

Operating Manual

for

**EPAS-3 Win
for
PacDriveS (PMC-2)**

IMPRINT

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1 What is the purpose of these operating instructions?

The operating instructions are intended to enable the end customer to familiarize himself with the functionality and application of EPAS-3 Win for the PacDrive S – System (PMC-2).

These instructions are intended only for technically qualified personnel with a detailed knowledge in the field of automation technology since only qualified persons have the necessary knowledge to interpret the safety instructions correctly and to implement them.

In order not to become confused these operating instructions do not contain all the details on all the functions of EPAS-3 Win and cannot take every conceivable application possibility into consideration. If special problems arise which are not described in detail here, please contact ELAU.

1.1 Further literature

PacDrive S

Planning manual	
German	Art. No. 17 13 00 55 - 000
English	Art. No. 17 13 00 55 - 001
User documentation	
German	Art. No. 17 13 00 51
English	Art. No. 17 13 00 52
Italian	Art. No. 17 13 00 53
Operating instructions	
German	Art. No. 17 13 00 54 - 000
English	Art. No. 17 13 00 54 - 001
Italian	Art. No. 17 13 00 54 - 002
French	Art. No. 17 13 00 54 - 003
Spanish	Art. No. 17 13 00 54 - 004
Operating instructions PMC-2 BASIC Soft	
German	Art. No. 17 13 00 56 - 000
Operating instructions EPAS-3 Win	
German	Art. No. 17 13 00 69 - 000

1.2 Product training

We naturally provide an extensive course of training.

This is carried out either in our house or, if desired, directly at our customers.

The training is offered in German, English or in French.

The functions of the PacDrive S system are not only handled theoretically but also explained practically on the basis of the customer's requirements and a solution found together with the customer.

Please contact us for further information.

2 Overview

2.1 General

EPAS-3WIN is a software product for programming and configure the PacDriveS system. The installation data media contain a package of executable programs, text and system files.

EPAS-3WIN is available as:	Single license	(Art. No.: 20630048)
	Network license	(Art. No.: 20630049)
	OEM license	(Art. No.: 20630050)
	Update	(Art. No.: 20630051)

EPAS-3 Win is supplied on a CD ROM.

3 System requirements

Before installing EPAS-3WIN check whether your system requires the following minimum requirements:

- Intel-Processor 486 (66 MHz) or higher,
- Windows 95 / 98 or NT4.0
- Approx. 20 MB of free space on the hard disk,
- 3.5" floppy disk drive with high capacity (1.44 MB).
- CD-ROM drive (at least double speed)
- A free serial interface (COM1 - COM4 are supported)

4 Installation

- In order to install EPAS-3 Win on the hard disk of your PC insert the EPAS-3 Win CD into the CD drive of your PC.
- If the autostart function is active, the setup program starts automatically.

Otherwise select the "Run" start menu and enter the following line:

d:\disk1\setup.exe (under the assumption that d: is your CD ROM drive)

- The installation process is now prepared.
- First the software license agreement is displayed. You have to confirm that you agree to the license agreement before you can continue with actually installing EPAS-3 Win.
- Afterwards you can call up a file with the latest information on using EPAS-3 Win.
- The installation program can be used to specify a drive and a specific directory for the installation of EPAS-3 Win. The default directory setting is

C:\Program Files\ELAU\EPAS-3

The installation program creates various subdirectories under this directory into which all the system files are then copied.

- In order to define the setup type, specify whether a standard, minimum or user-defined setup is to be carried out.
- After the setup has been completed you are prompted to reboot your computer, if appropriate.

Starting EPAS-3 Win

1. Double-click with the left-hand mouse button on the icon for Epas-3 Win on the desktop.
2. Select a connection in the "On-line connection" dialog box of EPAS-3WIN in order to establish a connection to the PMC-2.
The PMC-2 must have a 24 V supply before an on-line connection to it is possible.
3. If the connection was established successfully, the main menu of EPAS-3 Win is displayed from which all further operations can be started.
The status line then displays, for example, the message "Online COM1 Axis1
(On-line connection via COM1 of the PC to the PMC-2 with the axis number 1)
This shows that the basic protocol is running, meaning that no user data are being transferred.

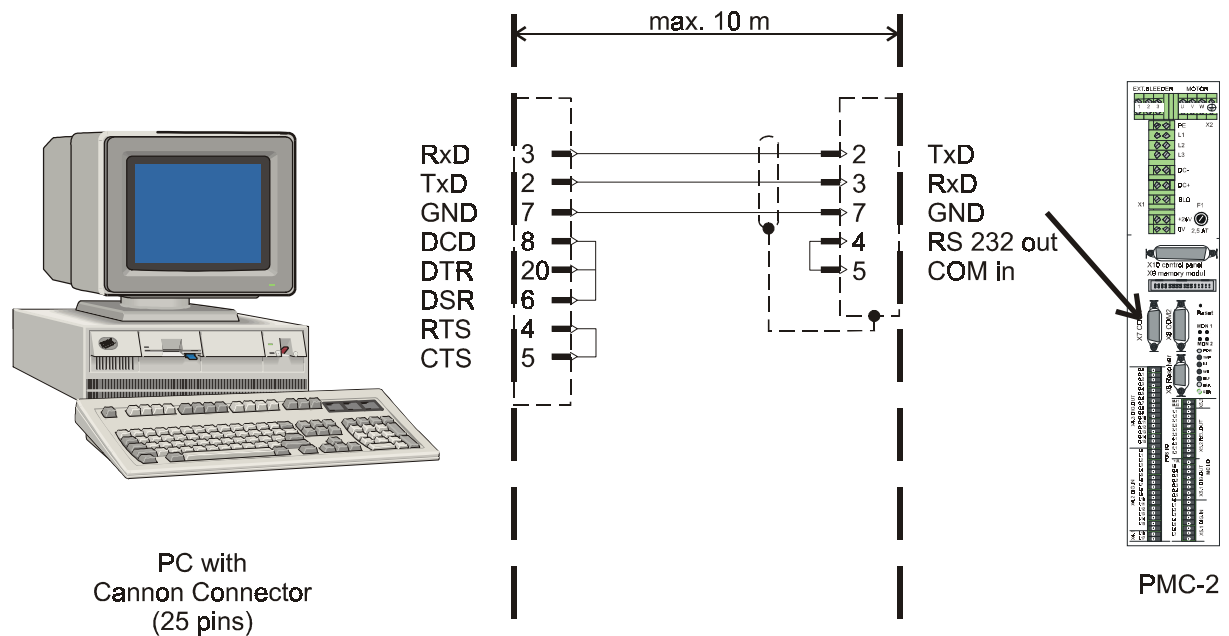
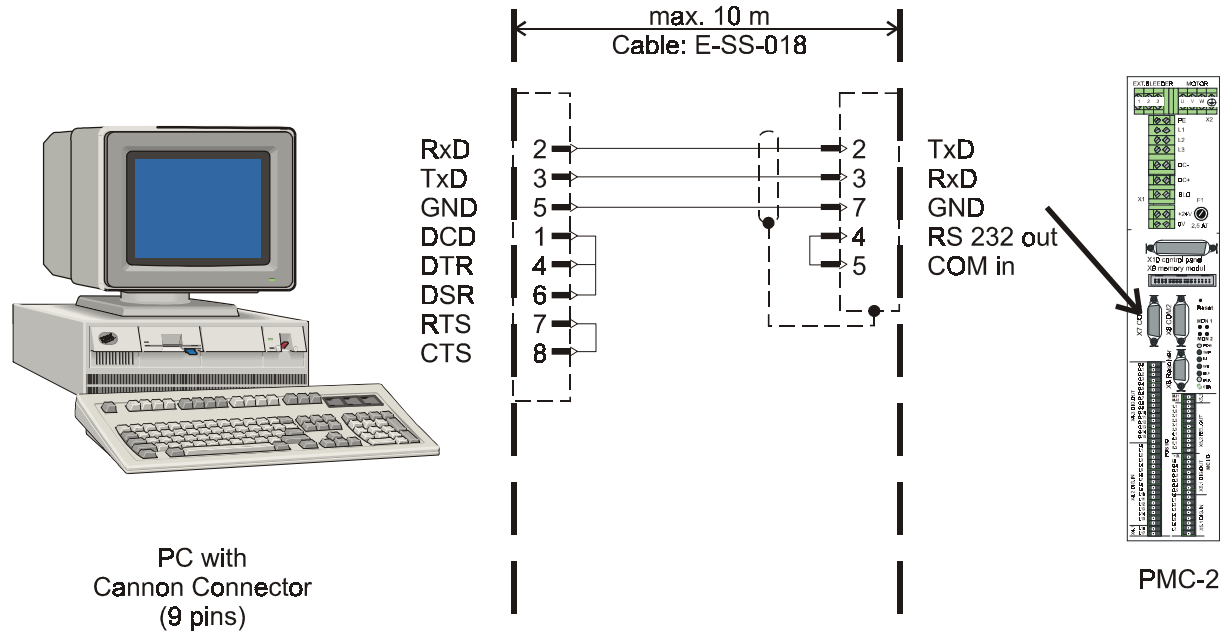
5 Electrical connection to the PMC-2

5.1 Connecting a PC via the RS 232 interface to the PMC-2 (COM1 or COM2).

- The number of the COM interface on the PC is set in EPAS-3WIN by using the menu item:

Options
Interface

- Connector pin assignment when configured as an RS232 interface:



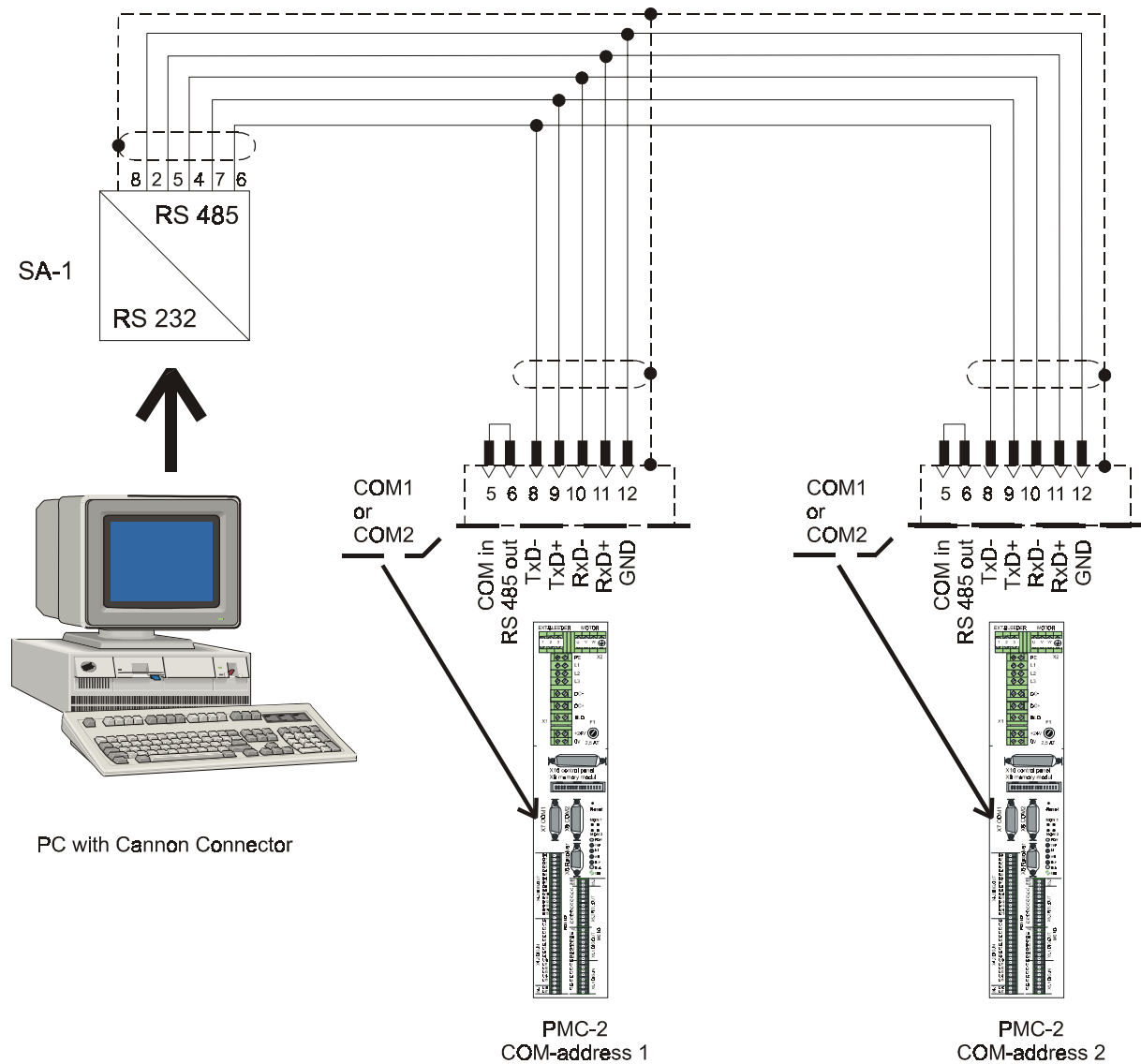
PC_RS232.cdr

5.2 Connecting several PMC-2s (COM1 or COM2) via the RS 485 interface to the PC

- The number of the COM interface on the PC is set in EPAS-3WIN by using the menu item:

Options
Interface

- Connector pin assignment when configured as an RS 485 interface:



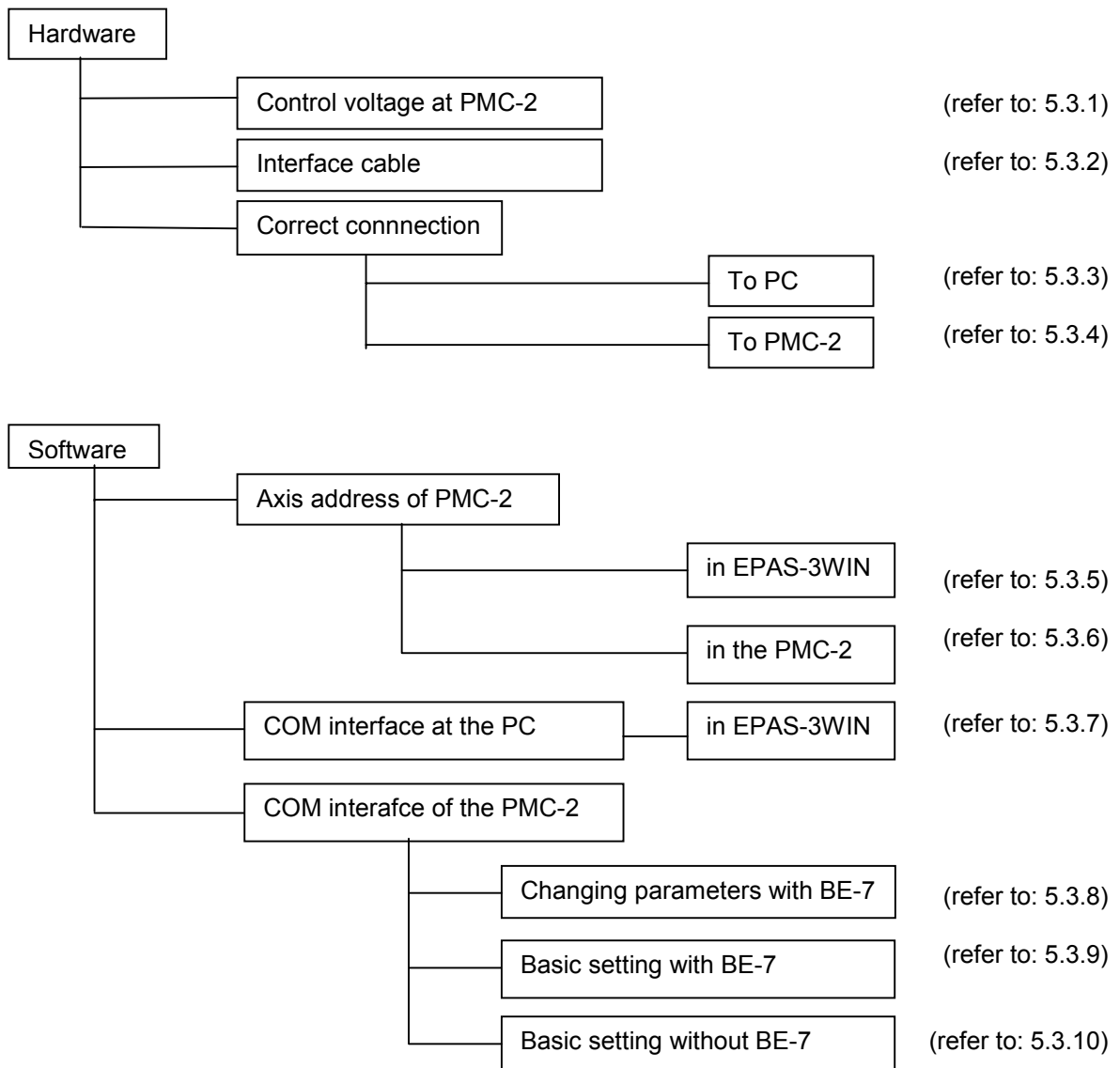
PC_RS485.cdr

5.3 Problems while establishing a connection

General information

- The axis addresses (P0.27 or P0.22) set in the parameter record of the PMC-2 for the COM interfaces of the PMC-2 must differ if both have been configured as SINEC-L1 interfaces, since a connection is otherwise not possible.
- It is advisable to carry out a change in the axis address via the BE-7 or by connecting to only one PMC-2.
- Only one PMC-2 can be operated at a time on-line. Connecting several PMC-2's only means that you do not have to reconnect the interface cable.

Overview



5.3.1 Control voltage at the PMC-2

In order to establish a connection to the PMC-2, a control voltage of 24 V DC must be applied to terminal X1.

5.3.2 Interface cable

Check the interface cable for defects and whether the correct interface (RS 232 or RS 485, refer to Chapter 4) has been configured.

5.3.3 Interface at the PC

Is the interface cable connected properly onto the PC?
Is the cable connected to the correct interface?

5.3.4 Interface at the PMC-2

Is the interface cable connected properly to the PMC-2 (screwed on, if appropriate)?
Has the correct interface been selected at the PMC-2 (X7 = COM1, X8 = COM2)?

5.3.5 Axis address of the PMC-2 in EPAS-3WIN

The axis address of the PMC-2 is set in EPAS-3WIN under the menu item:

PMC

On-line connection

Setting the axis address or
Find axis

5.3.6 Axis address in the PMC-2

The axis address of the PMC-2 is set with the parameters P0.27 for COM1 and P0.22 for COM2.

5.3.7 COM interface of the PC in EPAS-3WIN

The number of the COM interface on the PC is set in EPAS-3WIN by using the menu item:

Options

Interface

The following message is displayed if the serial interface cannot be addressed:

Access refused

This is, for example, the case if the COM interface is used by the PC mouse.

5.3.8 Configuration of the COM interface in the PMC-2

In order to link the EPAS-3WIN to a PMC-2 the adapted COM interface must be configured as a SINEC-L1 interface. This is carried out with the parameters P0.26 for COM1 and P0.21 for COM2. (Also refer to the manual TH/SM 9 Chapter 4.)

5.3.9 Setting the default parameters with BE-7

There are the following possibilities of linking EPAS-3WIN to a PMC-2 without an active SINEC-L1 interface:

1. Change the parameter with BE-7 and then carry out a RESET at the PMC-2 (normal case).
2. Operate the key CE at BE-7 while the RESET is pressed at the PMC-2.

5.3.10 Setting the default parameters without BE-7

If no BE-7 is available for configuration, the following possibility can also be used to link EPAS-3WIN to a PMC-2 without an active SINEC-L1 interface:

- Switch off the PMC-2 (control voltage 24 V DC)
- Remove the MEM module and switch on the control voltage 24 V
- Wait approx. 5 seconds
- Switch off the PMC-2 (24 V) and plug on the MEM module again
- Switch on the PMC-2 again
- Check Parameters P0.26 and P0.27 (COM1)
- Accept the parameters with EPAS-3 Win (menu item PMC -> Parameter and F9)

6 Using EPAS-3 Win

6.1 File types

The file type provides information on the contents of the file.

6.1.1 ECL program file

Contents: Source code of the ECL program.
This file is created with the program editor.

6.1.2 ECD program file

Contents: Source code of the ECL program which was created with EPAS-3 DOS.

This file type is used to differentiate ECL programs which were created with EPAS-3 (DOS). EPAS-3 DOS – ECL program files must be renamed to *.ecd files. This allows EPAS-3 Win to differentiate between "old" and "new" ECL source files and to convert the "old" ones.

6.1.3 Type ZC – intermediate code file

Contents: Compiled intermediate code of an ECL program.
The file is generated from the ECL program file by the program compilation. The PMC-2 requires the intermediate code file in order to execute a program.

6.1.4 Symbol table

Contents: Symbol definitions for symbolic programming

6.1.5 Parameter file

Contents: Parameter record of a PMC-2
All the PMC-2 parameters are saved in the parameter record.

6.1.6 Type I - inputs

Contents: The states of the inputs are saved in this file.

6.1.7 Type O - Outputs

Contents: The states of the outputs are saved in this file.

6.1.8 Type F – Flags

Contents: The states of the flags are saved in this file.

6.1.9 Type V – user variable

Contents: The user variables are saved in this file.
The user variable files contain, for example, the curve data for the PMC-2.

6.1.10 Type S – System variable

Contents: The states of the system variables are saved in this file.

6.1.11 Type Y – Direct parameters

Contents: The states of the direct parameters are saved in this file.

