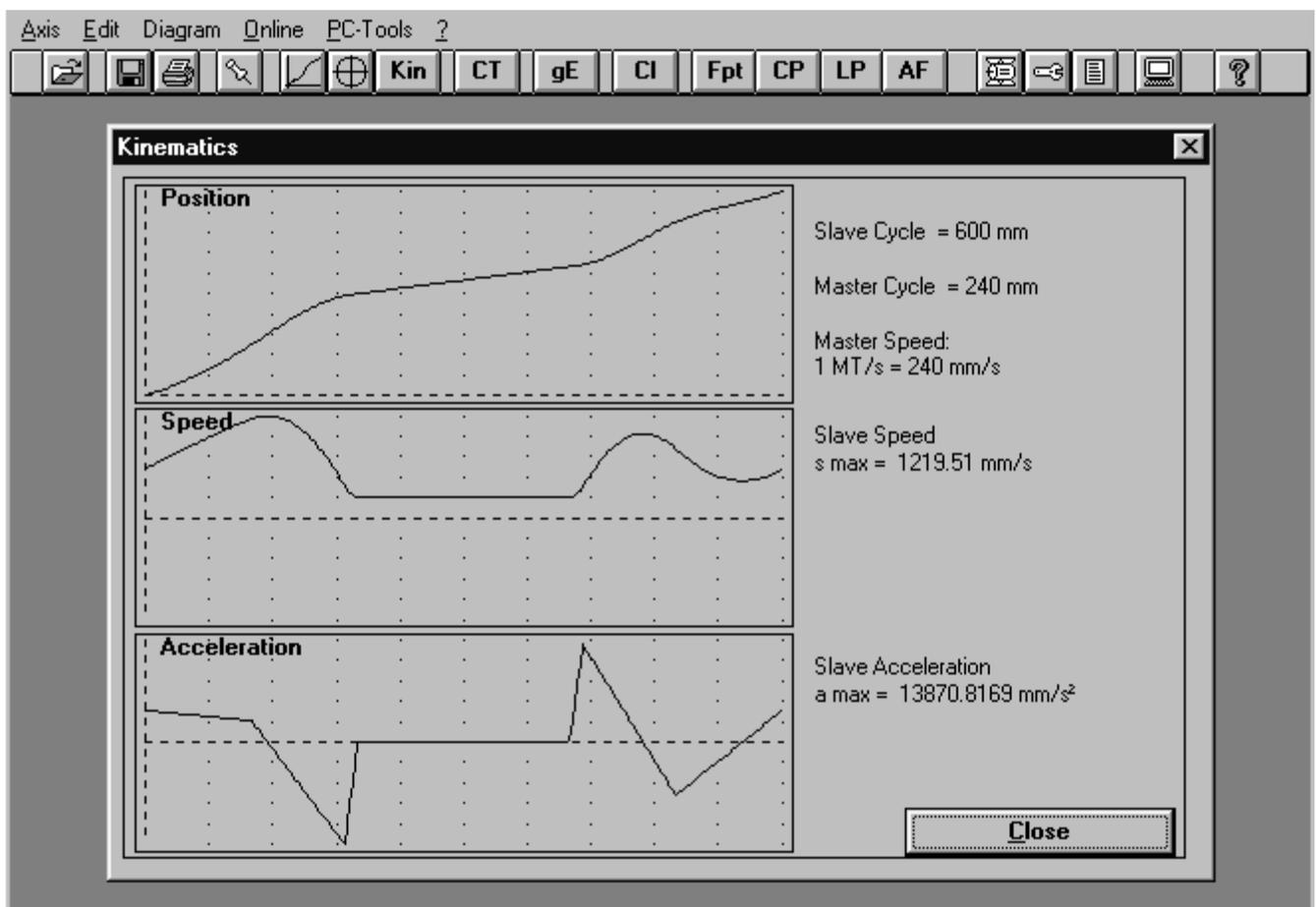# Operating instructions

CamEditor for the electronical cam control COMPAX XX70M & S

as of CamEditor - version V3.00
as of COMPAX XX70 M /S - software V2.00

November 98

CamEditor

Contents

1. Assignment

These operating instructions apply to software for the "CamEditor".
The cam editor will only run in conjunction with the "ServoManager" software.
"ServoManager" is supplied with COMPAX.

2. Requirements

2.1 PC

MS-DOS operational system with Windows V3.1 or higher as well as PC with VGA graphic card with a resolution of 640x480 pixel.
Recommendation: at least 386-type with co-processor

2.2 Supported Hardware Interfaces

◆ **RS232**, PC-COM 1 - 4

2.3 Program Installation

⇨ CamEditor can only be installed if ServoManager is already installed.

For installing the cam editor please start the program "Setup.exe" on the floppy disk. After having indicated a target directory, the CamEditor will be installed.
Start program with the ServoManager.

Important!

Please observe the relevant instructions of README.TXT!

Information concerning Windows 95

When using Windows 95, specify the directory in which ServoManager is installed.

2.4 COMPAX XX70

Before using the CamEditor you have to acquaint yourself with the function of the electronical cam control COMPAX XX70. Therefore please read the corresponding operating instructions.

3. Survey

3.1 Functions of the CamEditor

The CamEditor's function is to set up the curve profiles for the electronical cam control COMPAX XX70. Based on a certain curve table, single curves are defined by the input of fix points, auxiliary functions, parameters for the coupling- and decoupling-motion as well as the parameters for the label synchronization.

