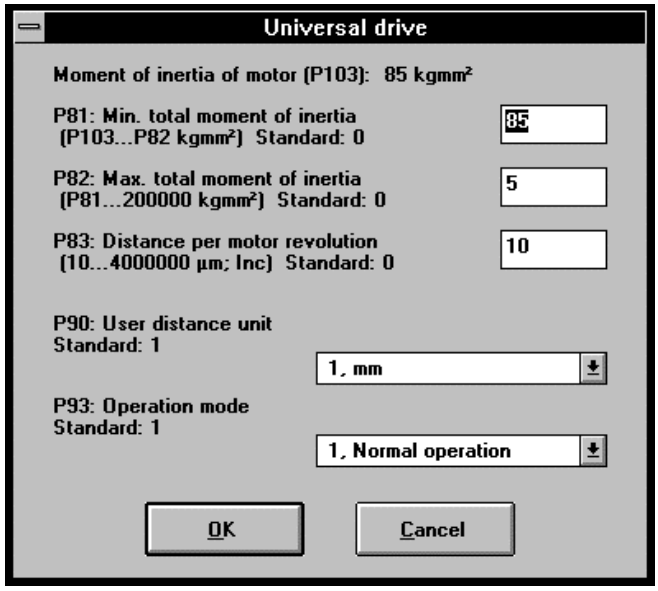
Entry window for spindle:



Entry window for rack and pinion/timing belt:



Entry window for universal drive:

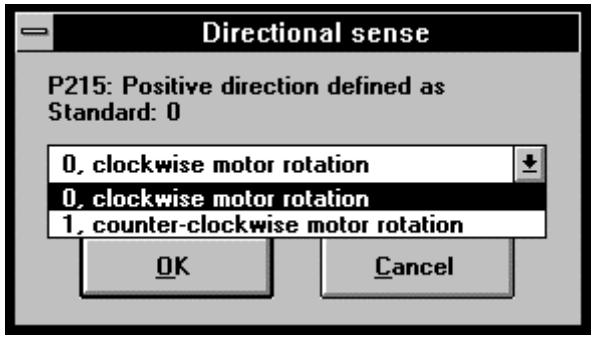


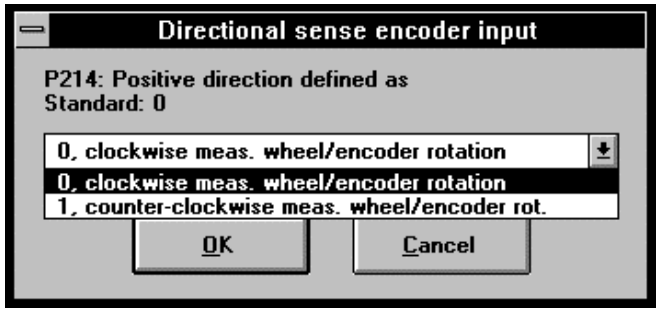
4.2.4 Reference system / Initiators

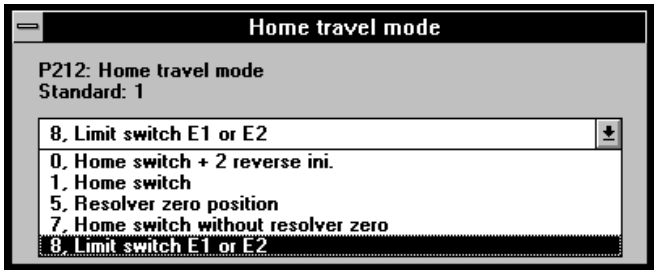
Data is entered here concerning

- the sense of direction
- the machine datum mode,
- the limit switch mode with the position of the limit switch,
- the machine datum direction and
- the software end limits.
- If present: activate the option "Absolute value sensor input".

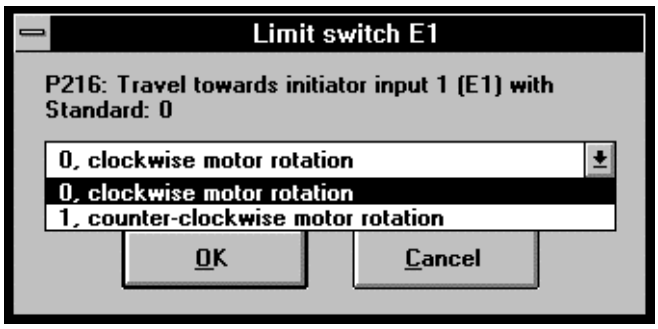
Entry window:

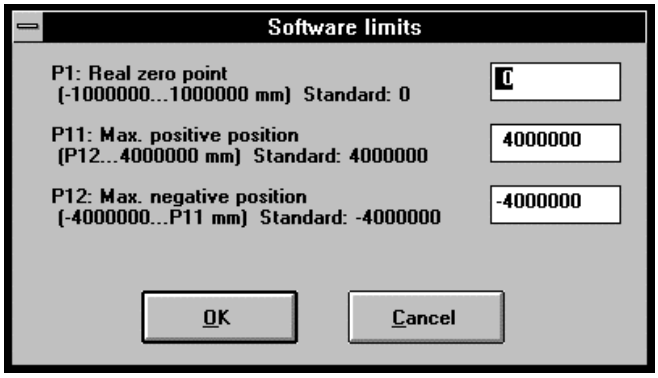


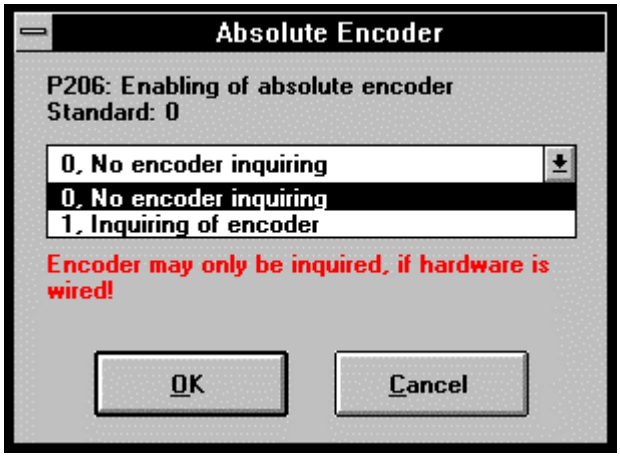




The possible machine datum modes are device dependent (COMPAX software variants).

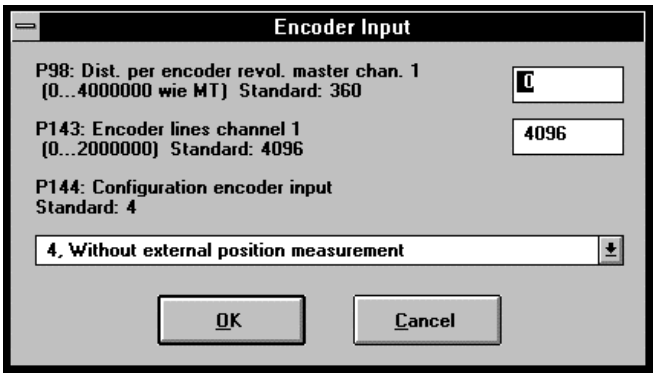






4.2.5 Encoder input

Configuration of the encoder inputs:



4.2.6 Encoder simulation

Defining the resolution of the encoder simulation.

4.3 Parameters

The device parameters can be:
- entered via guided menus or
  or
- logically linked parameters entered via individual menus.

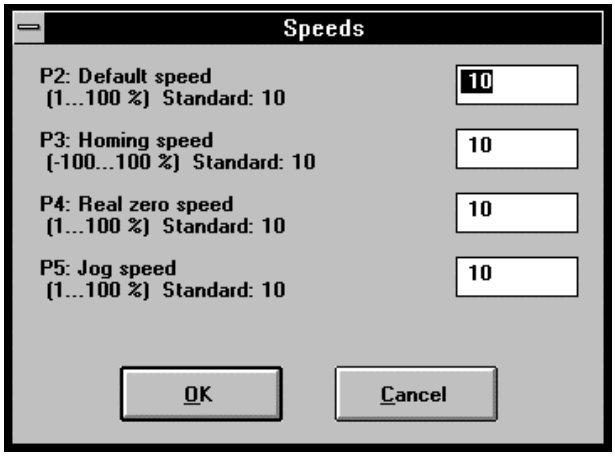
Note
All parameter menus that have already been processed are indicated by a check mark (√).