6.1.12 Variable lists

Contents: List of PMC-2 variables.
The user can combine the I, O, F, V, S, Y and P variables which are of interest in the variable lists. These can be monitored clearly and changed during on-line operation.
-> Also refer to **Program start / Standard variable list**

6.1.13 Axis module list

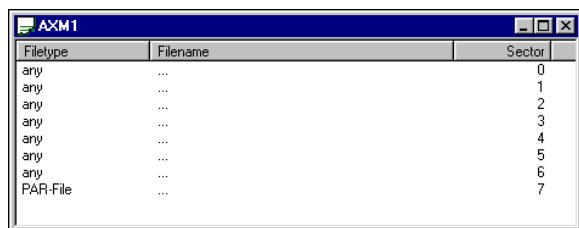
In order to facilitate duplication of a MEMORY module of a completely configured axis, the menu item

File

New

Axis module list

can be used to create a so-called axis module list:



Filetype	Filename	Sector
any	...	0
any	...	1
any	...	2
any	...	3
any	...	4
any	...	5
any	...	6
PAR-File	...	7

The structure of this window corresponds to the sector structure of a MEMORY module. The cursor keys and the ENTER key can be used to select the corresponding field in order to assign a user variable file, an ECL program code file or a parameter file (Sector 7) to each sector.

6.1.14 File list

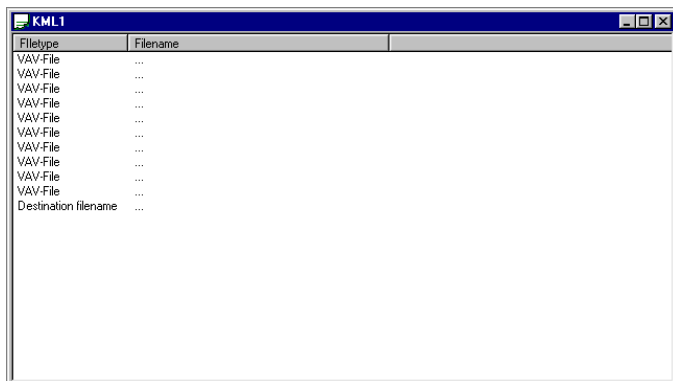
Contents: List of user variable and parameter files
User variable and parameter files can be read from the PMC-2 and sent to the PMC-2.

6.1.15 Curve module list

In order to allow several curve files to be saved on one sector of the MEMORY module you can use the menu item

File
New
Curve module list

create a so-called curve module list:



The **ENTER** or the **INS** key can be used to select and insert a VAV file. The DEL key can be used to delete an entry again.

You can use the key combination **CTRL + S** or the menu item

File
Save As

to save this list under a specific file name.

The file name should differ from the name of the individual VAV files, since the-variable files are not combined into a VAV file until it is sent.

Danger of overwriting!

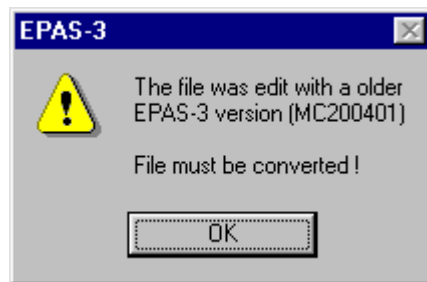
The curve module list should be entered in an axis module list in order to transfer a curve module list in on-line mode to the PMC-2. Also refer to Section 7.5.4.3 Axis module list.

6.2 Converting files

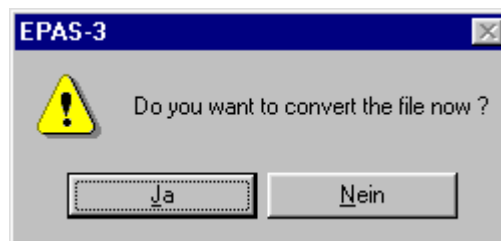
The version number of the compatible PMC-2 firmware state is impressed on the parameter, system variable, direct parameter and variable list files when they are stored on the hard disk or floppy disk. If PMC-2 files which were created for an older PMC-2 version exist, these parameter or variable list files can be transferred to a PMC-2 with a more recent software state after they have been converted. Conversion is carried out easily by opening the corresponding file under the menu item

File
Open

with EPAS-3. The program recognizes while the file is being opened that this file was created for a different MC-2-firmware version and the following message is displayed:



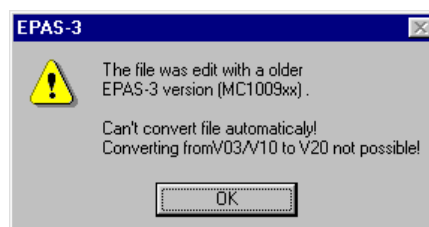
After you have confirmed by clicking on OK the following message is displayed:



The file is read out after you have confirmed with "Yes". If you do not want to lose the original file, you can save the converted data under a new file name. If you use the same file name when saving the contents of the old file are lost. If you exit the editor without saving, the file is retained in its old state.

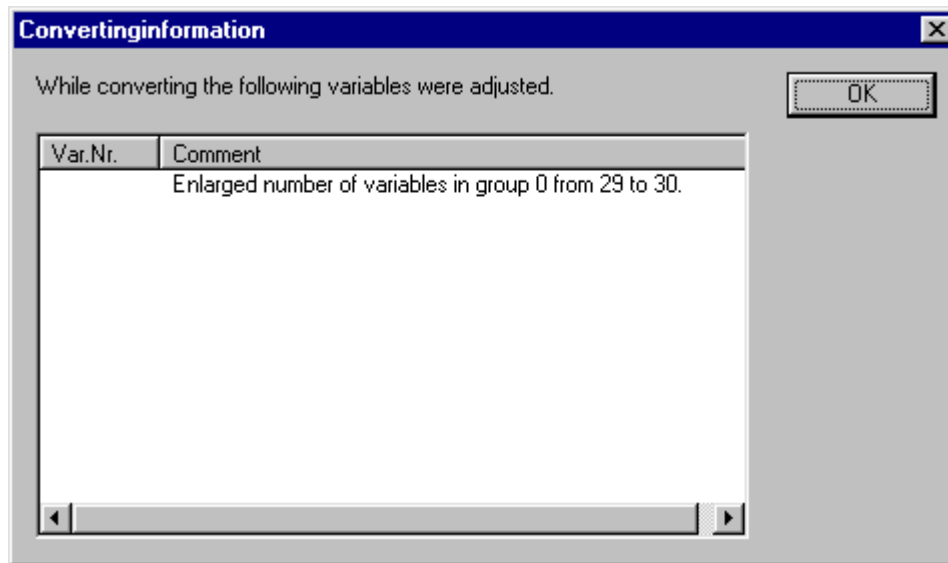
Note

If an attempt is made to convert a parameter file of firmware version 10.xx.xx to a firmware version 20.xx.xx, the following error message is output, since the parameter records are too different:



In this case it is advisable to enter the parameter record manually once more.

After conversion has been carried out successfully an information window which lists the changes is displayed.



6.3 Program editor

6.3.1 Syntax coloring

You are supported optically during programming. Errors are avoided or discovered more quickly since the text is highlighted in color.

An comment which is not closed and which thus comments out instructions is noticed immediately, keywords are not written incorrectly by mistake, etc.

The following colors are used:

- Blue Keywords
- Green Comments
- Magenta Symbols (are specified in a corresponding symbol file)
- Black Variables, constants, assignment operators, ...

6.3.2 Statement numbers

The statement numbers are displayed on the left-hand side of the program editor.

6.3.3 Compiling or generating the intermediate code file

The ECL program is compiled by using the key F9 or the menu (Edit -> Compile). The intermediate code file is generated in the process.

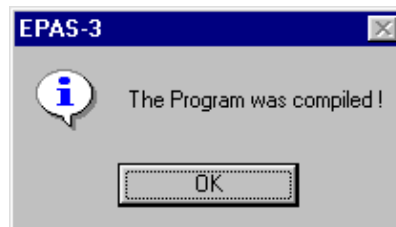


Figure: Compile program

If there is an on-line connection to a PMC-2, the intermediate code file can now be transferred directly to the PMC-2.

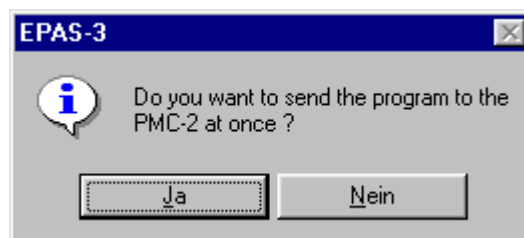


Figure: Compile and send program

6.4 Parameter editor

6.4.1 The parameter editor

A parameter record for the PMC-2 is generated by opening a parameter editor under the menu item

File
 New
 Parameter file

All the parameter values can be entered in this editor and saved by using the menu items

File
 Save
 Save As ...

under a specific file name.

6.4.2 Working in ONLINE mode

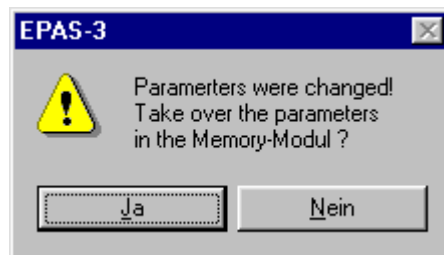
If there is a serial connection between the PC and the PMC-2, you can use the menu item

PMC
Parameters

to view the current parameter record of the control system. The displayed values correspond to the current parameter values in the control system. All the entered values are now sent "online" directly to the PMC-2. The changed values are accepted by using the key **F9** or by selecting the menu item

PMC
MEMORY-Module
Save parameters RAM->MEM

The new parameters are saved initially on the MEMORY module of the PMC. The changed values are accepted finally into the control system by activating the enable. If you do not want to accept the changed values, exit the ONLINE editors and select "No" in the subsequent message box:



If you confirm by selecting "Yes", the parameter values are transferred to the MEMORY module of the control system just as if you had pressed **F9**. The current parameter values of the editor can also be saved under a specific file name in ONLINE mode by using the menu items

File
Save
Save As ...