The value input is done in physical units under a windows' surface.

The result can be controlled by means of a graphical representation (linear or polar). By the function "kinematics" you are able to check the position, the speed as well as the acceleration of the slave axis.

A curve table contains one or several curves and is always completely transmitted to COMPAX via download. The cam memory in COMPAX is overwritten during download.

The curves within different curve tables are interchangeable.

3.2 Editing Old *.cam Files

You can load old *.cam files from the "Axis: load curve table from project" menu item.

3.3 Terms

PC cam - file   **COMPAX cam memory**
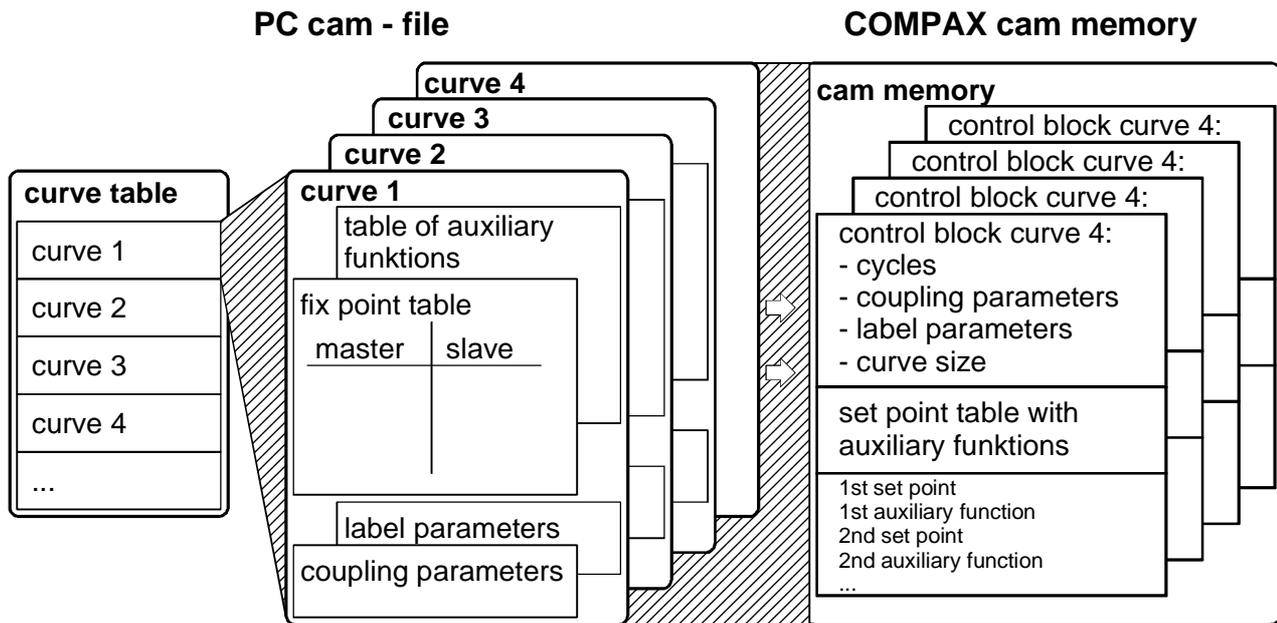
Curve table

A curve table consists of several curves which are comprehended in a curve table. The curve to be edited is selected in the curve table.

Cam memory

Within a special storing range of COMPAX 70 which is called 'cam memory' there can be stored up to 2500 set points.

Fix points

A curve is defined by fix points. You pre-define these points according to the requirements of the curve.

Interpolation

The calculation of set points which are placed between the fix points.

Fix point table

The fix points of a curve are contained in a fix point table.

Set points

Curve values with a constant and definable master distance.
These are calculated by interpoling the fix points after a specified distance.

Set point table

The set point table contains the set points of a curve. It describes the curve in a certain mode required by COMPAX.

Table of auxiliary functions

Table containing the description concerning the adjustment of the digital and analogue auxiliary functions. It must only be filled when required.

Coupling parameters

Parameters describing the coupling and decoupling procedure concerning the curve. They must only be filled when required.

Label parameters

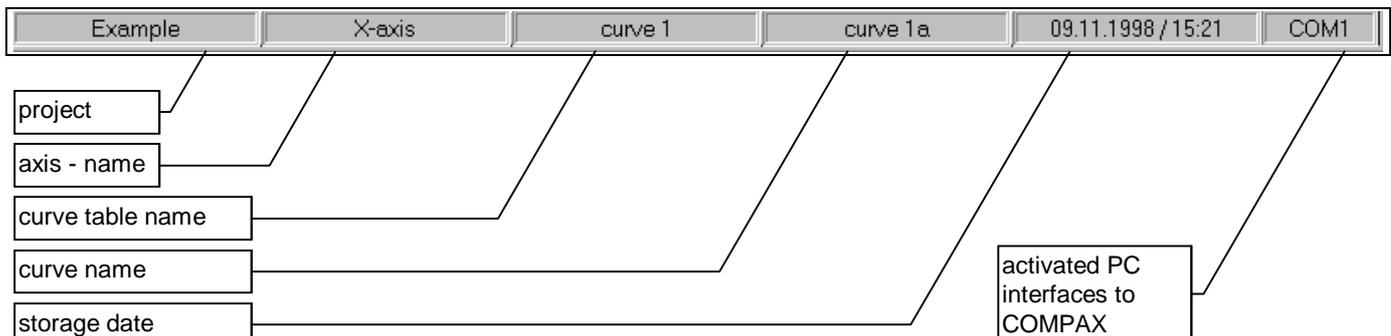Parameters for the adjustment of a label synchronization. They must only be filled when required.