4.3.1 Guided parametrization

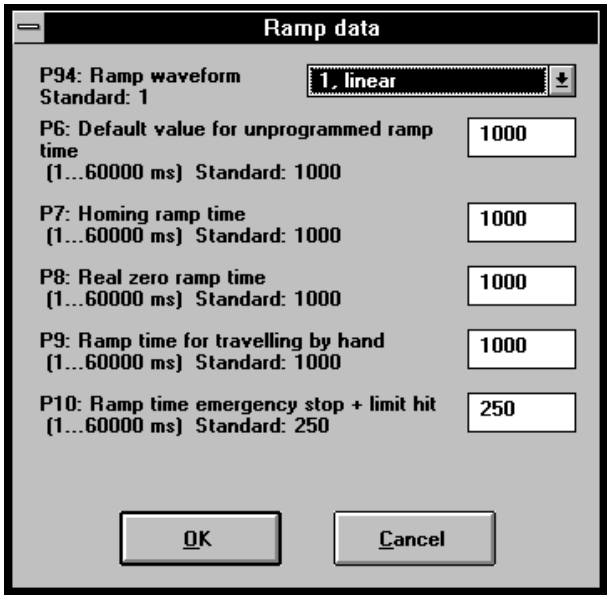
Guided parameter entry; dependent on the device variants and the options used, all parameters in this menu point (except the configuration parameters of the menu "Configuration") are called up.

4.3.2 Set point generator

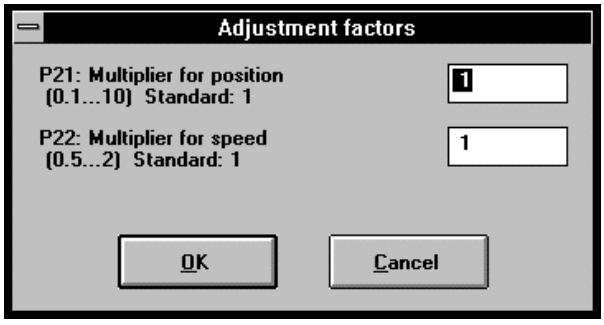
Setting:
- speeds.
  Entering replacement and default values of the speeds and acceleration times for various operation modes, e.g. approach machine datum or manual mode.



- Ramp data.
  Entering the ramp forms and ramp times for various operation modes, e.g. approach machine datum or manual mode.

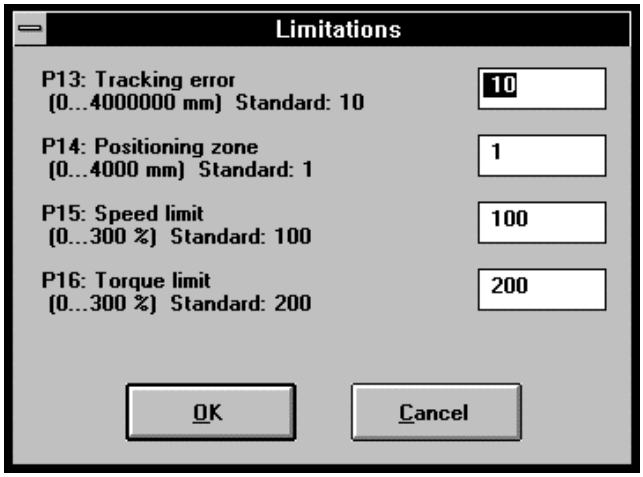


- Adjustment factors.
  Defining the adjustment factors for distance and speed.



4.3.3 Limitations

Setting maximum permissible values for tracking errors, positioning zones, speed and torque.



4.3.4 COMPAX interfaces

Setting paramters for built-in interfaces such as:
- PLC data interface;
- Input "Fast start"
- RS232;

and, if present:
- RS485; (Option F1/F5)
- Profibus (Option F3)
- CAN - Bus (Option F4)
- HEDA (Option A1)

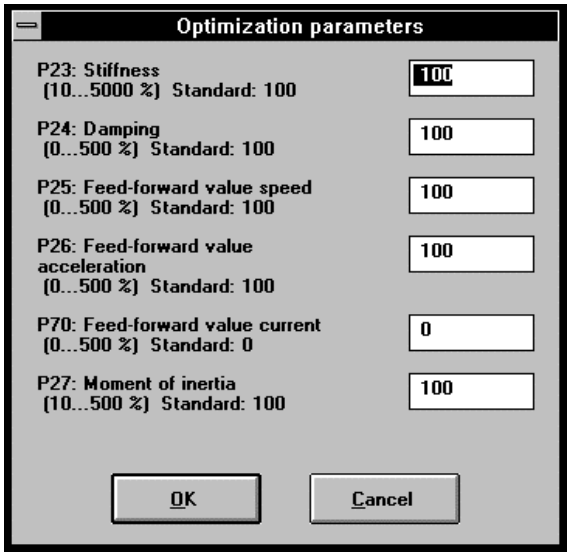
...

4.3.5 Application parameters

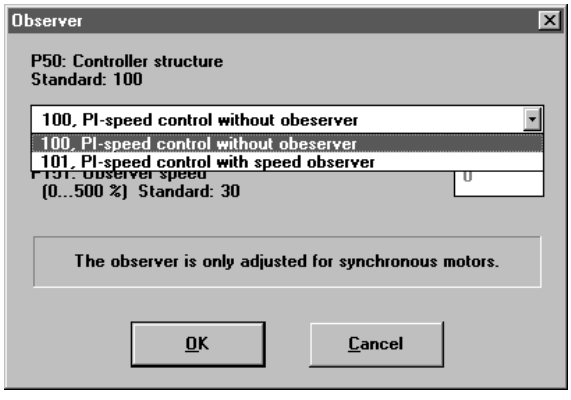
Depending on the device variants, special parameters are entered here (e.g. label reference parameters).

4.3.6 Controller

- Setting optimizing parameters:



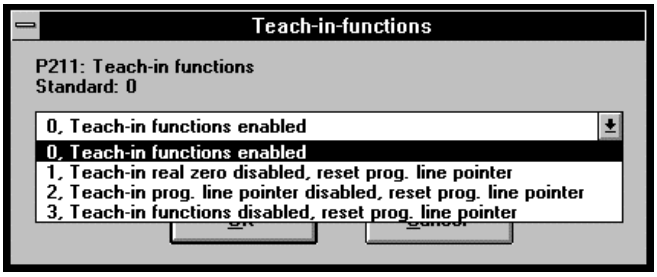
- activate and set observer:



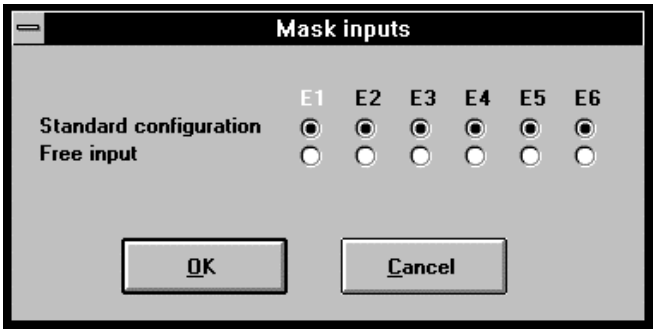
- Additional selectable structure variants of the controller.

4.3.7 I/O parameters

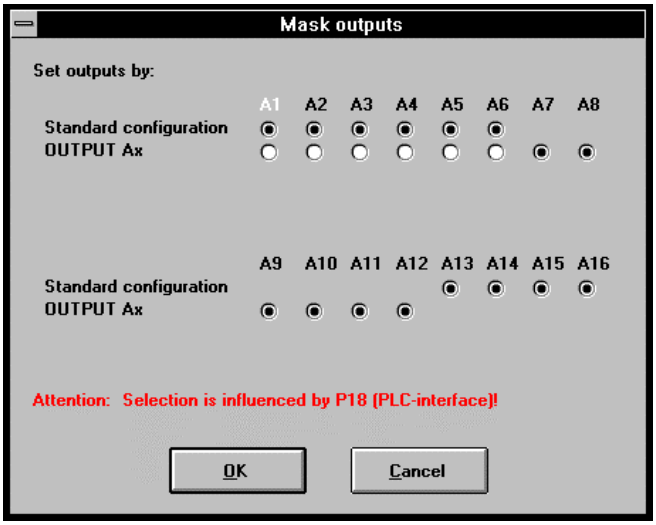
Settings:
- Teach In functions.