The parameter values of a saved file can be transferred by using

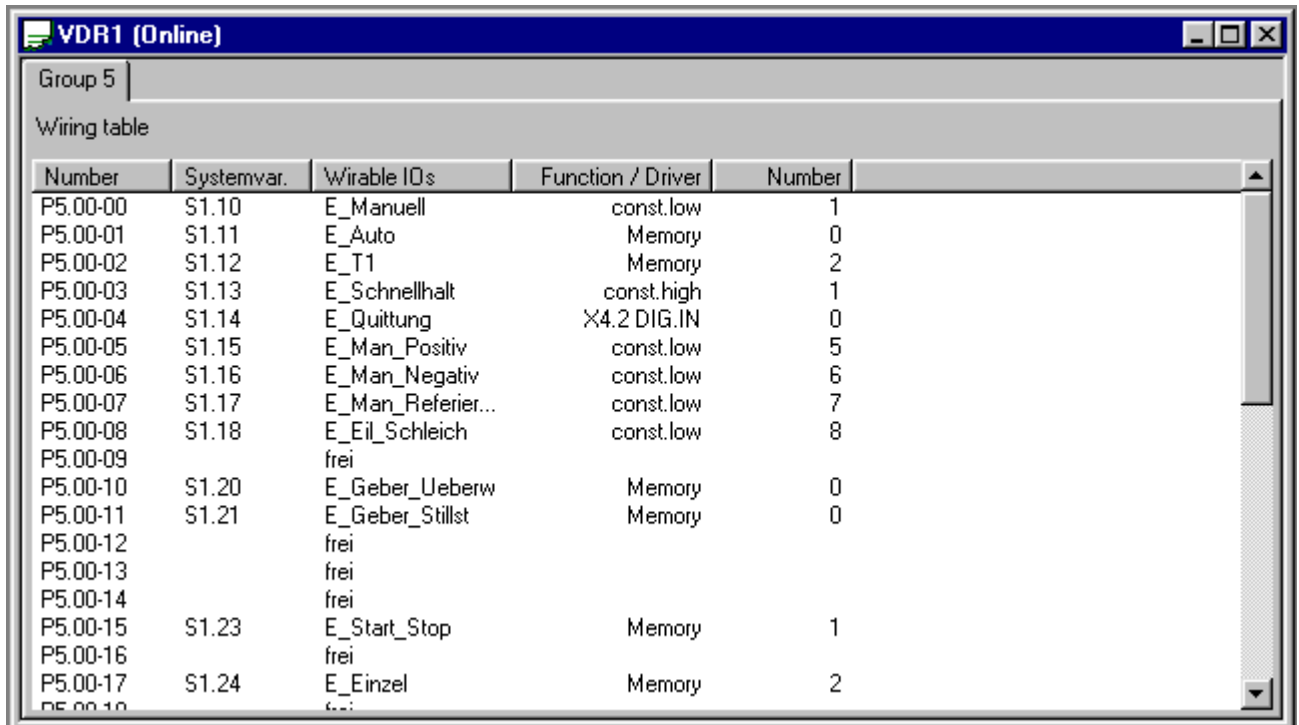
PMC
Send files
Parameter file...

to the PMC-2. Importing into the MEMORY module is then carried out automatically after transferring has been completed successfully. Importing of the new parameter values in the control system must be triggered by activating the enable or by a RESET.

6.4.3 The wiring table in the parameter editor

The meaning of the connectable system variables of the PMC-2 is explained in more detail in **Section 4.3 System variable**. The possible logical assignments of this special system variable group are specified by the parameter **P 5.00 wiring** in the PMC. Do not modify the default setting of this parameter if you are not thoroughly familiar with the configuration and programming of the PMC-2!

In order to retain the clear structure of this parameter, it is not entered directly in the line as in the other parameters, but only via a special window which is opened after the <SPACE> key has been pressed. This window displays the **Wiring** parameter in the form of a table:



Number	Systemvar.	Wirable I/Os	Function / Driver	Number
P5.00-00	S1.10	E_Manuell	const.low	1
P5.00-01	S1.11	E_Auto	Memory	0
P5.00-02	S1.12	E_T1	Memory	2
P5.00-03	S1.13	E_Schnellhalt	const.high	1
P5.00-04	S1.14	E_Quittung	X4.2 DIG.IN	0
P5.00-05	S1.15	E_Man_Positiv	const.low	5
P5.00-06	S1.16	E_Man_Negativ	const.low	6
P5.00-07	S1.17	E_Man_Referier...	const.low	7
P5.00-08	S1.18	E_Eil_Schleich	const.low	8
P5.00-09		frei		
P5.00-10	S1.20	E_Geber_Ueberw	Memory	0
P5.00-11	S1.21	E_Geber_Stillst	Memory	0
P5.00-12		frei		
P5.00-13		frei		
P5.00-14		frei		
P5.00-15	S1.23	E_Start_Stop	Memory	1
P5.00-16		frei		
P5.00-17	S1.24	E_Einzel	Memory	2
P5.00-18		frei		

Figure: Wiring table

The "System variable" column lists all the system variables which are described in **Section 4.3.3 Connectable logical system variable**.

The "Connectable I/Os" column offers the possibility of assigning a "wiring function". <<

The desired function is selected by using the <SPACE> key.

6.4.4 Parameters P6.00 ... P6.19 BE_texts (texts for operator panel)

The parameters P6.00 ... P6.19 are only of importance if an operator panel BE-1 or BE-8 is available (also refer to **Section 2.2 Operator panel BE-8** or **Section 2.3 Operator panel BE-1**).

Since the input masks of the parameters P6.00 ... P6.19 differ from the other parameters, all the parameter values are edited in a special window. This window is opened by pressing the <SPACE> key in the line of the parameter **P 6.00 BE_texts**.

Nu...	Variable	Display text	Lower limit	Upper limit	Format
P6.00	V000		0	61	0.0
P6.01	V001		0	0	0.0
P6.02	V002		0	127	0.0
P6.03	V003		0	0	0.0
P6.04	V004		0	127	0.0
P6.05	V005		0	0	0.0
P6.06	V006		0	127	0.0
P6.07	V007		0	0	0.0
P6.08	V008		0	0	0.0
P6.09	V009		0	0	0.0
P6.10	V010		0	0	0.0
P6.11	V011		0	0	0.0
P6.12	V012		0	0	0.0
P6.13	V013		0	0	0.0
P6.14	V014		0	0	0.0
P6.15	V015		0	0	0.0
P6.16	V016		0	0	0.0
P6.17	V017		0	0	0.0
P6.18	V018		0	0	0.0
P6.19	V019		0	0	0.0

Figure: Texts for operator panel

The **Variable** column displays the indices of the user variables which can be modified via the operator panel.

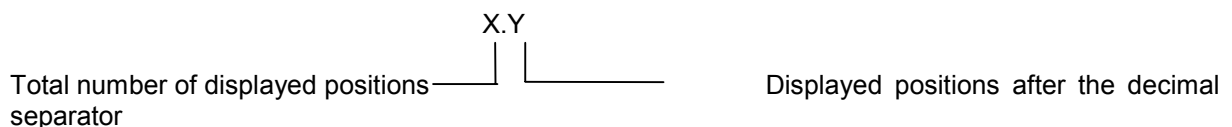
A text can be entered in the **Display text** column. This is shown later in the display unit of the display device next to the value of the variables.

The entry in the **Lower limit** column specifies the minimum value which can be entered via the operator panel for this value.

The entry in the **Upper limit** column specifies the maximum value which can be entered via the operator panel for this value.

In order to disable input of the variable value on the operator panel the value of the upper limit can be set lower than the value of the lower limit.

The **Format** column can be used to specify the display format of the variables in the display unit of the display device. The format input has the following meaning:



The variable of a line with the entry 0.0 in the **Format** column is not displayed in the display. This also applies to the variables of all the lines lying below, even if the entry is not 0.0 in these lines!

The columns and lines of this window described above can be accessed with the cursor keys. A display text cannot be changed afterwards, but has to be re-entered completely.

The changes are transferred in ONLINE mode by pressing the key **F9** after the table window has been quit.

6.5 PMC

On-line functions can be selected with the PMC-2 under this menu item.

6.5.1 Sending files

Here you can transfer files from EPAS-3 to the PMC-2.

The following selection possibilities are available:

- ZC program code ...
- Parameter file ...
- V variable file ...
- Axis module list ...
- Data file ...
- Curve module list ...

V variable file

The contents of the selected file are transferred to the RAM area of the PMC-2. The start index and the number of variables were specified beforehand while creating the file by means of a user variable editor. Afterwards the menu item

PMC

MEMORY-Module

Save variable block RAM->MEM

can be used to save an area of the user variables on the MEMORY module under specification of a sector number, a start index and the number of variables. The number of saved variables is stored under the 'File name' field (refer to Figure 7.5.4-1)

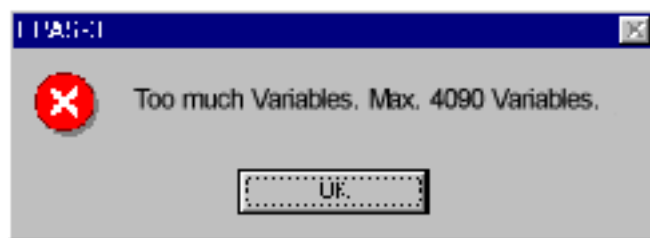
Axis module list

The files of this list are sent sequentially to the PMC-2 and saved on the specified sector. You must take into account that the transfer of variable, parameter and program files is carried via the RAM of the PMC-2. The RAM area thus contains the data of the most recent object sent.

Curve module list

Note:

A maximum of 4090 V variables can be saved on one sector. This number may not exceed the curve module list, otherwise the following message is output during sending:



6.5.2 Receiving files

Being prepared

Being prepared

Being prepared

Here you can transfer files from the PMC-2 to EPAS-3.

The following selection possibilities are available:

-
-

Being prepared

Being prepared

Being prepared

6.5.3 Parameters

The parameters can be monitored and modified on-line in the PMC-2.

The screenshot shows the 'EPAS-3 for Windows - [PAR2 (Online)]' window. The 'General' tab is active, displaying a table of parameters. The table has columns for 'Nr', 'Designation', 'Value', and 'Unit'. The parameters listed are:

Nr	Designation	Value	Unit
P0.00	Name_der_Achse	Slave	
P0.01	V_max	4000.0	Einh/Sec
P0.02	A_max	1800	Einh/Sec^2
P0.03	A_Schnell_Halt	2300	Einh/Sec^2
P0.04	Stilsetzen	ja	
P0.05	Man_langsam	50.0	Einh/Sec
P0.06	Man_schnell	200.0	Einh/Sec
P0.07	Bremse_t_klemm	10	msec
P0.08	Referenz_Modus	0	
P0.09	V_Referenz	50.0	Einh/Sec
P0.10	Ref_Schalter	Schließer	
P0.11	End_Schalter	Schließer	
P0.12	Positionier_Mode	absolut	
P0.13	Softlimit_Pos	2070.000	Einh
P0.14	Softlimit_Neg	995.000	Einh
P0.15	0_Punkt_Offset	0.000	Einh
P0.16	Zeit_ZK_Kurzschl	50	msec
P0.17	Bremse_t_loes	50	msec
P0.18	Kode_Vorarbeiter	1	
P0.19	Kode_Einrichter	2	
P0.20	Sprache	Deutsch	
P0.21	COM2_Anwendung	COM ECL	
P0.22	COM2_Adresse	1	
P0.23	LCD_Kontrast	25	
P0.24	PMC_Variante	SINCOS	
P0.25	Bleeder	ja	
P0.26	COM1_Anwendung	SINEC_L1-S	
P0.27	COM1_Adresse	1	
P0.28	AUTO_cfg	1000000F	
P0.29	Bremse_t_klemUPM	1000	msec

The status bar at the bottom of the window shows: Ready | ONLINE COM2 Axis 1 | MC200713 | NUM

