Documentation english

PG 2000

Version 3.6

Contents

1 A short introduction in PG-2000

With the software for programming PG-2000 you are able to generate and handle S5D-files easily and comfortably.
Every blocks of a opened S5D-file are displayed by the block list.
You select the blocks to edit them for changing or for appending some new blocks.

S5D-files	- save them on floppy-disk or hard-disk
S5D-files	- you are able to transmit to the PLC completely or only some parts of them. That means you transmit only the selected blocks.

Read the following:
Edit blocks of a S5D-file on hard-disk or on disk

With PG-2000 you edit the blocks on the PLC easily

by listing the block list
by selecting and changing some blocks or appending some new blocks.
transmitting these blocks back to the PLC
or saving them on disk or hard-disk.

Read the following:
Edit the blocks on the PLC

You read some further information of the block list for example how you select and you mark blocks for to edit in the theme
Interesting things about the block list

PG-2000 offers you to use the three effective tools for changing and appending blocks:

the	STL-Editor	Define your blocks in form of a Statement List Programming with this special editor.
the	CSF(S5) / FBD(S7)-Editor	Generate your blocks with this graphic-editor in form of CSF(S5) / FBD(S7)
the	LAD-Editor	Generate your blocks with this graphic-editor in form of Ladder Logic Programming.

In the menu ”options” offers you to define the colours and the used font of each editor.
You get further information of this and the other commands in the menu ”options” in the theme:

Commands in the menu Options

PG-2000 with it’s ”function PLC” offers you different possibilities to observe or to influence easily and clearly the program service of the PLC.
There you find for example functions for watching and controlling variables functions for compressing or deleting the PLC, functions for displaying the status of the PLC and so on. Read for further information

Commands in the PLC-functions menu

If you need more detailed information of some windows, menus or buttons (of the tools for example)you get these information fast and easily by using the context-sensitive help function

1.1 Installation of the software

Insert the CD-ROM, locate the “MEGA.EXE” on the CD-ROM if you have disabled Auto-Start and run it.

into a first floppy-disc into the drive. Execute the program SETUP.EXE from this disc. Follow the instructions.

After finishing the installation you will find the following files in the desired folder:

DEFAULTG.S5D	Library-Files S5
DEFAULTE.S5D	
DEFAULTF.S5D	
DEFAULTG.S7D	Library-Files S7
DEFAULTE.S7D	
DEFAULTF.S7D	
PG95GER.HLP	Help-files
PG95ENG.HLP	
PG95FRA.HLP	
PG95GER.DLL	Text-Ressource and dialog-templates
PG95ENG.DLL	
PG95FRA.DLL	
PG95S7G.DLL	
PCS595.DLL	Driver for PLC-Access
PCS595O.DLL	
PCS595E.DLL	
PCS795O.DLL	
UNILB.DLL	
PG95.EXE	main application
VERSION.TXT	version documentation, sorry only in german.
OEM.BMP	image-file
PG-9.DLL	key-file

There will be only one seperate file in the windows-folder, which is saved there windows-conform:

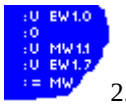
PG95.INI	Configuration as plain text.

1.2 De-installation of PG-2000

Delete the Icon and the program-manager group ”S5-Programmierung” in the program-manager.
Delete the files PG-2000.INI and S5EMU.INI from your windows-folder.
Delete the folder in which you installed PG-2000 (Default is ”C:\PI\PG-2000”)

2 Overview of PG-2000

Interesting things about ...

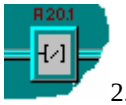


2.4 the STL-Editor


2.2 the block list

2.5 the CSF(S5) / FBD(S7)-Editor


2.3 Control Variable/Control Output



2.6 the LAD-Editor

3. general menu command

2.1 Treatment of blocks

2.1.1 Treatment of blocks of a S5D-file

You open or create a file by calling the menu commands. If you have called the command *File Open*, you press the button *File* in the following window and choose the file you want in the next dialog.
Now the block list shows you all blocks in the actual window. Move the mouse cursor onto the block you want to edit. This selected block will be displayed in a default editor by pressing Return, clicking twice with the mouse or calling the command *block edit* in the *block*-menu.

You save your file on floppy-disk or hard-disk by calling the command *Save* or *Save as* in the *File*-menu and you press the button *File* in the following dialog.

You transmit your file to the PLC by calling the command *Save* in the *File*-menu and you press the button *PLC* in the following dialog.

2.1.2 Treatment of blocks in the PLC

You open the PLC by calling the command *File Open* in the *File*-menu and pressing the button PLC in the following dialog.

Now the block list shows you all blocks in the actual window. Move the mouse cursor onto the block you want to edit. This selected block will be displayed in a default editor by pressing Return, clicking twice with the mouse or calling the command *block edit* in the *block*-menu.

You save your file on floppy-disk or hard-disk by calling the command *Save* or *Save as* in the *File*-menu and you press the button *File* in the following dialog.

You transmit your file to the PLC by calling the command *Save* in the *File*-menu and pressing the button *PLC* in the following dialog.

2.2 Interesting things about the block list

The block list gives a list which contains the blocks. You move in this list by using the cursor keys or the scroll bar which is on the right side in the border of the window.

 - Go to the first line of the list Key : POS1 (Home)

 - Go one page back Key : Page up

 - Go one line back Key : Arrow up

 - Go one line forward Key : Arrow down

 - Go one page forward Key : Page down

 - Go to the last line of the list Key : End

 - Printing the block list

You can choose the blocks to be displayed by pressing the button in the block list toolbar.

You can search some blocks by using the block list's toolbar. You enter a block name, maybe not complete, and after each pressed key a corresponding block will be searched. The cursor will be set on the corresponding block if it is found.
You get into the input line by calling the command "Block/Goto block" in the menu (hot-key Crtl-F) or you enter directly the name you are looking for. If you call the command in the menu, the name you entered rests in the input line and can be edited. By entering the name directly each time a new line will be begun. You leave the input line by pressing the key ESC or RETURN.

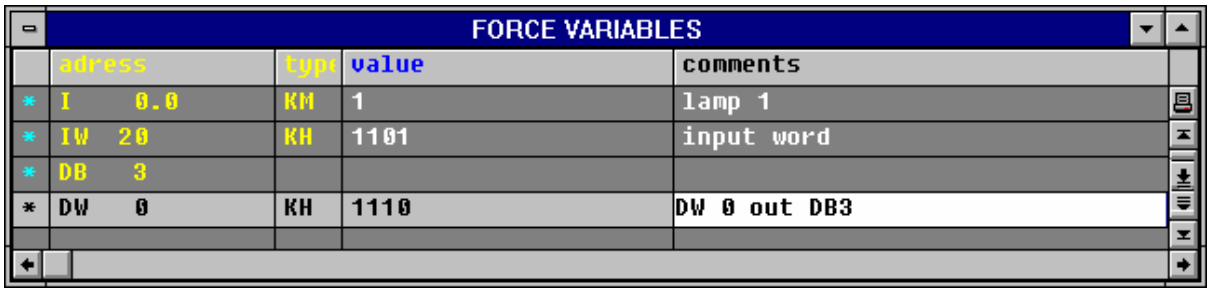
The marked blocks are displayed in the left column in the list by showing the code ">>". You mark or unmark the block by pressing the button

or you calculate the sum of all the blocks, which are marked, by calling the command "Mark/Sum of the marked blocks". The sum is displayed in the input line of the block list's input line.

For getting further information about marking and unmarking look in:
Commands in the block list's menu Mark

You can apply the command in the menu *Block* to the marked blocks.
for further information see: Commands in the block list's menu ”Block”

2.3 Force Variables/Force Outputs



The Force Variables Window displays the variables you have entered (operands like inputs, outputs and flags for example), in tabular form.
You move inside this variables list by using the cursor keys or the buttons, which are explained in the following.

- Jump to the top of the list. Key: POS1 (Home)

- Jump one page back. Key: Page up

- Jump one line back. Key: Arrow up

- Jump one line forward. Key: Arrow down

- Jump one page forward. Key: Page down

- Jump to the end of the list. Taste: End

You move among the fields of one line
- onward, by pressing the key **TAB**
- backward, by pressing the key **SHIFT + TAB**
- or you click on the field where you want to go onto.

You insert a new line by pressing **CTRL + N**
You delete one line by pressing **CTRL + Y**

You can observe and control up to 10 operands at the same time.
Enter the addresses of the operands you want, the presentation you want, the values to initialize them and enter a comment in the corresponding fields of the variables list, if you want.

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for example:

MW 15	KH F65A	Temperature -sensor 1
MW 27	KM 0111010100011111	Relay 10-25
M 10.1	KM 1	In the KM-Format only

Please do notice, that the bit-operands can be displayed in KM-Format only.

Force Outputs differs from *Force Variables* like to folow:

- only the operands QD (double word output), QW (word output), QB (byte output) are allowed,
- the PLC must be stopped otherwise the controlling is not possible,
- the cycle is not available but the command *Transfer to the PLC*.

The commands in the Menu Status are placed at your disposal for transmitting the values, you have entered, or for observing the actual values in the PLC.

Finally you can save the operands, you have entered, including the newest value by using the commands *Open* and *Save* in the menu File.

With the toolbar you can choose the command out of the Status in teh following order, from left to the right side.

start datalogger
send volues to PLC
start cyclus
stop cyclus

2.4 The Statement List-Editor

2.4.1 STL-Editor for blocks

For editing your block in the STL-Editor, first of all you have to move the cursor on the corresponding line. Then you choose the command *Edit* in the menu *Block*.
You can also click twice with the mouse the corresponding line or press RETURN there. This selected block will be displayed on the editor, that you choose as default.
You choose the STL, CSF(S5) / FBD (S7) or LAD editor in the menu *View* or on the toolbar buttons. This is the following button:

The STL-Editor is divided in 5 columns

Colum 1		**Colum 2**	**Colum 3**	**Colum 4**	**Colum 5**
jumpmarke	:	operator	operand	symbolicoperand and brackets	comment or symboliccommend
MARK	:	L	MW 0	-Fuellstand	Füllstand des Mischtanks

You move among the columns forward by **TAB** ,
backward by **SHIFT + TAB**.

You insert a new line by pressing the keys **CTRL + N** or by calling the command *Paste line* in the STL-editor's menu *Edit* .
You delete one line by pressing the keys **CTRL + Y** or by calling the command *Delete line* in the STL-editor's menu *Edit* .

See also: Commands in STL-editor's menu "Edit"

You insert a new segment like it is usual in STEP5. See the following to this:

1. Insert a new line on the desired position (Ctrl-N).
2. Enter "*******" in this new line.
3. Confirm with **ENTER**. Thereon the precede segment will be closed and a new segment will be created.

You have to notice:

- You do not have to set the operand and the operator in position. They will be entered automatically on the right position when you have pressed the key RETURN.
- When you pressed RETURN a reasonableness test is started. If an error is detected the line is displayed in that color for errors, which can be defined in the menu *Options-Colors*.
- The major letters and small letters are not distinguished. They will be converted in major letters when you have pressed RETURN.
- Labels have to be in column 1 and it is not allowed to name them with a blank as first char.
- Comments must be in column 5.

2.4.2 STL-Editor for comment blocks and symbols list

See also: STL-Editor for blocks

The STL-Editor for the comment blocks and the symbols list is a variant of the STL-Editor. It is divided and to employ in the same way as the *STL-Editor*.

There are difference in the construction of the menu *Edit* and *Search*:
You get an explication of the modified commands in these menus by calling help about the commands.

2.5 CSF(S5) / FBD(S7) - Editor

For editing your block in the CSF(S5) / FBD(S7) - Editor, first of all you have to move the cursor on the corresponding
line. Then you choose the command Edit in the menu Block.
You can also click twice with the mouse the corresponding line or press RETURN there. This
selected block will be displayed on the editor, that you choose as default.
You choose the STL, CSF(S5) / FBD(S7) or LAD editor in the menu View or on the toolbar buttons. This is the following button:

The window rests empty if the block is not notable. You move inside the CSF(S5) / FBD(S7) - Editor by using the two scroll-bars of the window.
You insert a new segment **after** the actual segment by pressing the following button:

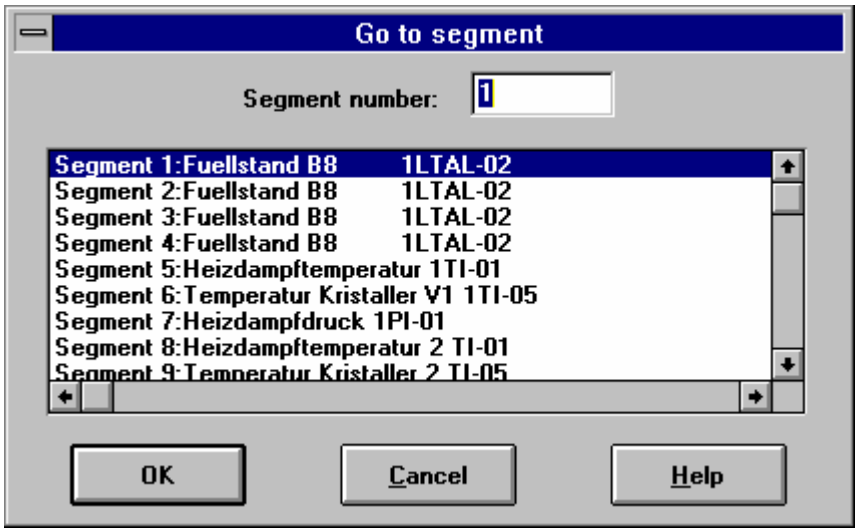
You move one segment up by pressing **Ctrl - Page up** or pressing the following button:

You move one segment down by pressing **Ctrl - Page down** or pressing the following button:

The following button will remove a segment, after a security-check:

The following button will display a dialog, where you could select by mouse or keyboard a segment. The editor will then display this segment:

You could input the segment-number by keyboard or by double-click on the segment listed below. Even in CSF(S5) / FBD(S7) or LAD you could jump to the specified segment:



The following buttons are displayed and available for to edit, when you have chosen the S5/V5 Mode. You choose this mode in the dialog *configurations*, which is called in the menu *Options by the command Configurations*. Here are some helpful indications for this program.

INSERT	Inserts a new element on the actual position
DELETE	Deletes one element on the actual position
POS1 (HOME)	Moves the cursor to the left corner above
END	Moves the cursor to the right corner above
TAB	Moves the cursor onto the next input line
SHIFT + TAB	Moves the cursor onto the input line before last
ARROW UP	Shifts the content of the window down
ARROW DOWN	Shifts the content of the window up
ARROW LEFT	Shifts the content of the window to the right
ARROW RIGHT	Shifts the content of the window to the left

2.5.1 CSF(S5) / FBD(S7) - palette elements

For inserting a new element, you have to choose the corresponding element of the palette with the mouse. Then you click the connection in which the element shall be inserted.
You also have the possibility to change an already placed element into a element of the same type. That means, you are able to change an AND-element into an OR-element, etc. . The type of the element has to be the same as before. The following elements are available:

- AND/OR
- Timer
- Counter
- Comparator
- Set/Reset precedence
- arithmetic with one operand
- arithmetic with two operands
- special functions without operands

For changing an element, you choose the new element in the palette and click on the old element to change it. You set the parameter or delete elements as it is explained aside the symbol below.

– AND element

– OR element

– with a double-click a sub-menu appears where you can choose vertical or horizontal connection-lines, the active one is selected.

– with a double-click a sub-menu for the outputs appears

– with a double-click a sub-menu for the timer-functions appears

– with a double-click a sub-menu for the counter-functions appears

– with a double-click a sub-menu for comparison-functions appears

– with a double-click a sub-menu for function-blocks appears

– with a double-click a sub-menu for arithmetic functions appears

– with a double-click a sub-menu for binary word-functions appears

– with a double-click a sub-menu for special functions appears

– logic function, negate Operand

– delete symbols or operands

– configure operands and symbols

SUB-Menu output

from left to right :

- Output
- Set-Output
- Reset-Output
- Save Flags
- FlipFlop with reset precedence
- FlipFlop with set precedence

SUB-Menu timer

from left to right:

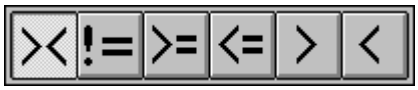
- timer: rise-delay time
- timer: cutoff delay time
- timer: impulse
- timer: accumulation rise-delay time
- timer: extended impulse

SUB-Menu counter

from left to right:

- up-counter
- down-counter

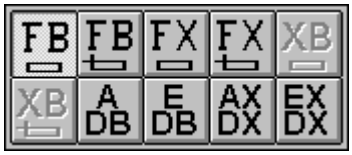
SUB-Menu comparison



from left to right:

- compare not equal
- compare equal
- compare greater or equal
- compare less than or equal
- compare greater
- compare less than

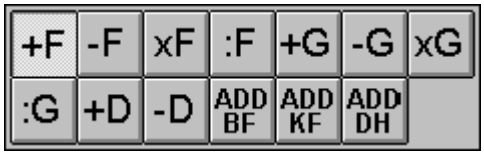
SUB-Menu function-blocks



from left to right:

- unconditional call of a function-block
- conditional call of a function-block
- unconditional call of an extended function-block
- conditional call of an extended function-block
- select a data-block
- create a data-block
- select an extended data-block
- create an extended data-block

SUB-Menu arithmetics



from left to right:

- add integers
- subtract integers
- multiply integers
- divide integers
- add floating-point operands
- subtract floating-point operands
- multiply floating-point operands

- divide floating-point operands
- add double-words
- subtract double-words
- add byte-constant to Accumulator
- add word-constant to Accumulator
- add double-word-constant to Accumulator

SUB-Menu word-functions

from left to right:

- X-OR integer
- AND integer
- OR integer
- one’s complement integer
- two’s complement integer
- two’s complement double-word
- shift-left integer
- shift-left double-word
- shift-right integer
- rotate-left double-word
- rotate-right double-word
- shift right integer with sign-extention
- shift right double-word with sign-extention
- convert BCD to integer
- convert integer to BCD
- convert BCD to double-word
- convert double-word to BCD
- convert integer to floating-point
- convert floating-point to integer
- transfer word-operands

SUB-Menu special functions

from left to right:

- disable alarm-interrupts
- enable alarm-interrupts
- exchange Accumulators
- Push integer onto Accumulator-Stack
- absolute block-end

2.6 LAD-Editor

For editing your block in the LAD-Editor, first of all you have to move the cursor on the corresponding line. Then you choose the command Edit in the menu Block.
You can also click twice with the mouse the corresponding line or press RETURN there. This selected block will be displayed on the editor, that you choose as default.
You choose the STL, CSF(S5) / FBD(S7) or LAD editor in the menu View or on the toolbar buttons. This is the following button:

The window rests empty if the block is not notable. You move inside the LAD-Editor by using the two scroll-bars of the window.
You insert a new segment **after** the actual segment by pressing the following button:

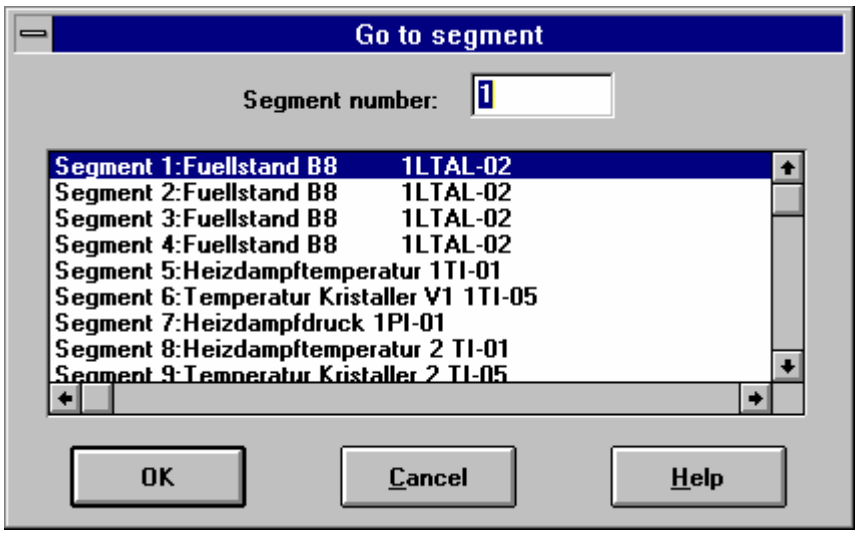
You move one segment up by pressing **Ctrl - Page up** or pressing the following button:

You move one segment down by pressing **Ctrl - Page down** or pressing the following button:

The following button will remove a segment, after a security-check:

The following button will display a dialog, where you could select by mouse or keyboard a segment. The editor will display this segment:

You could input the segment-number by keyboard or by double-click on the segment listed below. Even in CSF(S5) / FBD(S7) or LAD you could jump to the specified segment:



The following buttons are displayed and available for to edit, when you have chosen the S5/V5 Mode. You choose this mode in the dialog configurations, which is called in the menu Options by the command Configurations. Here are some helpful indications for this program.

INSERT	Inserts a new element on the actual position
DELETE	Deletes one element on the actual position
POS1 (HOME)	Moves the cursor to the left corner above
END	Moves the cursor to the right corner above
TAB	Moves the cursor onto the next input line
SHIFT + TAB	Moves the cursor onto the input line before last
ARROW UP	Shifts the content of the window down
ARROW DOWN	Shifts the content of the window up
ARROW LEFT	Shifts the content of the window to the right
ARROW RIGHT	Shifts the content of the window to the left

2.6.1 LAD-palette elements

For inserting a new element, you have to choose the corresponding element of the palette with the mouse. Then you click the connection in which the element shall be inserted.
You also have the possibility to change an already placed element into an element of the same type. That means, you are able to change an AND-element into an OR-element, etc. . The type of the element has to be the same as before. The following element are available:

- AND/OR
- Timer
- Counter
- Comparator
- Set/Reset precedence
- arithmetic with one operand
- arithmetic with two operands
- special functions without operands

For changing an element, you choose the new element in the palette and click on the old element to change it. You set the parameter or delete elements as it is explained aside the symbol below.

– switch-element

– switch-element, active when opened

– with a double-click a sub-menu appears where you can choose vertical or horizontal connection-lines, the active one is selected.