- Mask inputs.



- Mask outputs.

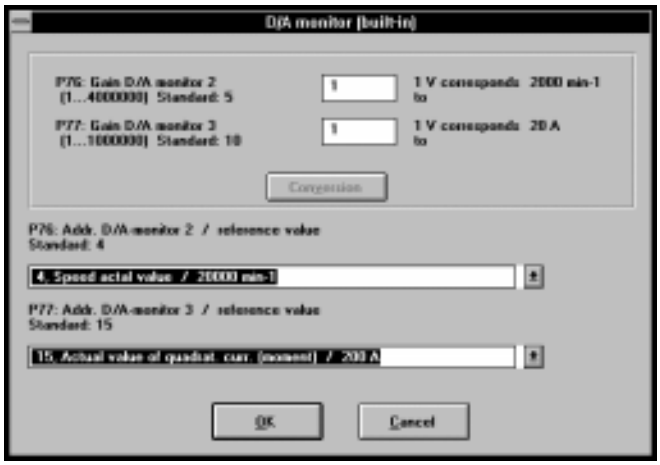


4.3.8 Monitor

Settings:
of the status monitor S15.
the optimizing display.
The D/A monitor channel 0/1 and, if present, 2/3.

All channels display which physical value corresponds to a voltage of one volt at the pre-set gain. When the gain is altered, the new relationship is displayed after the switch "Convert" is pressed.

Ex.: Entry window of the built-in D/A monitor channels 2/3

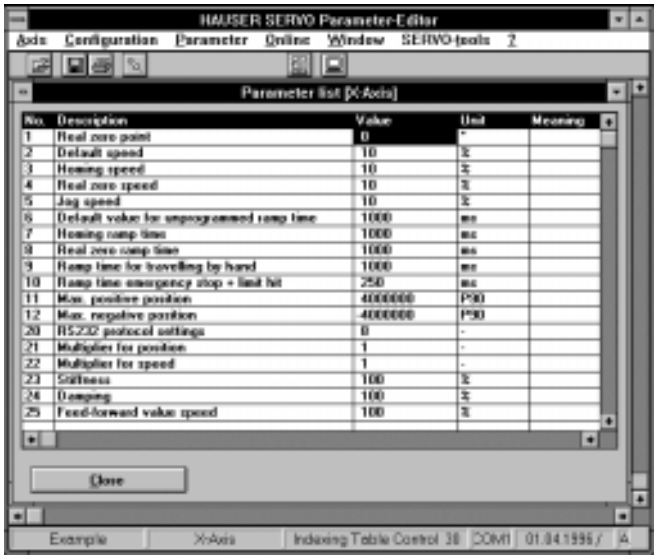


4.3.9 Error handling

Setting error responses and activation of the emergency stop input on the COMPAX-M.

4.3.10 Parameter lists

Reading and modifying parameter lists.
Parameters can be changed in the column "Value".
Entry window:



Select parameters

- Using the arrow keys (↑,↓)

or

- with the mouse.

Edit parameters

The entry mode is obtained:

- by entering a new value (the old value is overwritten),
- with the space bar (the old value is not overwritten and can be modified),

or

- by clicking with the mouse (the old value can be corrected or selected and overwritten).

An entry is confirmed with Return (↵).

Parameter information

- Using the right mouse button
  or
- pressing Enter (↵)

opens an Info window for the selected parameter, displaying the permissible value range, the default value and how the parameter is enabled.

4.3.11 Check parameters

All parameters are checked for their value range. This function is important if a guided parametrisation has not been implemented.

4.3.12 Set default values

All parameters (except motor parameters) in the current file are set to their default values.

4.4 Online

Direct communication with the connected controller.
The commands, parameters and status values that are available depend on the actual device variants and the existing options.
To avoid "Download" into an incorrect axis, the axis serial number is checked.

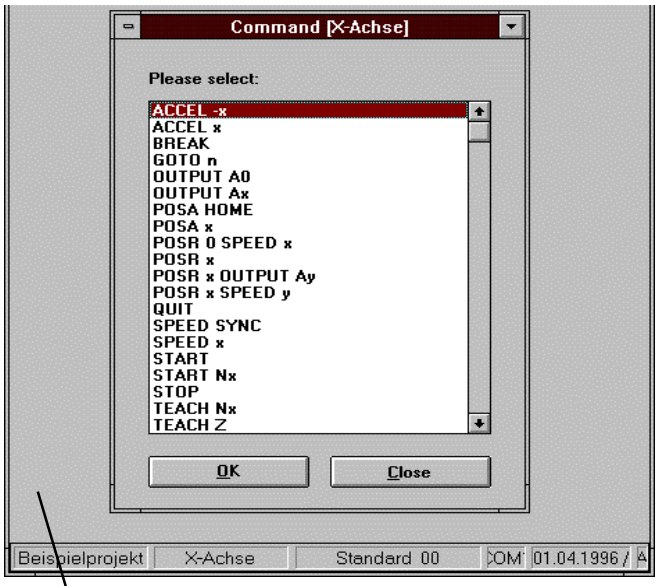
Note regarding Upload / Download

If there are differences in the controller type, the version or the options, the data is corrected in the project.
If there are different variants, the process is interrupted.

4.4.1 Terminal

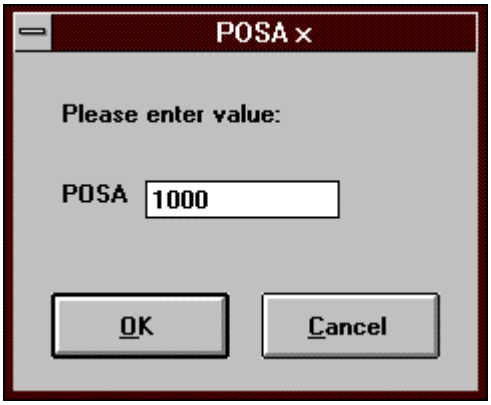
Calling up the terminal program

4.4.2 Command



After the command is sent, COMPAX confirms the operation with the message "Command confirmed".

Direct commands can be selected from an alphabetical list. If necessary, the corresponding command value is requested, e.g. command: ACCEL and value: 500.



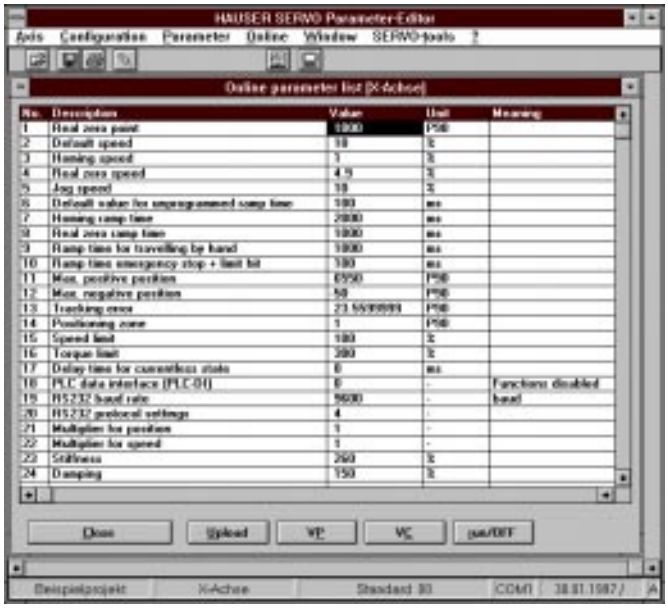
4.4.3 Parameter

When this menu point is first selected, the user is asked:

- if the current file should be transferred to the device (Download), or
- if the parameters should be uploaded from the device (Upload).