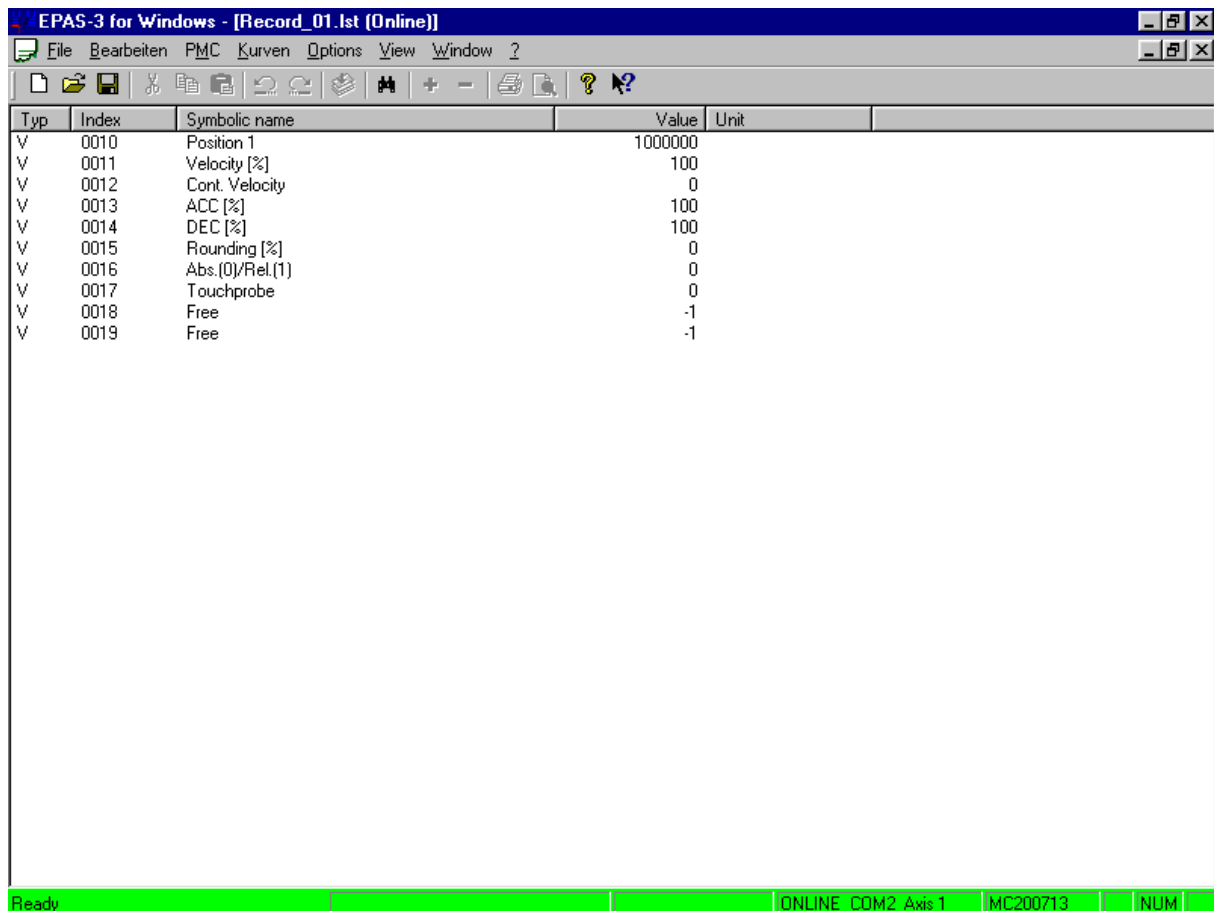
6.5.4 Variables

The following selection possibilities are available:

- Inputs
- Outputs
- Flags
- User variables
- System variables
- Direct parameters

6.5.5 Variable list

Variable lists can be monitored and modified on-line in the PMC-2.



The screenshot shows the 'EPAS-3 for Windows - [Record_01.lst (Online)]' window. The interface includes a menu bar (File, Bearbeiten, PMC, Kurven, Options, View, Window, ?), a toolbar with various icons, and a main data table. The table has five columns: Typ, Index, Symbolic name, Value, and Unit. The data is as follows:

Typ	Index	Symbolic name	Value	Unit
V	0010	Position 1	1000000	
V	0011	Velocity [%]	100	
V	0012	Cont. Velocity	0	
V	0013	ACC [%]	100	
V	0014	DEC [%]	100	
V	0015	Rounding [%]	0	
V	0016	Abs.(0)/Rel.(1)	0	
V	0017	Touchprobe	0	
V	0018	Free	-1	
V	0019	Free	-1	

At the bottom of the window, there is a status bar with the following information: Ready, ONLINE COM2 Axis 1, MC200713, NUM.

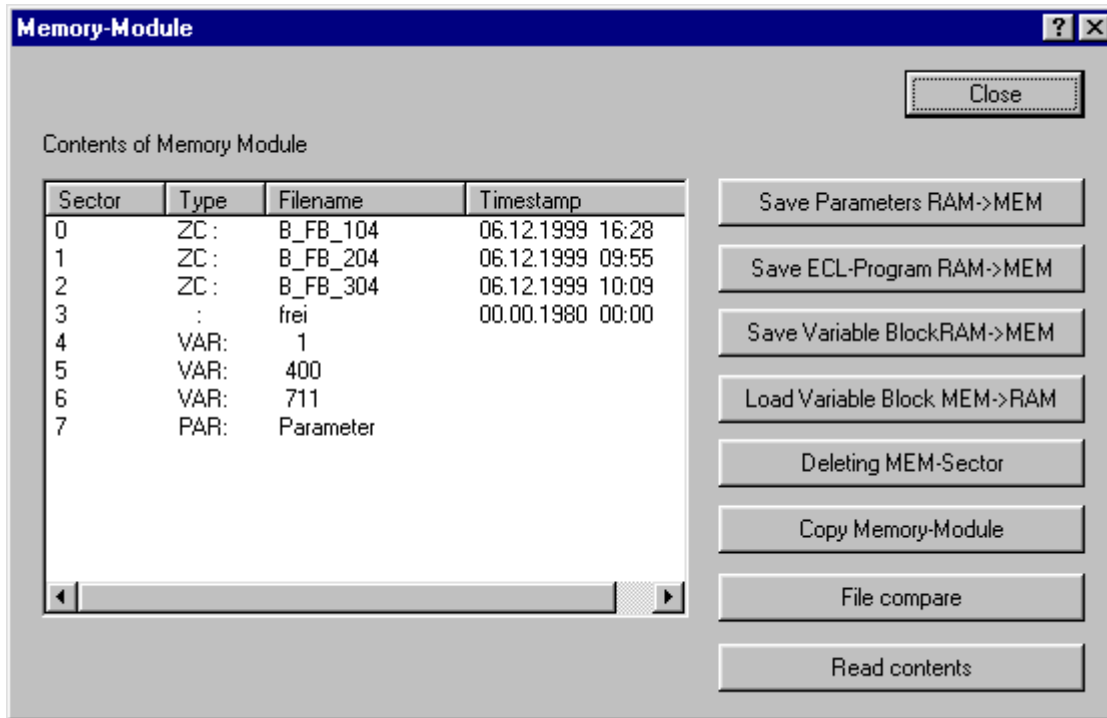
6.5.6 Standard variable list

Here the standard variable list of the current project can be opened.

-> Refer to **Program start**

6.5.7 Memory module

Various functions for processing the memory module are combined here.



Save parameters RAM->MEM

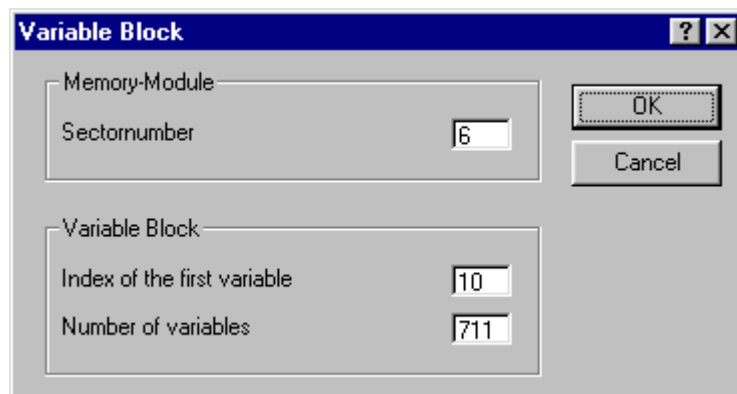
The parameters which are currently in the RAM are saved on the memory module Sector 7.

Save ECL program RAM->MEM

The ECL program (*.ZC file) currently contained in the RAM is saved on the memory module (sector selection via S1.25 ... S2.27).

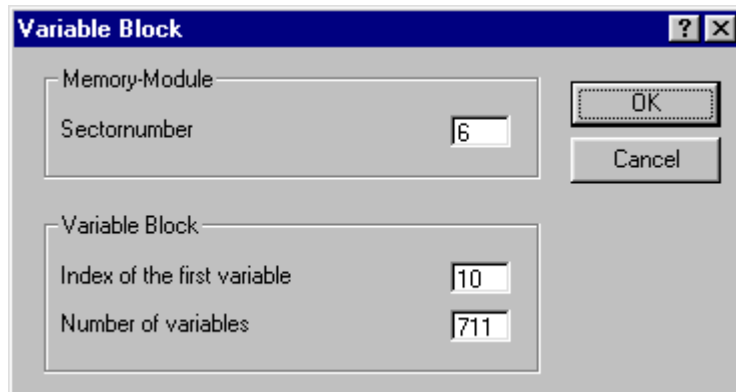
Save variable block RAM->MEM

A variable block is copied from the RAM to the memory module. The following input box is displayed to this purpose:



Load variable block RAM->MEM

A variable block is copied from the memory module to the RAM. The following input box is displayed to this purpose:



Variable Block ? X

Memory-Module

Sectornumber 6

OK

Cancel

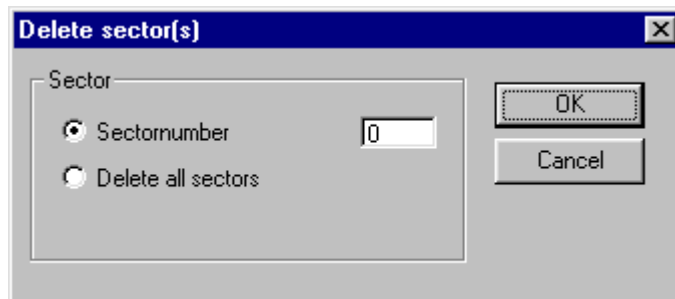
Variable Block

Index of the first variable 10

Number of variables 711

Delete MEM sector

One or all the sectors of the memory module can be deleted here.