– with a double-click a sub-menu for the outputs appears

– with a double-click a sub-menu for the timer-functions appears

– with a double-click a sub-menu for the counter-functions appears

– with a double-click a sub-menu for comparison-functions appears

– with a double-click a sub-menu for function-blocks appears

– with a double-click a sub-menu for arithmetic functions appears

– with a double-click a sub-menu for binary word-functions appears

– with a double-click a sub-menu for special functions appears

– logic function, negate Operand

– delete symbols or operands

– configure operands and symbols

SUB-Menu output

from left to right :

- Output
- Set-Output
- Reset-Output
- Save Flags
- FlipFlop with reset precedence
- FlipFlop with set precedence

SUB-Menu timer

from left to right:

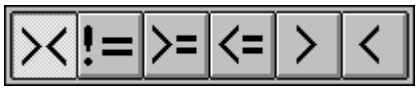
- timer: rise-delay time
- timer: cutoff delay time
- timer: impulse
- timer: accumulation rise-delay time
- timer: extended impulse

SUB-Menu counter

from left to right:

- up-counter
- down-counter

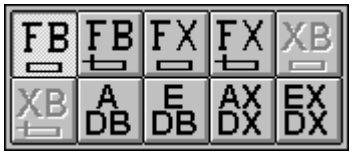
SUB-Menu comparison



from left to right:

- compare not equal
- compare equal
- compare greater or equal
- compare less than or equal
- compare greater
- compare less than

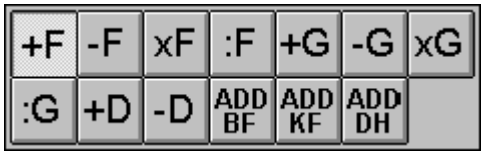
SUB-Menu function-blocks



from left to right:

- unconditional call of a function-block
- conditional call of a function-block
- unconditional call of an extended function-block
- conditional call of an extended function-block
- select a data-block
- create a data-block
- select an extended data-block
- create an extended data-block

SUB-Menu arithmetics



from left to right:

- add integers
- subtract integers
- multiply integers
- divide integers
- add floating-point operands
- subtract floating-point operands
- multiply floating-point operands

- divide floating-point operands
- add double-words
- subtract double-words
- add byte-constant to Accumulator
- add word-constant to Accumulator
- add double-word-constant to Accumulator

SUB-Menu word-functions

from left to right:

- X-OR integer
- AND integer
- OR integer
- one’s complement integer
- two’s complement integer
- two’s complement double-word
- shift-left integer
- shift-left double-word
- shift-right integer
- rotate-left double-word
- rotate-right double-word
- shift right integer with sign-extention
- shift right double-word with sign-extention
- convert BCD to integer
- convert integer to BCD
- convert BCD to double-word
- convert double-word to BCD
- convert integer to floating-point
- convert floating-point to integer
- transfer word-operands

SUB-Menu special functions

from left to right:

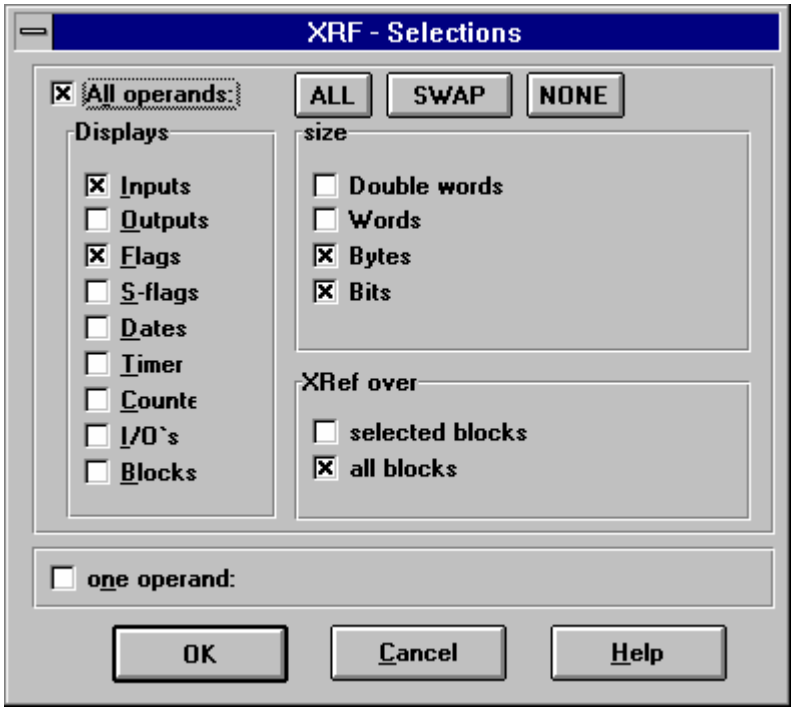
- disable alarm-interrupts
- enable alarm-interrupts
- exchange Accumulators
- Push integer onto Accumulator-Stack
- absolute block-e

2.7 Cross-Reference, program-structure and I/Q/F-List

2.7.1 cross-reference-rolls

see also under: (Chapters 3.12)

The XRF-List displays for one operand where else in the blocks this operand exists. The XRF-List refers always to all blocks in the actual block list. The XRF-list always refers to all components of the current bookkeeper Before creating the XRF-List by filling in the dialog which appears after calling the command XRF-List, you decide if only specific operand types (flags, inputs, outputs,...) and specific operand sizes (bit, byte,...) will be taken in this list.
Cross the wished operand type, for example flags and inputs. Cross after it at which operand size only should be considered. Here for example Bits and Bytes. This has to the consequence that all bits - and bytes-grab of flags and input into the XRF-list lifted.



After above definition emerges following:

:A	I	32.6	is lifted into the XRF-list.
:L	MB	10	is lifted into the XRF-list.
:L	IW	35	is not displayed.
:O	Q	11.2	is not displayed.

All options of the XRF-list will be saved automatically by closing it's windows. So you can edit them again at any time.

If for your currently file a XRF-list exist and you wants to see it, you choose YES. If you would like to produce a new XRF-list, you choose the button NO. Subsequently, the XRF-list is represented in a new window, and when closing this window automatically stored again.

The following information are displayed in the XRF-list:

- Operand	Description of the operand	e.g. E 4,7
- Block	Block in which this operand occurs	e.g. PB 20
- Segment	Segment in which this operand is saved	e.g. 26
- Line	Line in which this operand is written down	e.g. 12

- Access	Displays the access to the operand The following are available: - reading access - displayed by a blank. - writing access - displayed by a ‘ * ’. - parameter of a FB/FX-Call - displayed by a ‘ P ‘	e.g. *

- After the access-mode, the program code line is displayed, in which the operand is used.

You move inside the XRF-list window by pressing the cursor keys or using the scroll-bars.
If the cursor is on list line and you press **<ENTER>**, you change into the corresponding block window in that line, in which this operand occurs. Then the cursor is set on the corresponding line.

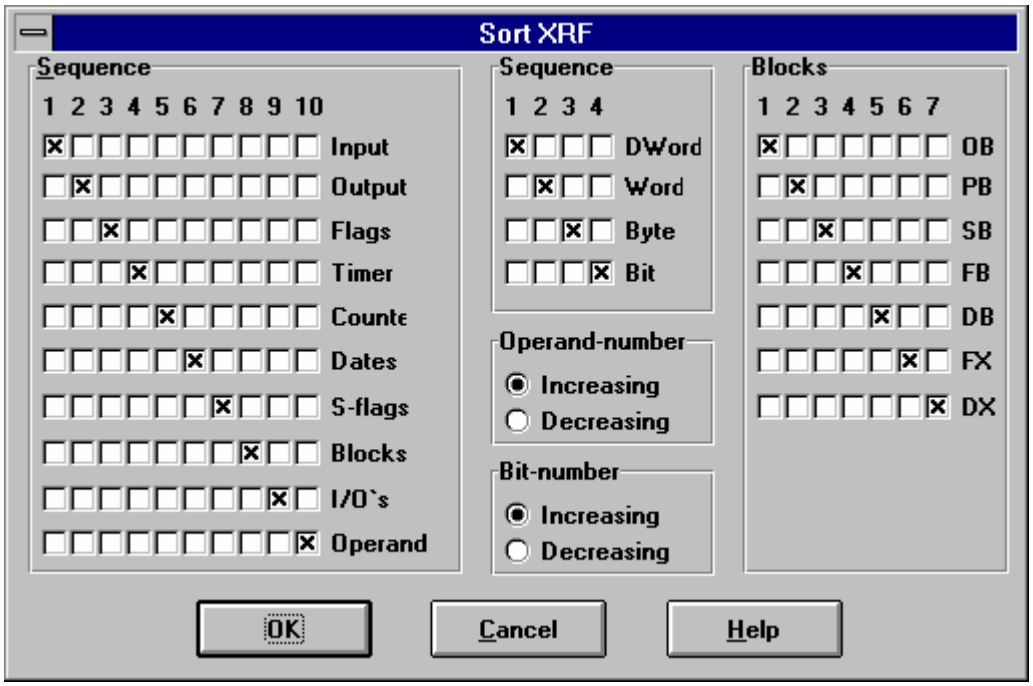
In consideration of the big amount of data that occur, always only a part of the data will be displayed. This depends of font's size. You can move in one part of the data from the begin to the end of the part. You move to the next part by using the key Page Up/Page Down. The end of the XRF-list is displayed specially.

You can jump among the different areas by pressing the first character:

I	Input
Q	Output
F	Flag
D	Data
T	Time
C	Counter
S	S-Flag
P	Periphery

There is the command XRF in the menu *XRF*-list with functions for jumping into the corresponding block window and for jumping to a specific area in the XRF-list.
This menu contains also a function for sorting, which offers to get a XRF-list in variable order.
You can copy the context of the XRF-list into the clip board by calling the command *Copy* .

In the window ” Sort XRF ” you can fix on which way the XRF list should be sorted.



You can plan following adjustment:

- *Sequence of the operands*

  Declare here, in which sequence the operands should occur in the XRF. Choose for each place in the sortorder (1-10) the wished operand. For each place dial only one operand.

- *Sequence of the operands-size*

  Declare here, in which sequence the operands-size should be sorted. The sorting is applied within the area to each operands. Choose for each place in the Sortierfolge (1-4) the wished operands-size. Only one operands-size may be dialed for each place in the sort-sequence.

- *Sort-criterion of the operands-addresse*

- *Sort-criterion of the bit-number with bit-operands*

  Declare here, whether the *operands-addresse* and the bit-number should be sorted with bit-operands rising or descending numerically.

- *Sequence of the components, in which an operand is found,*

  Declare here, in which sequence the designations of the Blocks-types, in which a certain operand is found, should be sorted. Choose for each place in the sort-criterion (1-7) the wished Blocks-type. Only one component-type may be dialed for each place in the sort-criterion.

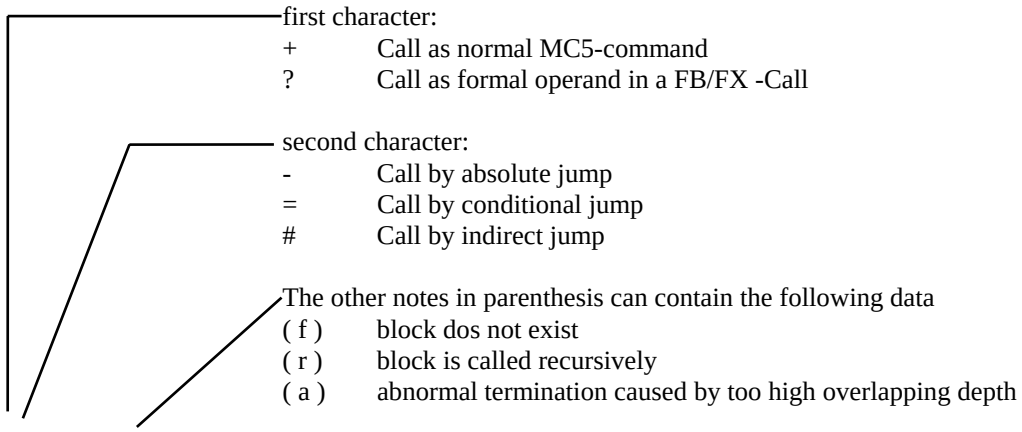
2.7.2 The structure of the program

The program-structure diagram shows the nest of the block-calls in the PLC program. For each marked block, all the blocks, which are called by it, are displayed.

The nest is displayed in columns and is devided like the following:

- exclamation mak
- blocks name
- note in breackets e.g. + - FB011()

The call note is composed of two characters. The possible combinations and their meanings are specified in the following.



The actual block is in the first column. The following column contains the called blocks corresponding to their overlapping depth.

Example:

```
+-OB001( )+-FB011( )
           +=FB012(f)
           +-FB013( )+#FB012(f)
           ?-FB011( )
```

FB 11 is called absolutely by OB 1. Then FB 12 is called conditionally; FB 12 does not exist in the file. Then FB 13 is called absolutely; FB 12 is called indirectly by FB 13. At last FB 11 is given as formal operand of type B in a FB/FX-Call.

You can copy the whole or a part of the program structure, which is displayed, by the command in the menu *Program structure* of the program structure window.

2.7.3 I/Q/F-List

The I/Q/F-List shows the employed inputs, outputs and flags. It is displayed if and who the operand is used.

Each symbols byte is registered in a table. The symbols have the following meaning:
- Operand is not used
X Operand is used (depends of the column; see example)
' ' (blank.) Apply a byte, word or double word command to the operand

There is a table with two columns for each byte. Column 1 (_7_6_5_4_3_2_1_0_) shows the I/Q/F of the bits, column 2 (_B_W_D_) shows, if there is a byte-, word- or double word access in this byte for the start address. Only the start address of a byte-, word- or double word access is marked with a **X** on the suitable place in the _B_W_D_ - column.

You have to look for **X**-marks in column 1, if you want to verify if one byte's single bits are used.

You have to look for **X**-marks in column 2 (**X** under **B** = byte access, **X** under **W** = word access, **X** under **D** = double word access), if you want to verify if one byte is the start address of byte-, word- or double word access.

There are two possibilities for checking a byte on being a part of a word or double word access:
1. Not every bit of the concerned bytes is used as bit-operand.
2. Every bit of the concerned bytes is used as bit-operand.
In the first case you only have to verify if is there a blank filled in instead of "-" on a bit. In this case, the concerned byte is part of a word or double word access.
In the second case you have to verify if the start address is given either for the concerned byte (byte access) or for the precede byte (word access) or for one of the three bytes before (double word access).

Example:

```
_Input    |_7_6_5_4_3_2_1_0_|_B_W_D_|    _Input   |_7_6_5_4_3_2_1_0_|_B_W_D_|
 BYTE 000 | - - - - - - - - | - - - |    BYTE 001 | X   X X X X X X | - X - |
 BYTE 002 |                 | - - - |    BYTE 003 | - - - - - - - - | - - - |
 BYTE 004 | - - - X - - - - | - - - |    BYTE 005 |                 | X - - |
```

A. Input byte O is not used in any kind as operand.
You discern this by regarding the columns of the table which are marked by colors.
1. In the column _7_6_5_4_3_2_1_0_ , there is filled in only "-", that means that no bit of the input byte 0 is used as bit operand.
2. In the column _B_W_D_ , there is filled in only "-", that means that the input byte 0 is not the start address of any access.

B. Only bit 4 of the input byte 4 is used as a bit operand.
1. In the column _7_6_5_4_3_2_1_0_ there is filled in a **X** for bit 4.
2. In the column _7_6_5_4_3_2_1_0_ there is always filled in a "-", that means there is no access on input byte 4 (in the other case there were filled in blanks instead of the "-")

C. All bits of the input byte, except bit 6, are used as operands and byte 1 is the start address of a word access.
1. **X**-entry in the column _7_6_5_4_3_2_1_0_
2. **X**- entry in the column _B_W_D_ below **W**.

In the I/Q/F-list, you jump to the begin of the presentation of input, output or flag by pressing the keys ' O ', ' Q ', ' F .

You copy the whole or a part of the actual I/Q/F-list to the clip-board as text format by using the command in the menu *I/Q/F-list* of the I/Q/F-list window.

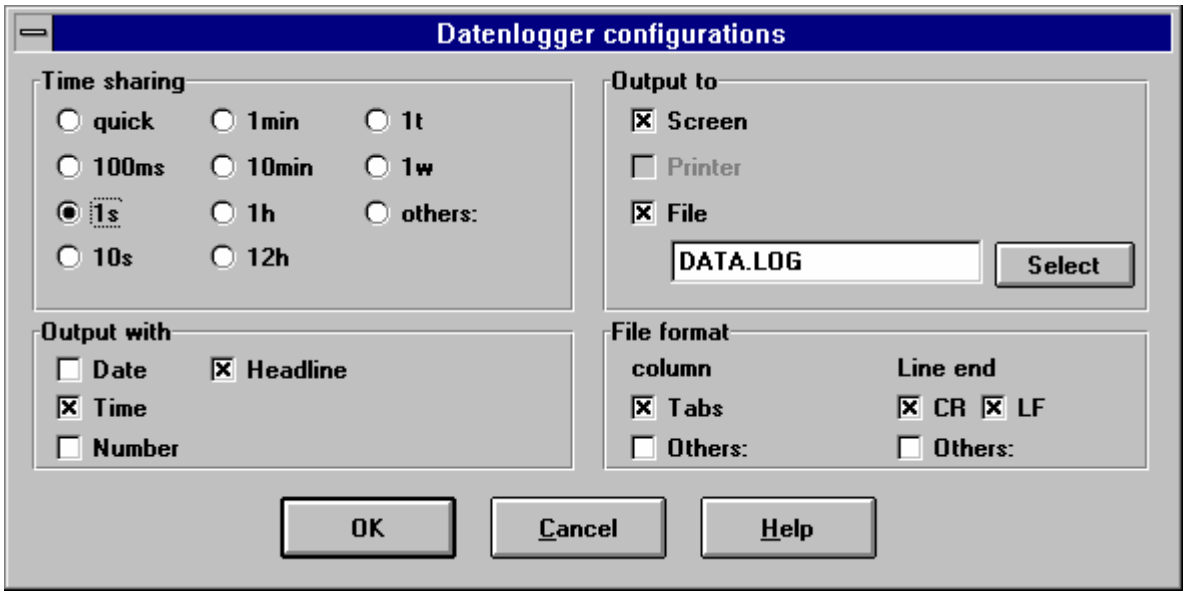
2.8 Other

2.8.1 Datalogger

The datalogger is an expansion from ”Force variables”, it is used for drawing of the values from ”Force variablen” over a certain time period away with a selectable temporal dissolution (scan-rat).
Give like accustomed in the window ”Forced variablen” the data to be observed one. In the menu-point ”Status” you can the record configuring. It is following menu-points possible:

Datalogger load	It, **only** the configuration-data of the datalogger are loaded. If you woud like to load the input variables in Force variablen so you must over the menu-point ”File/Open”takes place.
Datalogger store	It, **only** the configuration-data of the datenlogger are stored.
Datalogger Konfig	configuration-masks of the datalogger call, description follows.
Datalogger start	activated the datenlogger.
Datalogger actively	show at whether is active with the next record of the datenlogger. Through selection of this menu-point, the datalogger can become on/off.

After choose from ”configure datalogge” appears following dialog:



In this dialog-window, you can plan adjustment and adaptations of the datalogger.

- Timedisk

  Declare here, in which timespac the values are record.
  Beside the fixed timespac, there are still two special adjustment: quickly and other. Quickly means that record in the shortest possible time of the PC. Under other, you can any timespac in milli-seconds or minutes choose; allowed values are 0 until at maximum (2^{23} -1) ms, this corresponds to approximately 49 days.

- Edition on

  Declare here, on which typ the record of the data is.
  Choose the option line-scriber in order to represent the data at the screen in a separate window.
  Choose the option file in order to store the data in tabular representation in a file. Everyone in the ”Force variablen” windows stated variable is assigned a column. The stored data can import into the current spreadsheets or the like easily and appraise graphically.
  Both options may be dialed simultaneously. Please heed, that certain constellations can influence themselves negatively, so for example the application of a short time-interval to the record and the statement of a record-file on diskette.

- Edition with

Declare here, which addition-data the record should contain in a file.

Choose the option date in order to store another column with the date of the record in the stated file.

Choose the option time, about another column with the time of the record (in the form HH:MM:SS), to store in the stated file.

The two aforementioned options are for longer permanent records intended.

Choose the option number in order to store another column with a running number for each line in the stated file.

Choose the option superscript in order to store the superscript over the table-splitting in the stated file. This option can usually always be dialed; the possibility of the take off of the table-superscript serves v.a. the relief of the import with older programs.

- File-format

Declare your particular establishings here for that with the stores of the data to using file-format.

- Spaltentrenner

Choose the option tabulator in order to use the for this usual tabulator-tax-sign as table-separation-signs.

Choose the option other in order to use a sign fixed by you as tabulator-separation-signs.

-Line-end

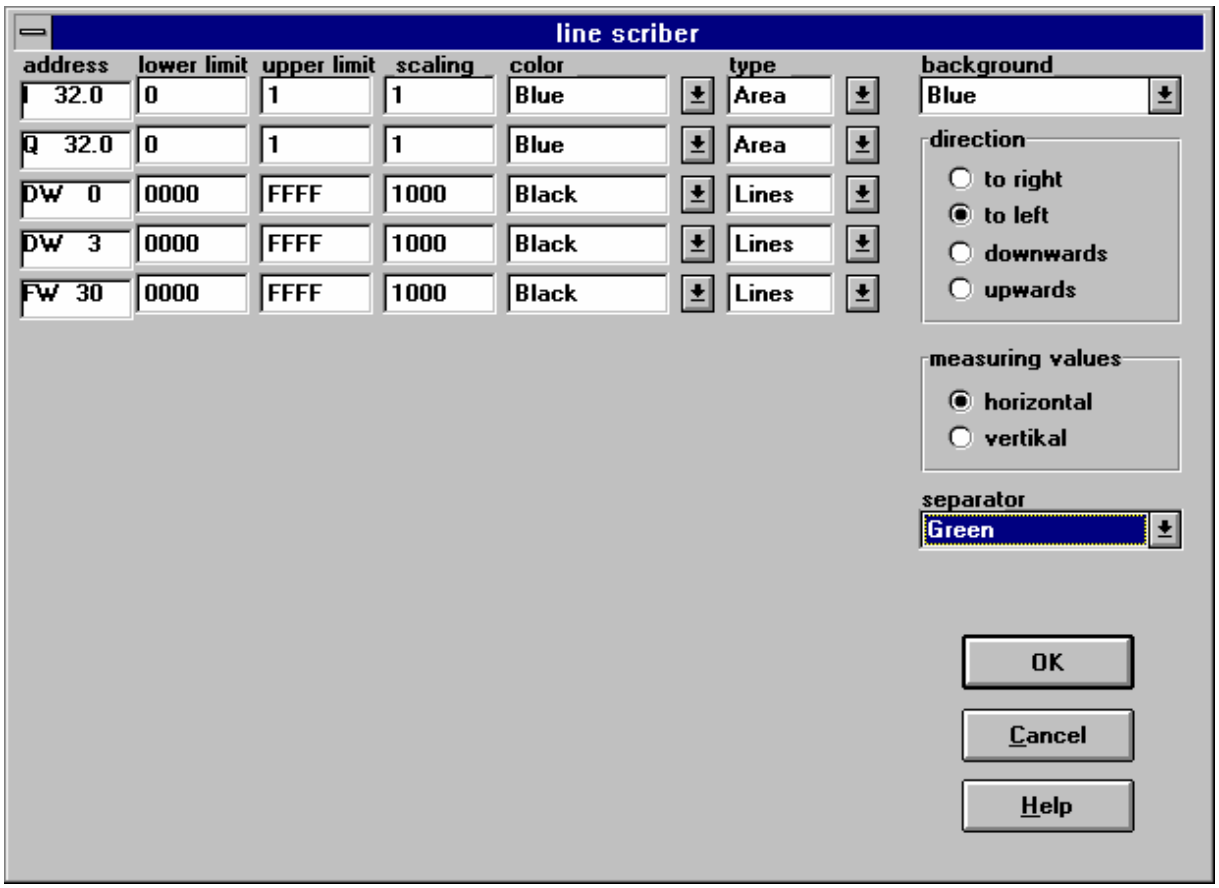
Choose the options CR (”carriage return ”) as well as LF (”line feed ”) for the usual, frequently line-end-sign would use.

Choose the option other in order to use a sign fixed by you as line-end-sign.

The references named above on that ”Force variable ”- windows closes that ”Force exits ”- windows with one The application of the datalogger takes seneible from ”Force variable ”- windows out.

2.8.1.1 Datalogger Graph settings

You enter the configuration of the Datalogger line scriber in the graph display.



In this dialogue-window, you can adjustment for that ”line-writers ”windows of the datalugger plans.

You can enter the following parameters for the maximal 16 variables, which you have declared in the window Force-Variables:

- *Lower limit (LL)*

  You enter the lower limit of the values to display here.

- *Upper limit (UL)*

  You enter the upper limit of the values to display here.

- *Scaling*

  You enter the value for a scaling unit of the display here.

- *Color*

  You enter the color for the graph of the variable.

- *Type*

  You enter here the type of the graph presentation. *Lines* (connecting the sample values by using a line), Quadrics (connecting the sample values with a line and fill the area below the line in a color) or *Points* (Each sample value is displayed by a point).

Additionally you can enter the following options:
- *Background color*

Enter the color of the background.

- *Direction of the recording*

Enter here one of the four directions *upwards, downwards, to left* or *to right*.

- *Arrangement of the measuring graph*

Enter here if the measuring graph should be displayed for several variables in one or separate systems of coordinates.

- *Color separation line*

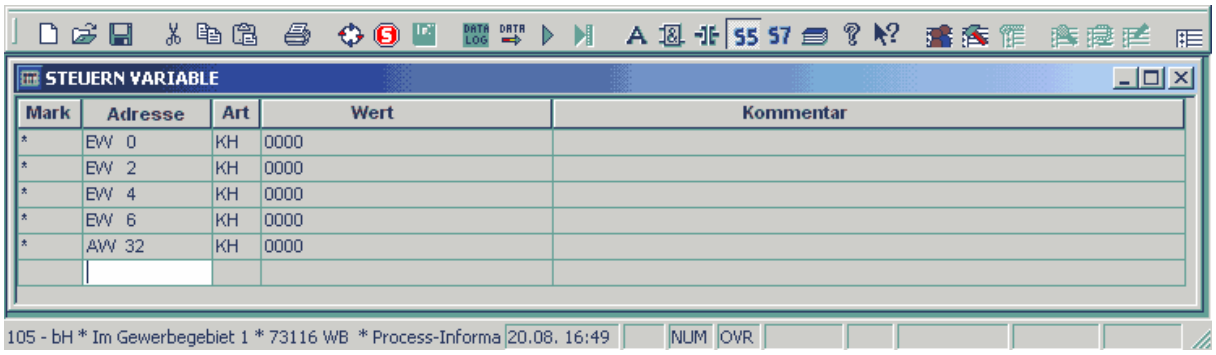
Enter the color of the separation line for time-sections.

2.8.1.2 Autostart Data-Logger

The Data-Logger could be started automatically from Command-Line parameters. You need a BLT – File (What to protocol) and a DLG – File (How to protocol). Both files have the same name, exceptionally the extension DLG/BLT. For Data-Logging a S7 the correct PLC-Number and S7-Mode must be selected. In the command-line the parameter " -DATALOG" together with following blank and a file-name with extension BLT is inserted.