A safety question is asked during Upload if the current parameters are not saved.
Individual parameters, blocks of parameters or a complete parameter list can then be looked at and - if required - edited. The parameter numbers, the parameter values and their meaning are displayed.

Window:



Select parameters

- Using the arrow keys (↑,↓)

or

- with the mouse.

Edit parameters

The entry mode is obtained:

- by entering a new value (the old value is overwritten),
- with the space bar (the old value is not overwritten and can be modified),

or

- by clicking with the mouse (the old value can be corrected or selected and overwritten).

An entry is confirmed with Return (↵).

Parameter information

- Using the right mouse button

or

- pressing Enter (↵)

opens an Info window for the selected parameter, displaying the permissible value range, the default value and how the parameter is enabled.

Select parameters

Several parameters can be selected simultaneously to be able to update them via an Upload.
Procedure for selecting several parameters:

With the mouse:
To select a parameter, hold down the left-hand mouse button and drag the mouse over the parameter line.
This method can be used to select several parameters; including non-consecutive parameters.
Dragging the mouse over the line again will cancel the selection.

With the keypad:
A line is selected if the SHIFT key (⇑) is pressed when moving through the table (using the arrow keys ↓, ⇑).
This method can be used to select several parameters; including non-consecutive parameters.
Moving over the line again with the SHIFT key (⇑) pressed down cancels the selection.

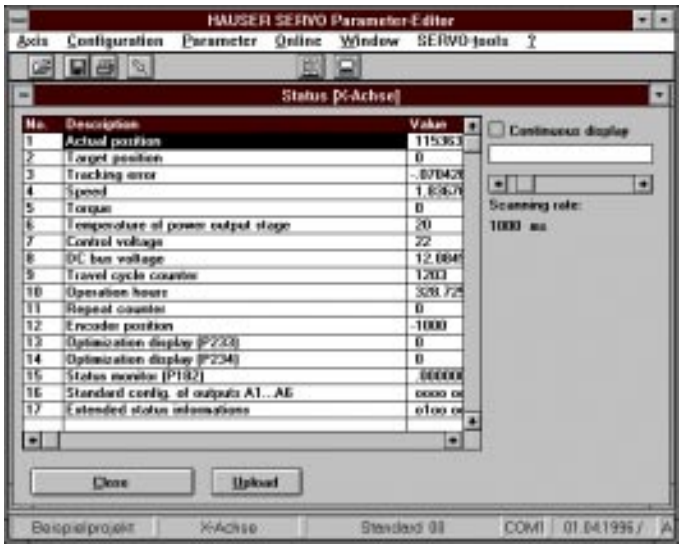
4.4.4 Status

Function: Status value display
This shows the status numbers, the status values with units and the meaning.
In addition, a permanent status value display can be set to observe changes. When the permanent display is stopped, the last 250 values can be checked.

Note!

Do not use the active interfaces simultaneously via the terminal!

Window:



Permanent display

With this function, a status value can be observed online. The status value displayed is that selected when activating the function.

Before activating the permanent display, the actualisation time can be set (scanning rate).

Note!

Do not use the active interfaces simultaneously via the terminal!

The permanent display loads the interface to the controller, therefore additional online functions are restricted.

Meaning: The scanning rate decreases as the interface is increasingly loaded.

Selecting status

Several statuses can be selected simultaneously to be able to update them via an Upload.

Procedure for selecting several statuses:

With the mouse:

To select a status, hold down the left-hand mouse button and drag the mouse over the status line. This method can be used to select several statuses; including non-consecutive status.

Dragging the mouse over the line again will cancel the selection.

With the keypad:

A line is selected if the SHIFT key (⇑) is pressed when moving through the table (using the arrow keys ↓, ⇓). This method can be used to select several statuses; including non-consecutive status.

Moving over the line again with the SHIFT key (⇓) pressed down cancels the selection.

4.4.5 Upload

The complete parameter list is uploaded from the device. A safety question is asked if parameters that are not saved would be overwritten.

If there are differences in the controller type, the version or the options, the data is corrected in the project.

If there are different variants, the process is interrupted.

4.4.6 Download

The entered parameter list (current file) is loaded into the device.

Finally, the parameters are set to valid with VC and VP.

If there are differences in the controller type, the version or the options, the data is corrected in the project.

If there are different variants, the process is interrupted.

4.4.7 Duplicate

Function: Download with additional transfer of internal system parameters.

The system parameters are loaded into the PC with Upload: they are not reloaded into the connected COMPAX with Download. This prevents the system settings from being overwritten.

Application: If a device fails, Duplicate can be used to transfer the complete settings (parameters and system settings) into a replacement device.

⇨ Use the menu "Download" for normal transfers, otherwise there is a danger that internal system settings are overwritten.

4.4.8 Compare

Compares the parameter values in the Editor - and therefore in the current opened file - with the parameters in COMPAX.

Result:

Deviating parameters are listed in a window with the corresponding settings. A message indicates if the parameter sets agree.

4.4.9 Errors

Error tracing

In the normal ParameterEditor mode, errors are only indicated during activities via the interface.

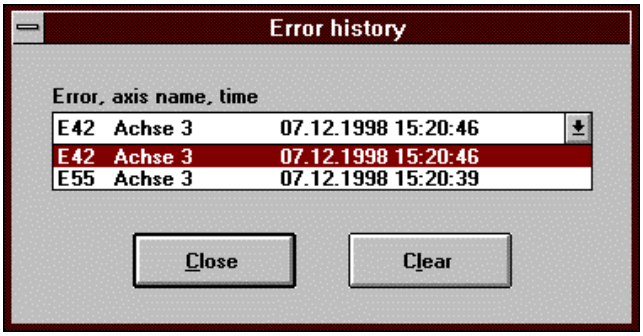
During active error tracing, any sporadically occuring error is recorded with the time of appearance. This means that the interface is permanently occupied; the other functions of the ParameterEditor are no longer available.

The errors can be called up via the error history.

With the function "Error tracing", the COMPAX can be monitored in operation over a long period.

Note!
During error tracing, the program resets the parameter P20 and then sets it to the old value after the function is terminated.
Ensure that P20 is reset if the ParameterEditor is interrupted during the error tracing.

Error history
Displays the last 50 errors that occured during operations with the ParameterEditor.
Error, axis name, date and time are displayed.



By double clicking on an error in the error list, further information on this error is displayed.

4.4.10 Download option identification

Enter updated options (password protected)

4.5 Window

All open windows are listed in this menu. The current window is marked with a check mark. You can select another open window by clicking on it.
This is useful if, for example, a window is iconized and is now hidden behind other windows.

4.5.1 Arrange horizontally

All open windows are arranged horizontally.

4.5.2 Arrange vertically

All open windows are arranged vertically.

4.5.3 Cascading

All open windows are cascaded from the top left to the bottom right.

4.5.4 User Defined

Here you can save a window screen layout which you have selected in a "*.WND" file.
When next working with the program, you can load this screen layout and do not have to construct it from scratch. To do this, all axes listed in the windows must first be opened.

4.6 Servo Tools

Additional HAUSER Servo Tools on the PC can be called up here if available or you can change to the ServoManager.
The ParameterEditor starts the selected program or switches to this program if it is already running.

4.7 Help

Not implemented.