Kinematics

Representation of the motion profile of the slave including position, speed and acceleration.

File

The curve tables of all 70 axes (those of all project electronical cam controls) are saved in the project file (refer to COMPAX product manual).
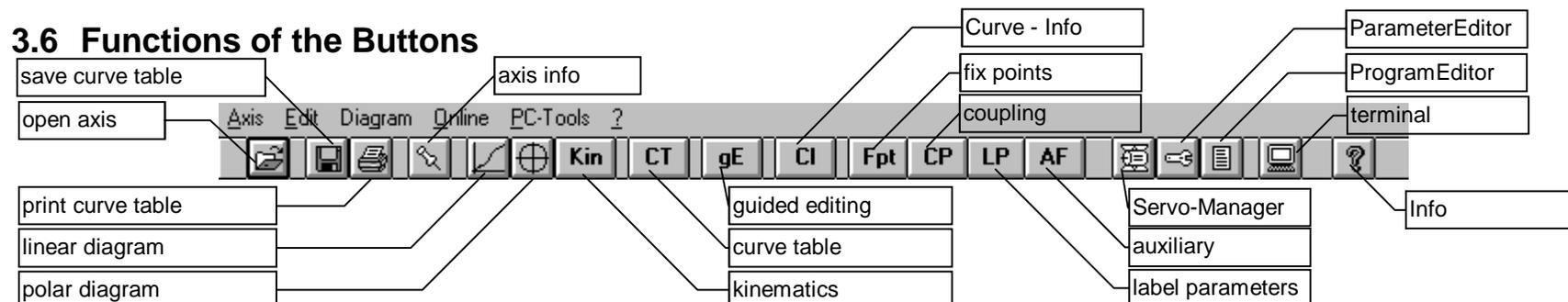
3.4 Status line

3.5 Menu Survey

Axis	Edit	Diagram	Online	PC-Tools	?
Axis manager. ●finish program	Editing a selected curve	Graphical representation of a selected curve	Transmission of data or commands to COMPAX	Change over to further ServoTools.	**Info**
Open	**Curve Table**		**Terminal**	**ServoManager**	Short program information.
Selecting and loading a project axis.	Calling up a curve table for activating, deleting and adding single curves.	**Representation**	Using COMPAX in terminal mode		
Close	**Units**	Graphical representation of the curve in a	**Upload**	**ParameterEditor**	
Close selected axis.	Changing master and slave units.	◆ linear or	Load curves from COMPAX to the current axis.		
Change axis	**Guided Editing**	◆ polar format.	**Download**	**ProgramEditor**	
Alternate between open axes.	Guided input of all curve values	**Kinematics**	Loading the open project-file into COMPAX.		
Save all cam tables	**Curve Info**	Representation of the position-, speed- and acceleration course of the slave motion.	**Validating a cam table**		
Save all open curve tables.	Changing curve name and comment		After the download the curve(s) will only be recognized by COMPAX after this function (or after 'power on').		
Cam table info	**Fix points**				
Input of name and comment concerning the current curve table.	Input of fix points and calculation of set points				
Load cam table	**Coupling parameters**		**Compare**		
Load curve table from another project.	Input of coupling parameters		The curves of the loaded file and the curves within COMPAX will be compared.		
Save cam table	**Label parameters**				
Save the current curve table.	Input of label parameters				
Print cam table	**Auxiliary Functions**				
Printing the current curve table.	Input of auxiliary functions (digital/analogue outputs)				
Exit					
Finishing the CamEditor.					

3.6 Functions of the Buttons

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3.7 Short Instructions

By means of the following table you are in a position to set up a new curve table. You will be guided to all menu positions needed for the input of a curve.

After having started the CamEditor you will have to proceed as follows:

Menu/Window	Input/Remark
axis: open	Selection and loading of an axis.
Edit: Curve table	During the first call up, the "curve tables info" window is opened and you can enter a symbolic name and comment for the curve tables. Once the physical units have been entered for the slave and master co-ordinates, the curve table is opened: Possibilities: **Close:** activating marked curve and exiting window. **Insert:** ◆ setting up a new curve or ◆ loading a curve from another project. **Delete:** marked curve will be deleted.
By "insert" "new" there will be set up a new curve now!	
The following windows are queried:	
Curve - Info	Input of the symbolical curve name and the comments concerning each curve.
Units	Input of master and slave units wanted.
Fix point table	Input of fix points and distance of set points Beginning with the slave position at master position 0, the master- and slave-positions have to be put in successively. The input sequence concerning the master positions is optional. The cursor can be moved by using the arrow keys ($\rightarrow, \leftarrow, \uparrow, \downarrow$);input a value and complete by pressing Enter ($\downarrow$). After having put in the fix points, the set point distance must be determined. Via "calculate" the set point table can be calculated before the inputs will be taken over by "OK".
Coupling parameters	This window has only to be filled when required! For your information you can see the fix point table as well as the master and slave cycle.
Label parameters	This window has only to be filled when required! For your information you can see the fix point table as well as the master and slave cycle.
Table of auxiliary functions	This window has only to be filled when required! For your information you can see the fix point table, the set point distance as well as the master and the slave cycle. The input is done in the input window. Only signal changes are entered into the table. Concerning the analogue outputs, there takes place a linear interpolation between the given values. The cursor can be moved by using the arrow keys ($\rightarrow, \leftarrow, \uparrow, \downarrow$).
You now have put in a complete curve and the window "curve table" reappears. By "insert" you can put in another curve (see above) or you can leave the window "Curve Table" via "close";.you must check the curve before transmitting it to COMPAX:	
Diagram: Representation: linear or polar	The curve put in can be checked
Diagram: Kinematics	The speed-course and the acceleration-course of the slave with reference to the master are checked here.
Online: Download	The cam memory of the connected COMPAX will be overwritten.
Online: validating a cam table	By this function the axis will be stopped; the command line indicator will be set back and the new curves within COMPAX will be rendered valid. The same result can be reached by "power off/power on" at the connected COMPAX.