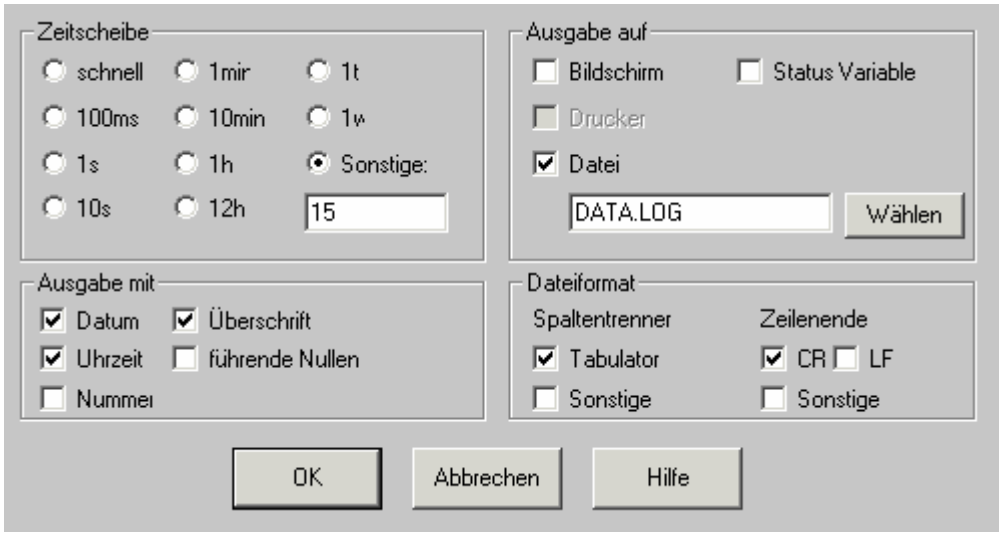
An example to this: protocol all 15 seconds, input-words 0,2,4,6 and output-word 32 saved in a file.

At first we define the BLT-File, start PG-2000, go to PLC-functions/Force variables. Insert the desired Data::



.
and save this sheet with the file-name, Here „C:\TST\ASTRT.BLT".

After that, go to Status/ Datalogger-configuration and configure the protocol-rate and the destination file (here „DATA.LOG“). The defaults is so, that you could use it directly with Excel. Check the trailing zeroes.



Confirm the dialog and save this configuration in the file „C:\TST\ASTRT.DLG“ with „Status/Datalogger save“.

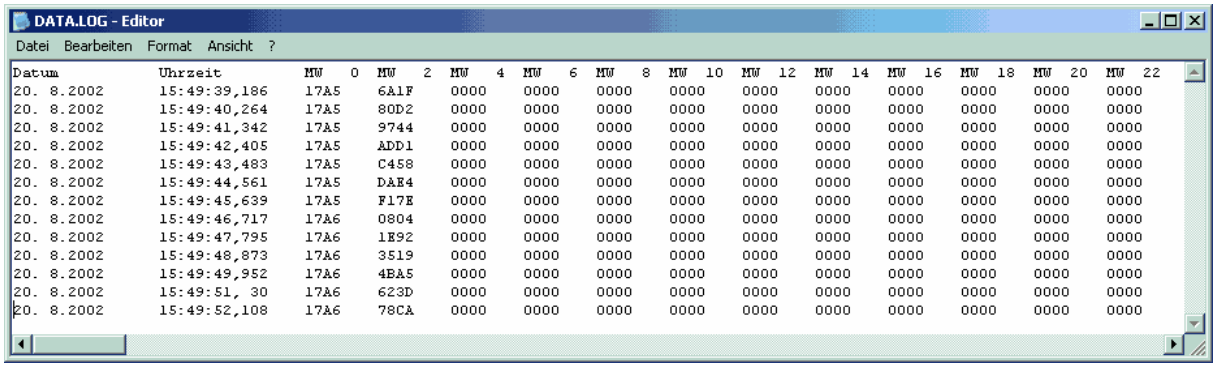
At last, define a link to the application on the desktop. Insert the command-line-parameter:

At Destination the application - name is present „C:\Programme\PI\PG2000\PG2000.exe“, append the following parameter:

“C:\Programme\PI\PG2000\PG2000.exe“ –DATALOG “C:\TST\ASTRT.BLT“

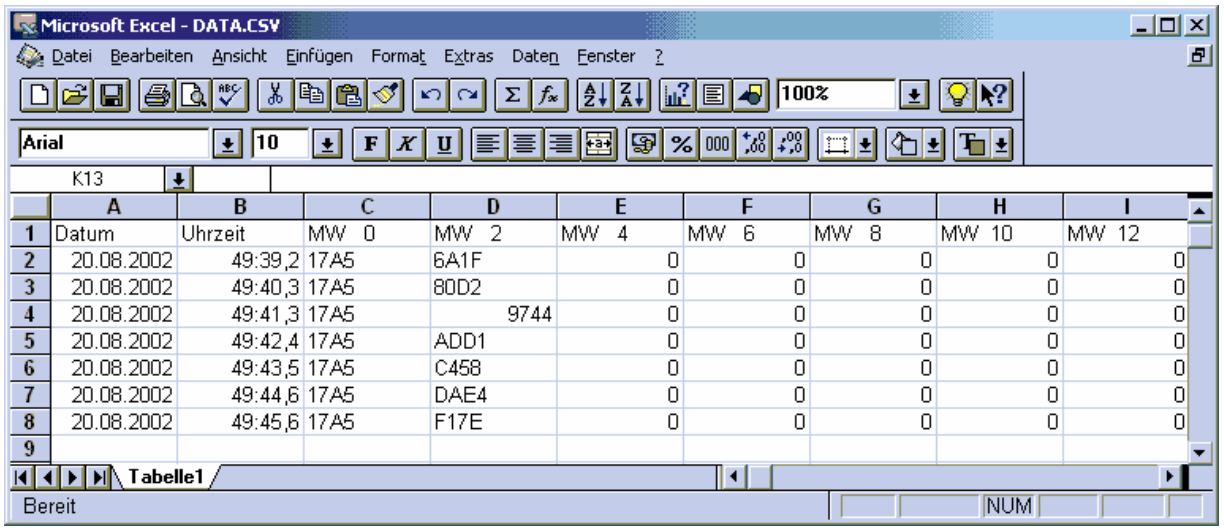
Please keep in mind, that the application name could have ‚"' surrounded, **after** the last ‚"' insert a blank, a minus and completely in caps „**DATALOG**" followed with a filename with extension „BLT" separated by a blank and enclosed in two '"'. Confirm the changes.
After double-click onto the link, PG-2000 starts, opens a Force-Variable-View, loads the „C:\TST\ASTRT.BLT", reads the „C:\TST\ASTRT.DLG" and starts the data-logging.

The created file „DATA.LOG" is plain ASCII which could displayed as followed:



Datum	Uhrzeit	MW 0	MW 2	MW 4	MW 6	MW 8	MW 10	MW 12	MW 14	MW 16	MW 18	MW 20	MW 22
20. 8.2002	15:49:39,186	17A5	6A1F	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:40,264	17A5	80D2	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:41,342	17A5	9744	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:42,405	17A5	ADD1	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:43,483	17A5	C458	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:44,561	17A5	DAE4	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:45,639	17A5	F17E	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:46,717	17A6	0804	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:47,795	17A6	1E92	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:48,873	17A6	3519	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:49,952	17A6	4BA5	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:51, 30	17A6	623D	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
20. 8.2002	15:49:52,108	17A6	78CA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

Open the file in a text-editor, select all and copy it with the clipboard into excel:



	A	B	C	D	E	F	G	H	I
1	Datum	Uhrzeit	MW 0	MW 2	MW 4	MW 6	MW 8	MW 10	MW 12
2	20.08.2002	49:39,2	17A5	6A1F	0	0	0	0	0
3	20.08.2002	49:40,3	17A5	80D2	0	0	0	0	0
4	20.08.2002	49:41,3	17A5	9744	0	0	0	0	0
5	20.08.2002	49:42,4	17A5	ADD1	0	0	0	0	0
6	20.08.2002	49:43,5	17A5	C458	0	0	0	0	0
7	20.08.2002	49:44,6	17A5	DAE4	0	0	0	0	0
8	20.08.2002	49:45,6	17A5	F17E	0	0	0	0	0
9									

Further calculations are now possible.

2.8.2 Context sensitive Help

You click with your mouse the button for Context sensitive Help for getting more information about a special window, a menu's command or a special button.

The cursor changes into an arrow with question-mark. Then you click the element of which you desire more information. Then the help concerning to this element will be displayed.

See also:

HELP Function keys

3 The Menu of PG-2000

3.1 Commands in the menu *File*

_____

New
Open
Close
Save
Save as
Printer configuration
Print
1,2,3,4
Exit
_____

3.1.1 Create a new file

See also:

Open a file
Commands in the menu File

Select this command of the menu for creating a new file.
An empty block list will appear. This block list will get the name that you enter by the using the commands Save or Saving as.

In the same way you can click the control panel in the toolbar:

3.1.2 Open a file

See also:

Create a new file
Close a file
Commands in the menu File

With the command Open you can open an existing file from hard-disk or floppy-disk
or the content of the PLC in a new window. PG-2000 saves the names of the files you handled last.
You can open one of these files quickly by activating its name with the mouse in the menu File.

If you have finished your work with a document and you want to take it away from the screen, you close it by using the command *close*. You can create documents by the command *New*.

In the same way you can click the control panel in the toolbar:

it’s showen the follow select

PLC	read the PLC are connect at the seriellen interface
File	show a dialog to select files
S5 - Simulator	start the S5-Simulator
Programmer	it isnt implement at this moment

at select of files its showen the following window:

Options of the dialog Open File:

- *Filename:*

  Enter the name of the file to open or choose it in the list. This list contains all files in the actual directory with the extension that is selected in the field "List files of Type".
  You can double-click a filename in the list box to open the file. You can select a file type from the List Files of Type box to display a list of all files with a predetermined type from the current drive and directory. If you type a pattern using a wildcard (* or ?) in the File Name box and press ENTER, the list box displays files matching that pattern. This file type subsequently appears as the default when you open this dialog box again.

- *File Type*:

  Select the type of file to display in the list.

- *Drives:*

  Select the drive where the file is.

- *Directories:*

  Select the directory where the file is.

You confirm by activating the button *OK* or you exit without opening a file by activating the button *Cancel*.

3.1.3 Close a file

See also:

Commands in the menu File

Select this command of the menu for closing the active file and its window.
You will get a notice and the possibility to save the changes, if the file has been changed.

3.1.4 Save a file

See also:

Save a file as
Commands of the menu File

Select this command of the menu for saving your file with its name and its path.

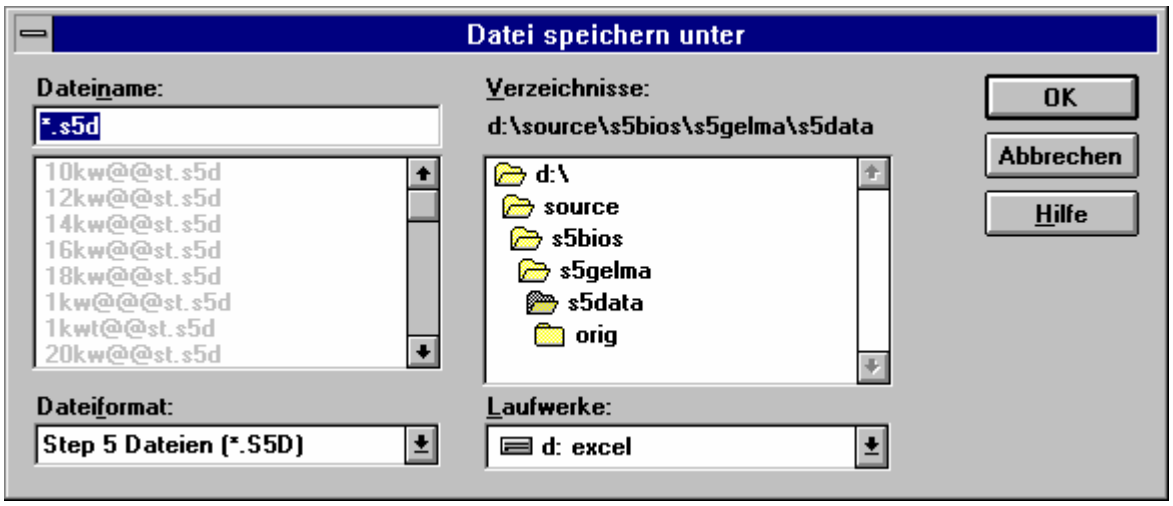
In the same way you can click the control panel in the toolbar:

3.1.5 Save a file as

See also:

Save a file
Commands in the menu File

Select this command of the menu for saving your file with a different name or in a different path.
In the following dialog you can select the path you want and you fill in your new file name. You acknowledge with *OK* for saving your file.



You can transfer your file completely into the PLC in the same way.
Select the button *PLC* in the following dialog.

Options of the dialog Save As:

- *Filename:*

  Enter the name of the file to save or choose it in the list. This list contains all files in the actual directory with the extension that is selected in the field "List files of Type".

You can double-click a filename in the list box to open the file. You can select a file type from the List Files of Type box to display a list of all files with a predetermined type from the current drive and directory. If you type a pattern using a wildcard (* or ?) in the File Name box and press ENTER, the list box displays files matching that pattern. This file type subsequently appears as the default when you open this dialog box again.

- *File Type*:

Select the type of file to display in the list.

- *Drives:*

Select the drive where to save the file.

- *Directories:*

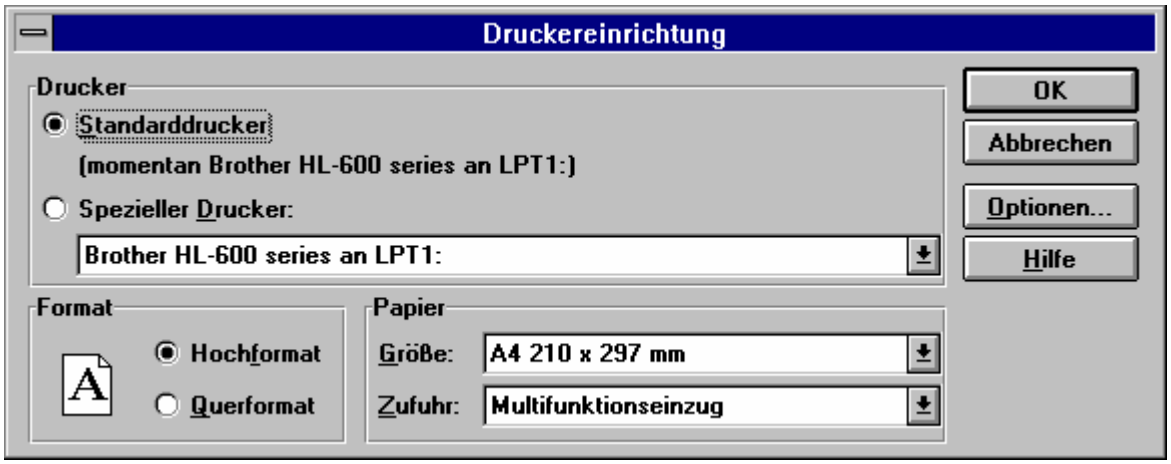
Select the directory where to save the file.

You confirm by activating the button *OK* or you exit without saving this file by activating the button *Cancel*.

3.1.6 Printer configuration

See also:

Print



This dialog show a list of the installed printers, defines the standard printer and offers some options of the printer, that you have selected. Before printing for the first time, you have to

- connect the printer to your computer or your network. You get the information that you need, in your printer's manual.
- install your printer driver with a install-program for Windows or with the Windows systems control. You get the information in your Windows manual.
- You select the printer that you want in the dialog Printer configuration.

Option of the dialog:

- *Standard printer:*

Show the name of the standard printer and the connection.

- *Special printer:*

Choose your printer. PG-2000 shows the printers that are installed in Windows. You get information about the installation of printers in your Windows manual.

- *Format*

Choose your format for the print.

- *Paper - size and feeding*

Enter the size of the paper and the paper feeding

- *Options*

Controls the print options of the printer that is selected in the list. The available options depend of the installed printer driver. You get information about the selected printer by clicking the *Options*-button and then the *Help*-button.

3.1.7 Print

See also:

Printer configuration

The command *Print* controls the activities of printing. You have to install a printer and select it before using this command. You find information about the printer installation in your Windows manual. You get further information about the selection of a printer in the dialog *Configuration.*

You can also click on the following button in the tool-bar:

at select of the button its showen the following window:

Options in the dialog:

- *Printer*

Show the name of the actual printer and the connection.

- *All*

Prints the whole document.

- *Pages*

Prints the page that you enter.

- *Copies*

Enter the number of copies that you want to print.

- *Assort copies*

  Assorts the page to exemplars if you print several exemplars of a file.

- *Quality*

  You choose the resolution of the print.

3.1.8 Hotkeys

See also:

Commands in the menu File

Here you get the last four files, which were opened by you. For opening one of these files you choose one by mouse or you use the **hot-keys**: **1, 2, 3, 4.**

3.1.9 Exit the program

See also:

Commands in the menu File

Select this command of the menu for to exit the program PG-2000.

3.2 Commands in the menu *Window*

Cascade
Tile horizontal
Arrange symbols
1, 2, 3,...

3.2.1 Cascade

See also:

Tile horizontal
Commands in the menu Window

This command displays all windows in a cascade.

3.2.2 Tile horizontal

See also:

Cascade
Commands in the menu Window

This command displays all windows side by side.

3.2.3 Arrange symbols

See also:

Commands in the menu Window

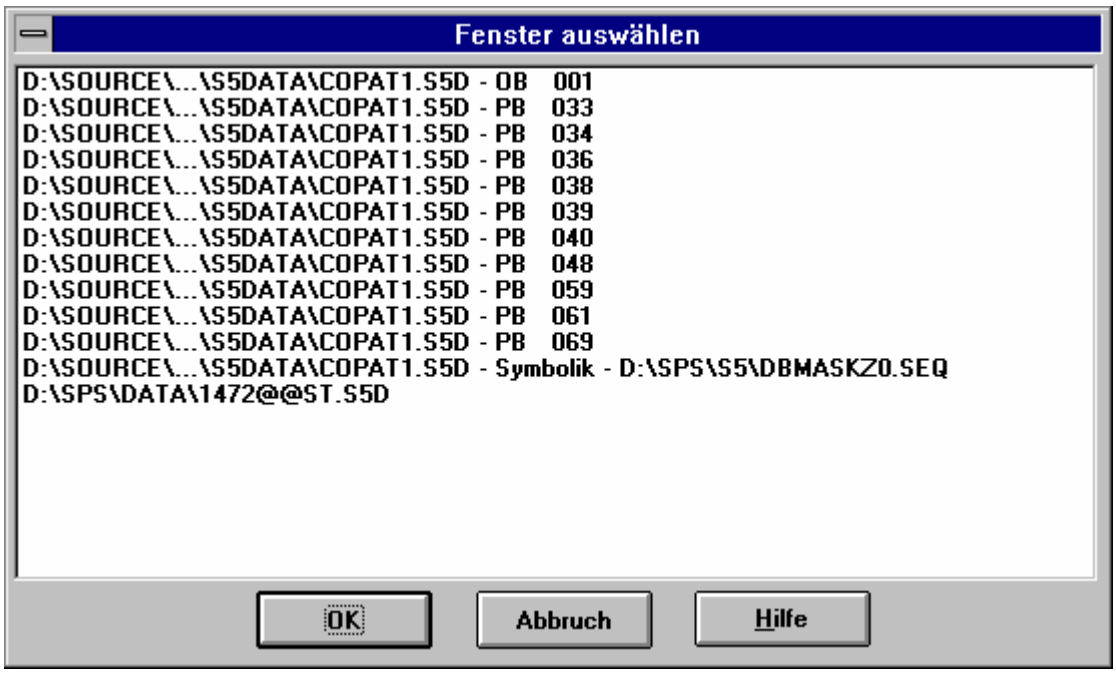
If you have minimized your documents into symbols, you can arrange them in lines with this command.

3.2.4 Hotkeys

See also:
Commands in the menu Window
Here you see the list of all actual open windows. For changing into one of this windows you may use the command of the menu or use the **hot-keys**: **1, 2, 3, ...**

3.2.5 More Windows

This menu-point will appear when you have opend more than 10 windows.in PG-2000. In the following dialog you could select the window which will be activeted:



3.3 Commands in the menu Help

Contents
To use Help
Introduction
About PG-2000

3.3.1 Help function keys

See also:

Context sensitive help
To use Help
Commands in the menu Help

Pressing down the key - **F1** will show you the help screen for the active window or menu command.

In the same way you can click the control panel in the toolbar:

Pressing down the key - **SHIFT + F1** changes the mouse-cursor and you are in the context-sensitive help-mode. See also the following:
Context-sensitive Help

In the same way you can click the control panel in the toolbar:

3.3.2 Contents

See also:

HELP function keys
Context-sensitive Help
To use Help
Commands in the menu Help

You will get into the overview of this the PG-2000 Help by calling this Command.

3.3.3 To use Help

See also:

HELP function keys
Context-sensitive Help
Help Contents
Commands in the menu Help

Here you get a detailed explication how to handle PG-2000 Help and how to choose the themes.

3.3.4 Introduction

See also:

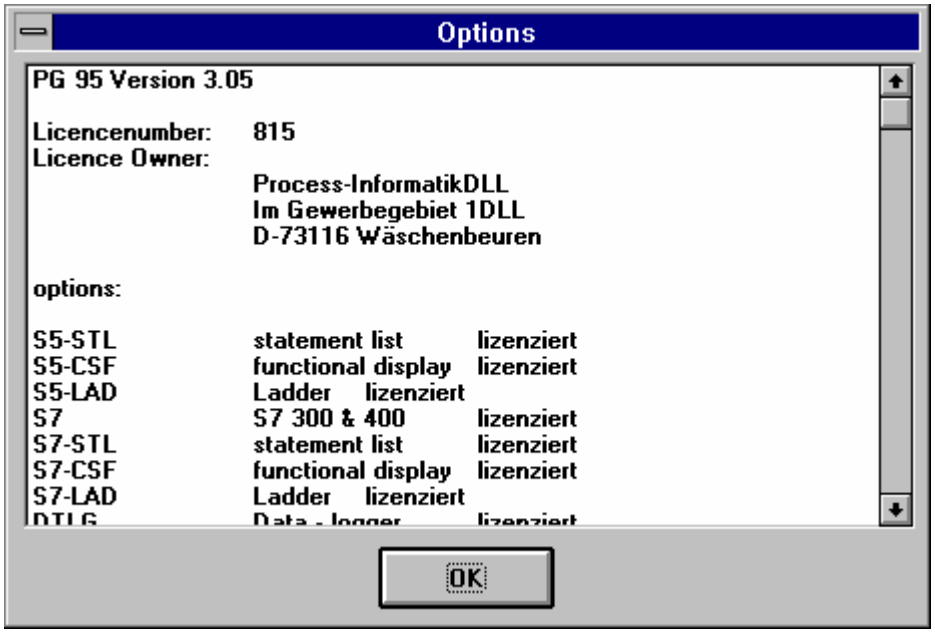
HELP function keys
Context-sensitive Help
Commands in the menu Help

Here you will get into the introduction of PG-2000, which displays a short overview about the work with PG-2000

3.3.5 About PG-2000

See also:

Commands in the menu Help



This command displays some information about this program PG-2000.

3.4 Commands in the menu *Options*

Memory address output

Symbols
View all symbols
Symbols absolute operands
Symbols comments
Symbols & absolute operands

Select XRF file
Printer configuration for output

Symbols file
Footer file

Configuration
Font
Colors

Address of the S-flag field
SEQ->STL
Interfaces

3.4.1 Memory address output

See also:

Commands in the menu Options

A dialog will be displayed after activating this command, in which you can indicate if and how to display the memory addresses of each STL-Command.
There are the following possibilities:

- none.	The memory addresses of the commands are not displayed in the STL.
- hexadecimal in words	The first column of the STL contains the memory addresses of the following command in words hexadecimal.
- hexadecimal in bytes	The first column of the STL contains the memory addresses of the following command in bytes hexadecimal.
- decimal in words	The first column of the STL contains the memory addresses of the following command in words decimal.
- decimal in bytes	The first column of the STL contains the memory addresses of the following command in bytes decimal.

3.4.2 Commands in Symbols file...

New
Open
1, 2, 3,...

3.4.2.1 Symbols file ... New

See also:

Open a symbol file
Symbols 1, 2, 3,...
Activate symbols
View all symbols

Select this command for creating a new symbol file. An empty symbol editor window will be displayed at first. The file gets the filename that you enter in the dialog which follows the commands *save* or *save as*.