Delete sector(s) X

Sector

Sectornumber 0

Delete all sectors

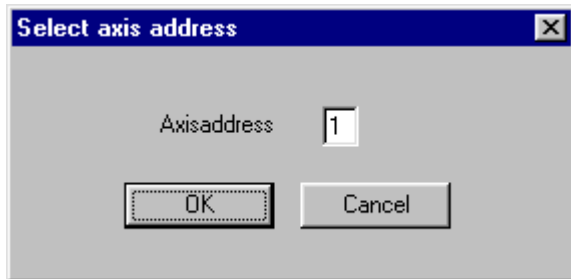
OK

Cancel

6.5.8 On-line connection

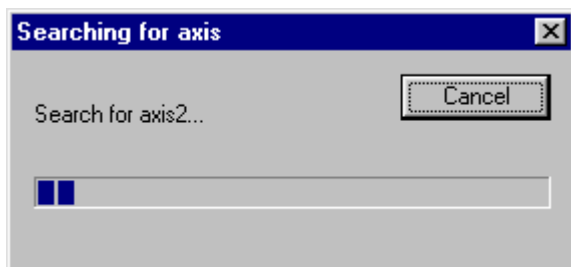
Setting the axis address ...

If the axis address is known, it can be entered directly here.

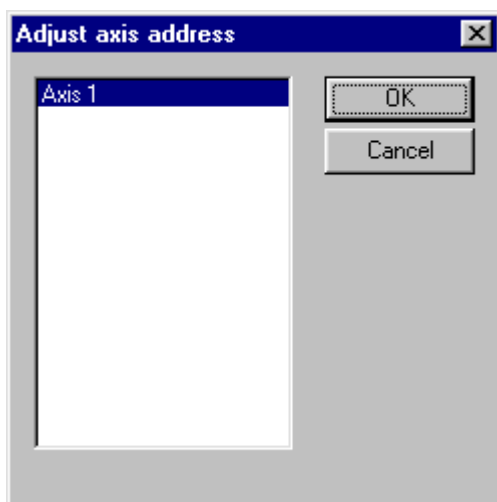


Find axis ...

If the axis address is not known or if several axes are connected, you can search for the axis here.



The result of the search is displayed in a selection window.



6.6 Curves

6.6.1 Creating curve data

An ASCII interpolation point file must first be selected before a curve file can be created. The following input box is then displayed:

The screenshot shows a dialog box titled "Cam data" with the following fields and options:

- Cam**
 - Number of interpolation points: 1000
 - Take over gradient of the file
 - Beginning gradient: 0
 - Ending gradient: 0
- Variable range**
 - First V-Variable: 1000
- Destination files**
 - generate VAV-Datei
 - generate FLT-Datei
 - generate PRN-Datei
 - generate PIC-Datei

Buttons: OK, Cancel

Curve

Number of curve points: Is required for the PIC file

Target files

VAV file: Contains the created curve data for the PMC-2

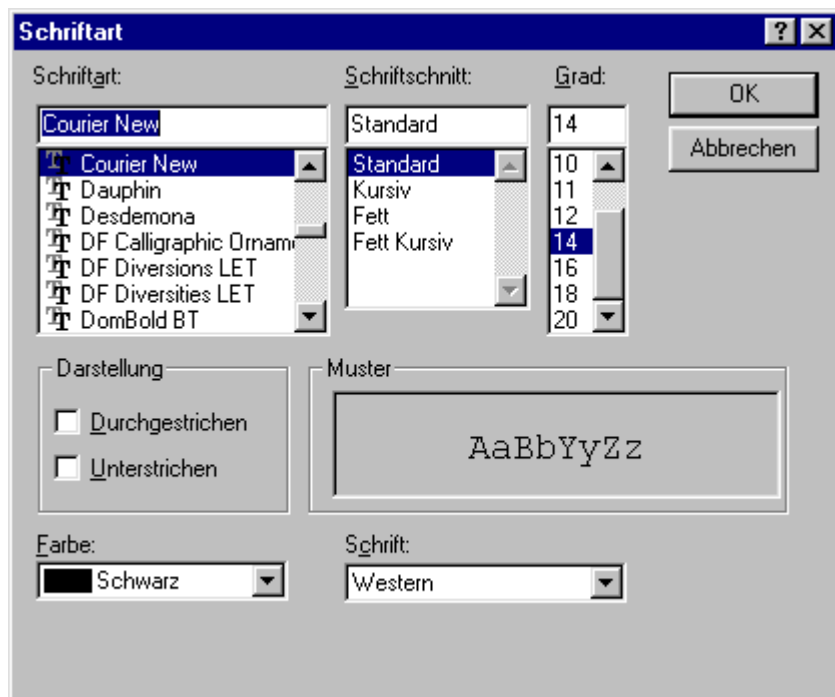
FLT file: Input file for CUBVAL

PRN file: Report file

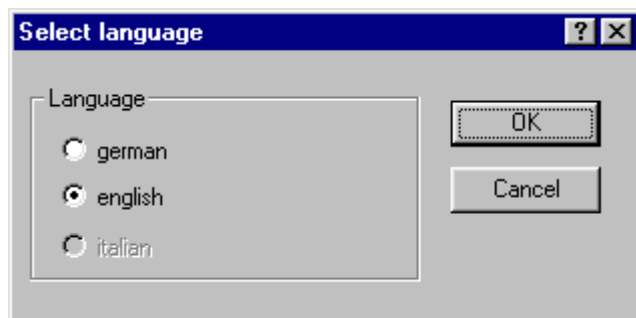
PIC file: Required for further display or editing (Vario Cam Editor, Mathcad, ...)

6.7 Options

6.7.1 Printer font / Editor font

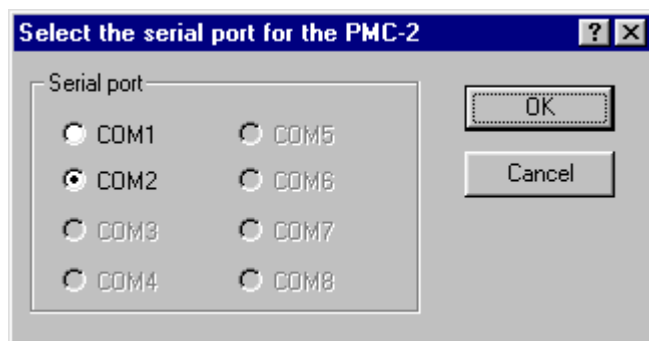


6.7.2 Language...



At the moment only German is supported.

6.7.3 Interface...



6.7.4 PMC-2 version...

Programming and configuring the PMC-2 is facilitated by the use of various variable types (user variables, system variables, parameter, etc.). These variable types are represented by complex data structures which remain hidden to the user. An extension or modification of this variable structure (for example by inserting a new parameter) in the PMC-2 firmware makes it necessary to adapt the EPAS-3 Win software to this variable structure.



Changing over the PMC-2 version is only possible if no window is open in EPAS-3 Win!

The firmware version of the PMC-2 can be determined as follows by means of EPAS-3 Win:

- Create a connection between the PC and the PMC-2 with a serial interface cable,
- Select the menu item

Options
PMC-2 version

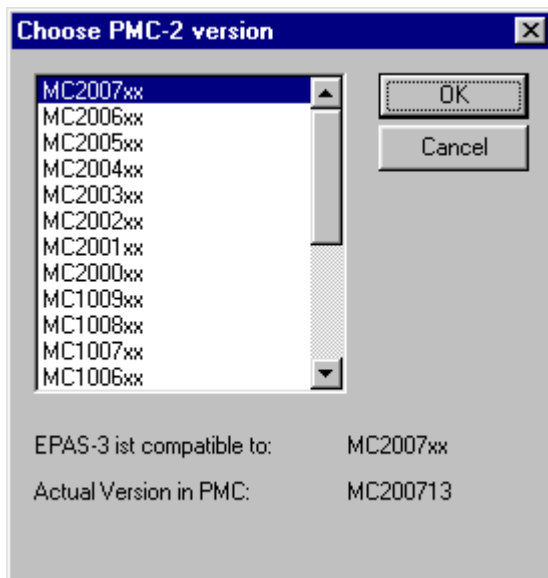


Figure: Pre-select the PMC-2 version

The following message is output if there is no serial connection between the PC and the PMC-2 :

Current version in PMC: MC???????

In this case check whether the connection is correct.

When EPAS-3 Win establishes a serial connection to a PMC-2, the software versions are checked initially. A compatible variable structure is now set automatically in EPAS-3 Win. The change becomes effective immediately! The PMC-2 can then be programmed or configured with EPAS-3WIN. The corresponding firmware version is displayed in the status bar (for example MC 20 04 00).

If files of a PMC-2 system with an older PMC-2 firmware version to which there is no on-line connection are processed, the software adaptation can also be carried out by the user. However, to this purpose the firmware version of the PMC-2 must be known and be selected under the menu item

Options

PMC-2 version

6.7.5 Project...

Various plant-specific system variables must be set in order to take a PMC into operation. For example, the motor- and gearing-dependent parameters must be entered and an ECL program for controlling a specified sequence process can be edited, compiled and archived. A special window can be opened in EPAS-3 Win for each of these system-describing variables in order to ensure simple and structured problem-oriented input and monitoring. The contents of this window can then be saved in a file on the hard disk of the PC.

In order to manage different applications in a clear structure you can use the function **Options / Project** in order to save the files which you created with EPAS-3 Win in a project-oriented structure.

Under **Project directory / Current project directory** you can open a new or an existing project. EPAS-3WIN then automatically saves all the files which are created under the desired directory name (=project) on the hard disk.

Figure: Project properties

The default directory under which all the projects are created is

C:\Projects\EPAS-3WIN

and is called the **project directory**.

CAUTION

The project directory may never be created as a subdirectory of the program.
This may lead to a data loss when the program is removed!

6.7.6 Program start ...

Here you can specify certain function for the EPAS-3 Win program start.

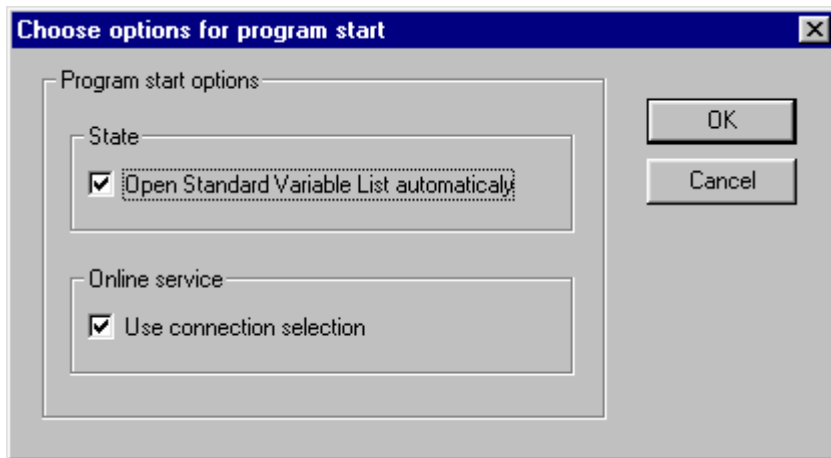


Figure: Options for program start

Standard variable list

If the project directory contains a variable list with the file name *Standard.lst*, it is opened automatically after EPAS-3 Win has been started if the option *Open standard variable list automatically* was selected, under the condition that there is an on-line connection to the PMC-2.

On-line operation

If the option *Connection selection* is activated, a selection box is opened automatically after EPAS-3 Win has been started.