4.7.1 Info

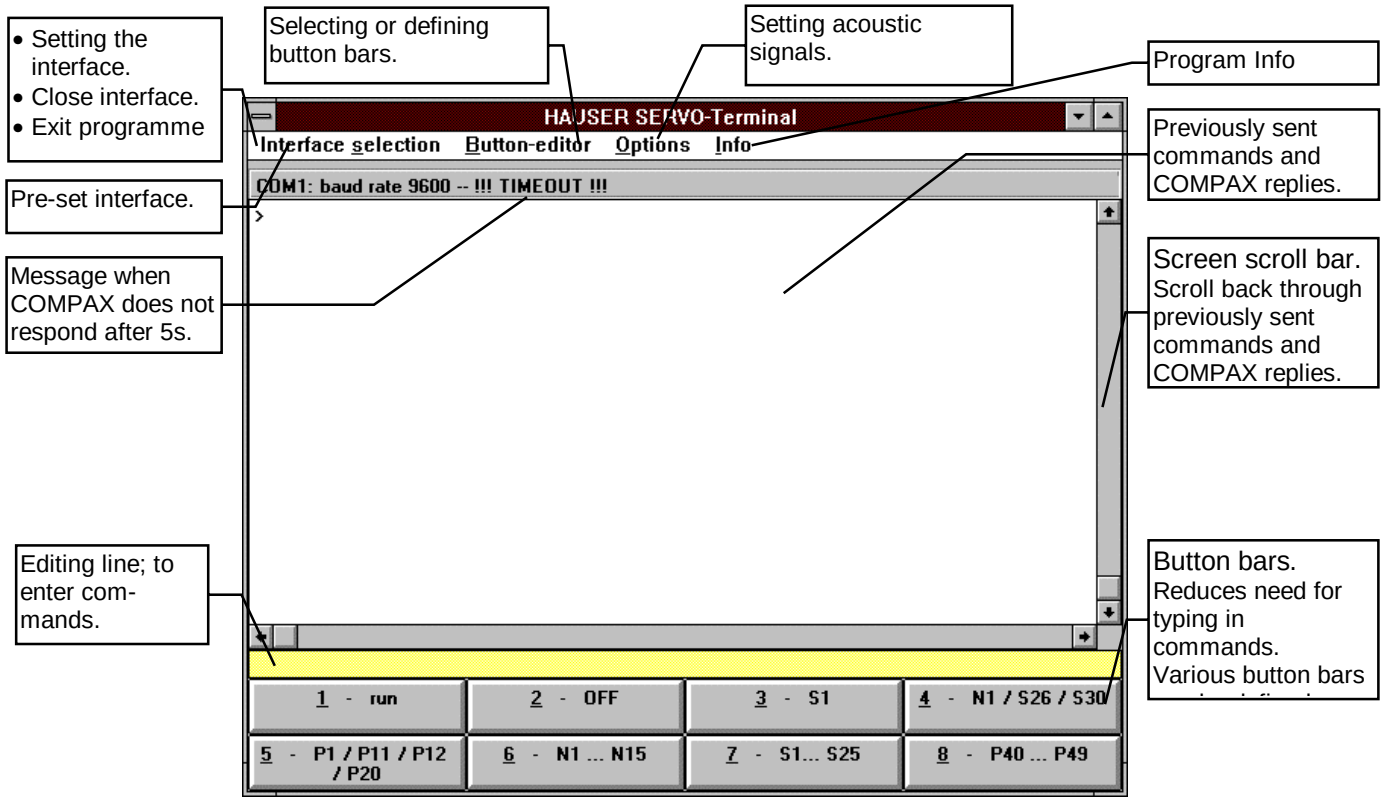
As is normal in Windows applications, a small amount of information appears with the program name, version, copyright, company address and use of the PC.

5. Terminal

This enables a terminal mode, similar to other terminal programs. The functions of the four menu points Command, Parameter, Program and Status can be used. However, no information is provided regarding the meaning of the parameters or status values.
The program "Terminal" is used for fast viewing and editing of COMPAX data.

For easy use, commands can be entered via the 8 buttons. The buttons can be assigned as required; each button can be assigned up to 255 commands. Various button bars (up to 10) can be defined and selected.
Any modifications to parameters undertaken here are independent of the current opened axis and are therefore not saved (in the ServoManager or ParameterEditor).
However, the COMPAX settings can be loaded in an axis during an Upload and then saved.

5.1 Window content of the Terminal program



5.1.1 Keyboard operations

Activating menus

The "ALT" key and the underlined letter in the required menu point is used to open the relevant menu (e.g. "ALT" and "I" opens the menu Interface selection). Each submenu can also be selected by means of the appropriate underlined letter.

Activating buttons

The "ALT" key and the required button number is used to send the linked command to COMPAX.

The Tab key can be used to switch between the buttons, the display window and the editing line.

Note!

Do not operate the ServoTerminal and ServoManager via the same interface.
I.e. do not work with the ServoTerminal via an interface, if this interface is currently in use for, e.g. a Download or a status permanent display.

5.2 COMPAX commands via the Terminal

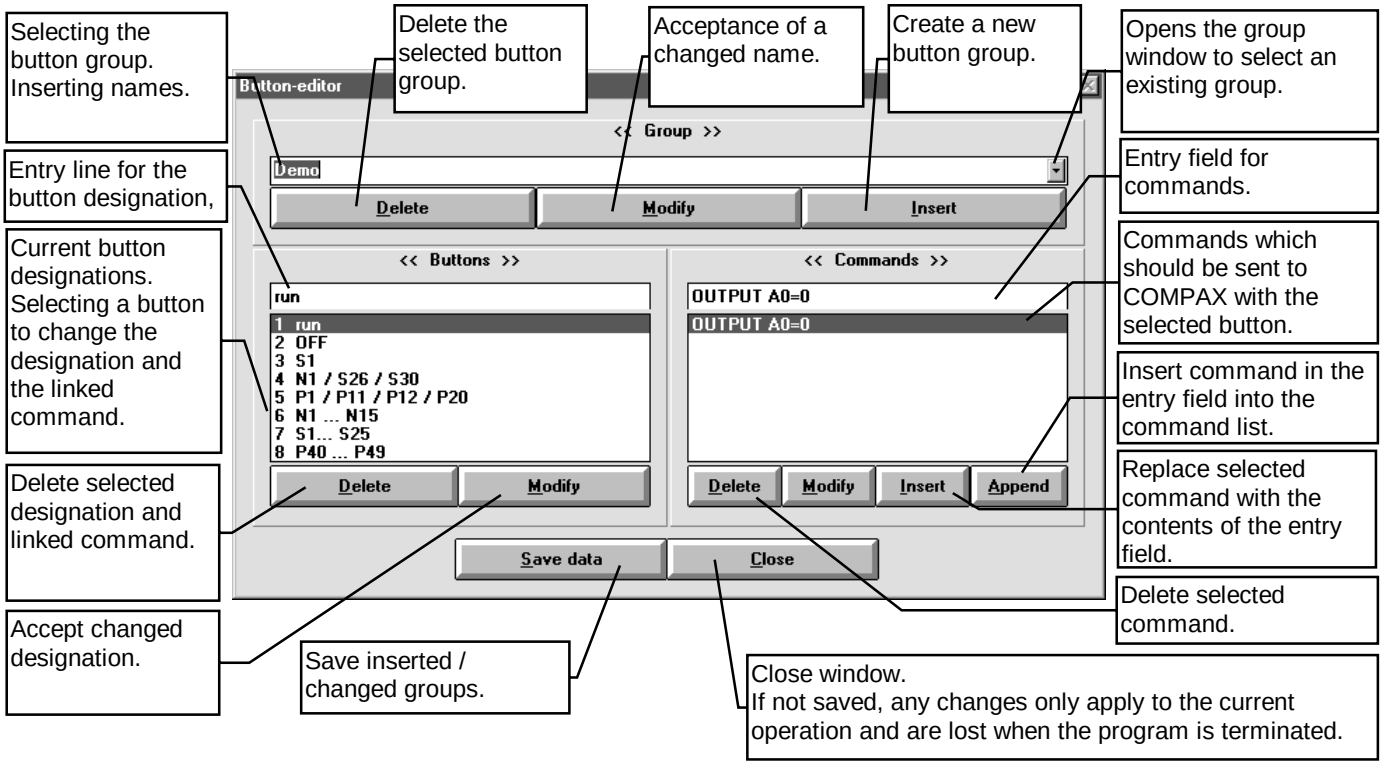
Function range:

- All COMPAX commands,
- changing parameters,
- status interrogattions or
- entering programs in the program memory.

The precise structure of the individual functions and commands can be found in the Chapter "Operations via the serial interface" in the User Guide.

5.3 Definition of button bars

5.3.1 Window structure of the ButtonEditor



Defining a button

- Select button.
- Select entry field
- Enter button designation.
- Accept with "Change".
- Switch to the command entry field.
- Enter the command.
- Accept with "Insert".