3.4.2.2 Symbols file... Open

See also:

Symbols 1, 2, 3,...
Create a symbol file
Activate a symbol
View all symbols

Choose in the following dialog the file, which contains the desired symbol definitions.
Call the command View all symbols in the menu *Options* for changing some symbols or for appending some new symbols.
You create a new symbols file by calling the command *New* in the menu *Options-Symbols file*.
Save your symbol file by using the commands save or save as in the menu *File*.

3.4.2.3 Symbols file..., Hotkeys

See also:

Open a symbol file
Create a new symbol file
Activate symbols
View all symbols

Here is the list of the four last symbol files which has been opened by you. You select one of these file to open by using the mouse in the menu or by pressing the **hot-keys**: **1, 2, 3, 4.**
The first file in this list always is regarded as valid and is handled as already chosen.

3.4.3 Functions for Symbols file

3.4.3.1 Symbols

See also:

Open a symbol file
Create a symbol file
Show all used symbol files

Select this command for changing between ”Symbol active” and ”Symbol inactive”. Symbol can be used in the STL-editor, in the CSF(S5) / FBD(S7) - editor and in the LAD-editor.
All defined Symbol Operands are substituted by the corresponding symbol. In the editor you can use the Symbol Operands (for example QW 15) directly or the symbol for it (for example MOTOR 2).
If Symbol is active, it’s command in the menu is marked.
If you have activated Symbol, the symbol definitions are printed after the printed program.

3.4.3.2 View all symbols files

See also:

Open a symbol file
Create a symbol file
Activate a symbol

This command calls the symbol editor. This editor displays all symbols of the selected symbol file.
You can change, delete or create any symbols. Save your changed symbol file by using the command save or save as in the menu *File*.

3.4.3.3 View absolute operands

See also:

Commands in the menu Options

This command displays the allocation of a symbolic operand. Select this command (if the cursor is placed on a program line which contains a symbolic operand) for displaying the absolute operand, the symbolic operand and the corresponding symbols comment in a dialog.

3.4.3.4 Symbols comment

See also:

Commands in the menu Options

Select this command for displaying the statement comment instead of the symbols comment. This function is only active for the program lines in which a symbol operand is associated. There is no possibility to edit the symbol comment.

If the symbol comment is active, the command in the menu is marked.

3.4.3.5 Symbols & absolute operands

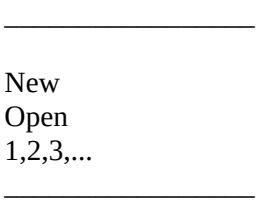
See also:

Commands in the menu Options

Select this command for displaying the absolute and the symbol operand. This command is possible in all program lines which contain a symbol operand association. The absolute operand can be edited.

If the *Symbol* and the *Absolute operand* are active, this command in the menu is marked.

3.4.4 Footer file...



The footer offers you the possibility to print specific data of the project or the person. You can enter here the project number, name of the employee etc.
On each print the selected footer is printer on the end of each page. You choose in the dialog print format if you want to print a footer or not. You call this dialog by calling the command *Printer configuration for output* in the menu *Options*. If you once have defined a footer, the first footer in the file list in the menu *Options/Footer file* is the default footer.

The footer editor displays the footer in the same disposition like it will be printed. You can choose between the standard formats of Siemens (80 char or 132 char large) with defined sections. You change among the several sections by pressing **TAB** or **SHIFT** + **TAB**. Inside a section, you move with the cursor keys and you edit like usually in Windows.
If you have selected the 132 char large footer, it cannot be displayed in the whole size. You change between the left and the right part by activating the buttons *Part 1*... and *Part 2*... .

You save the changed file by activating the button *Save* with the original name or by activating the button *Save as* with a different name.

3.4.4.1 Footer file ... New

See also:

Open a footer file
Footer file 1, 2, 3,...

Select this command in the menu for creating a footer file. You have to indicate the desired foots width in the following dialog. The empty footer dialog is displayed after acknowledging the choice.You save your entries by pressing the buttons *save* or *saving as* in the footer dialog.

3.4.4.2 Footer file ... Open

See also:

Footer file 1, 2, 3,...
Create a new footer file

Select this command for opening an existing footer file. The footer dialog depends of the entered format of the selected file (80 or 132 characters width).
You choose file in the dialog File Open, which contains the desired footer definitions.
The command *New* in the menu *Options-Footer File* creates a new symbols file. Save your edited footer file by using the buttons save or saving as in the footer dialog.

3.4.4.3 Footer file... Hotkeys

See also:

Open a footer file
Create a new footer file

Here you see the list of the last four footer files, which have been opened by you. For opening one of these windows you may use the command of the menu or use the **hot-keys**: **1, 2, 3, 4.**
The first file in the list is regarded as actual valid footer file and will be used for the following print activities.

3.4.5 Use reference file

The usage of the reference-file functinalty is selected with this menu-option.

Alternatively you could use this button:

3.4.6 Select a XRF file ...

See also:

Commands in the menu Options

If you transfer the data and MC5-blocks into the PLC, the corresponding Reference Blocks (DV) and the Documentation Blocks (DC) will not be transferred.
For editing the blocks in the PLC you have the possibility to declare the corresponding S5D-file by using this command.

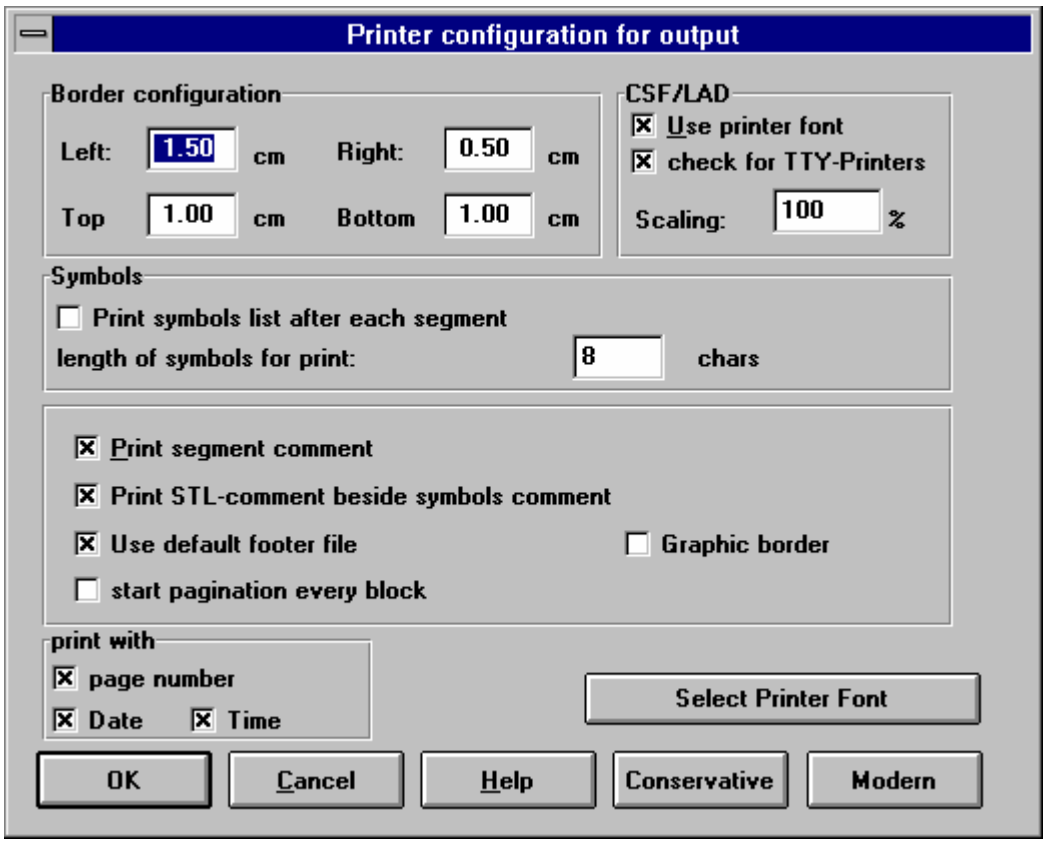
You can open the corresponding file in the following dialog. You select the XRF-file for the contents in the PLC, and now you have all reference data and documentation data while you edit the blocks on the PLC.
You define in the dialog *Configurations* if you want to save the data into the XRF-file. You call this dialog in the command *Configurations* in the menu *Options*.

3.4.7 Printer configuration for output ...

See also:

Commands in the menu Options

You can influence the print and decide which additional information you want for printing some blocks or a whole S5D-file.
You enter the details in the following dialog.



Here you have some option to change the print and the additional information. The following options are available:

- *Border configuration*

  Here you enter the border in cm.

Settings for the CSF(S5)- / FBD(S7)- /LAD- Graph print:

- *Use printer font*
  Choose this option, if the printer font has to be used for printed CSF(S5)- / FBD(S7)- / LAD-presentation and not the active screen font

- *check for TTY-Printer:*
  Deselect this option when a printer which could do graphics is rejected because it is an TTY-Printer

- *Zoom*
  Enter the factor for zooming the print.
  Values from 1 to 200% are possible.

- *Font for print*

Enter the font to be used for printing. You choose the font by activating the button *select* and the following dialog.

- *Print segment comments*

If you select this option, the segment comments of the Doc-blocks will be printed.

- *Print symbols list at segment end*

Choose this option for printing the list of the symbols operands that have been used in this segment at the end of each segment. This option is available, if the symbols or symbols comment is set.

- *Print instruction comment aside the segment comment*

Choose this option for printing the instruction comment in the line aside the symbols comment.
This option is available, if the presentation of the symbols comment is set. You get long lines by using this option. So it is necessary to choose a small font.

- *Use selected footer file*

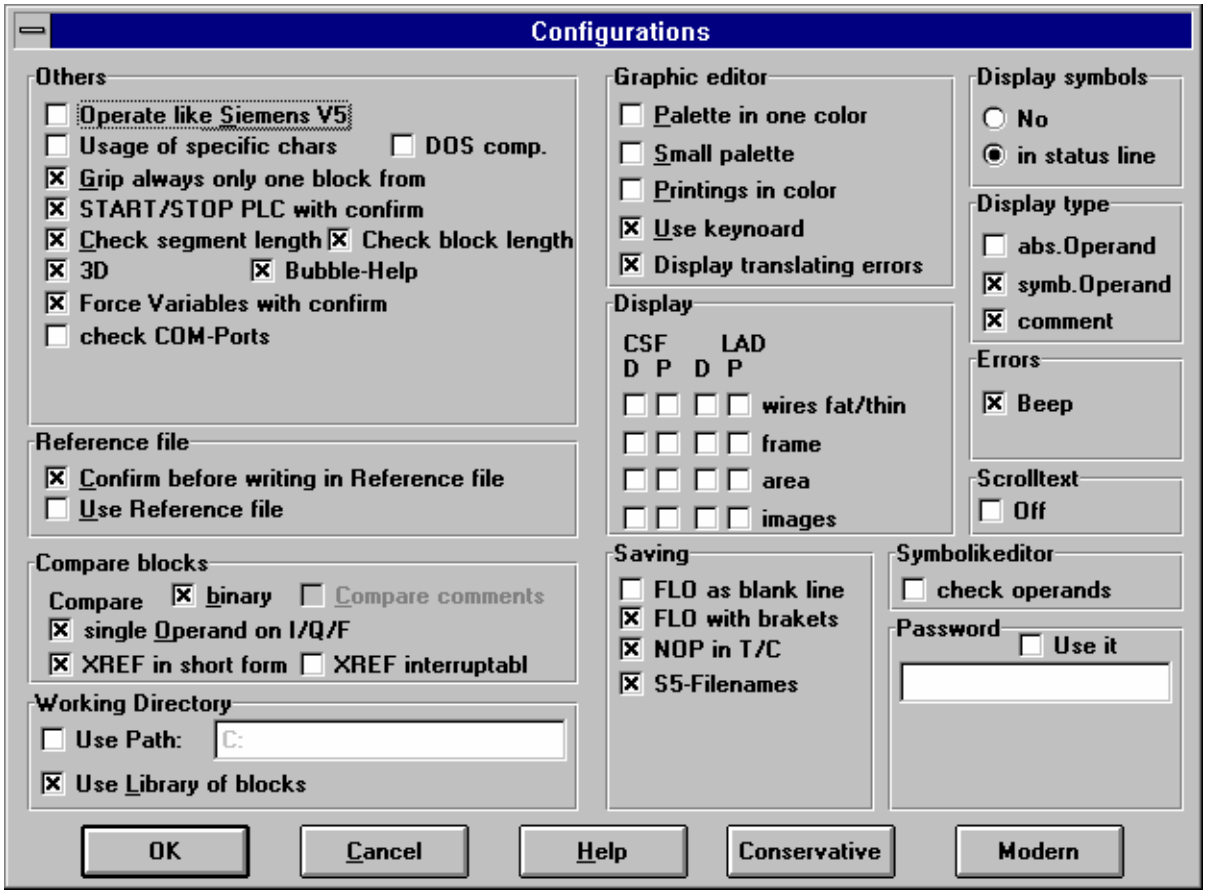
Choose this option for printing the selected footer at the end of each page. See how to create or to choose a footer in the chapter footer editor.

- *Graphic border*

Choose this option for printing the footer with a not broken line as border.

3.4.8 Configurations

The following dialog appears:



Others
- *Operate like Siemens V5*

Click this option for displaying the S5-V5 function keys.
This turns on the function keys, which imitate the function keys of Siemens S5-V5 in there arrangement and function.

If you exit the PG-2000 with visible function keys, this option will be saved. This means that PG-2000 will start with the Siemens S5-V5 start dialog and the function keys will be displayed.

- Usage of specific chars

Select this option for using specific and national characters as valid input characters.
!!! Attentione:
This chars coud´n property displayed in orginal Siemens PG´s

- DOS comp.

The specific chares are coded differently under Windows as in DOS.
Turn this option on, when you want to use DOS-compatible chars.

- Grip aways only one block from

Choose this option in order to restrict the access to the PLC, only when necessary.

- START/STOP PLC with confirm

Choose this option, when you wantt with each attempt the PLC starting or stop, to receive an explit mesage. With out this option, the PLC is immediately started or stopped.

- Check segment lenght

Choose this option in order to test the segment-length for 255 words and, to receive a mistake-news with demand.

- Check block length

It is testing when saving, whether the block becomes not too big. If the block should become too big, so the user is pointed out of this. With voting out, not SIEMENS compatible files, which work correctly in the PLC, can be generated. They coud not read with SIEMENS programming software.

- 3D-effect

Choose this option, about to turn on 3D-effect.

- Bubble-Help

Choose this option in order to switch on the Bubble-Help. If you let a certain time stand the mouse-pointer over a button, a help is shown under the button.

- Force Variables with confirm

Choose this option, if you after activates the transfer of the variable-list, wants be asked again whether the data should really be transferred to the PLC.

- check COM-Ports

If this option is selected, PG-2000 checks which COM-Ports already covered from other interfaces. You get under OPTIONS, INTERFACES..., PLC-INTERFACE only the free COM-Ports are offered.
When this option are not selected, all COM-Ports are offered, also the busy.

Reference file

- Confirm before writing Reference file

If this adjustmend is turned on, you must confirm each writing process into the choosed reference fle, presupposed application of the put in reference file is active.
You select the reference file under OPTIONS, SELECT REFERENCE FILES.

- Use Reference file

Is this adjustmet is choose, a connection exist to a defaulted reference file.Under OPTIONS, SELECT REFERENCE FILES can be selected this file. The selected reference-file may not be opend with the access on the PLC then. If you open then the PLC you get the comments and the symbolic to see, because the connection with the reference file.

With each storage process, now stored in the PLC and in the selected reference file, with retrieval or without, dependence from adjustment in CONFIGURATION, REFERENCE FIL, CONFIRM BEFORE WRITING IN REFERENCE FILE.

If you would not like to work with a reference file, so you don´t choose this adjustment.

Compare blocks

- *Compare binary*

  Choose this option, to compare only the pure STEP 5 Code.

- *Compare comments*

  If you dial this option, the compares also different commentaries.

- *Single Operand on I/Q/F*

  Choose this option in order only to show the operand in the XRF-list, in the first lines. If there are several lines with the same operand, so the operand is represented onely in the first line.

- *XREF in short form*

  Choose this option, to show more than a position with the XRF-list within on line.

- *XRF interruptable*

  If the XRF-list should be generated in the background, hoever, still to execute other works in the foreground, it (like for example texts prints or produces) can be admitted the message handling by adjustmend of this point. The disadvantage is that the XRF-list over many blocks are quite long.

Working Directory

- *Use Path*

  That here put in file-path is defaulted with all file accesses in PG-2000.

- *Use Library of blocks*

  Choose this option, if you want to work with the blocks from the blocks library. If you now generate a new block that exist in the block library, you get a block with the parameter of the block in the libary.
  The block library consists of 6 files in the PI/ PG-2000 directory:
  - DEFAULT**E**.S5D/S7P for adjustmend in english language
  - DEFAULT**F**.S5D/S7P for adjustmend in french language
  - DEFAULT**D**.S5D/S7P for adjustmend in german language

If you create a new block into one of the above 3 file, the automatic parameter becomes effective for this block, first after finish PG-2000 and started again. This adjustment is absolutely necessary for S7.

Graphic editor

Options of the CSF(S5)- / FBD(S7)- / LAD- graphic editor.

- *Palette in one color*

  Select this option for getting a white/gray colored presentation of the toolbar.
  This option is recommended for systems with reduced color display,
  like LCD-displays for example.

- *Small palette*

  Select this option for getting a smaller palette. This option is recommended for the standard VGA resolution for economizing place on the screen. This option is only in the one color mode available because of it’s visibility.

- *Printings in color*

  Select this option for printing the CSF(S5)- / FBD(S7)- / LAD- print in colors if you have a color printer. There is no conversion in black/white output.

- *Use keynoard*

  A courser, that induces with the keybourd, is displayed. Thie functions from the menu refer to this cursor.

- *Display translating errors*

  With a mistake in the transposition, to the user is pointed aut.

Display
This options define the displaying of the symbol's background and the symbol's frames and the way to draw the wire connections.
The options are separate for the displaying of CSF(S5) / FBD(S7) and LAD and for the displaying on the screen (*D= Display*) and on the printer (*P=Printer*).

- *wires fat/thin*
  The wire connections will be displayed large and plastically if this option is on. The status blocks will be displayed in colors which correspond to their actual logic mode.
  The wire connection will be displayed as small lines if this option is off. The actual logic mode will be displayed by the line. A line means logic 1 and a broken line means logic 0.

- *frame*
  The frame of the symbols is drawn in the selected color if this option is on. No frame is drawn if this option is off.

- *area*
  The background of the symbols is displayed in the selected color if this option is on. If this option is off no background is displayed.

- *images*
  If this option is turned on, so a picture is showed within the symbol.
  If this option is turned off, a text is showed within the symbol.

!!! The print job runs faster if the last options are off !!!

Saving
- *FLO as blank line*
  Between connections in a network there will be generated a blank line.

- *FLO with brakets*
  The first braket about the first connection in a network can be left out without loss of the logical function. This networks are not representable in the SIEMENS original PG in CSF(S5) / FBD(S7).

- *NOP in T/C*
  Without parameter Input/output in times and counters, Siemens concurring NOP 0 lines are generated. PG-2000 dosen´t require these lines to recobnition of a Timer/Counter. If the NOPs are missing however, the Siemens-PG can represent this network not in CSF(S5) / FBD(S7) or LAD.

- *S5-Filenames*
  The Siemes convention is now used with the file-names. Name cut off on 6 signs, lacking signs with "@" replenished and in the end "ST.S5D" appended.

  Example:

T	T@@@@@ST.S5D
TEST.S5D	TEST@@ST.S5D
TESTST	TESTSTST.S5D
test00st.S5D	TEST00ST.S5D

Display symbols
(right mouse button)
- *No* No information about the symbolic operand is displayed.

- *in status line*
  The association of the selected symbolic operand contains the absolute operand, the symbolic operand and the symbolic comment in the status bar.

Display type
Symbolic in CSF(S5) / FBD(S7) / LAD, here is fixed something in the status-line is showen

- *abs. Operand (absolut operand)*
- *symb. Operand (symbolic operand)*
- *comment (symbolic commentary)*

Errors
With this option, you can choose, as and wether a mistake is shown at all.

- *Beep*

Scrolltext
With this option, you can fix only in the full version, wether the sprint writing is fixed in the status line or goes through.

- *Off*

Symbolikeditor
It is tested with each input of an absolute - or symbolic operand wether it was possibly inputed same in the symbolic editor. This has the consequence however the copies a line and following editing of the same, is not possible. If you want to do this, you deactivate this point, edit (copy) and let run after the edit an examination of the absolute - and symbolic operands.

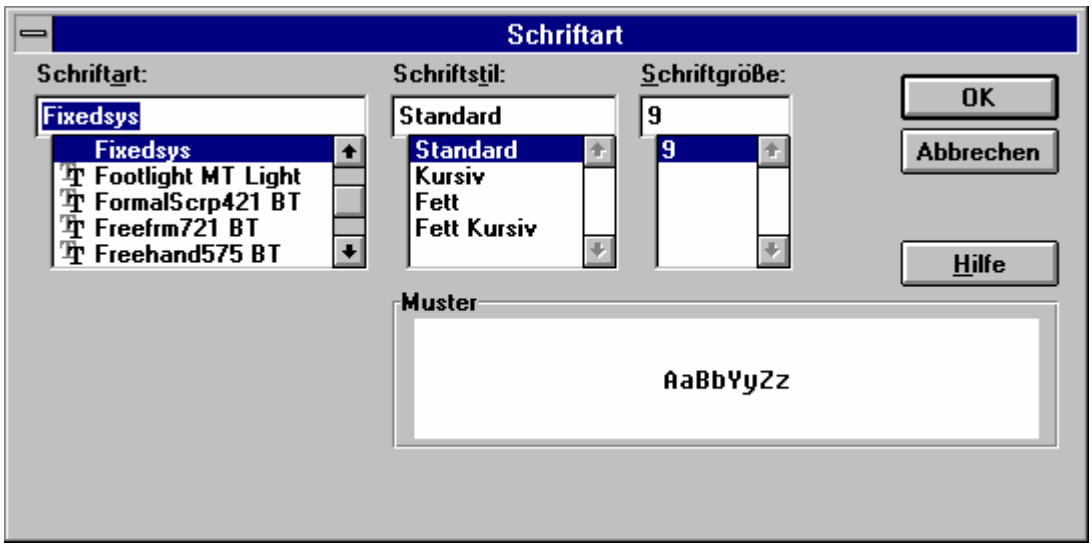
Password
With this control box, you can turn PG-2000 to a read-only version. With activated control box you coudn´t edit the programm. The adjustment mask is protected by a password

3.4.9 Font

See also:

Change editor’s colors
Commands in the menu Options

You define the font for the actual editor in this dialog, where you can enter the font and it's options. The font and it's options will be saved by closing the actual editor window. When you open the same editor again it will use the font that you defined in this dialog before.



Select with the mouse in the sections

- Font style
- Font size
- Font color
- Font presentation

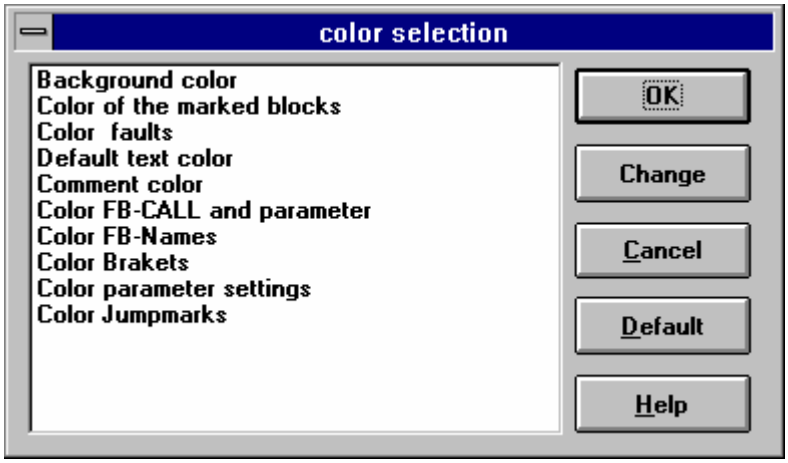
You can also change among the different section by pressing the **TAB**-key and enter your choice in the sector by pressing the cursor keys. Some letters using this font you entered, are displayed in the field

pattern. If you agree with the selected font then you confirm with *OK*. If you want the previous font you leave by pressing *Cancel*.