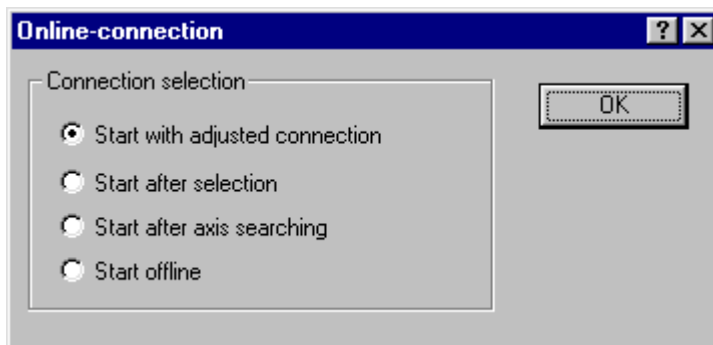


Figure: Options for on-line connection

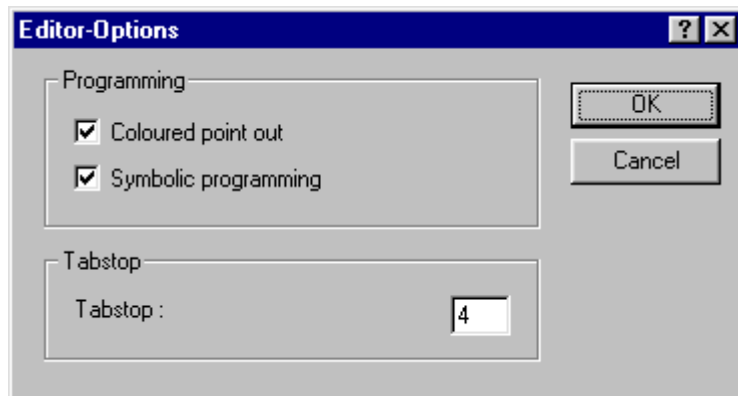
This selection box allows an on-line connection to a PMC-2 to be established directly after the program start.

If you start off-line, the on-line connection can be established later by using the menu item

PMC
On-line connection

6.7.7 Editor...

Some editor settings can be changed.



Highlighting by color

The syntax coloring can be activated and de-activated here.

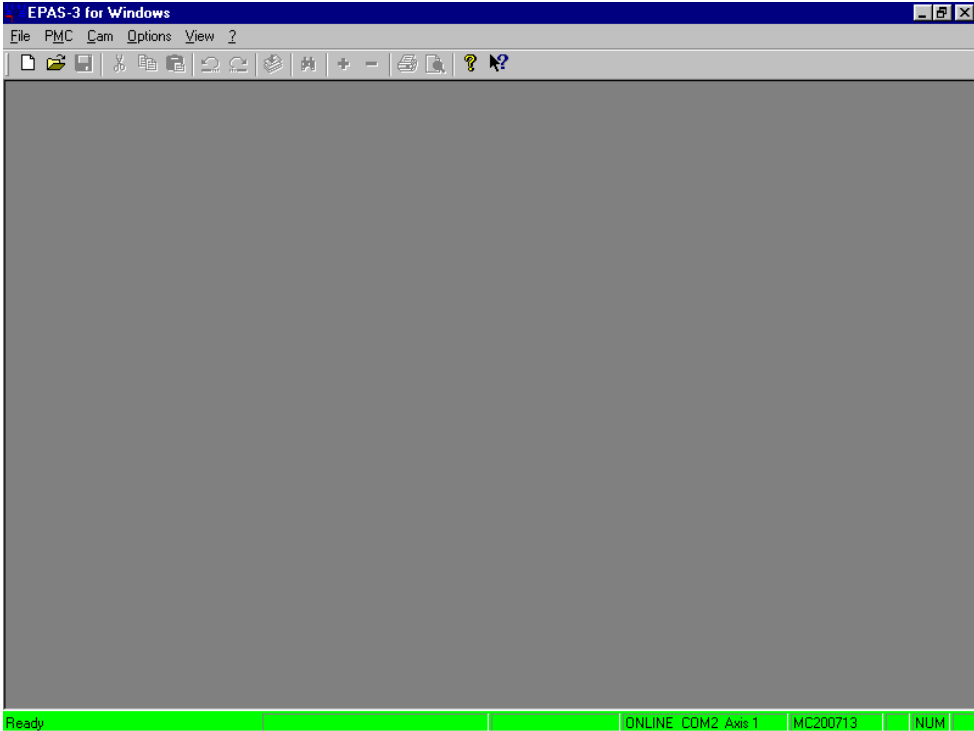
Symbolic programming

The symbolic programming can be activated and de-activated here.

6.8 View

The toolbar and the status bar can be activated and de-activated under this menu item.

Toolbar

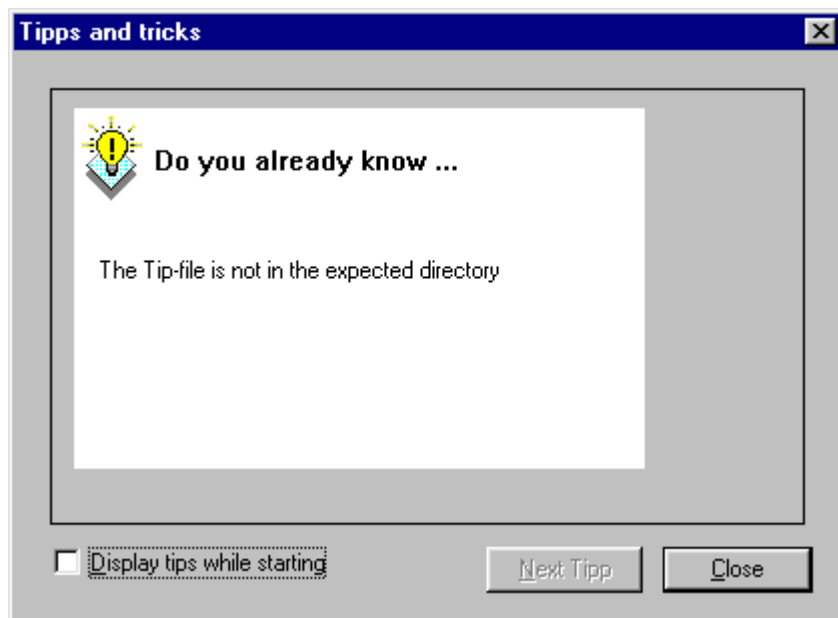


Status bar

6.9 Help

6.9.1 Hints and tricks ...

Some hints and tricks for EPAS-3 Win are displayed here.



6.9.2 Help topics

This provides help on certain topic and terms.



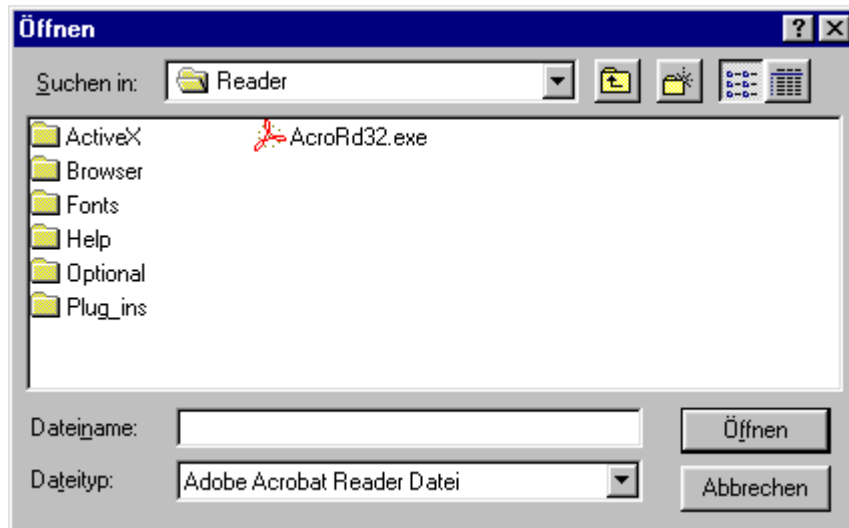
6.9.3 Manual

This menu item can be used to select chapters of the PMC-2 manual. The Acrobat Reader is started automatically and the corresponding chapter is opened.

-> Also refer to the following point **Acrobat Reader**

6.9.4 Acrobat Reader

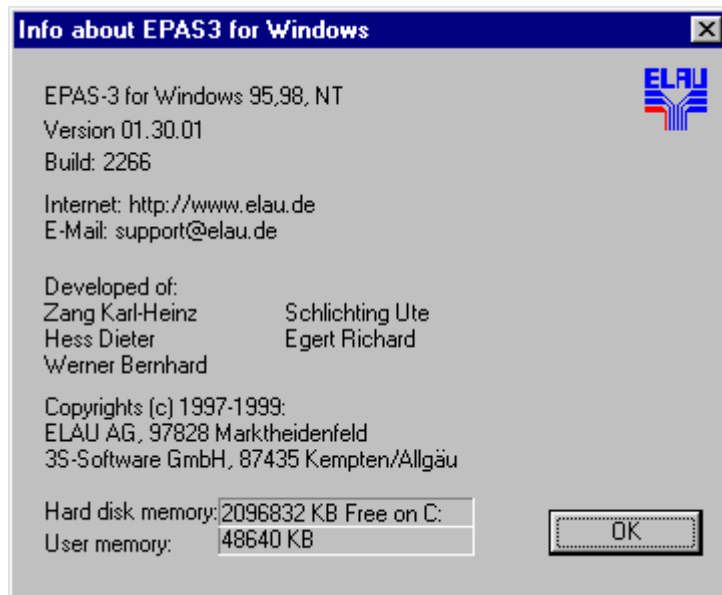
Here the path is set under which the **Acrobat Reader** is installed on the computer.



The path must be set correctly in order for the **manual** to be opened via the help menu.

6.9.5 About EPAS-3 ...

General information is displayed here.



6.10 Key commands

This section contains an overview of all the key combinations and function keys:

General commands	
'File' 'Save'	<CTRL>+<S>
'File' 'Print'	<CTRL>+<P>
'File' 'Exit'	<Alt>+<F4>
'Edit' 'Undo'	<CTRL>+<U>
'Edit' 'Redo'	<CTRL>+<Y>
'Edit' 'Cut'	<CTRL>+<X>
'Edit' 'Copy'	<CTRL>+<C>
'Edit' 'Paste cells'	<CTRL>+<V>
'Edit' 'Undo selection'	DEL
'Edit' 'Select all'	<CTRL>+<A>
'Edit' 'Find'	<CTRL>+<F>
'Edit' 'Replace'	<CTRL>+<H>
'Edit' 'Go to'	<CTRL>+<G>

On-line operation	
'PMC' 'Parameters'	<CTRL>+<ALT>+<P>
'PMC' 'Standard variable list'	<CTRL>+<ALT>+<L>
'PMC' 'Memory module'	<CTRL>+<ALT>+<M>
'PMC' 'Variables' 'Type I – Inputs'	<CTRL>+<ALT>+<I>
'PMC' 'Variables' 'Type O – Outputs'	<CTRL>+<ALT>+<O>
'PMC' 'Variables' 'Type O – Outputs'	<CTRL>+<ALT>+<F>
'PMC' 'Variables' 'Type V – User variables'	<CTRL>+<ALT>+<V>
'PMC' 'Variables' 'Type S – System variables'	<CTRL>+<ALT>+<S>
'PMC' 'Variables' 'Type Y – Direct parameters'	<CTRL>+<ALT>+<Y>

7 Annex

7.1 Service

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Phone: 00 46 / 42 / 38 08 00
Fax: 00 46 / 42 / 38 08 13
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Internet: <http://www.sdt.se>

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Phone: 001 / 773 / 3 42 84 00
Fax: 001 / 773 / 3 42 84 04

ORBIT Motion Technologies
Madaket Place * Unit 15 * 766 Route 28
Mashpee, Massachusetts * 02649
Phone: 001 / 508 / 5 39 01 00
Fax: 001 / 508 / 5 39 01 11
Email: orbit@cape.com

Internet: <http://www.orbitmotion.com>

7.3 Agreement on the use of software products

By opening the sealed media you declare the requirements of this agreement to be binding on you. If you do not agree with the requirements of this agreement, return the media package unopened with all pertaining objects (including all written documents, the file and other containers) immediately.