⇨ The same procedure applies for changing a button.

Keyboard operations

All buttons can be activated with the ALT key and the relevant underlined letter.
Use the Tab key to switch between the following entry points:

- The entry/ selection line of the button group to
  - select a group with the arrow keys (↑, ↓) or
  - enter a new name.
- The entry line for the button designation, the line can now be:
  - processed or
  - the required button can be selected using the key "ESC" and subsequently the arrow keys.
- The entry line for the command, the line can now be:
  - processed or
  - an existing command can be selected using the key "ESC" and subsequently the arrow keys.
- The button "Save file" (the button is activated with Enter (↵)).
- The button "Quit" (the button is activated with Enter (↵)).

6. ProgramEditor

6.1 Compatibility

6.1.1 Old DOS block editor programs

Programs which you have created using the DOS block editor can be loaded into the ProgramEditor as follows:
Load the program into COMPAX using the DOS block editor.
Starting the ServoManager.

- Applying a new project or opening an existing project.
- Activate the desired axis or insert an axis: new (manual) or by controller.

To insert an axis from the controller

- After "Insert: Axis: from controller" (program activated), in addition to the parameters the program in which the current axes are loaded in the ServoManager are also loaded.

To insert a new axis or to overwrite an existing axis

- In the case of a new axis or an axis which already exists in the project: Start ProgramEditor.
  - Using Upload, load the COMPAX - program into the ProgramEditor.

6.2 ProgramEditor desktop

6.2.1 Menu overview of the ProgramEditor

Axis

Axis management.
Exit programme

Open

Select and load an axis (up to 4 axes can be opened).

Close ▶

Close selected axis.

Change current axis ▶

Change between open axes.

Save all programs

Save changed programs. The opened axes can be selected individually for saving.

Program Info

Enter comments on the program.

Load program from the project

Load axis program from another project.

Save program

Save the program of the current axis.

Print program

Print the program of the current axis.

Quit **Ctrl+Q**

Quit tool.

Edit

Work with the clipboard.
Syntax check

Cut

Delete and accept the marked program lines onto the clipboard.

Copy

Accept the marked program lines onto the clipboard.

Insert

Insert clipboard at cursor position.

Delete area

Delete the marked program lines.

Search for errors

Syntax check of the current program.

Defining

Define variables and activate / deactivate list window.

Variables

Define COMPAX - variables P40...P49 and V1...V39.

Display lists

List windows with the registers:

- Variables, parameters
- labels,
- commands.

display or hide.

Online

Transfer of data and commands to COMPAX.

Terminal

Calling up the Terminal program

Upload (from controller)

Load the program of the connected COMPAX into the PC.

Download (to controller)

Load current program into COMPAX.

Window

Select and arrange the open windows.

Arrange horizontally

Arrange open windows horizontally.

Arrange vertically

Arrange open windows vertically.

Cascade

Arrange open windows offset behind one another.

User Defined ▶

Load a window setting or save the current window setting.

...

Select an open window.

Servo Tools

Switch to additional existing HAUSER Servo Tools

ServoManager

Return to ServoManager

ParameterEditor

Change to ParameterEditor

CamEditor

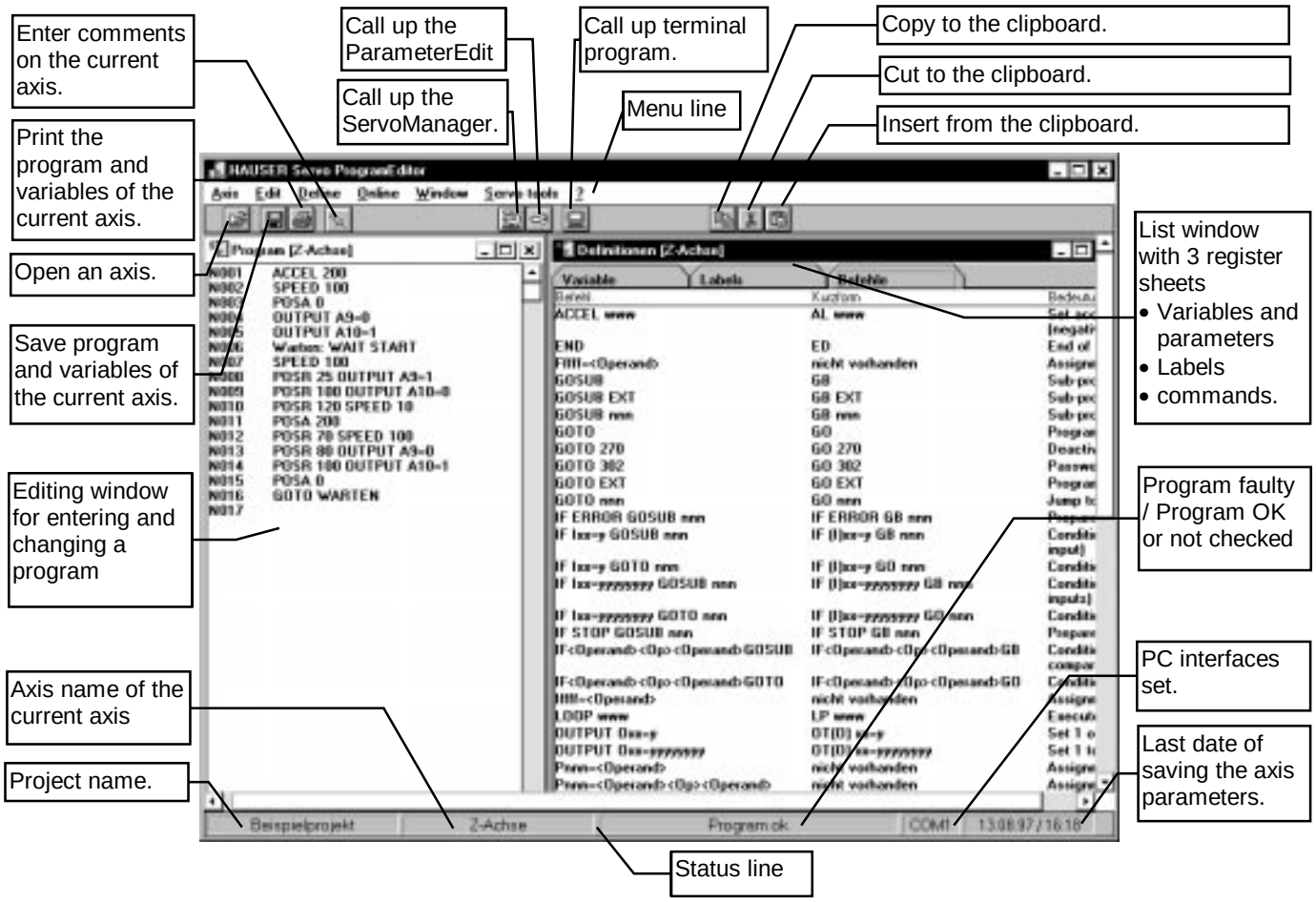
Change to CamEditor (only if installed)

?

Info

Short program information.

6.2.2 Window content of the ProgramEditor



Keyboard operation (without mouse)

Program user interface

- Call the menu line using the "Alt" key.
  The 1st menu is selected (indicated by highlighting).
- Call the desired menu using the letter underlined in the menu text.
  The "pull down" menu will open.
- Call the desired window in the same way using the letter underlined in the menu text.