The different input fields of a window can be reached by using "TAB" i.e. "Shift TAB" or by using the mouse.

Within a table (fix point table and table of auxiliary functions) movements are carried out by using the arrow keys ($\rightarrow, \leftarrow, \uparrow, \downarrow, \downarrow$).

3.8 Basic Information for Operation

3.8.1 Window Functions

Cancel: The window will be closed. The values that have been valid at the moment of opening the window will become valid again; the inputs within the window will be neglected.
You will be asked if you really intend to cancel.

Close: The window will be closed (this function will only be used if no inputs have to be taken over e.g. in the window "terminal").

OK: The window inputs will be taken over. The window will be closed.

Back: This function is only used at "guided editing". The inputs will be taken over. The window will be closed and the previous window will be opened.

Locked functions are always gray.

3.8.2 Restrictions

There can only be opened one window. For selecting a menu point all windows have to be closed.

The terminal function can be called, if the PC interface is defined and no other window is open.

If there has not yet been selected any curve out of the curve table (e.g. after "axis: new") you are free to choose one of the following menu points:

◆ Axis: new
◆ Axis: open
◆ Axis: exit
◆ Online: terminal
◆ ?: Info

3.9 Interpolation

The CamEditor calculates the set point table out of the fix point table by means of the spline-interpolation. This interpolation is optimized to require a minimum of torques. The interpolation is carried out in such a way that at the start and at the end the curve shows identical gradients; this is to avoid speed leaps if curves are traveled several times.

Accuracy

If possible in respect to the set point distance, the fix points are taken over as set points.

If due to the chosen set point distance a certain fix point cannot be met, the corresponding slave set point does not exactly exist within the set point table.
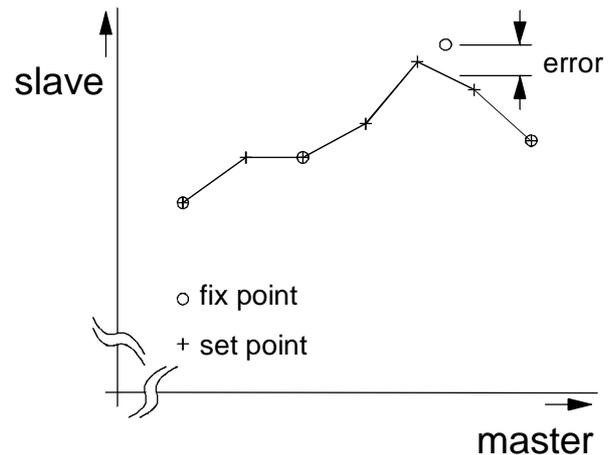
COMPAX carries out a linear interpolation between the set points. The error consequently corresponds to the distance shown above.

3.9.1 Straight Lines

You can enforce straight sections within a curve by defining 2 fix points, one at the start and one at the end of the straight section. Please choose quite a small fix point distance (< set point distance) .

Example:
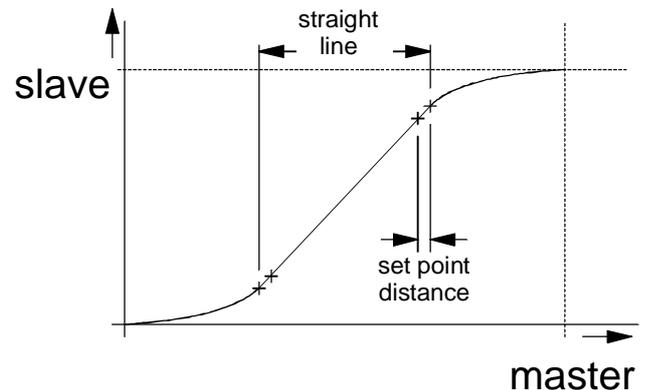
By the function "kinematics" you can check the straight-line, as within this range the speed must be constant and the acceleration has to be 0.

Should this not be the case, you would have to reduce the distance between the fix point couples which defines the straight line.

3.9.2 Standstill Area

At curves disposing of a standstill area at the end of the master cycle, there may appear a slave cycle slightly bigger than the maximum slave set point. This fact is caused by the spline-interpolation.

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Example:
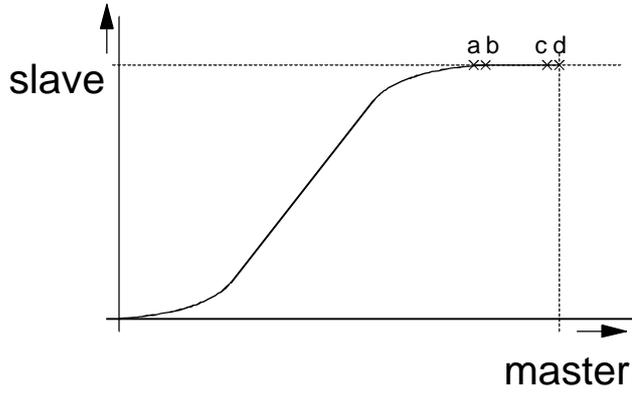
This might eventually result in axis shifts.
In order to avoid this, the slave set points nearby the end of the master-cycle and the slave-cycle (a, b and c) have to be slightly smaller than the slave-cycle itself. Only the last fix point (d) will receive the coordinates master-cycle/slave-cycle.