Your rights arising from the software product which is contained on the enclosed data medium, as well as all written documentation are determined by the requirements below:

You acknowledge that you have read these and will follow them exactly.

1. Granting of the right of use of the software products and documentation

1.1 Granting of the right of use to customers who are end users:

ELAU grants the customer the non-exclusive, non-transferable right not limited in time to use the software products and documentation specified in the scope of delivery (hereinafter called "software") in accordance with these General Terms of Business on the hardware stipulated in the product specification.

The customer has the right to load and use the software contained on the enclosed media on a single computer (so-called "single license"). The customer is free to select the computer to be used to this purpose. However, the software may not be loaded and used simultaneously on two or more computers. This term also applies if the scope of delivery encompasses several copies of the same software on different media formats. In this case no back-up copies may be created either. The limitation of use is also valid if the scope of delivery encompasses several versions of the software adapted to different operating systems.

An additional network license is to be purchased if the software is to be used within a network.

1.2 Granting of the right of use to customers who purchase network licenses (location licenses):

The customer has the right to load and use the software contained on the enclosed media on one or more computers within a company location (so-called "network license"). The customer is free to select the computer to be used to this purpose. However, the software may not be loaded and used simultaneously on two or more networks. This term also applies if the scope of delivery encompasses several copies of the same software on different media formats. In this case no back-up copies may be created either. The limitation of use is also valid if the scope of delivery encompasses several versions of the software adapted to different operating systems. The network license allows the simultaneous use on several individual computers within one location.

1.3 Granting of the right of use to customers who purchase location licenses:

The customer has the right to load and use the software contained on the enclosed media on one or more computers within a company location (so-called "location license"). The customer is free to select the computers to be used to this purpose. The license may not be passed on to other companies without the permission of ELAU.

1.4 Granting of the right of use to customers who are resellers:

ELAU AG (hereinafter called ELAU) grants the customer who has purchased a reseller license the non-exclusive right not limited in time to grant end users the right of use for the software products and documentation specified in the scope of delivery (hereinafter called "software") (so-called "OEM license"). The reseller commits himself to grant the end user the right of use only in accordance with Section 1.1 of this agreement and to ensure by means of an agreement that the purchaser subjects himself to these Terms of Business. The license may not be passed on to resellers without the permission of ELAU.

- 1.5 ELAU supplies the documentation belonging to the software either in the form of written documentation or on data media. The customer may not carry out any changes to the software or documentation. Copying or other duplication is not allowed.
 - 1.6 The software as well as the corresponding documentation are to be regarded as the business secrets of ELAU or of their licensors and are protected by copyright. Copyright notes and codes identifying the product may not be modified or deleted.
 - 1.7 The software and the documentation may not be made accessible to third parties who are not licensees.
 - 1.8 In as far as the scope of delivery encompasses the software products of other manufacturers the terms of copyright and use of these manufacturers are to be observed.
2. Export licenses

Depending on the current statutes on foreign trade the software and documentation may be subject to the official authorization to export. The customer will acquire the authorizations to export on his own responsibility and only export the goods under observance of the terms of the authorization.

3. Warranty

3.1 We draw your attention to the fact that it is not possible to develop data processing programs in such a manner that they function free of errors for all application conditions. ELAU guarantees that the program can be used in the sense of the program description issued by it and which is valid at the time of delivery to the customer and that it has the properties documented in this description. An insignificant reduction in the usability is left out of consideration.

3.2 ELAU guarantees that the data media are supplied free of faults in material and manufacturing and that the documentation belonging to the software has been drawn up properly and with the due care. This guarantee is fulfilled by the supply of a replacement. ELAU guarantees that the software can be executed on the software specified in the product specification/documentation .

3.3 ELAU fulfils its warranty for software errors, i.e. deviations from the respective product description which occur despite observance of the documentation, by supplying a corrected software or by renewed supply.

Error diagnostics and elimination is carried out at the customer or at ELAU as specified by ELAU. Data media with the faulty software are to be sent in by the customer.

Error elimination presumes that the error can be reproduced and that it occurs in the most recent product version supplied to the customer. Proof that the error lies in the software delivered by ELAU is to be brought by the customer. The customer will provide all the documentation and information required in order to eliminate the error. If the error diagnosis or the error elimination is carried out at the customer, the customer will furthermore provide the required hardware and software for the required working time free of charge. The customer will in particular take the safety measures required by the company and the authorities and must provide the operating states required to carry out the work and provide suitable personnel free of charge.

3.4 The warranty period amounts to six (6) months. It begins with the day of delivery to the customer.

4. Functional restrictions

The customer/user is responsible for ensuring that other programs or software products do not disturb or impair the functional execution of the software specified in the scope of delivery.

5. Remuneration

The remuneration for the use of the software products results from the price list respectively valid. The following services are charged separately:

- Support in installing and commissioning the software,
- Support in analyzing and eliminating malfunctions of the software which arise through improper handling or other circumstances not lying in the software,
- Services provided outside the usual working hours of ELAU.

This remuneration is due without deduction immediately on submission of invoice.

6. Liability

6.1 ELAU accepts liability within the legal framework for any injury to persons for which it is responsible and in case of damage to property for which it is responsible bears the restoration costs up to an amount of DM 300,000 per case of damage.

6.2 In the case of loss or damage to data and data media material the obligation to pay compensation does not encompass the costs of the recovery of lost data.

6.3 ELAU does not accept liability for any lack of economic success, indirect damage and resultant damage and for damage resulting from the claims of third parties with the exception of claims resulting from the violation of the copyrights of third parties.

6.4 The licensor only accepts liability for the recovery of data if the customer ensured that these data can be reproduced at justifiable costs from data maintained in machine-readable form in the sense of proper data processing. ELAU can only be obliged to carry out the recovery of lost data on the basis of the last data backup carried out by the customer.

6.5 Any claims for compensation going beyond those mentioned irrespective of the legal basis are expressly excluded. The present limitation of liability does not apply to damage on the basis of gross negligence or the lack of assured properties as well as to injury to persons and damage to property caused by the violation of the copyright of third parties.

7. Termination of contract

7.1 If the customer does not fulfil a substantial requirement of these Terms, ELAU can, after having set an extension of one month, withdraw from the contract within a further period of notice of one month. Receipt by the receiver is decisive for the observance of deadlines. The license fee is to be paid in full or in part until the declaration of withdrawal. A one-off license fee becomes invalid without the right to reimbursement.

7.2 In case of withdrawal the supplied software and documentation including any data backups are to be returned to ELAU immediately, unsolicited and completely. In as far as software and documentation was stored on corresponding hardware these are to be deleted in such a form that they cannot be restored.

7.3 ELAU reserves all rights arising from damages in case of breach of contract. In as far as copyright has been violated, ELAU furthermore reserves the right to bring criminal charges.

8. Further terms

8.1 Supplementary agreements and amendments to the agreement must be drawn up in writing. This also applies for the obligation to use the written form. ELAU is entitled to pass rights and obligations arising from this contract on to third or to a legal successor.

8.2 The laws of the Federal Republic of Germany shall apply to this contractual agreement in addition to the conditions specified as above.

8.3 The headquarters of ELAU is agreement as the court of jurisdiction, is as far as the customer is merchant. However, both contractual parties retain the right to take legal action against the other party at its general court of jurisdiction.

7.4 Changes

07/98

- Drawing up of the operating instructions (Beta version)

01/99

- Drawing up of the operating instructions

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7.6 Form for reporting problems

This problem report must be used, in order to allow efficient processing.

Please send problem reports to the respective ELAU representative or to:

ELAU AG, Service Department, Dillberg 12, D-97828 Marktheidenfeld

Report of fault from:	Company:	City:	Date:
	Department:	Name:	Phone:

We do our very best to develop our products as user-friendly as possible. However, we know that questions on the setup and installation may arise. We offer you telephonic support for this purpose. There are three possibilities of answering the major part of your questions.

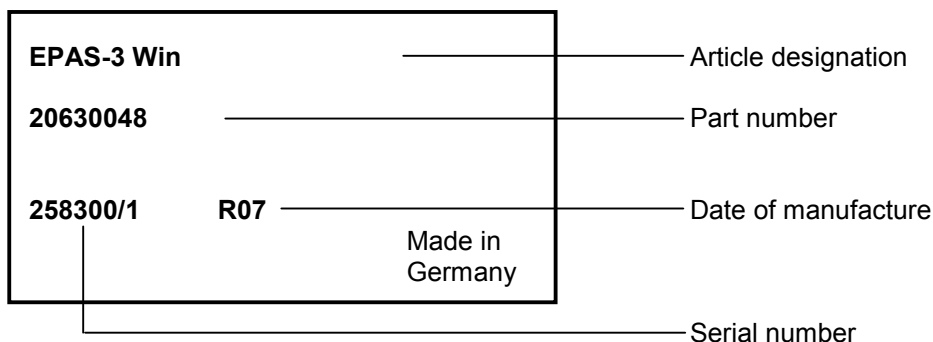
1. Before you contact our Service Department you can try to solve your problem by means of the on-line help of your program. The help can be called up by using suitable key words or calling up the index – this allows you to solve most of the problems yourself without having to use the phone.
2. All ELAU products have an extensive but well-structured manual. As in the on-line help key words and the index help you to find the correct passage quickly. Most questions can also be answered quickly and easily by this means.
3. Valuable hints and tricks can also be obtained via the on-line media or on the Internet. Print out these hints and create your own library of hints and tricks.

Our address is:

<http://www.elau.de>

Information on the faulty product:

Example of a type plate:



Article designation:

Part number

Serial number:

Date of manufacture:

Operating system: Win 95 Win 98 Windows NT 4.0

Memory:

Problem reproducible Yes No

Note:

The more easily a problem can be reproduced or understood at ELAU, the faster the problem can be solved. Please describe the conditions and states as exactly as possible so that the problem can be narrowed down as far as possible. Please send us any files which may be required.