Entry window (e.g. menu: Axis: Print)

Using the Tab key, (⇆) change between the individual entry positions within the entry window and the existing buttons (if the buttons are selected, they can be activated using the Enter key (↵) or the spacer bar).
Additional keyboard functions:

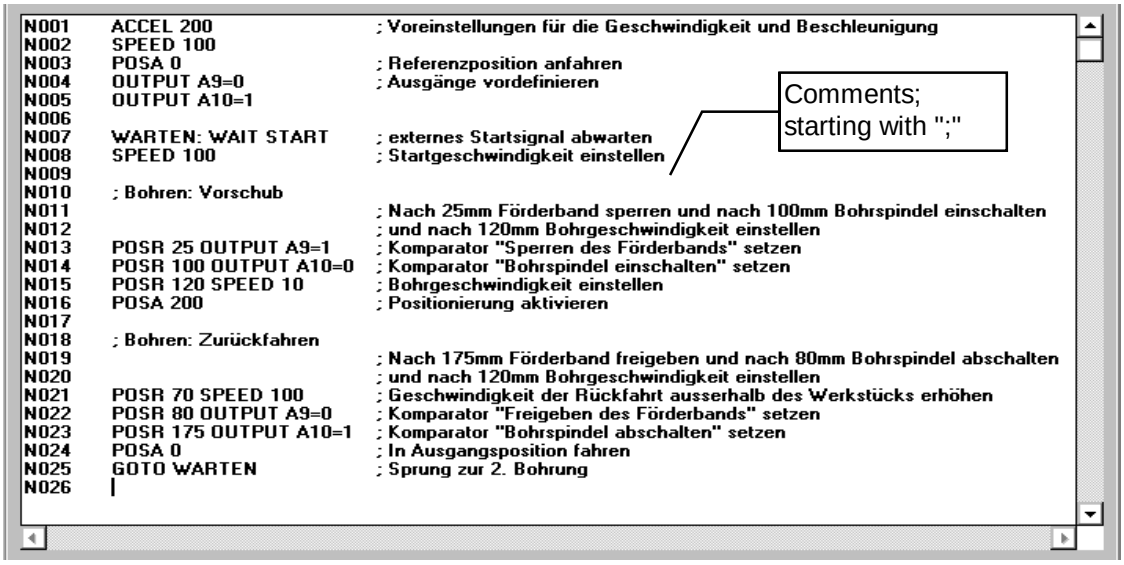
- Buttons can be selected or deselected using the spacer bar.
- Using Enter, (↵) the contents of the window are accepted and the window closed.
- With entry fields which are designed as selection windows (e.g. menu: Axis: open), the individual set-up options are selected using the arrow keys (↑,↓).

Window change in the case of several open windows

In addition to the possibility of switching using the menu (Alt+f "window number"), you can switch to the next window using Ctrl+F6.

⇨ Mouse operation conforms to the windows standard.

6.2.3 Window content of the editing window "Program"



Editing rules in the program

- The program window is always in insert mode.
- Even marked parts are not overwritten.
- Marked parts can be deleted (using the "Delete" key).
- Using Return, (↵) a new program line is applied.
- To move within the program, use the arrow keys (←, ↑,→, ↓).
- Program lines can be copied or moved using the clipboard (see Chapter "7.2 Edit", Page 33).
- Comments are identified by a initial semi-colon ";", where the following applies:
  - Comments can be entered after the command or
  - can be on their own on a line.
  - Comments can be set at the desired position within the line using tabs.
- A syntax check is carried out
  - with Return (↵) and
  - when leaving the line using an arrow key (↑, ↓).
  - The syntax check result is immediately displayed in the status line (3rd field from the left).
    The following applies: Errors in the program:
    Message: Faulty program
    No errors in program:
    Message: Program OK
    or "not checked".
- Using the menu: "Edit: Search for errors", a syntax check of the whole program is carried out and, in case of errors, an error list with corresponding line numbers is displayed.
- The maximum line number is 250.

Label conditions

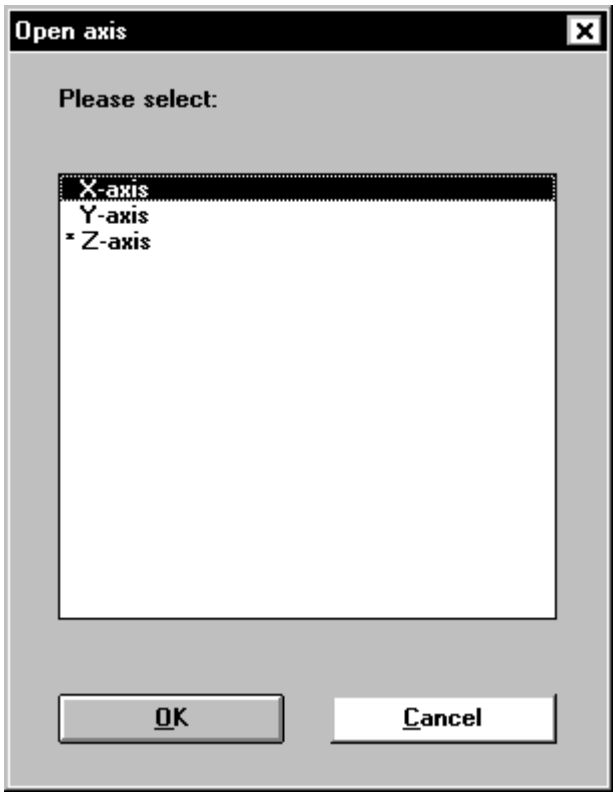
- Maximum of 16 characters.
- They are always placed at the start of the line (a subsequent command is allowed but not necessary).
- Indicated by a subsequent colon (":"); e.g. "Label1:"
- No differentiation made between upper and lower case letters.
- The first character must be a letter, excluding umlauts (ä,ö,ü) and ß.
- Characters allowed: Letters (except those with umlauts and ß), underscore "_", numbers.
- The line numbers can also be jump labels; the following applies:
  - On inserting or deleting lines, the jump destinations are automatically corrected.
  - When the jump destination line is deleted, all jump labels displayed on the deleted lines are converted into a label:
    e.g. N012 becomes @N012.
    This label must then be manually adapted: by defining a new label or by correcting the destination line.

7. ProgramEditor menus

7.1 Axis

7.1.1 Axis: Open

Opens an axis of the opened project in the ProgramEditor. A maximum of 4 axes can be opened simultaneously; however only one axis is ever the current one (i.e. activated for processing).
Entry window:



Note:
A new axis can be added to the ServoManager.

7.1.2 Axis: Close

Closes an open axis in the ProgramEditor.

7.1.3 Axis: Change current axis

Sets an open axis as the current one.

7.1.4 Axis: Save all programs

Save programs. If you have carried out changes and these are not yet saved, a request for you to state which axes are to be saved appears.
In principle, all changed axes are selected.

7.1.5 Axis: Program Info

Enter comments on the program of the current axis.

7.1.6 Axis: Load program from project

Load a program from an existing project into the current axis.

7.1.7 Axis: Save program

Save the current program.

7.1.8 Axis: Print program

Prints the current program.
Entry window:

Information which you do not want printed can be deselected.

7.1.9 Axis: Quit

Close current axis.

7.2 Edit

7.2.1 Cut

The marked lines of the program are deleted and accepted onto the clipboard and are available for inserting.

7.2.2 Copy

The marked lines of the program remain, are copied onto the clipboard and are available for inserting.

7.2.3 Insert

The content of the clipboard is inserted into the program from the cursor position.

7.2.4 Delete

The marked lines of the program are deleted.

7.2.5 Search for errors

Syntax check of the current program.
The ProgramEditor checks the syntax in the current program with regard to:

- the software variant of the COMPAX axis
  i.e. are the existing commands possible in the COMPAX variant[1]?

and

- the software version of the COMPAX axis.
  i.e. are the existing commands possible in the COMPAX software version (software version set in the current ProgramEditor axis)?

If errors are found, a window with an error list is opened.
By double-clicking on a window, the cursor will jump to the faulty line of the program.

[1] COMPAX - variants are: COMPAX XX00, COMPAX XX30, COMPAX XX50, COMPAX XX60, COMPAX XX70.