4. Menus

4.1 Axis

4.1.1 Open

Uses the "Axis: open" menu item, to load the axes of the current project into CamEditor.

4.1.2 Close

Closes one of the axes opened in CamEditor.

4.1.3 Change current axis

Selects an opened axis as the current axis.
The settings made via the menus always apply to the current axis.

4.1.4 Save all curve tables

The curve tables of all opened axes are saved in the project.
You will then be asked which curve tables you want to save. When in basic mode, all the modified axes are selected. There is also an option for selecting individual axes.

4.1.5 Curve table info

A symbolic name for the curve table and a comment are entered in this window .

4.1.6 Load curve table from project

A complete curve table can be loaded from another project or from old *.cam - files.
This overwrites the curve table of the axis currently open.
Note
You can load individual curves from another project into your current curve table by using "Edit curve table" "Insert".

4.1.7 Save curve table

Saves the current curve table.

4.1.8 Print curve table

You have 3 options for printing:
- ♦ **you can have the curve table printed**
- ♦ **you can have the current curve printed**
- ♦ **you can have all curves printed**

Printing will only be possible if there exists at least one valid curve in the table. During the input of a curve, printing is not possible.

Curve Table

The heading and the curve table will be printed.

Current Curve

The heading, the symbolical curve name and the curve comments will be printed. Furthermore there will be printed different parts of the curve selected from the curve table. Those parts are listed on the printing selection (see below).

All Curves

The heading, the symbolical curve name and the curve comments will be printed. Furthermore there will be printed different parts of all curves out of the curve-table. Those parts are listed on the printing selection (see below).

Printing Selection

At "current curve" and "all curves" the following points can be chosen:

All	All points listed will be selected (at a diagram only one single mode can be selected).
Fix Points	There will be printed a table of fix point numbers, master coordinates and slave coordinates.
Coupling Parameters	The coupling parameters will be printed.

Label Parameters	The label parameters will be printed.
Auxiliary functions	One table will be printed with the eight digital and two analogue outputs.
Diagram	The curve course of the set point table will be shown graphically. At "linear" there will be used a right-angled system of coordinates. At "polar" there will be used a polar system of coordinates.
Kinematics	Position, speed and acceleration will be printed as a diagram.

Curve Table

select cam

No.	Curve Name	Set Point: from	to	Number
1	curve 1a	1	242	241

Date / Time: 09.11.98 / 15:21   Master Unit: mm

Capacity Cam Memory: 10%   Slave Unit: mm

Curve

| Close | Insert | Delete |
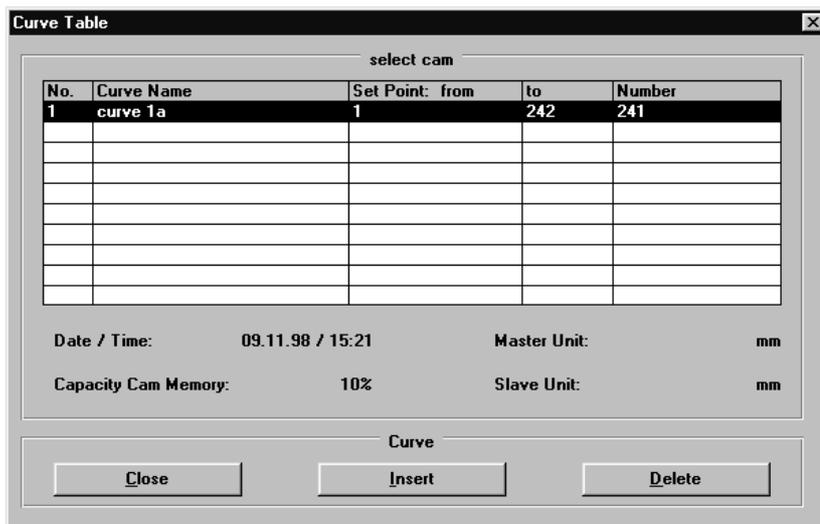
4.1.9 Exit

The program will be finished. In case of the current data not yet having been stored, you will be asked if you wish to store them in a file.

4.2 Edit

Here you can put in:
- the curve table
- the units
- the curve-info
- the fix points and the set point distance
and, if needed
- the coupling parameters
- the label parameters and
- the auxiliary functions
of a selected curve.

The sub-points "auxiliary functions", "coupling parameters" and "label parameters" will only become valid if there have been put in a least 2 fix points.

Similar to a cam you are able to control digital and analogue outputs by means of the auxiliary functions.

The function of the coupling parameters is the position-related synchronization to the set curve i.e. the defined stopping of the axis.

The label parameters support an online-label-synchronization which determines the slip between the set position and the actual position of a print label; it furthermore corrects the error within the next curve cycle. There exist two basic operation modes of the label synchronization: master-related operation and slave-related operation.

In the windows meant for putting in the fix points, auxiliary functions, coupling- and label-parameters there is indicated, for better reference, the whole fix point table, the master- and the slave-cycle as well as the distance between the set points.