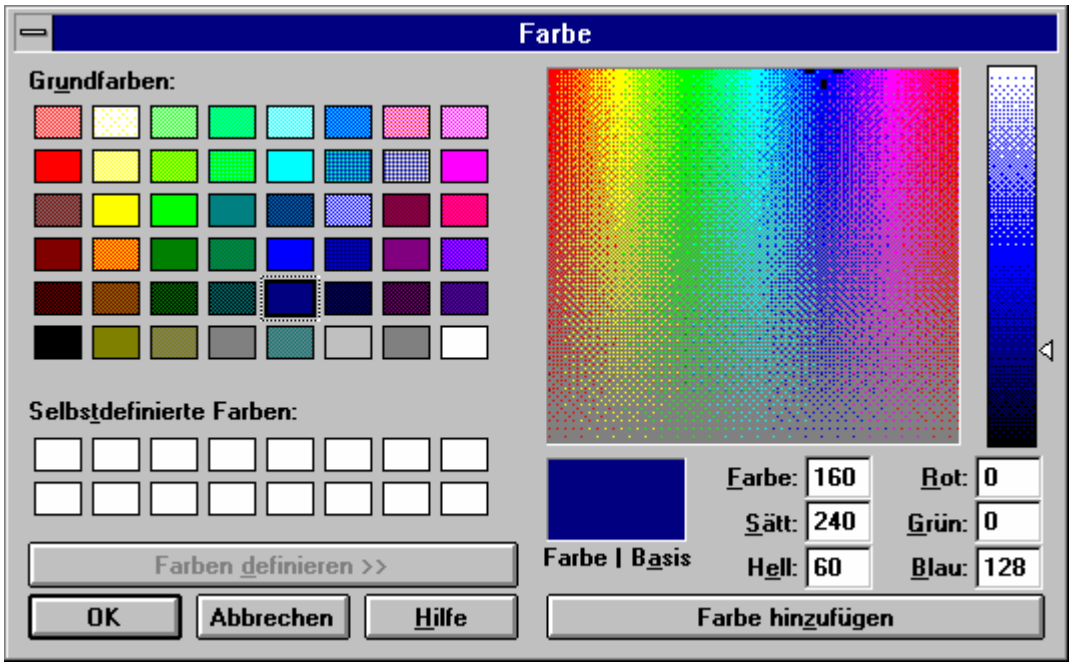
3.4.10 Colors

See also:

Change editor's fond
Commands in the menu Options



You select the color which should be changed for the actual editor in this dialog. The color will be saved by closing the actual editor window. When you open the same editor again it will use the colors that you defined in this dialog before.



Select one of the fundamental colors or of self defined colors by clicking with the mouse.
You can also change among the different section by pressing the **TAB**-key and enter your choice in the sector by pressing the cursor keys. If you agree with the selected color then you confirm with *OK* or the key **ENTER**. If you want the previous color you leave by pressing *Cancel*.

Activate the button *Define color* >> for getting a self defined color in a section. In a square of colors you choose your color with the mouse and additionally you can enter the brightness and the saturation in the columns. You can also enter directly the values of color, saturation, brightness, red, green and blue and the corresponding base color in the field *Base*. Activate the button *Append* for appending your selected color. Then you can use this self defined colors in the same way as the fundamental colors.

3.4.11 SEQ -> STL

See also:

Symbols comment
Commands in the menu Options

Call this command for copying the symbols comment of a selected symbols file into instruction comment of all block in the actual file. This command is not available if there is a open block in the actual file.

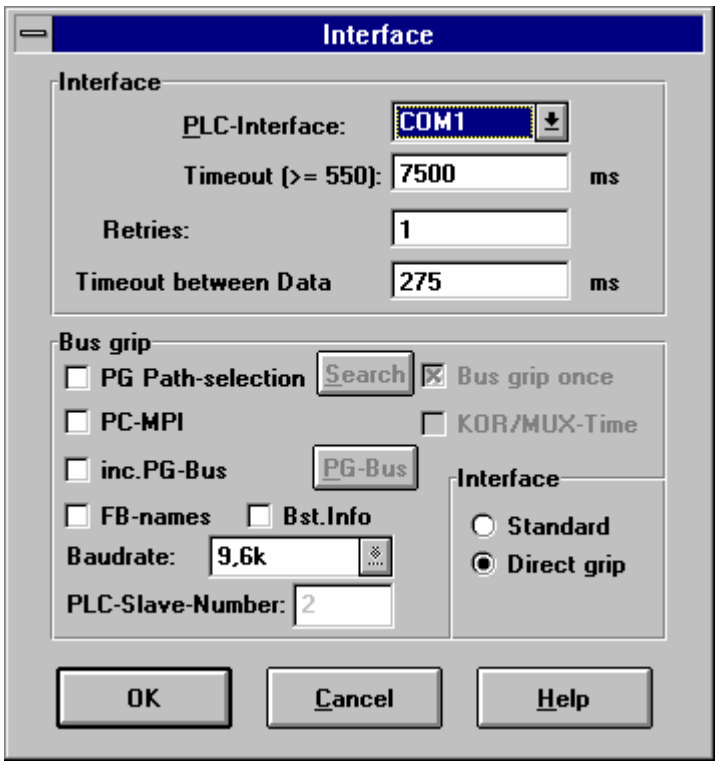
3.4.12 Language

Choose this menu-option to change the language of the application. You could choose seperatly the language of the application-menu and text or the MC5-Code language:

3.4.13 Interfaces

See also:

Commands in the menu Options



You enter in this dialog the COM-interface of your computer which is connected with your PLC. The are COM1 to COM4 available. You have to be sure, that the selected interface is really free and not reserved

by a mouse driver, for example. If you have choose in configurations check COM-PORTS, PG-2000 do this for you.

You enter the time (in milliseconds) for trying to get a connection with the PLC in the field *Time-out*. The actual action is canceled (e.g. saving blocks to the PLC) and a error message is displayed on the screen, if there is not already made a connection to the PLC in this time.
If you have problems with communication with the PLC, so you can switch the option "Interface grip" which may be necessary for some Laptops for example.

ATTENTION: You have to fill in the value 360 in the field "Time-out between data", If you use a Sinumerik 810 / 820 /840 / 880 !

inc. PG-Bus
Over the area of inc. PG-Bus, a PG-Bus path-selection becomes (L1-Bus) or the MPI-Adresse (S7 - 300/400) put in. The respective participant-number is written down under AG-Slave-Nummer.

- PLC-Path selection
  Only when this option is selected, KOR/MUX-Zeit can be selected searches, unique Anwahl.

- Searches
  If you press on searches, PG looks for the Programmiernumer.
  The respective PG-Nr becomes in the status-line. after the straight is sought shown.

- Bus grips once
  If this option is selected, so the Busteilnehmer is dialed only singularly. Otherwise, INC. of the Busteilnehmer is dialed before each access on that.

- KOR/MUX-Time
  So, if the Busdurchwahl is managed over a KOR/MUX, must be activated before the participant-selection of the KOR/MUX. If selected, then the selection of the KOR/MUX switches on.

- PC-MPI
  With this attitude, the multi-point-interface gate (MPI) becomes put in. If this option is selected also can searches again, as described under PG-Pfadanwahl is used.

- inc. PG-Bus
  After selects this option the button can (PG-Bus) is operated. The attitudes, that can be planned here, are explained extented PG-Bus path selection in the section in more detail.

- FB-names
  In the bookkeeper, one finishes reading with each function-component of the FB-Namen. This is not always required and is not used some time with the construction of the bookkeeper.

- Bst.Info
  With the bases the list of blocks is additionally still read the component-size and the library-number. This requires some time.

- Baudrate
  The Connection between the S7-PLC and the PG is done with a PC-Adapter. The original PC-Adapter could work at 19,2k or 38,4 Baudrate which is selected with an Dip-Switch on the Adapters side. PG-2000 checks on application-start or when selecting "Interface" from Menu "Options" if such an PC-Adapter is attached and which Baudrate is selected. Because this switch is changed manually you could not change the Baudrate in PG-2000. If you use an MPI-Interface from our Company, you could then select the desired Baudrate if the MPI-Interface has a Version 1.15 and following. You could select **only** this Baudrate which are possible. On application exit this selection will be saved to profile-settings for further use (if possible).
  The S5-PLC works only at 9,6k Baud, so a selection is not possible.

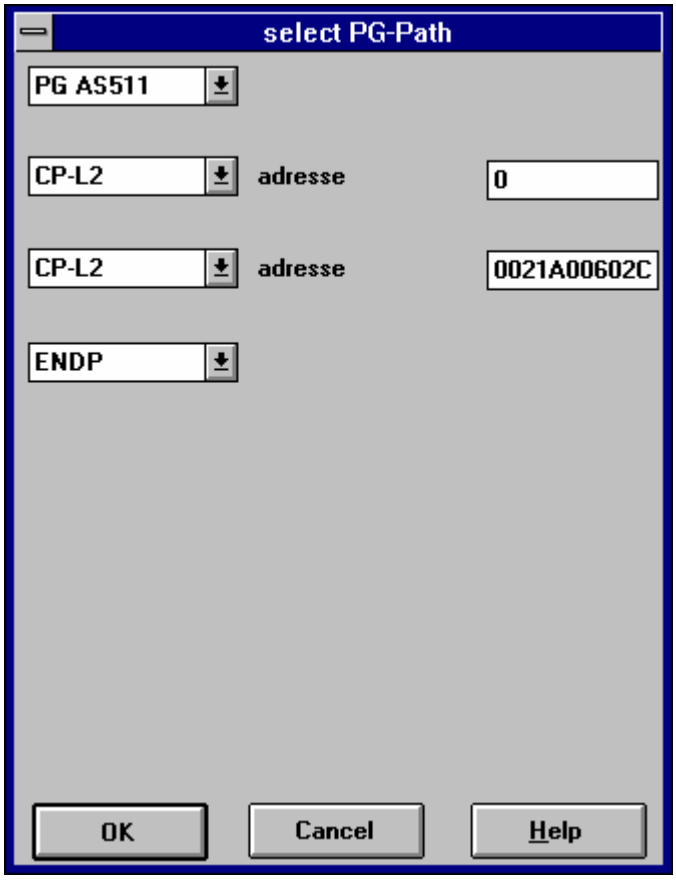
3.4.13.1 inc. PG-Bus

With operates the PG-Bus button a dialog-window appears can be put the bus-path to the PLC. (PG-Bus path selection). in this menu is possibly itself it over different bussystems SINEC L1, SINEC L2 and SINEC H1 to one PLC. Is the single knots, over which one reaches the final point, through bridges -, counter-adjustments or software parametrierung an address assigned. It is always dayl, that is possible for the in each case chosen configuration, only the knots or bussystems.
- PG-Bus Pfadanwahl
One clicks on the arrow, three start-knots appear in order to reach the respective Bussystem over the programming-appliance:
- PG AS511
- PG CP-H1 **not availiable now !**
- PG CP-L2 **not availiable now!**
- Chooses one in the first window PG.AS511 a second dialogue-window is showen, in which between:
    - KOR/MUX
    - CP-H1 **not availiable now!**
    - CP-L2 **not availiable now!**
    - CP-L1 can be chosen.

- Chooses one in the first window PG CP-H1 a second dialogue-window is showen, in which between:
    - PG CP-H1 **not availiable now!**
    - CP-H1 can be chosen.
- Chooses one in the first Fenster.PG CP-L2 a second dialogue-window is showen, in which between:
    - PG CP-L2 **not availiable now!**
    - CP-L2 can be chosen.
- Chooses one in the second window SINEC H1, three more windows appear:
    - Ethernet-Adresse (must be inputed as hexadezimal)
    - Password (to the protection before forbidden access)
    - Windows to the selection between PG CP-H1, CP-H1
- Chooses one in the second window KOR/MUX, two windows appear:
    - Address (here is inputed the respective address)
    - Windows to the selection between
        ENDP for final point (end-knots)
        CP-H1, CP-L1, CP-L2, in order to change to another Bussystem,

!!! The PG CP-H1, PG CP-L2 chose is possibly not yet !!!

Example:



From PG (AS511) over CP-L1 to CP-L1 adress 0021A00602C to the PLC

3.4.14 Address of the S-Flags in the Memory of the PLC

Here you enter the address of the S-flag area in the memory of the PLC in hexadecimal numbers.

This option is necessary for function "Status Block" and "Force Variable" with the PLCs S5-PLC135U/PLC155U.

If this option is not entered correctly, the displayed values of the S-flag instructions in "Status Block", e.g. in the instruction like "U S 1000.0", and for access to the S-flag-area in "Force Variable", e.g. with operands like "SW 10", do not match with their originally values in the PLC.

You get this value in your system manual (in the chapter "Memory structure" or some like this). Also if the PLC works in a 20-bit-address area, the address must be declared as 16-bit-base address; if the S-flag area is e.g. at EA000, you have to enter the value EA00.

Values for different PLCs:

- PLC 115U (CPU 945) E000
- PLC 135U (CPU 928**B**) E400
- PLC 155U (CPU 948) EA00

3.5 Commands in the menu *PLC-Functions*

Start PLC
Stop PLC
Compress PLC
Delete PLC
Force variables
Start status block
Stop status block
Output PLC info
Output memory configuration
Output memory contents
ISTACK
BSTACK

3.5.1 Start PLC

See also:

Stop PLC
Commands in the menu PLC-Functions

This command start the PLC and the program starts running.

In the same way you can click the control panel in the toolbar:

3.5.2 Stop PLC

See also:

Start PLC
Commands in the menu PLC-Functions

This command stops the PLC and the program stops running.

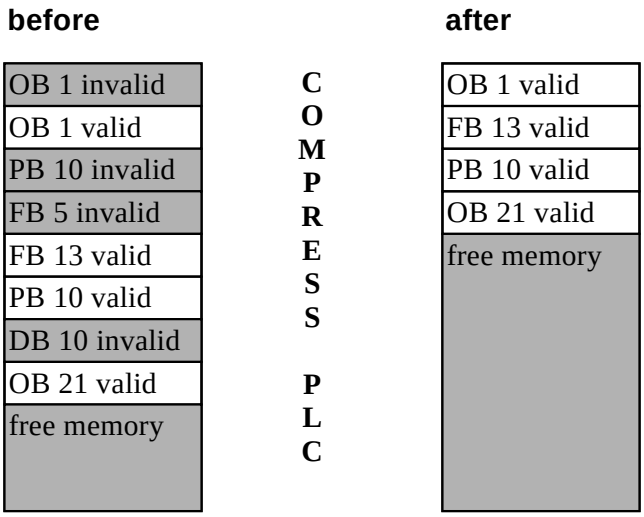
In the same way you can click the control panel in the toolbar:

3.5.3 Compress PLC

See also:

Delete PLC
Commands in menu PLC-Functions

When you delete a block in the PLC, the block is not deleted in the memory but marked as deleted. The memory is fragmented by doing this. So you have to call the command *compress* for getting a cohered free memory again. All blocks, which are not marked as deleted, are contracted by this command and the one piece of free memory rests, which contains the free part of the memory and the deleted blocks.



3.5.4 Delete PLC

See also:

Compress PLC
Commands in the menu PLC-Functions

This command deletes all block in the PLC. The marked blocks are deleted and removed. This command is equivalent to the command Factory Reset of the PLC. The PLC will be in the STOP-mode and only the internal system blocks and the DB 1 will rest, corresponding to the Factory Reset of the PLC.

3.5.5 Output PLC-Info

See also:

Output memory configuration
Output memory contents
Commands in the menu PLC-Functions

Here you get information about the status and the content of the memory in the PLC.

3.5.6 Output memory configuration

See also:

Output PLC-Info
Output memory contents
Commands in the menu PLC-Functions

You get information of the memory configuration in your PLC by calling this command.
These are the following:

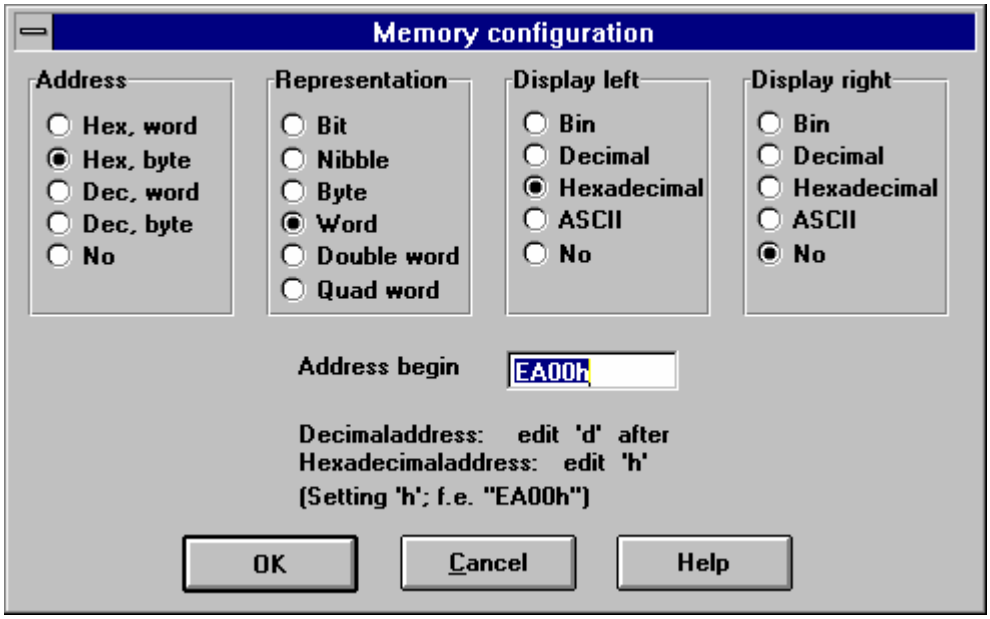
- The start address and the end address of the available memory.
- The start address and the end address of the memory used by the program.
- The size of the free memory.

3.5.7 Output memory contents

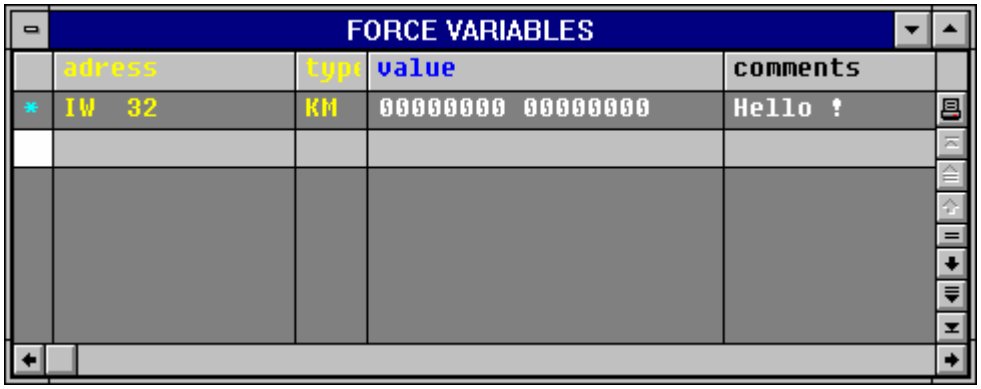
See also:

Output PLC-Info
Output memory configuration
Commands in the menu PLC-Functions

The content of the whole PLC's memory is displayed by calling this command.
The value of each memory address from 0 hex to maximal FFF hex (depends of the PLC type) is displayed in a list box.



3.5.8 Force-Variables



You could change the state of flags or inputs directly.

In the column *adress* you insert the name of the operand (f.e. I 2.2).
In the column *type* you insert the type of the selected operand (f.e: KM).
In the column *value* you insert the value you want.
In the column *comment* you could insert a describing text

operand	default type	possible types
FB; QB; IB	KH	KH KM KY KS KF
FW; QW; IW;	KH	KH KM KY KS KF
T	KT	KT KM KH
C	KC	KC KM KH
DW; DL; DR	KH	KH KM KY KS KF
DB	-	-
FD; QD; ID; DD	KH	KH KM KY KS KF

A star ”*” at the beginning of a line marks lines which will be transfered to the PLC because they are changed.

3.5.9 Force-Outputs

You could change the state of Outputs directly. The PLC must be in stop-state to use this function.

In the column *adress* you insert the name of the operand (f.e. I 2.2).
In the column *type* you insert the type of the selected operand (f.e: KM).
In the column *value* you insert the value you want.
In the column *comment* you could insert a describing text

3.5.10 Start status block

See also:

Stop status block
Commands in the menu PLC-Functions

The command *start status block* starts the presentation of the actual window's status. This command is only available, if

a) the PLC is already opened by you and
b) you are actually in a window of a block that exists on the PLC

The command *status block* is available for block in MC5-code only, that means not for data blocks for example. If this command has been selected, the following information will be displayed behind each Step5 command-line.

1)	DBADD	= Address of the actual data block. or
	DBNr	= Number of Data-block actualy selected
2)	VKE	= Actual logic result at this point.
3)	Status/Acc1	= Content of accu 1 or status (depends of the instruction)
4)	Acc2	= Content of accu 2.
5)	Status	= the set bits are displayed here after the respective instruction
6)	SAC	= Step5 Address counter. The address of the respective program code are displayed in the PLC.

The values above will be read in the PLC and displayed after each PLC-cycle. This will happen until you stop the mode Status Block by calling the command *Status blocks stop*

3.5.11 Stop status block

See also:

Start status block
Commands in menu PLC-Functions

This command stops displaying the status of the actual block window. After this command, the status information will not be read and displayed any longer.

3.5.12 ISTACK

See also:

Commands in the menu PLC-Functions

This command displays the Interrupt Stack in your PLC.
The Interrupt Stack contains data which contain some information of the reason why the PLC has stopped the program. You get further explication of the specifications by clicking the *Help*-button in the dialog ISTACK

3.5.12.1 Istack (PLC 95U/100U/115U)

This dialog displays the Interrupt-Stack in your PLC. The Interrupt-Stack contains the information of the cause of interrupt and why the program has been stopped. The following information is saved in this stack:

Symbol operand	signification
OP-REG	operation register
BLK-STP	block stack-pointer
SAC	STEP-address counter
PB-NO	program block number
REL-SAC	relative block address counter
DB-ADR	data block address
DB-NR	data block number
ACCU1	content accu1
ACCU2	content accu2

Section condition code

Symbol operand	signification
CC1	coded condition code 1
CC0	coded condition code 0
OVFL	arithmetic overflow
CARRY	carry over of the two bytes in the arithmetic unit
OR	And before Or
/ERAB	last instruction is the first command of a binary condition
STATUS	logic mode of the bit operation
RLO	result of logic operation

Section cause of interrupt

Symbol operand	signification
STOPS	operation flag is on STOP
SUF	error in substitution: - call of function block with false actual parameters
TRAF	transfer error: - data block operation with data word number > data block length - data block operation without opened DB - DB to create is to long for user's memory
NNN	not able to decode operation or parameter overflow
STS	software stop by operation (STP): - STOP request of the PG - STOP request of the SINEC L1 master
STUEB	block stack overflow: - maximal block call interlacing exceeded - a alarm- or timer controlled program interrupts the cyclic program during the processing of an integrated function block and a integrated function block is also called in the interrupting alarm- or

	timer controlled program.
NAU	power failure
QVZ	acknowledgment signal delay of the periphery: - a non-addressed byte of the periphery used by the program - a periphery block does not acknowledge
ZYK	cycles time-out: - the program process time is greater than the defined monitoring time
PEU	periphery error: - power failure in periphery-extended module - no connection to the extended module - termination plug of the bus at the central module is missing.
BAU	battery is missing or discharged and remanence desired
ASPFA	module characteristic is not admitted
FEST	error in the self test routine of the CPU
KOLIF	DB1 false programmed
SYSFE	error in SYSID-block

Section Controller bits

Symbol operand	**signification**
NB	not connected
PBSSCH	not used
BSTSCH	block shifting requested
SCHTAE	block shifting active (function compress PLC)
ADRBAU	address list design
SPABBR	function compressing is interrupted
NAUAS	power failure in the central module
QUIT	not used
REMAN	0 = all timers, counters and flags deleted; 1 = only the second half of timers, counters and flags deleted
STOZUS	Stop mode (extern request)
STOANZ	STOP-display
NEUSTA	PLC in restart
BATPUF	battery buffer OK
BARB	processing control
BARBEND	processing control END-request
UAFEHL	false interrupt display
MAFEHL	item in machine error word exists
EOVH	Input byte for alarm handling exists
AF	alarm enable
ASPNEP	memory module is EPROM
ASPNRA	memory module is RAM
KOPFNI	unable to interpret block head
PROEND	shifting stopped before using PROM
ASPNEEP	memory module is EEPROM
PADRFE	address error in user’s PROM memory
ASPLUE	user’s memory is addressed incompletely
RAMADFE	address error in user’s RAM memory
KEINAS	no memory module present

SYNFEH	alignment error (blocks are out of order)
NINEU	restart not possible
SUMF	sum error in user and system memory
URLAD	factory start necessary

3.5.12.2 Istack (PLC 135U/155U)

This dialog displays the Interrupt-Stack in your PLC. The Interrupt-Stack contains the information of the cause of interrupt and why the program has been stopped. The following information is saved in this stack:

Symbol operand **signification**

TIEFE Step of the information of the ISTACK content in case of error steps
TIEFE 01 = last cause of error,
TIEFE 02 = before last cause of error
....
TIEFE 13 = ... (maximal depth)

BEF-REG instruction register: It contains the first word of the machine code of the last executed instruction of the interrupted program step.