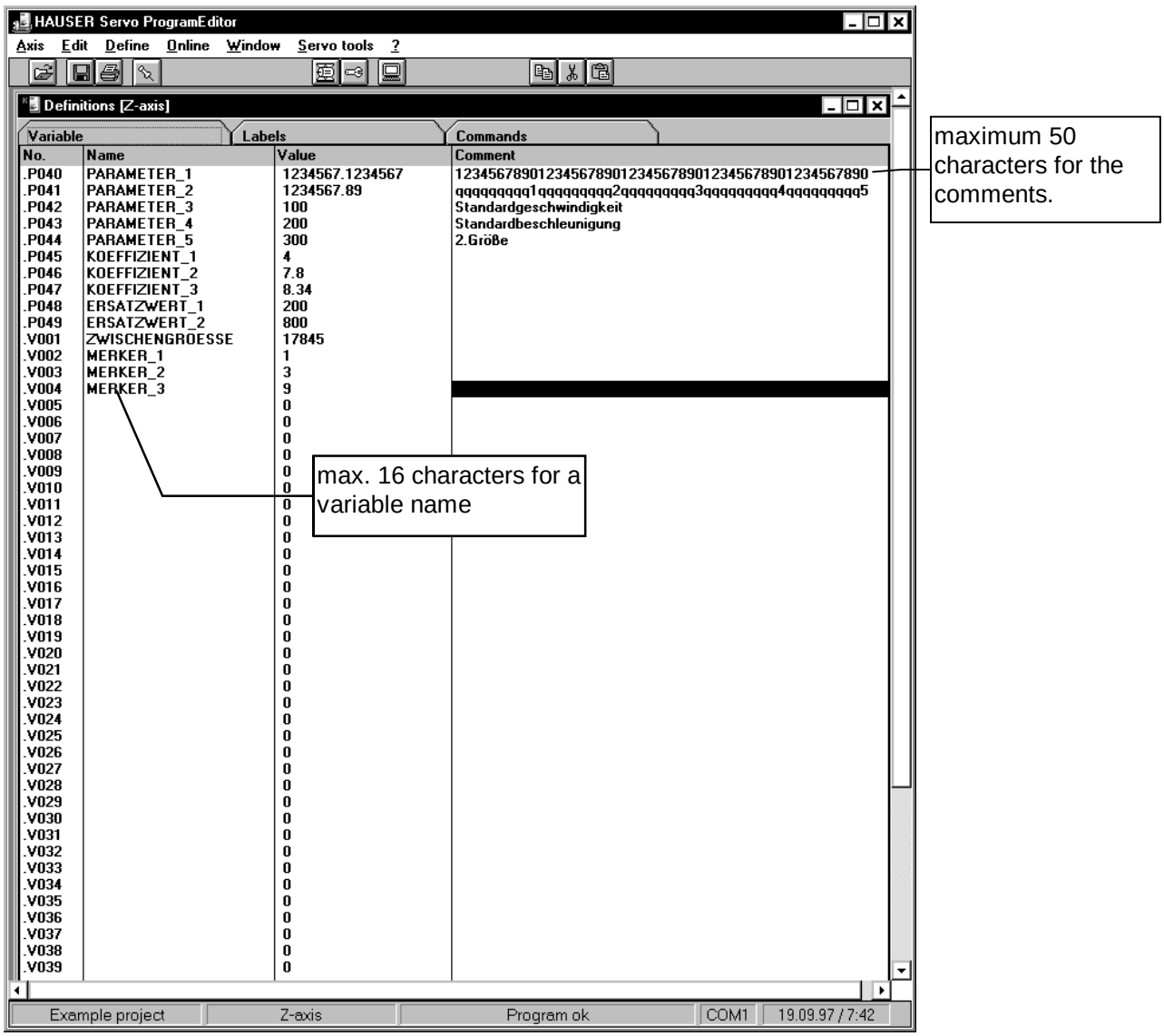
7.3 Define

7.3.1 Variables

This menu point calls up the list window with the variable list.
The following functions are available:

1. Symbolic names for variables V1 to V39 and the operating parameters P40 to P49 are allocated.
   Name allocation:
   - Maximum of 16 characters.
   - The first character must be a letter, excluding umlauts (ä,ö,ü) and ß.
   - Characters allowed: Letters (except those with umlauts and ß), underscore "_", numbers.
   - No differentiation made between upper and lower case letters.
2. Comments for variables V1 to V39 and the operating parameters P40 to P49 are allocated.
   Characters allowed
   - Maximum of 50 characters.
   - Any character
3. Pre-assign numerical values for variables V1 to V39 and operating parameters P40 to P49.
   Format:
   - Maximum of 10 characters (incl. signs with "-", full-stop, places in front of the comma, places after the comma)
   - Maximum of 7 places in front of the comma
   - Maximum of 7 places after the comma
   - Example: 1234567.89; -1.2345678
   - Range of values: -8388607.999 ... +8388608.999

Variable window



Editing rules in the variable list

Mouse operation

Mouse operation conforms to Windows standards.

Keyboard operation

- Use "Tab" to change between list selection (variables, labels, commands) and the list selected (e.g. variable list).

List selection

- Using the arrow keys, (→, ←) a list (variables, labels or commands) is selected.

Variable window

- The entry size is selected using arrow keys (←, ↑,→, ↓).
  - The current content is overwritten with a new entry (without spacer bar).
  - The entry size for editing is opened using the spacer bar.
    - Using the arrow keys (→, ←) the entry position is selected.
    - Entering generally occurs in entry mode (not overwrite mode); marked parts are overwritten.
- Use the "Esc" key or the arrow keys to leave the field without making any changes.
- The entry / change is accepted using the "Return" key (↵); with an additional "Return" (↵), the entry position changes to the next field.

7.3.2 Display lists

By clicking on the menu: "Define: Display lists", the list window will be displayed or removed.
The list window contains the following register sheets:

- Variable (see above)
- labels,
  - Overview of the labels in the current program.
  - This list is updated after each syntax check.
- Commands.
  - Lists all COMPAX commands with the short form of the command and a short explanation.

An open window is identified by a check mark.
If the window is open but not visible, you can select the desired window from all the open windows in the "Window" menu.

7.4 Online

Communication with the connected controller.

Which commands are possible in the program depend on the respective device variants and the status of the software.
A comparison of the file software status and software variant (current axis in an open project) and the controller is carried out.

Different device variants of files and devices.

(Example: curent axis in an open project = COMPAX 4560S; connected COMPAX 4500S)

- In the case of different software variants, no Upload or Download is carried out.
- The software variants of the current axis must be tailored in advance in the ServoManager of the connected COMPAX.
  This means that additional tailoring may be necessary; e.g. changing the existing options, program commands, parameter settings ...

Different software status of files and devices

Download

- In the case of a different software status, a syntax check of the current program is carried out during Download.
- A check is made to see if the software status of the connected COMPAX can process all the commands.
- In the case of errors, the corresponding commands must be changed or removed before a Download.

Upload

- Uploads can be carried out even if the software statuses differ. However, note that the current axis is overwritten during Upload.

7.4.1 Terminal

Calling up the terminal program

7.4.2 Upload (from controller)

The complete program is uploaded from the device. A safety question is asked if a program which is not saved (the current program) would be overwritten. Then you have the possibility of overwriting the current program using "Axis: Save program", or to reject the loaded program.

Note

Saving the program of the connected COMPAX as a new axis:
1. Create new axis in the ServoManager.
2. Switch to ProgramEditor.
3. Open new axis (under Open axis).

4. Carry out an Upload.

7.4.3 Download (to the controller)

The current program is loaded into the device.
Make sure that the version currently in the window is transferred to COMPAX and not the saved program of the current axis, i.e. even program changes which have not yet been saved are transferred into COMPAX.
A syntax check will be carried out first (see above).

7.5 Window

All open windows are listed in this menu. The current window is marked with a check mark. You can select another open window by clicking on it.
This is useful if, for example, a window is iconized and is now hidden behind other windows.

7.5.1 Arrange horizontally

All open windows are arranged horizontally. The active window is arranged at the top.

7.5.2 Arrange vertically

All open windows are arranged vertically. The active window is arranged on the left.

7.5.3 Cascading

All open windows are cascaded from the top left to the bottom right. The active window is arranged at the top.

7.5.4 User Defined

You can save a window screen layout which you have selected in a "*.WNS" file.
When next working with the program, you can load this screen layout and do not have to construct it from scratch. To do this, all axes listed in the windows must first be opened.

7.6 Servo Tools

Additional HAUSER Servo Tools (ParameterEditor) on the PC can be called up here or you can change to the ServoManager.
The ProgramEditor starts the selected program or switches to that program if it is already running (not in Windows 95; see Page 5).

7.7 ?

7.7.1 Info

As is normal in Windows applications, a small amount of information appears with the program name, version, copyright, company address and use of the PC.