4.2.1 Curve Table

After "insert curve" or "delete" the set point table for the controller will automatically be re-calculated.

When dealing with a new curve table, you will be asked the following:

curve table info

The symbolic name of the curve table must contain at least 6 characters.

Once the window has been closed using "OK", the master and slave units are set.

The master and slave units of the curve table apply to all curves within the curve table. They can be modified in the menu "Edit: units".

After pressing "OK", you are in the "curve table" window.

Close

By using "Close" curve table, the marked curve is selected as the current curve for editing and is displayed in the status line.

Insert

Behind the position marked by the cursor there is space for another curve. The following curve will be shifted downward by one position.

You then will be asked if you wish to insert a new curve ("new curve") or if you want to load an already existing curve of another curve table ("load curve"). Furthermore it is possible to cancel the inserting procedure ("cancel"). Then the vacant place of the table will be deleted again. The same applies, if "load curve" in the file menu is canceled.

"New"

A new curve can be set up by guided editing.

"Load"

The window "load curve" will be opened. Please put in the file name of the project i.e. the directory. In the directory there are indicated all axes stored and thus a certain table can be selected.

After this procedure there will appear a window (similar to the standard curve table window) which indicates the curve names and all curve lengths. Now you may choose the desired curve. By "OK" it can be loaded into the activated curve table.

Should the master and slave units of the selected curve not be identical, the units of the loaded curve would be adapted to those of the curve table. If required, a conversion factor can be entered.

"Interrupt"

By using "interrupt" curve table, the table editing is ended and the modifications that have been made since the curve table was opened are not saved.

Delete

The marked curve will be deleted. It is necessary to confirm the demanded deleting procedure. The following curves will be shifted upward by one position.

4.2.2 Units

In case of the unit for slave or master being changed, the curve values must be adapted to the new units. If the conversion factor has already been determined (e.g. change from "inch" to "mm") this factor will be indicated. If the conversion factor has not been determined, you can specify it (e.g. by changing from inch to mm).

4.2.3 Guided Editing

When you choose this menu point you will be guided through all windows containing curve-specific data. The respective windows are:
◆ curve-Info
◆ fix point table
◆ coupling parameters
◆ label parameters
◆ auxiliary functions.
By "OK" all data of the active window will be taken over and the next window will be opened.
By "back" the data of the active window will be taken over. The preceding window will be opened.

➩ When using "cancel", guided editing and curve input will be interrupted. The data already entered will get lost.

Before storing the data you will have to completely pass through the guided editing (it is necessary to put in at least the curve name and two fix points; the other windows must be confirmed by "OK")

4.2.4 Curve-Info

In this window you have to indicate the symbolical curve name as well as a corresponding comment.

4.2.5 Fix Points

Under "Edit: fix-points" you can enter the fix points as coordinates for master and slave; the input sequence is

optional; the distance of the fix points is variable. Please choose the fix point distances according to the requirements of the curve.

In this window there can also be put in the distances of the set points.

➩ You have to enter at least 2 fix points.

Fix points

The fix points are entered via the window (over "OK"-button).

You have to start with the slave position at the master position 0. Now master and slave position have to be put in successively.

The cursor moves within the table by using the arrow keys (→, ←, ↑, ↓, ↵).

After having put in the fix points you can correct the set point distance.

Deleting fix point

Select the fix points to be deleted in the fix point table (master or slave). Use the spacebar to make the selection in editing mode. The fix point is then deleted using "Entf".

Set Point Distance

The set point distance can be inserted in the field "set points". After having determined the distance, the number of set points will immediately be calculated. In case of the maximum number of set points available in the curve table being exceeded, there will appear the information "distance too small! Cam memory in COMPAX not sufficient!". Then the distance will be enlarged to the lowest admissible value.

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Calculation of the Set Point Table

Via the function "calculate" there will be calculated by the spline-interpolation the set point table for the determined set point distance.
This calculating procedure must be finished before the inputs can be taken over via "OK" and the window can be closed.

Cycles

Should the fix points be changed, the master cycle would always immediately be adapted to the current max. rated value of the master.
The current slave cycle can be calculated and shown by the function "Set point table: calculate". The slave cycle has 7 digits after the comma and is the highest-rated value of the slave contained in the set point table. The slave cycle cannot be modified.
In case of any fix point being changed, the current slave cycle would immediately be deleted. It then would have to be re-determined via "Set point table: calculate".

➡ The window "fix point table" can only be taken over by "OK" or "back" if the set point table has already been calculated.

Changing Fix Points or Set Point Distances

If the master or the slave cycle change due to alterations within the fix point table, the coupling parameters and the table of auxiliary functions will have to be checked in respect of their number range.

Coupling parameters

If there are values beyond the slave cycle, you will automatically reach the window "coupling parameters" in order to correct the parameters.

Table of auxiliary functions

After having changed the fix point table you will only be guided to the table of auxiliary functions, if:
◆ the master cycle became smaller or
◆ the set point distance was modified
Please check the master positions. As they were adapted to the set point distance, they might eventually be bigger than the master cycle.

➡ If the table of auxiliary functions does not contain any values, the window "auxiliary functions" will not be opened.

4.2.6 Coupling Parameters

The coupling parameters will be inserted when required only. Their unit is identical to the master unit. The standstill position, however, has the same unit as the slave.
The coupling parameters are limited to the admissible number range (within the master cycle; standstill position ≤ slave-cycle) .