BST-STP block stack-pointer: It contains the number of the elements in the BSTACK at the moment of the interrupted program step.

EBENE Z shows the step of the program execution, that has been interrupted

Z:
- 0002: RESTART
- 0004: CYCLES
- 0006: ALARM 5 s (OB 18)
- 0008: ALARM 2 s (OB 17)
- 000A: ALARM 5 s (OB 16)
- 000C: ALARM 5 s (OB 15)
- 000E: ALARM 5 s (OB 14)
- 0010: ALARM 5 s (OB 13)
- 0012: ALARM 5 s (OB 12)
- 0014: ALARM 5 s (OB 11)
- 0016: ALARM 5 s (OB 10)
- 0018: TIME ORDER
- 001A: not used
- 001C: CONTROLLER ALARM
- 001E: not used
- 0020: DELAY ALARM
- 0022: not used
- 0024: PROCESSING ALARM
- 0026: not used
- 0028: MANUAL RESTART WITH MEMORY
- 002A: AUTOMATIC RESTART WITH MEMORY
- 002C: passage into the stop mode; STOP in multi-processor-mode stop switch or PG-STOP
- 002E: interface error
- 0030: alarm error
- 0032: controller error
- 0034: cycles error
- 0036: not used
- 0038: instruction code error
- 003A: delay error
- 003C: address error
- 003E: acknowledge delay
- 0040: not used
- 0042: not used
- 0044: MANUAL RESTART
- 0046: AUTOMATIC RESTART

SAZ	STEP-address counter: In contains the **absolute** address of the last instruction in the interrupted program step. In the case of an error the SAZ shows exactly on the bad instruction
.....-NR	block type and number of the last used block
REL-SAZ	relative STEP-address counter: It contains the **relative** address (relative to the first address of the block) of the last instruction in the last used block.
UAMK	interrupt display word: The UAMK contains all occurred and not yet finished instruction causes.
UALW	interrupt display clear word
DB-ADR	absolute begin address of the last used data-block (= 0000, if no data-block has been used)
DB-NR	number of the last used data-blocks
DBL-REG	length of the last used data block
BA-ADR	absolute address of the next instruction to execute in the last called block
.....-NR	block type and -number of the last called block
ACCU1 to ACCU4	content of the accus at the moment of the interrupt. In the case of some special errors, the system program saves an error code into ACCU1 and ACCU2, which declare the interrupt reasons.
PARENTHESES	number of step "KE***x a b c***" with x = 1 to 7 steps a = OR b = VKE (see result displays) c = 1: 'U(' c = 0: 'O('

Section result display

Symbol operand	**signification**
CC1	coded condition bit 1
CC0	coded condition bit 0
OVFL	arithmetic overflow (number out of range)
OVFLS	arithmetic overflow while saving (during some arithmetic operations an overflow has occurred)
OR	And before Or-logical element
STATUS	logic mode of the bit operation
RLO	result of logic operation (result flag)
/ERAB	last instruction is the first command of a binary condition
STATUS	logic mode of the bit operation

Section cause of malfunction

Symbol operand	**signification**
S-6	interface error

see the other variables in the section ***controller-bits***

Section controller -bits

Line >>STP<< controller bits:

Symbol operand	signification
>>STP<<	CPU is the STOP-mode
STP-6	not used
PEU	periphery error: - power failure in periphery-extended module - no connection to the extended module - termination plug of the bus at the central module is missing.
BAU	battery is missing or discharged and remanence desired
ASPFA	module characteristic is not admitted
FEST	error in the self test routine of the CPU
KOLIF	DB1 false programmed
SYSFE	error in SYSID-block
FE-STP	error-stop: stop mode caused by NAU (Power failure), PEU (periphery error), BAU (battery is missing), STUEB (BSTACK-overflow), STUEU (ISTACK-overflow), DOPP (double error) or CPU-error
BARBEND	treatment control end: stop mode after on-line-function PROCESSING CONTROL END (new start necessary). Is not set if the function PROCESSING CONTROL END is called during the CPU is in the Stop mode.
PG-STP	stop by programmer
STP-SCH	switch on STOP mode
STP-BEF	stop-instruction: - stop mode after processing the STEP-5-operation 'STP' - stop mode after stop instruction of the system program, if error -handle block contains no program
MP-STP	multiprocessor-STOP: - button in KOR in position STOP - STOP of a different CPU in multiprocessor mode

Line >>ANL<< Control bits

Symbol operand	**signification**
>>ANL<<	CPU is in mode START
ANL-6 + M W A	MANUAL RESTART WITH MEMORY
ANL-6 + A W A	AUTOMATIC RESTART WITH MEMORY
NEUSTA	MANUAL FACTORY START is requested (STOP) or has been done start (START/RUN)
M W A	MANUAL RESTART is requested (STOP) or has been done Start (START/RUN)
M W A + A W A	AUTOMATIC FACTORY START is requested (STOP) or has been done AUTOMATIC NEW START executed (START/RUN)
ANL-2	double function: - is set after the call of PROCESSING CONTROL END - is set after the call of PROCESSING CONTROL END (in contrast to BARBEND in the first line of the mask it is also set if the PROCESSING CONTROL END is set in Stop Mode; it prevents RESTART) is set after 'Compress in Stop Mode'; prevents Restart.
NEUZU	NEW START is admissible (Stop) or during the last start NEW START **was** admissible (START/RUN)
MWA-ZUL	MANUAL RESTART is admissible (STOP) or during the last start MANUAL RESTART **was** admissible (START/RUN)

Line >>RUN<< Controller bits

Symbol operand	**signification**
>>RUN<<	CPU is the RUN mode (cycle program processing active)
RUN-6	not used
EINPROZ	one processor mode
BARB	On-line-function EDIT CONTROL is active
OB1GEL	Organization block OB 1 is loaded in user memory The cycle program processing is controlled by OB1
FB0GEL	Function block FB 0 is loaded in the user memory. The cycle program processing is controlled by FB 0 if OB 1 is not loaded. If FB 0 and OB 1 are loaded, OB 1 controls the cycle program processing.
OBPROZA	Process alarm processing possible (OB 2 is loaded)
OBWECKA	100 ms alarm processing possible (OB 3 is loaded)

Line 4 and 5

Symbol operand	signification
32KWRAM	User memory module RAM with 32K words
16KWRAM	User memory module RAM with 16K words
8KWRAM	User memory module RAM with 8K words
EPROM	User memory module is a EPROM
KM-AUS	Address list for connection flag outputs in DB 1 available
KM-EIN	Address list for connection flag outputs in DB 1 available
DIG-EIN	Address list for digital inputs available
DIG-AUS	Address list for digital outputs available
URGELOE	CPU completely deleted (RESTART necessary)
URL-IA	deleting CPU completely
STP-VER	CPU has caused stop mode of the central unit
ANL-ABB	START has been interrupted (RESTART necessary)
UA-PG	PG has demanded deleting completely
UA-SYS	System program has demanded deleting completely (no START possible); Completely deleting has to be done
UA-PRFE	Demand to delete completely caused by CPU-error
UA-SCH	Predemand to delete completely to cause by switch or choice of start mode if completely deleting is not wanted

Lines 6 to 8; these flag bits mark errors, that are possible in the modes START and RUN

Symbol operand	signification
DX0-FE	Parameter error in DX 0 or DX 2
FE-22	not used
MOD-FE	Content of the user memory module is incorrect (completely deleting necessary)
RAM-FE	Content of the system program-RAM or the DB-RAM is incorrect (completely deleting necessary)
DB0-FE	Structure of the block address lists in DB 0 is incorrect
DB1-FE	Structure of the block address lists in DB 1 for process-actualizing is incorrect: DB 1 of plugged coordinator or multi processor mode not programmed or incorrect
DB2-FE	Error of the parameters-in DB 2 of the regulator structure R64
KOR-FE	Error occurred during data exchange with the coordinator
NAU	Power failure in the central unit
PEU	Periphery error = power failure in the extended unit
BAU	Battery failure = power failure of the buffer battery in central unit
STUE-FE	ISTACK or BSTACK overflow (to many recursive calls; NEW START necessary)
ZYK	cycles observing time over
QVZ	acknowledge delay during data exchange with periphery
ADF	Address error for inputs or outputs; access on the process model of periphery groups, that do not exist or are out of order or are not declared in DB 1
WECK-FE	Alarm error: Before and during the processing of a special alarm-OB a different alarm for this OB has been occurred.
BCF	Instruction code error (STEP-5-instruction not possible to interpret)
FE-6	not used
FE-5	Hint of a difficult system error, more information in BS 80

FE-4	Power-down-error: Treatment of the occurred power failure (NAU) by the system-program has been done incorrectly. RUN not possible
FE-3	Interface error (SSF)
LZF	Run time error: - called block is not loaded - load/transfer error in data blocks - any other run time error
REG-FE	Error during processing the regulator structure R64 in CYCLES
DOPP-FE	Double error: An active error handle level has been activated twice (ADF, BCF, LZF, QVZ, REG, ZYK). NEW START necessary

3.5.12.3 Istack (PLC 135 PLC)

This dialog displays the Interrupt-Stack in your PLC. The Interrupt-Stack contains the information of the cause of an interrupt and why the program has been stopped. The following information is saved in this stack:

Symbol operand	**signification**
TIEFE	Step of the information of the ISTACK-content in case of recursive error handle calls TIEFE 01 = last cause of error, TIEFE 02 = before last cause of error .... TIEFE 13 = ... (maximal depth)
BEF-REG	Instruction register: It contains the first word of the machine code of the last executed instruction of the interrupted program step
BST-STP	Block stack-pointer: It contains the number of the elements in the BSTACK at the moment of the interrupted program step
VEK-ADR	Show the vector address of the extern memory.
SAZ	STEP-address counter: It contains the **absolute** address of the last instruction in the interrupted program step. In the case of an error the SAZ shows exactly on the bad instruction.
.....-NR	Block type and number of the last used block
REL-SAZ	Relative STEP-address counter: It contains the **relative** address (relative to the first address of the block) of the last instruction in the last used block.
UAMK	Interrupt display word: The UAMK contains all occurred and not yet finished instruction causes.
UALW	Interrupt display clear word
DB-ADR	Absolute begin address of the last used data-block (= 0000, if no data-block has been used)
DB-NR	Number of the last used data-blocks
DBL-REG	Length of the last used data block
BA-ADR	Absolute address of the next instruction to execute in the **last** called block
.....-NR	Block type and number of the last called block
ACCU1 to ACCU4	Content of the accus at the moment of the interrupt. In the case of some special errors, the system program saves an error code into ACCU1 and ACCU2, which declare the interrupt reasons.
KLAMMERN	Number of steps "KE***x a b c***" with x = 1 to 7 step a = OR b = VKE (see result displays)

c = 1: 'U('
c = 0: 'O('

Section result displays

Symbol operand	**signification**
CC1	Coded condition bit 1
CC0	Coded condition bit 0
OVFL	Arithmetic overflow (number out of range)
OVFLS	Arithmetic overflow while saving (during some arithmetic operations an overflow has occurred)
OR	And before Or-logical element
STATUS	Logic mode of the bit operation
VKE	result of logic operation (result flag)
/ERAB	last instruction is the first command of a binary condition

Section cause of malfunction

Symbol operand	**signification**
STOPS	Main switch on STOP
STUEB	ISTACK or BSTACK overflown (step depth is to high)
NAU	Power failure in the central unit
QVZ	Acknowledge delay of the data exchange with the periphery
ZYK	Cycles observing time exceeded
BAU	Battery error = power failure of the buffer battery in the central unit
SUF	Substitution error: - call of function block with false actual parameter
TRAF	Transfer error: - programmed data block instruction with dataword number > data block length. - programmed data block instruction without opening DB before - DB to create is to long for the user memory
ADF	Address error in inputs and outputs; access to the process copy of periphery blocks, which do not exist or are out of order or not defined in DB 1

the other abbreviation see in section ***controller bits***

Section controller bits

Lines 1 and 2

Symbol operand	signification
ADRBAU	Address lists created successfully
BSTSCH	Block shifting demanded
SCHTAE	Block shifting active (COMPRESS)
ADRBAU	Address lists created successfully
SPABBR	Function "COMPRESS CONTENT OF MEMORY" canceled
NAUAS	Power failure in the central unit
NNN	Not able to interpret instruction in this PLC
PERUNCL	Periphery error

Lines 3 and 4

Symbol operand	signification
STOZUS	Stop mode (extern demand)
STOANZ	Stop display (intern demand)
NEUSTA	New start of the PLC
WIEDAN	PLC returns to cycled mode after restart
BATPUF	Buffer battery for RAM-memory works good
BARB	Processing control active
BARBEND	Stop mode after processing control (New start necessary)
KEINPS	User program module is empty of not connected
UAFEHL	Interruptions display error
MAFEHL	Item in machine error word exists
EOVH	Input byte(s) for alarm handling exist(s)
OBWIED	User OB21 not handled or not finished yet

Lines 5 and 6

Symbol operand	signification
KOPFNI	Block not known during creating address list
WECKFE	Alarm, during alarm-handling is still active
PADRFE	Address error in user PROM-memory
ASPLUE	User memory is addressed incomplete
RAMADFE	Address error in user RAM-memory
EAADFE	Address error in periphery
SYNFEH	Synchronization error or code false
NINEU	New start is not possible
NIWIED	Restart is not possible (New start necessary)
RUFBST	Call of a not existing block
QVZNIN	Reason of acknowledge delay unknown
SUMF	Sum error in user program memory or system program memory
URLAD	User program-factory loading necessary

Lines 7 and 8

Symbol operand	signification
STS	Reason of the Stop STS-instruction
STP	Reason of the Stop STP-instruction
TBWFEH	Incomplete use of the TBW-instruction (user program)
LIRTIR	Incomplete use of the LIR/TIR instructions (user program)

3.5.12.4 Istack (PLC 150 A)

This dialog displays the Interrupt-Stack in your PLC. The Interrupt-Stack contains the information of the cause of interrupt and why the program has been stopped. The following information is saved in this stack:

Symbol operand	signification
BEF-REG	instruction register
BST-STP	block stack-Pointer
SAZ	STEP-address counter
...-NR	type and number of the last handled block
REL-SAZ	relative block address counter
DB-ADR	data block address
DB-NR	data block number
ACCU1	accu1-content
ACCU2	accu2-content

Section result display

Symbol operand	signification
CC1	coded condition bit 1
CC0	coded condition bit 0
OVFL	arithmetic overflow (number out of range)
CARRY	overflow between the both bytes of the arithmetic unit
ODER	And before Or-logic element
/ERAB	last instruction is the first command of a binary condition
STATUS	logic mode of the bit operation
VKE	result of logic operation

Section cause of interrupt

Symbol operand	signification
STOPS	main switch in position STOP
STUEB	block stack overflow: - the maximal number of block call steps has been exceeded - a alarm- or time controlled program interrupts the cycles program during handling an integrated function block and a integrated function block is also called in the interrupting alarm or time controlled program.
NAU	power failure
QVZ	acknowledge delay of the periphery: - a not addressed periphery byte has been called - a periphery block does not acknowledge
ZYK	cycles time exceeded: - the program processing time exceeds the observing time
BAU	battery not inserted or discharged and remanence expected
SUF	substitution error: - function block call with false actual parameter
STUEU	interrupt stack overflow
ADF	address error in the user program (I or O)
TI	stop mode during handling the started timers
TF	test field is connected and released

Section control bits

Symbol operand	signification
NB	not connected
ENDSCH	shift block to the end
PBSSCH	not used
BSTSCH	block shifting demanded
SCHTAE	block shifting active (COMPRESS)
ADRBAU	address lists created successfully
SPABBR	function "COMPRESS CONTENT OF MEMORY " canceled
NAUAS	power failure in the central unit
QUITT	not used
NSTPAN	new start after factory deleting has been executed
STOZUS	Stop mode (external demand)
STOANZ	Stop mode (internal demand)
NEUSTA	new start of the PLC
WIEDAN	PLC return to cycles mode after restart
BATPUF	buffer battery for RAM-memory works good
DATEIN	content of the date and time registers not admissible for alarm
BARB	processing control active
BARBEND	stop mode after processing control (restart necessary)
UAFEHL	interrupt display error
MAFEHL	item in machine error word exists
EOVH	input-byte(s) for alarm handling available
WANAU	restart after power failure
ABFS	alarm handling is released

OBWIED	user OB21 is in use or not already finished
OBNAU	user OB22 is in use or not already finished
TESBST	block test not in order
QVZNIO	error during QVZ - test
KOPFNI	block not known during creating address lists
PROEND	shifting finished before using PROM
WECKFE	alarm, during alarm-handling is still active
PADRFE	address error in user PROM-memory
ASPLUE	user memory is addressed incorrect
RAMADFE	address error in user RAM-memory
KEINAS	no user memory found
SYNFEH	synchronization error or false code
NINEU	new start not possible
NIWIED	restart not possible (new start necessary)
RUFBST	call of a not existing block
QVZNIN	reason of acknowledge delay not possible to interpret
SUMF	sum error in user program memory or system program memory
URLAD	user program factory loading necessary

3.5.12.5 Istack (PLC 155U)

This dialog displays the Interrupt-Stack in your PLC. The Interrupt-Stack contains the information of the cause of interrupt and why the program has been stopped. The following information is saved in this stack:

Symbol operand	**signification**
TIEFE	Step of the information of the ISTACK-content in case of recursive error calls TIEFE 01 = last cause of error, TIEFE 02 = before last cause of error .... TIEFE 13 = ... (maximal depth)
BEF-REG	Instruction register: It contains the first word of the machine code of the last executed instruction of the interrupted program step.
BST-STP	Block stack-pointer: It contains the number of the elements in the BSTACK at the moment of the interrupted program step.
KACHELNR	number of the selected usage-bit
SAZ (new)	STEP-address counter: It contains the **absolute** address of the next instruction of a interrupted program processing step. In case of an error the SAZ shows exactly the causing instruction.
SAZ (old)	STEP-address counter: It contains the **absolute** address of the last instruction of a interrupted program processing step. In case of an error the SAZ shows exactly the causing instruction.
.....-NR	Type and number of the last handled block
REL-SAZ	Relative STEP-address counter: It contains the **relative** address (relative to the block begin address) of the next instruction in the last handled block.
UAMK	Interrupt display mask word: The UAMK record all occurred interrupt reasons that are not already finished
UALW	Interrupt display -clear word
DB-ADR	Absolute begin address of the last opened data block (= 0000, if no data block was opened)
DB-NR	Number of the last opened data blocks

DBL-REG	Length of the last opened data blocks
BA-ADR	Absolute address of the next instruction to execute in the **last** called block
.....-NR	Type and number of the last called block
ACCU1 to ACCU4	Content of the accus at the moment of interrupt. In special error cases a error code is recorded in ACCU1 and ACCU2 that declare the cause of interrupt.
PARENTHESES	Number of parentheses

"KE***x a b c***" with
x = 1 to 7 step
a = OR
b = VKE (see result display)
c = 1: 'U('
c = 0: 'O('

Section result display

Symbol operand	**signification**
CC1	Coded condition bit 1
CC0	Coded condition bit 0
OVFL	Arithmetic overflow (number out of range)
OVFLS	Arithmetic overflow while saving (during some arithmetic operations an overflow has occurred)
OR	And before Or-logical element
STATUS	Logic mode of the bit operation
RLO	result of the logic operation (result flag)
/ERAB	last instruction is the first command of a binary condition

Section cause of malfunction

Symbol operand	**signification**
KB	Call of not existing block
KDB	Opening a not existing data block
TRAF	Transfer error during data block instruction
SUF	Substitution error
STUEB	Block stack overflow (step depth to high)
STUEU	Interrupt stack overflow
NAU	Power failure in the central unit
QVZ	Acknowledge delay
ADF	Address error in user program (I or O)
PARE	Parity error
ZYK	Cycles time exceeded
STOP	Main switch in position STOP
STS	Cause of Stop is STS-instruction
WEFEH	Alarm error hardware - alarm-basic clock masked for too long time
PEU	Periphery error (extension unit not in order)
HALT	Cause of Stop HALT-Signal

Section Controller bits

system description:

Symbol operand	**signification**
EOVH	Input-byte (s) for alarm handling exist
GEP	PLC buffered
BATT	Battery voltage failure
EINP	Single processor mode
MEHRP	Multi processor mode

SYNCR	Start synchronization in multi processor mode
TEST	Mode T E S T in multi processor mode
150U	150U Mode
155U	155U Mode

Reasons of Stop:

Symbol operand	**signification**
PGSTP	Stopped by programming unit
HALT	Stopped by HALT-Signal
STP	Stopped by STP-instruction
STS	Stopped by STS-instruction
STOPS	Main switch in the position STOP
BEARBE	Processing control end
UPROG	Interrupt programming error - new start necessary
USYS	Interrupt system - restart admissible
UANL	Inadmissible type of start
AFEL	Error during start
SYSFHL	System error message; if set, a system error message will be displayed

Start identifiers:

Symbol operand	**signification**
NEUDF	New start executed
WIEDF	Restart executed
URLDF	Factory deleting executed
NEUZU	New start as next start admissible
WIEZU	Restart admissible
URLER	Factory deleting necessary
AWEG	Automatic restart is set (DX0)
ANEG	Automatic new start is set
MSEG	Manual start is set

Error identifiers:

Symbol operand	**signification**
QVZIN	QVZ in Initialization
PARIN	Parity in Initialization
BSTKF	Block identifier false, block No. too big, false type
BSTEF	Block search identifier is false (e.g. <>7070/<>FFFF)
BGRUN	Memory installation different (no restart possible)
MODUN	Memory installation different no restart possible)
SEPRF	System EPROM error
SRAMF	System RAM error
UAFEHL	Interrupt display error
KDB1	DB1 is missing in multi processor mode
KDX0	DX0 is missing in multi processor mode
FDB1	Error in DB1
FDX0	Error in DX0
FMODE	False PLC-Mode (multi processor mode necessary 155U Mode)
FEDBX	Error in EDB/EDX-instruction
QVZNIO	Error in QVZ-test
WEFES	Alarm error software error of the alarm handling
DB0UN	DB0 different (no restart possible)

3.5.13 BSTACK

See also:

Commands in the menu PLC-Functions

This command displays the BSTACK in your PLC. The BSTACK contains the list of addresses and return addresses which have been saved on the BSTACK in the order of their call. You get further explication of the specifications by clicking the *Help*-button in the dialog BSTACK

This dialog displays the B-Stack in your PLC. The B-Stack contains all block and return addresses in the order of their call. The top of the list is the actual block.

Example:

The block FB10 has been called by the block PB20, which has been called by the block OB1. While calling the BSTACK-command the program process is actually in the block FB10. Then the order of the blocks in the Bstack is the following:

FB10
PB20
OB1

Here a short introduction of the information listed in the Bstack:

Symbol operand	**signification**
Block number.	number of the block e.g. PB20.
Block address	absolute address of the block in the PLC's memory
Return address	absolute return address to the calling block.
Rel. add.	relative return address to the calling block
DB No.	number of the actual valid data block e.g. DB12.
DB Addr.	absolute address of the actual valid data block.

3.6 Commands in the menu *View*

Toolbar
Status bar
Standard
Zoom
Palette
STL
CSF(S5) / FBD(S7)
LAD
Segment comment

The menu *View* contains the additional submenu *Blocktype* in the block list, where you can choose the blocktypes to display like in the toolbar.

DB
DX
FB
FX
OB
PB
SB
Comment blocks
Preheader blocks

3.6.1 Toolbar

See also:

Status bar
Commands in the menu View

You call this command for changing between "Toolbar visible" and "Toolbar invisible".
If this option is on then the command is marked in the menu and the toolbar is visible.
The toolbox contains the buttons for file-, editor-, PLC- and help functions.

You get further information of the toolbar buttons by using the context-sensitive help

3.6.2 Status bar

See also:

Toolbar
Commands in the menu View

You call this command for changing between "visible status bar" and "invisible status bar".
If this option is on then the command is marked in the menu and the status bar is visible.
The status bar contains the following information:

- Version identification; the general version number is displayed by the command *Help/About PG-2000*; the version sub-number is displayed in the status line before the license number.
- License number and name, statements of the licensee
- Date/time display respectively status display
- Display if CAPS LOCK is pressed
- Display if NUM LOCK is pressed
- Display if insert mode ("INS") or overwrite mode ("OVR") is active.
- Display of line and column
- Display of the actual block number
- Display of the actual segment number
- Display of the size of the actual block

3.6.3 Zoom

See also:

Standard view
Commands in the menu View

Select this command for displaying a part of your block in the CSF(S5)- / FBD(S7)- or LAD - editor. You move inside this window by using the scroll-bar in the editor window.
You have got the possibility to choose the size of the elements yourself.