4.2.7 Label Parameters

You have to insert the parameters for the online-label-synchronization only if required. They are given in % of the respective cycle (master or slave).

4.2.8 Auxiliary Functions

For each set point you may put in auxiliary functions. The auxiliary functions are split up into 3 bytes according to the 3 channels: digital outputs, analogue outputs 0 and 1. Fields not filled will remain empty When changing over to the set point table, the digital outputs not occupied will receive the preceding value. Concerning the analogue channels, the intermediate values not occupied are calculated by a linear interpolation. The analogue values are given in % as the final output voltage also depends on the COMPAX parameterizing (reference value 100 mV at gain 1). After opening an existing table of auxiliary functions, the empty fields will be maintained. For your information there will be indicated the fix point table, the distance of the set points as well as the cycles.

After having put in a master position, it will be adapted to the set point distance. This procedure is carried out, as the auxiliary functions can only be stored and activated in COMPAX in a set point-related manner.

4.3 Diagram

The curve determined by the set point table can be shown graphically. There exist two different kinds of representation: the linear and the polar one. The linear representation is typical for a variable electronical gear. A mechanical cam is normally represented with polar coordinates. You are free to choose one of these representation modes and you are able to switch over from one to the other. However, only one representation mode is allowed to be active.
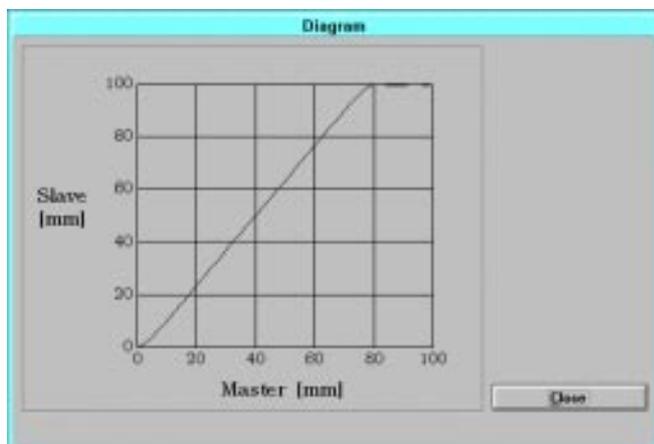
4.3.1 Representation

The curve put in is represented graphically. You are free to choose either:
♦ the linear representation (in the right-angled system of co-ordinates, slave over master)
or
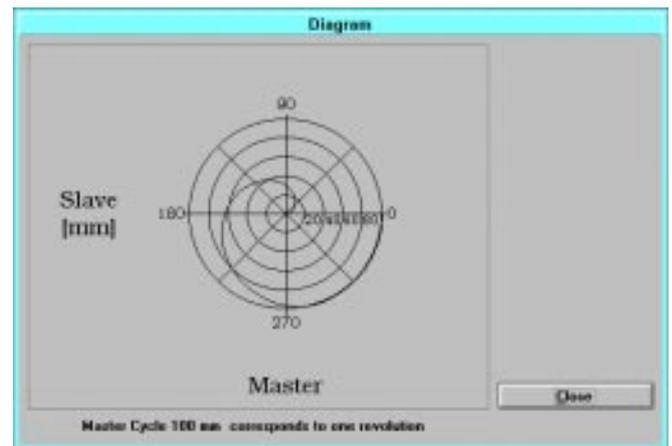♦ the polar representation (corresponding to a mechanical cam, slave indicator over master).
Representation.

Linear Representation

The master position is shown on the x-axis, the slave position on the y-axis. The representation refers to the master-cycle and to the slave-cycle.

Polar Representation

Independent of the chosen measuring unit, the master position is shown as a rotation angle and the slave position as a radius (given in physical units).
The master cycle is shown i.e. scaled at 360 degrees. By means of a text line the reference to the physical master cycle is shown verbally.

Attention!

Negative slave values will be put on 0.

4.3.2 Kinematics
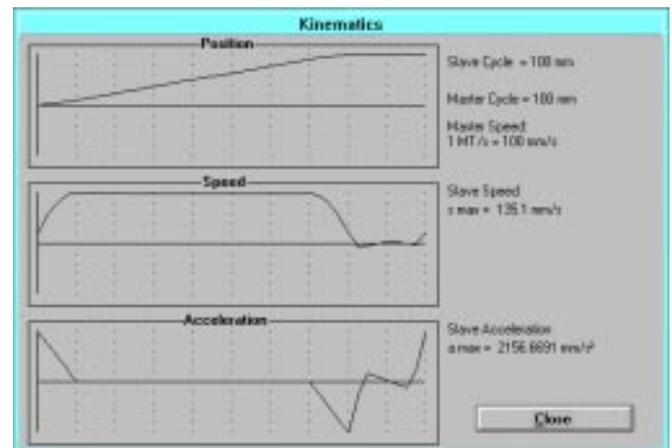
The following slave figures are shown:
♦ position "x" over the master position
♦ speed "v" over the master position
♦ acceleration "a" over the master position
for a master speed of

$1 \frac{M_T}{s}$ (one master cycle per second).

Slave Speed:

The maximum slave speed can be calculated from the figures given in the window "kinematics"

$$V_{Smax} = \frac{V_M}{V_{0M}} \bullet V_{max}$$

with:

V_{Smax} actual maximum slave speed

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V_{max}: max. slave speed at a master speed of 1 MT/s ≡value from the speed curve of the window "kinematics".

V_M: max. master speed

V_{0M}: master speed 1 $\frac{M_T}{s}$.

Speed (rpm):

V_{Smax} requires a maximum rotational speed calculated as

$$n_{Smax} = \frac{V_{Smax}}{P83}$$

n_{Smax}: actual maximum speed.

Acceleration:

The maximum slave acceleration can be calculated from the figures given in the window "Kinematics":

$$a_{Smax} = \left(\frac{V_M}{V_{0M}}\right)^2 \bullet a_{max}$$

a_{Smax}: actual maximum slave acceleration

a_{max}: max. slave acceleration at a master speed of 1 MT/S ≡ value from the acceleration curve of the window "Kinematics".

Attention!

The diagrams would only be in touch with reality, if there was chosen a small set point distance.

4.4 Online

Direct communication with the connected control unit.

4.4.1 Terminal

Terminal operation is rendered possible. The functions which are possible in COMPAX via the adjusted interfaces (such as commands, parameters, program and status) can be carried out (see COMPAX manual). You won't, however, receive any information concerning the meaning of the parameters of the status values.
The "terminal" is meant for having a quick look and for editing. Modifications made to parameters at this point will not effect the axis currently open and are not saved in the PC.

4.4.2 Upload

Before the upload occurs, a comparison is made between the curve set points from the connected COMPAX and those from the current axis.
If the set points are the same, the current curve table and the fix points are retained.
If the set points are different, the fix points of the current axis are overwritten with the COMPAX set points after an appropriate enquiry has been conducted.

4.4.3 Download

All curves of the loaded curve table are loaded into the cam memory of the connected COMPAX.
At the download of a curve table, there will be checked, if the slave unit of the cam table and the unit in COMPAX (P90) are identical. Should they not be identical, either P90 of the control unit or the slave unit of the cam table would have to be adapted. You will, however, receive a warning signal and a special information how to proceed.

4.4.4 Validating a Cam Table

After the download, which is possible at each COMPAX condition, the cam table has to be rendered valid by VF. This command, however, can only be accepted if no other command is being processed by COMPAX.
After a corresponding enquiry, the axis will be stopped. In addition to this, one GOTO 1 is transferred. These actions will be generated by using the function "validating a cam table",

4.4.5 Compare

The activated curve table will be compared to the curve data within COMPAX in order to find out whether they are identical or not. You will be informed accordingly by a certain message.

4.5 PC-Tools

4.5.1 ServoManager

Change to the Servo-Manager.
The CamEditor is not closed.

4.5.2 ParameterEditor

Switches to ParameterEditor or calls up ParameterEditor. CamEditor is not closed.

4.5.3 Servo Tools: ProgramEditor

Calling of the ProgramEditors.

4.6 ?

4.6.1 Info

As it is common practice at window's applications, there will appear a short information concerning the program name, the version, the copyright, the firm's address and the system resources.

5. Keys

General key combination of windows

ESC   cancel.

Tab   jumping to the next control element (input field, table, button).

Shift Tab jumping to the preceding control element (input field, table, button). Alterations within the input field will be maintained.

Space Key   choosing an element out of a list or a controlling box.

Cursor   moving between menu commands, signs of a text field or elements of a list.

Return   selecting a menu command. Performing a command.
At an input field (text input/figure input) return will be ignored.

Alt F4   finishing an application or closing a window.

Ctrl F6 jumping to the next window.

Special Keys of the Cam Editor

The functions of the ALT-letters are represented in each menu. In each menu function the corresponding letter is marked by an underline.

The different functions of an ALT-letter-combination depend on the respective menu.

Editing Fix Points in the Fix Point Table

For moving within the fix point table, please use the cursor keys as well as PGUP, PGDOWN, HOME, RETURN (↵) and END .

In case of the table being bigger than the table window there will appear a scroll bar by means of which the table window can be shifted.

The table can be left by TAB and Shift TAB or by a mouse-click onto another field.

The input is saved when Return is pressed. You can switch to the next field by pressing Return again.

If a field is clicked by the mouse, this field will be marked and thus can be edited.

The table window is always shifted in such a way, that the field just being edited appears in the table window.

You can also reach editing mode using the spacebar.

Pgup: The visible table window will be shifted upward by one page.

Pgdown: The visible table window will be shifted downward by one page.

Cursor up: The marking will be shifted upward by one field.

Cursor down: The marking will be shifted downward by one field.

Cursor right: Within the editing field the cursor will be shifted to the right hand side by one position i.e. it will be shifted to the next line.

Cursor left: Within the editing field the cursor will be shifted to the left hand side by one position i.e. it will be shifted to the preceding line.

Scrollbar: The line will be shifted according to the modifications of the button. The marked line will always be visible.

Examination of a Table (e.g. fix point table at label parameters)

If the table is bigger than the table window, there will appear a scroll bar. With this scroll bar and with the cursor keys the table window can be controlled.

By selecting the scroll bar (mouse-click onto the scroll bar or TAB till scroll bar is selected) the cursor keys for controlling the table window will be evaluated.

The table window will be shifted (controlled) in such a way, that the desired table windows are visible.

Pgup: The visible table window will be shifted upward by one page.

Pgdown: The visible table window will be shifted downward by one page.

Cursor up: The table window will be shifted upward by one position.

Cursor down: The table field will be shifted downward by one position.

Cursor right: no function

Cursor left: no function

Scrollbar: The table window will be shifted according to the modifications of the button.

CamEditor