- 100 % - Original size
- 75 % - 75 % of the original size
- 50 % - 50 % of the original size
- 25 % - 25 % of the original size

- *User defined:* You enter any value (in %) in the following dialog which means the zoom factor referred to the original size. Values above 100% are also valid.

The choice you made is saved automatically and will be active for the next editor window you open.
If the mode "Zoom" is active, the point of the menu is marked.

3.6.4 Palette

See also:

Commands in the menu View

Use this command for changing between "Palette visible and "Palette invisible" (The palette serves you the corresponding elements like "AND" etc. as buttons.).
If the palette is visible, the option is on and the command is marked in the menu.

3.6.5 Segment comment

See also:

Commands in the menu View

Select this command for changing between "Segment comment visible" and "Segment comment invisible". If this option is on, the command is marked in the menu.

In the same way you can click the control panel in the toolbar:

3.6.6 Statement List Programming (STL)

See also:

CSF(S5) / FBD(S7)
Ladder Logic Programming
Commands in the menu View

You define Statement List Programming (STL) as default editor by using this command. If you want to edit a block and you call the command Edit in the menu *block* of the block list, the STL will be started by default.
If the default editor STL is active, the option is on and the command is marked in the menu.

In the same way you can click the control panel in the toolbar:

3.6.7 CSF(S5) / FBD(S7)

See also:

STL
LAD
Commands in the menu View

You define CSF(S5) / FBD(S7) as default editor by using this command. If you want to edit a block and you call the command Edit in the menu *block* of the block list, the CSF(S5) / FBD(S7) will be started by default. If the default editor CSF(S5) / FBD(S7) is active, the option is on and the command is marked in the menu.

In the same way you can click the control panel in the toolbar:

3.6.8 Ladder Logic Programming (LAD)

See also:

Statement list programming
CSF(S5) / FBD(S7)
Commands in the menu View

You define PLC as default editor by using this command. If you want to edit a block and you call the command Edit in the menu *block* of the block list, the PLC will be started by default. If the default editor PLC is active, the option is on and the command is marked in the menu.

In the same way you can click the control panel in the toolbar:

3.7 Commands in the menu STL- / DOC- / Symbolic-Editor *Search*

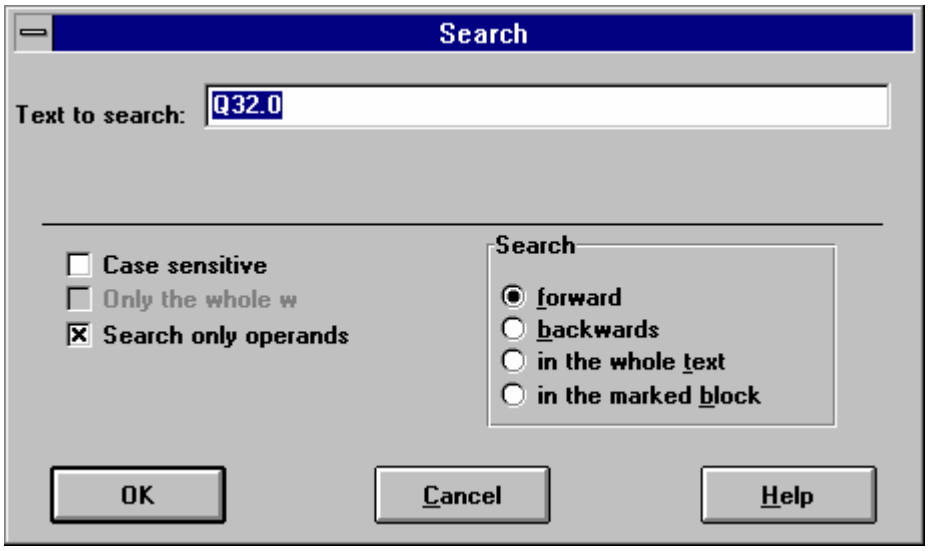
Search
Search
Search/Replace again
Search double absolute-operands
Search double symbols-operands
Goto segment
Goto address
Goto block begin
Goto block end
Goto the next segment
Goto the segment before
Goto block begin
Goto block end

3.7.1 Search

See also:

Replace
Search/Replace again

Call this command for searching a special string in the STL, DOC- or Symbols-Editor. You enter the string to search and some options in the following dialog. You get further information by clicking the *Help*-button. If this string has been found, the cursor will be on the corresponding line, if not, a message will be displayed. You may enter **Ctrl-L** for searching again or you call the command *search/replace* in the menu *Search* for repeating the search.



You have to enter the following option for searching a string in a text editor:

Text to search - Enter here the string to search for.

Case sensitive - Click this option for case sensitive searching.

Only the whole word - Click this option for searching for whole words only

Search only operands - Click this option if you want to read in the operand section only

Search - Click here the direction where to search. The are the following possibilities: *forwards, backwards, in the whole text, in the marked block only*

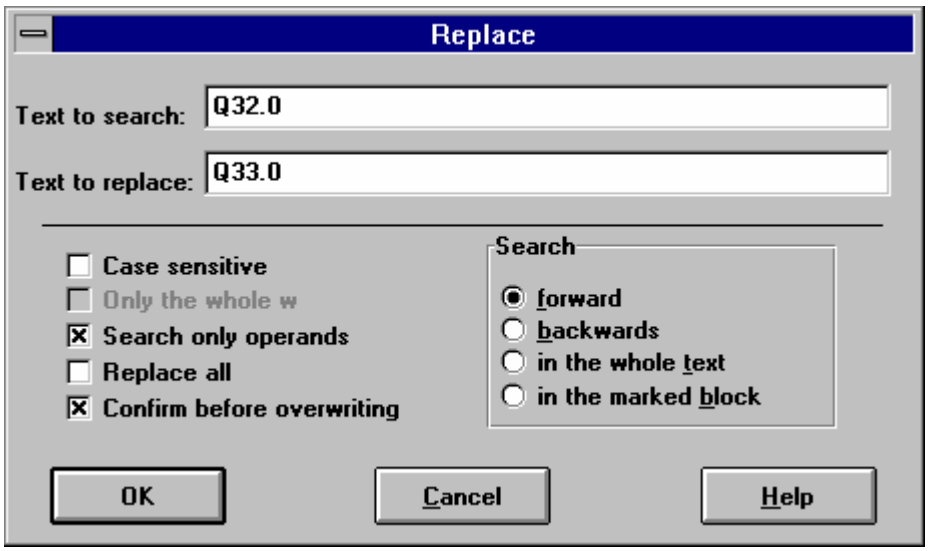
You start the search by confirming with *OK*. Press *Cancel* for to exit without searching.

3.7.2 Replace

See also:

Search
Search/Replace again

Call this command for searching a special string and replacing it by a different string in the STL, DOC- or Symbols-Editor. You enter the string to search, the string to replace and some options in the following dialog. You get further information by clicking the *Help*-button. If this string has been found, the cursor will be on the corresponding line and the string will be replaced, if not, a message will be displayed. You may enter **Ctrl-L** for searching again or you call the command *search/replace* in the menu *Search* for repeating the search.



You have to enter the following option for searching a string in a text editor:

Text to search - Enter here the string to search for.

Text to replace - Enter here the string to replace the searched string..

Case sensitive - Click this option for case sensitive searching.

Only the whole word - Click this option for searching for whole words only

Search only operands - Click this option if you want to read in the operand section only

Replace all - Click this option if you are sure that you want replace all the strings. The position will not be displayed and you cannot confirm or cancel the action of replacing.

Confirm before overwriting - Click this option if you want to be ask before replacing a string in the text. The position will not be displayed and you must confirm or cancel the action of replacing.

Search - Click here the direction where to search. The are the following possibilities: *forwards, backwards, in the whole text, in the marked block only*

You start the search by confirming with *OK*. Press *Cancel* for to exit without searching.

3.7.3 Search/Repeat again

See also:

Search
Replace

Call this command for repeating the search you started last. You may also employ the hot-key **Ctrl-L**.

3.7.4 Search double absolute-operands

See also:

Search double symbols -operands

This command is offered to you by the symbols-editor for finding the absolute operands that are used more than one time. The cursor moves onto the list with the first of the operand that is used more than one time. You correct this and call this function again. You repeat this until there is not any operand used more than one time any more.

Example:

The actual content of symbols-editor is the following:

EW 2.1 DOOR
EW 3.4 PUMP
EW 2.1 DOOR1CHECK

The cursor is in the last line on EW 2.1 after calling this command. This absolute operand has been used inadmissible twice with the same symbols name.

3.7.5 Search double symbols-operand

See also:

Search double absolute-operand

This command is offered to you by the symbols-editor for finding the absolute operands that are used more than one time. The cursor moves onto the list with the first of the operand that is used more than one time. You correct this and call this function again. You repeat this until there is not any operand used more than one time any more.

The actual content of symbols-editor is the following:

EW 2.1 DOOR
EW 3.4 PUMP
EW 2.1 DOOR1CHECK

The cursor is in the last line on EW 2.1 after calling this command. This absolute operand has been used inadmissible twice with the same symbols name.

3.7.6 View first

See also:

Search double absolute-operands
Search double symbols-operands

You can change among the operands you have found by calling the command *Search double absolute operands* respectively *Search double symbols operands*

3.7.7 Goto segment

See also:

Address
Goto next segment
Goto segment before
Commands in the Menu *Goto*

This command sets the cursor to the begin of a special segment. When you call this command a dialog appears, in which you can enter the segment's number. You confirm by pressing *OK*. Then the cursor is on the first instruction of the segment that you have selected.

3.7.8 Goto address

See also:

Segment
Goto next Segment
Goto segment before
Commands in the Menu *Goto*

This command sets the cursor onto the begin of a STL-instruction. When you call this command a dialog appears, in which you can enter the address of the instruction that you want. This address is exactly that address, that you get by calling the menu Options/Output address. Then the cursor is on the first instruction of the segment that you have selected. You confirm by pressing *OK*. The cursor is set this address by this command.

3.7.9 Goto block begin

See also:

Block end
Block begin
Block
Commands in the menu Goto

This command sets the cursor to the begin of a black the bee defined by you.
You define a block by using the commands Block begin, Block end in the menu *Edit->*.

3.7.10 Goto block end

See also:

Block begin
Block begin
Block end
Commands in the Menu GOTO

This command sets the cursor to the end of a defined block. You define a block by using the commands Block begin, Block end in the menu *Edit->*.

3.7.11 Goto the next segment

See also:

Segment
Address
Segment before
Commands in the Menu Goto

This command sets the cursor to the begin of the next segment. The next segment is the segment after the actual.

3.7.12 Goto the segment before

See also:

Segment
Address
next segment
Commands in the menu *Goto*

This command sets the cursor to the begin of the segment before. The segment before is the segment before the actual.

3.7.13 Insert segment

See also:

Segment
Next segment
Segment before

This command inserts a new, empty segment at the cursor's actual position.

3.7.14 Delete segment

See also:

Segment
Next Segment
Segment before

This command deletes the segment at the cursor's actual position.

3.7.15 Goto begin block

See also:

Block begin
Block end
Block end
Commands in the Menu *Goto*

This command sets the cursor to the begin of the block that process now.

3.7.16 Goto block end

See also:

Block begin
Block end
Block begin
Commands in the menu *Goto*

This command sets the cursor to the end of the block that process now.

3.8 Commands in the STL/DOC/Symbols-Editor-menu *Edit*

Cut out
Copy
Paste from
Delete

Block begin
Block end
Unmark blocks

Paste line
Delete line

Paste program line
Delete program line
Paste comment line
Delete comment line

Assort to absolute operands
Assort to symbols operands

SEG <-> LINE

3.8.1 Block begin

See also:

Block end
Unmark blocks
Commands in the menu Edit

This commands marks the begin of a text block. You mark the end of the selected block by using the command Block end. The text that you defined like this is displayed in a different color. You can treat this text by calling the commands of the menu *Edit*.

3.8.2 Block end

See also:

Block begin
Unmark block
Commands in the menu Edit

This commands marks the end of a text block. You mark the begin of the selected block by using the command Block begin. The text that you defined like this is displayed in a different color. You can treat this text by calling the commands of the menu *Edit*.

3.8.3 Unmark blocks

See also:

Block begin
Block end
Commands in the menu Edit

This command unmarks the actual text block.

3.8.4 Cut out

See also:

Copy
Paste from
Commands in the menu Edit

This command cuts the marked part out of the text and copies it to the clip-board. You get this part of the text back from the clip-board for appending it in your text by calling the command
Paste from in the menu *Edit*.

In the same way you can click the control panel in the toolbar:

3.8.5 Copy

See also:

Cut out
Paste from
Commands in the menu Edit

This command copies the marked part of the text to the clip-board. The text will not be changed. You get this part of the text from the clip-board for appending it in your text by calling the command
Paste from in the menu *Edit*.

In the same way you can click the control panel in the toolbar:

3.8.6 Paste

See also:

Cut out
Copy
Commands in the menu Edit

This command appends a text from the clip-board into the actual text at the actual cursor position. You call the commands Cut out or Copy in the menu *Edit* for copying a part of a text to the clip-board.

In the same way you can click the control panel in the toolbar:

3.8.7 Delete

See also:

Cut out
Copy
Commands in the menu Edit

You call this command for deleting the marked part of the text without copying it to the clip-board. The actual content in the clip-board rests the same as before.

3.8.8 Paste line

See also:

Delete line
Commands in the menu Edit

This command appends an empty line at the cursor position.

3.8.9 Delete line

See also:

Paste line
Commands in the menu Edit

This command delete the line of the cursor position.

3.8.10 Paste program line

See also:

Delete program line
Commands in the menu Edit

This command appends an empty line at the actual line without shifting the comments.

3.8.11 Delete program line

See also:

Paste program line
Commands in the menu Edit

This command deletes the actual program line without shifting the comments. If there is a comment in the last line of the actual segment, you have to acknowledge it before.

3.8.12 Paste comment line

See also:

Delete comment line
Commands in the menu Edit

This command appends an empty line at the actual line without shifting the program text. The comments from the actual line to the end will be shifted down a line. If there is a comment in the last line of the actual segment, you have to acknowledge it before.

3.8.13 Delete comment line

See also:

Paste comment line
Commands in the menu Edit

This command deletes the comment in the actual line without shifting the program text. The comments from the actual line to the end will be shifted up a line.

3.8.14 Assort to absolute operands

See also:

Assort to symbols operands
Commands in the menu Edit

This command sorts the symbols list to absolute operands. It is available in a symbol editor only.

The assortment happens in different sections, this means each section of the symbols list will be sorted. A section means all lines between two section separators. This are pure comment lines (lines which begin with a ' ; ') and lines with an empty absolute operand.
In this way, the parts separated by comment lines are preserved in the symbols list.

3.8.15 Assort to symbols operands

See also:

Assort to absolute operands
Commands in the menu Edit

This command assorts the symbols list to symbols operands. It is available in the symbols editor only.

The assortment happens in different sections, this means each section of the symbols list will be sorted. A section means all lines between two section separators. This are pure comment lines (lines which begin with a ' ; ') and lines with an empty absolute operand.
In this way, the parts separated by comment lines are preserved in the symbols list.

3.8.16 SEG <-> LINE

See also:

Commands in the menu Edit

You can convert a segment comment into a block comment by calling this command. This command is available only if you edit a block of the types FK, FKX, OK, PK or SK. This command is not available for the first comment line of a segment, because there has to be always a segment comment in the first line of a comment block.

3.9 Commands in the Force-Variable-menu *Status*

Start cycles
Stop cycles
S values to PLC
Configuration datalogger
Datalogger

3.9.1 Start cycles

See also:

Stop cycles
Commands in the men Status

This command starts the PG-2000 cycles, which reads in the PLC the actual values of the selected variables. You select this variables in the list that you get by calling the command Force variables. This means you can display only these variables, that you have defined in the list. You cannot define more than 10 variables in the list

Important: The PLC must be in the RUN-mode when you start the cycles for watching the changing values. If the PLC is the STOP-mode, only the static value are displayed but the PLC will not be set on the RUN-mode. Use the command Start PLC in the menu PLC functions or activate the button in the tool-bar for starting the PLC.

In the same way you can click the control panel in the toolbar:

If the datalogger is on, the values will be recorded in the datalogger. The values will be recorded in a file, in a solid line recorder or in both, which depends of the configuration of the datalogger. Use the command Datalogger in the menu *Status*.

3.9.2 Stop cycles

See also:

Start cycles
Commands in the menu Status

This commands stops the PG-2000 cycles, which dates up the values of the selected variables. So the variables will not dated up any longer. This variables are selected in the variables list that you get by calling the command Force variables .

Important: If the PLC gets into the STOP-mode, this cycles will not stop automatically but the static values in the PLC will be read and displayed.

In the same way you can click the control panel in the toolbar:

3.9.3 S values to PLC

See also:

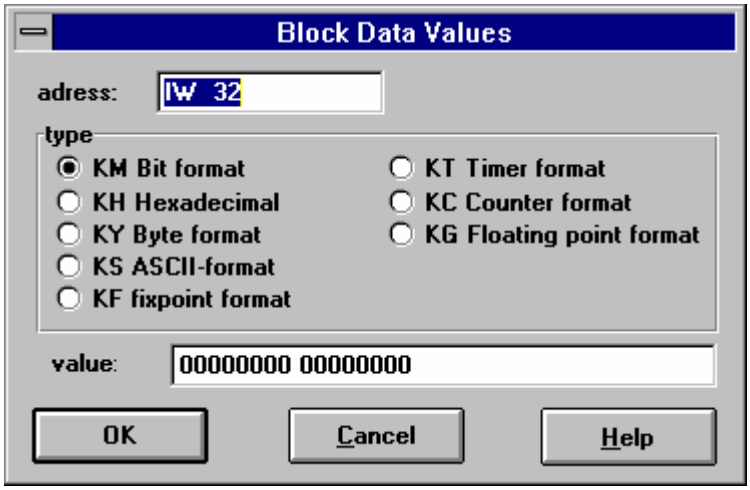
Commands in the menu Status

This command saves the values of the selected variables into the PLC. The variables have been select by calling the command Force-variables. It does not matter if the PLC is in the STOP-mode or the RUN-mode. After the transfer of these values, the cycles will be started.

In the same way you can click the control panel in the toolbar:

3.9.4 Block

In the following dialog you configure the block:



- *adress* You could input all operands, from this operand the next 20 words are inserted. When you input FW10 ther will be created 10 Lines with ”FW10”,”FW12”.”FW14” and so on.

- *type* Input the type

- *value* Inpu the value

3.10 Commands in the block list menu *Mark*

You mark some blocks ...

- by clicking on the line that you need
- by pressing the blank key in the line that you need
- by calling one of the following commands in the menu *Mark*

Mark all blocks
Unmark all blocks
Mark all comment blocks
Unmark all comment blocks
Mark all MC5-blocks
Unmark all MC5-blocks
Change group marks
Change block marks
Last mark

The marked blocks are displayed by >>
in the left column of the block list.

Please notice, that all commands in the menu *Mark* are applied to the **displayed** blocks. If you want to transfer all MC5-blocks you have to display all MC5-blocks and to mark them all for transferring them. This avoids to delete or to transfer wrong blocks by accident

By calling the command

Sum of the marked blocks
you get the number of bytes that a program needs.

3.10.1 Mark all blocks

See also:

Unmark all blocks
Commands in the menu Mark

This command marks all blocks in the block list.

The marked blocks are displayed by >>
in the left column of the block list.

3.10.2 Mark all comment blocks

See also:

Unmark all comment blocks
Commands in the menu Mark

This command marks all comment blocks in the block list.

The marked blocks are displayed by >>
in the left column of the block list.

3.10.3 Mark all MC5-blocks

See also:

Unmark all MC5-blocks
Commands in the menu Mark

This command marks all MC5-blocks (blocks with Step5 program code) in the block list.
The marked blocks are displayed by >> in the left column of the block list.

3.10.4 Unmark all blocks

See also:

Mark all blocks
Commands in the menu Mark

This command unmarks all blocks in the block list.

3.10.5 Unmark all comment blocks

See also:

Mark all comment blocks
Commands in the menu Mark

This command unmarks all comment blocks in the block list.

3.10.6 Unmark all MC5-blocks

See also:

Mark all MC5-blocks
Commands in the menu Mark

This command unmarks all MC5-blocks (blocks with Step5 program code) in the block list.

3.10.7 Change group marks

See also:

Change block mark
Commands in the menu Mark

This command changes the mark of the actual block and all blocks of the same type (function blocks for example) in the block list.

3.10.8 Change block marks

See also:

Change group marks
Commands in the menu Mark

This command changes the mark of the actual block where the cursor is.

3.10.9 Last mark

See also:

Commands in the menu Mark

This command undoes the last action of marking and recreates the marks as before.

3.10.10 Sum of the marked blocks

See also:

Commands in the menu Mark

This command calculated the memory of all marked blocks. The result in byte is displayed in the field in the tool-bar of the block list.

3.11 Commands in the block list menu *Block*

New block
Edit

Goto block

Transfer
Rename block
Delete block
Compare block
Print

XRF list
I/Q/F list
Program structure

Rewire manual
Rewire automatic

DB-Mask
AG95FDiagnosis

3.11.1 New block

See also:

Edit block
Commands in the menu Block

Call this command for appending a new block. You must enter it's name in the following dialog.

3.11.2 Edit

See also:

New block
Commands in the menu Block

This command displays the block in STL- / CSF(S5)- / FBD(S7)- or LAD-editor. You activate this command also by pressing RETURN or clicking twice with the mouse in the corresponding line. The default editor is defined in the menu View.

3.11.3 Goto block...

See also:

Interesting things about the block list
Commands in the menu Block

You get into the input line of the block list tool-bar by calling this command. This input line serves to search faster some blocks corresponding to the string that you enter.

You can also get into the input line of the block list tool-bar by pressing the hot-key **Ctrl-F** or by entering a string to search for. In the first case the string rests in the line and can be edited, in the second case you have to begin the input from it's begin.

3.11.4 Transfer to

See also:

Commands in the menu Block

This command transfers the marked blocks of the block list to a defined destination. After calling this command you get to a dialog to enter the destination. The following destinations are available:

- into a file
- into the PLC

3.11.5 Rename block

See also:

Commands in the menu block

You can rename a block by calling this command. You set the cursor on the line with the block to rename and then you call this command *Rename block* . After calling this command a dialog to enter the block name will be displayed. You confirm with OK. Now the new block name will be displayed.

3.11.6 Delete block

See also:

Commands in the menu Block

This command deletes the marked blocks of the block list.

3.11.7 Compare block

See also:

Commands in the menu Block

This command compares the marked blocks in the block list to the blocks with the same name of a different file or in the PLC. After calling this command you have to enter the file to compare in the following dialog. If you have entered the file and you have confirmed with OK, all blocks with the same name will be compared. For example, if you have marked the blocks OB1, PB20 and PB30 in the block list, the block OB1 will be compared to the block OB1 of the file that you entered. Then the block PB20 to the block PB20 etc.

3.11.8 Print

See also:

Commands in the menu Block

This command prints all marked blocks of the block list in their order.

3.11.9 Print block-list

This command prints a list of all blocks in the active file, when a symbolic-file is selected and symbolic or symbolic-comment is active the corresponding symbolic is printed too.

3.11.10 Search

This command searches a word in all selected blocks. This word and the configuration could changed in the next dialog.

3.11.11 Replace

This command searches and replaces a word when confirmed in all selected blocks.

3.11.12 XRF list

See also:

How to use the XRF-list
Commands in the menu block

This command creates a XRF-list of all operands, which exist in the actual block list . In the dialog of this command you can enter optionally which types of operands are to take into consideration. If you exit the XRF-list it will be saved. If you call this command later again, you have to select if you want to create a new XRF-list or if you want to regard the old XRF-list again.

In this dialog you can enter the operand to be used in the XRF-list. Select the types of operands that you want (e.g. flags and inputs). Then you select the size of operand (e.g. bit and byte). Only this operands will be noticed for creating the XRF-list (only bit and byte accesses to flags and inputs in this example).

Example:

According to the definition above the result will be:

: U	I	32.6	noticed in the XRF-list.
: L	FB	10	noticed in the XRF-list.
: L	IW	35	not noticed in the XRF-list.
: O	O	11.2	not noticed in the XRF-list.

3.11.13 I/Q/F-list

See also:

Information about the I/Q/F-list
Commands in the menu Block

This command creates a I/Q/F-list of all inputs, outputs and flags which are used (read or write) in the actual file. It gets bit-, byte-, word- and double word access.
The created I/Q/F-list is displayed in it's own window and will be saved while closing it's window. If you call this command later again, you have to select if you want to create a new I/Q/F-list or if you want to see the old I/Q/F-list again.

3.11.14 Program structure

See also:

Information about the program structure
Commands in the menu Block

This command creates a presentation of the blocks calling each other in the actual PLC program.

This command is followed by a dialog to enter the blocks to take in consideration for creating the program structure. The blocks that you need for the cycles operation are not the same for all SIMATIC-S5-PLCs.

The program structure diagram will be created and displayed in it's own window after entering the blocks that you need.
The created program structure will be saved while closing it's window. If you call this command later again, you have to select if you want to create a new program structure or if you want to see the old program structure again.

You enter the blocks which shall be taken in consideration for creating the program structure diagram.

The order of the block call is noticed of each marked block.

The treatment of the cycles of the MC5-blocks in the PLC is not the same for all SIMATIC-S5-PLCs.

The cycles handling of the important PLC block are not the same for all SIMATIC-S5-PLCs.
E.g. the block for cycles handling is generally OB 1 or PB 1, for the word addressed PLC (S5-135, S5-155) it is perhaps also FB 0 or FX 0. You get details in the system manual of the PLC.

3.11.15 Rewire manual

See also:

Commands in the menu Block

Before calling this command, you have to mark the blocks to rewire manual.

Dialog *Rewire manual:*

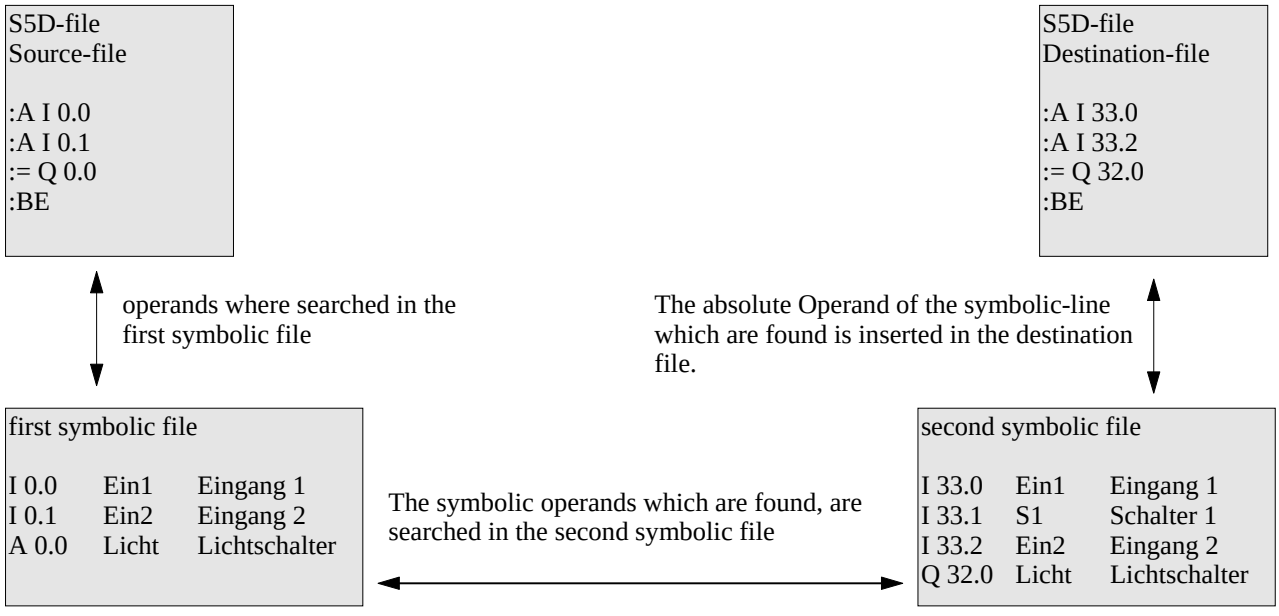
If you have marked the corresponding blocks and you call this command, a dialog will be displayed, where you enter pairs of old and new operands. After closing this dialog by *OK*, you have to select the destination (*PLC, File,...*) where to rewire. If you have selected *File* you can enter the file name in the dialog *Save As*. After confirming this dialog all the old operands in the marked blocks are replaced be the new operands.

Dialog *Result of rewire:*

In the following dialog the result of the action *Rewire* is displayed. Here you get the number of rewired connections of each marked block and the sum of all rewired connections.

3.11.16 Rewire automatic

To rewire automatically you need two equally symbolic files. An Chart of the executed rewire in the following:



The result of the rewire is the same as in rewire manually. The approach is that you can exchange a lot of operands at one step and the possibility of an hardware-independent symbolic.

3.11.17 DB-Mask

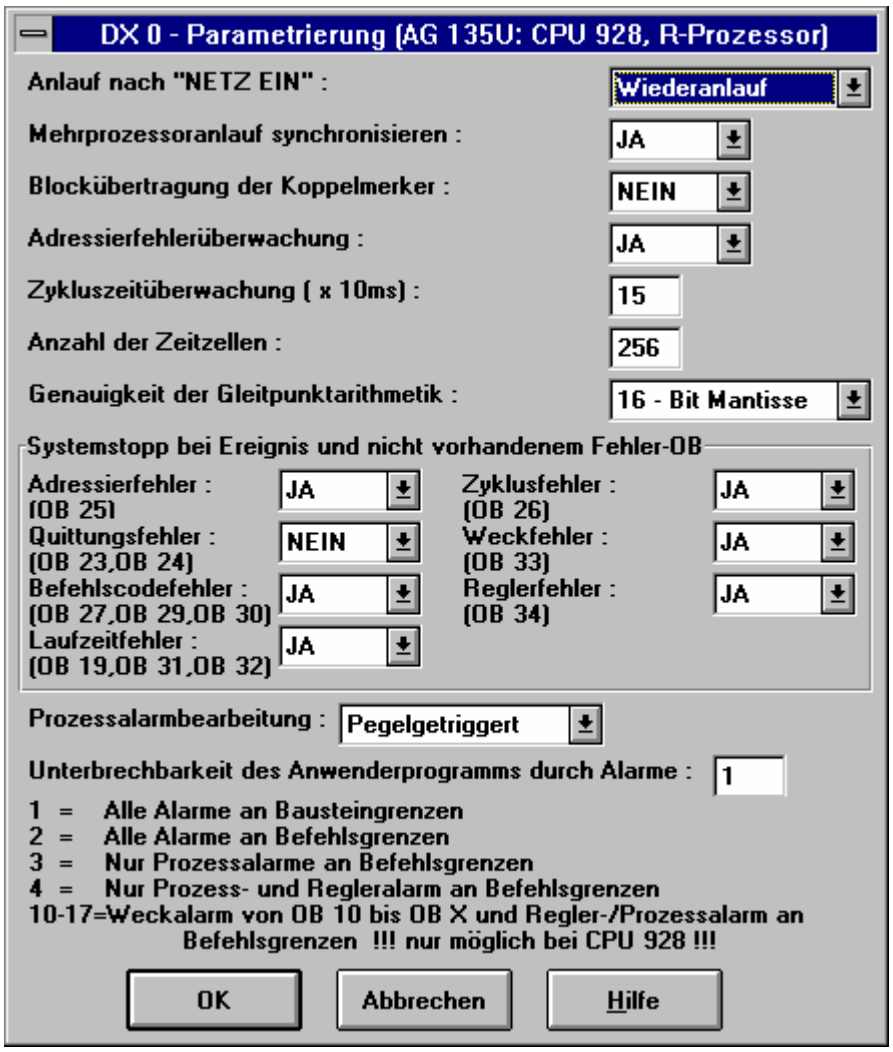
Data-block-masks are used for configuring the behavior of the PLC in an multi-processor-system or when system-errors are trapped. This DB-Masks are only available on PLC's 135, 150 und 155.

3.11.17.1 Pheripheral Access in DB 1

This Mask is for the pheripheral access from digital in/outputs and copple-marker to a CPU. Also you could define the co-existence in multi-processor-systems an the same rack. You could enable in/outputs for the specified cpu.
The "time-block-length" defines the counted timers, on odd number is down-rounded to the next even number.

name	minimum	maximum
digital Input	0	127
digital Output	0	127
copple-marker Input	0	255
copple-marker Output	0	255
time-block-length	0	256

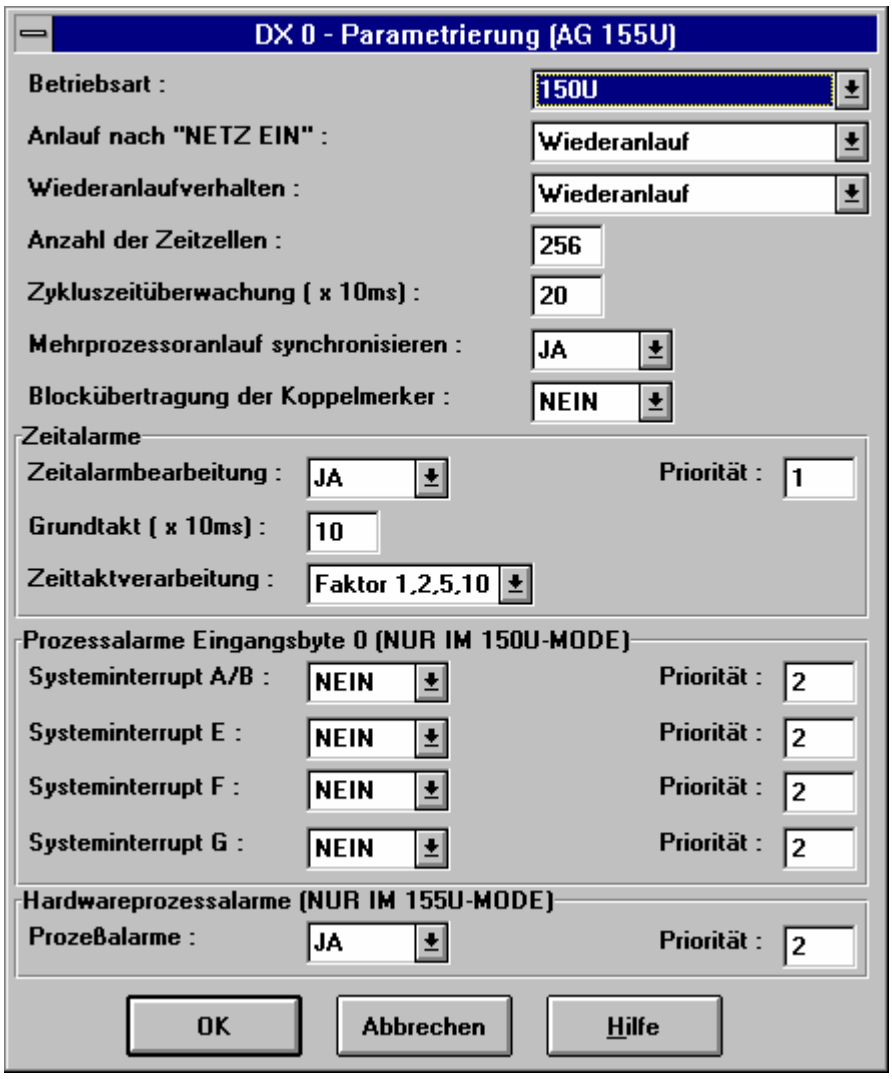
3.11.17.2 AG 135U parameters (CPU928, R-Prozessor) of DX 0



Anlauf nach "NETZ EIN" — Defines the behavior of the PLC on power-up. You could choose between "Restart" and "New-Start"

Mehrprozessoranlauf synchronisieren	The PLC will be synchronised or not synchronised
Blockübertragung der Koppelmerker	The acccess to copple-markers could be defined by semaphores, so it is not possible for two CPU's to acces the same copple-marker. When activated the access is timed longer.
Adressierfehlerüberwachung	The access on non-existent adress-blocks results normally in a PLC-Stop. The testing of this access on non-existent could be turned of. When turned off, the cycle-time is less than with activated.
Zykluszeitüberwachung	The OB 1 cycle is timed out, to detect dead-lock-situations. This watchdog-timeout is defined between 1 to 13000ms.
Anzahl der Zeitzellen	This value defines the accumalted time-cells, where on odd values the value is down-rounded to the next even number. The same value is existing in the DB 1 - Mask, but this value is higher priorised than the one in DB 1.
Genauigkeit der Gleitpunktarithmetik	You could choose between 16Bit Mantissa or 24Bit Mantissa, which have a proportional influence on the cycle-time.
Systemstopp bei Ereignis und nicht vorhandenem Fehler-OB	You could choose if the PLC is stopped when an error occurs and the corresponding error-OB is not present.
Prozeßalarmbearbeitung	You could choose if the interrupt-system is "edge triggered" or "state triggered". When state triggered is choosed a static signal on an interrupt-line results in more than one Interrupt.
Unterbrechbarkeit des Anwenderprogramms durch Alarme	You could choose which alarms are possible on command or block - borders.

3.11.17.3 AG 155U parameters of DX 0

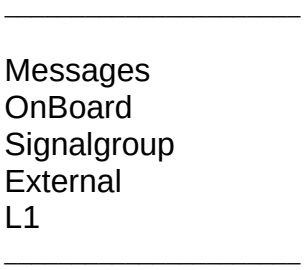


Betriebsart	You could choose between the behavior of an PLC 150 or PLC155. When PLC 150 is choosed extended process-alarms in EB 0 are possible. When choosed PLC 155 you could configure Hardware-process-alarms
Anlauf nach "NETZ EIN"	Defines the behavior of the PLC on power-up. You could choose between "Restart" and "New-Start"
Wiedernlaufverhalten	Defines the behavior on restart of the PLC. You could choose between "Restart" (the default) and "remanent New Start".
Anzahl der Zeitzellen	This value defines the accumalted time-cells, where on odd values the value is down-rounded to the next even number. The same value is existing in the DB 1 - Mask, but this value is higher priorised than the one in DB 1.
Zykluszeitüberwachung	The OB 1 cycle is timed out, to detect dead-lock-situations. This watchdog-timeout is defined between 1 to 13000ms.
Mehrprozessoranlauf synchronisieren	The PLC will be synchronised or not synchronised
Blockübertragung der Koppelmerker	The acccess to copple-markers could be defined by semaphores, so it is not possible for two CPU's to acces the same copple-marker. When activated the access is timed longer.

Zeitalarmbearbeitung	You configure if the time-alarms are accumulated.
Priorität	Defines the Priority from 1 to 5.
Grundtakt	Defines the timing of the alarms, default is 10ms.
Zeittaktverarbeitung	Defines the clock for the alarm-timer. You could choose between 1,2,5,10 or 1,2,4,8.
Systeminterrupt A/B	Defines if the system-interrupt A,B,C and D are processed an what for a priority is used.
Systeminterrupt E	Defines if the system-interrupt E are processed an what for a priority is used.
Systeminterrupt F	Defines if the system-interrupt F are processed an what for a priority is used.
Systeminterrupt G priority	Defines if the system-interrupt G are processed an what for a is used.
Prozeßalarme	Defines if the hardware-interrupts are processed an what for a priority is used.

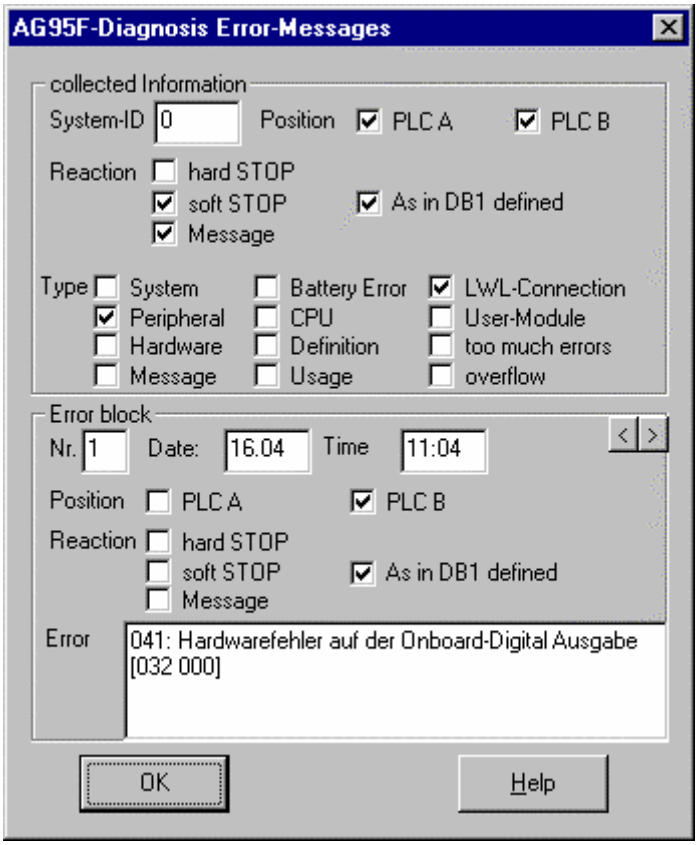
3.11.18 AG95F Diagnosis

In this menu you could let analyse the diagnostic data-block of the AG95F. It is always analysed the DB 254 of the activedocument, whether the document is a file or a PLC. The following dialogs are for disposal:



3.11.18.1 Messages

In DB 254 the data words 1, 34, 37, 62 as well as 64 to 191 are analysed and represented in the following dialog:



System - ID the system – ID is displayed here, which was taken over from the DB1

Error location the error locations are displayed which are detected so far (PLC A and/or B)

Reaction It is displayed the system reaction so far.The following reactions are possible:

hard stop
The system must be erased completely

soft stop
The system can be started with a stop/run transition again.

Message
Created one entry in the diagnosis - block DB 254, the

PLC's remain in the run State.

DB1 In the DB1 can be entered the reaction to an error.

Type It is displayed the image of the types of the errors. The following types are possible:

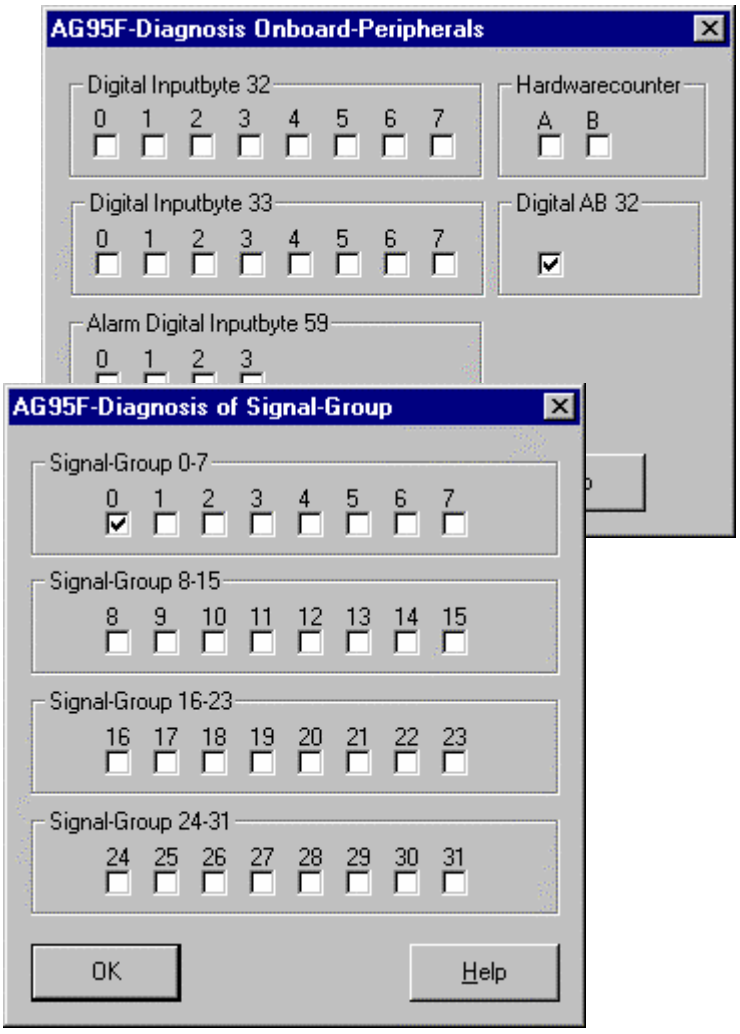
System	it was detected a system error
Peripheral	It was detected an error in the peripherals (Onboard/Extern)
Hardware	it was detected a hardware error (short-circuits)
Message	It was created a message in the DB254
Battery error	the battery is missing or is erroneous
CPU	the CPU detected an error
Project	Project engineering of the DB1 was not correctly modified
Usage	It was detected a handling error.
LWL-connection	The LWL - connection has an error
User-Module	It was detected an error in the user - program an error.
Error Mass	Very much errors were created for the same point in time.
Overrun	more than 16 errors were created in the DB254.

Error block It represents an error block, always displayed according to the error block entered last. With the buttons " < " and " > " you could navigate within the error blocks.Per error block the following information is displayed:

Nr	Number of the displayed error block from 0 to 15.
Date	The date at which the error block is created
Time	The time at which the error block is created
Error position	The error location is displayed (PLC A or B)
Reaction	the initiated error - reaction is displayed: Hard stop Restart only possible after complete erase soft stop Restart possible after Stop/Run transition DB1 reaction for a signalgroup according the definition in DB1 Message An entry in the error blocklist is created
Error	In this display the error is specified. Possibly there is more information about the error which then will be display within squarebrackets: [032 000] 032 = byte number, no bit specification 000 = Signalgroup [032.2 000] 032.2 = bit number Signalgroup [077] Length of the L1-Bus-Frame [DB1 DW 3] Position in the DB1 where the error is indicated

3.11.18.2 OnBoard - peripheral

In DB 254 the data-word 38 and 39 are analysed and displayed in a dialog:



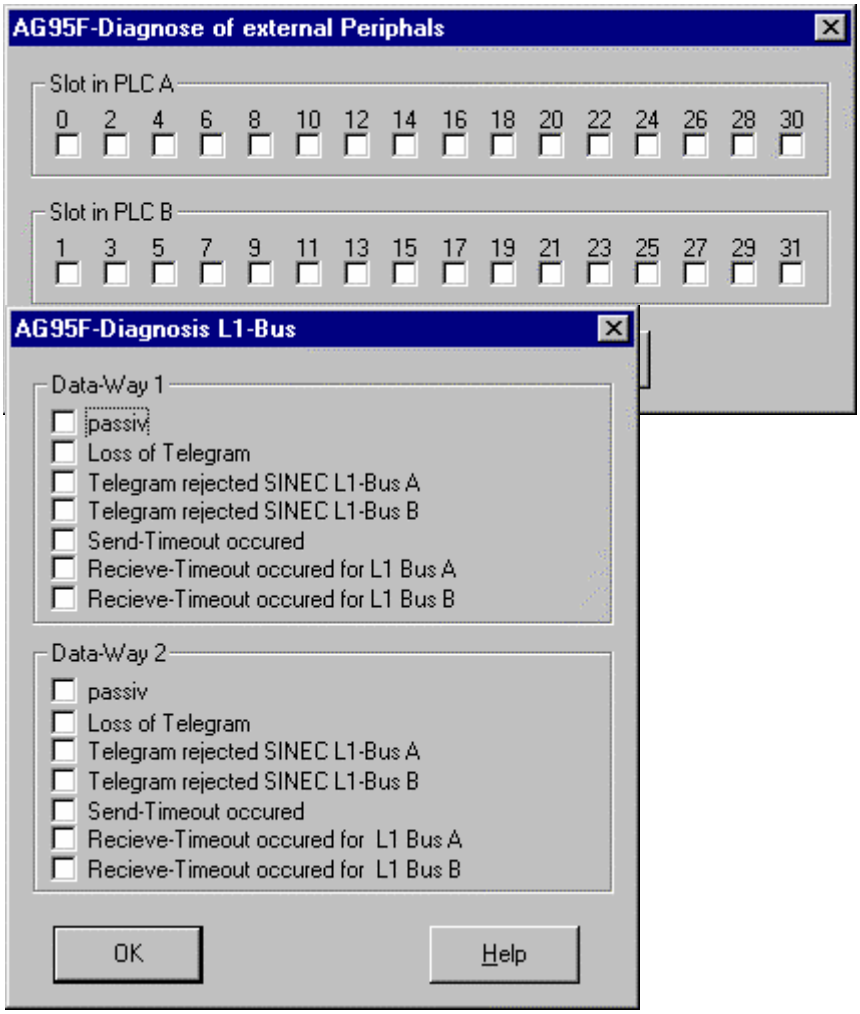
In Digital AB32 there is only display that there is a bit set, in order to read the exact bitpattern, please analyse in the DB254, DL 39

3.11.18.3 Signalgroup

In DB 254 the data word 35 and 36 are analysed and displayed in a dialog:

3.11.18.4 external Peripheral

In DB 254 the data items 40 to 55 are analysed and displayed in a dialog:



3.11.18.5 AG95F L1

In the DB 254 the data-word 56 is analysed and displayed in a dialog:

3.12 Commands in the XRF-list menu of the XRF-list window

Goto
- Inputs
- Outputs
- Flags
- Timer
- Counter
- Data
- Periphery
- S-Flag
- Blocks
- Operands

Editor

Assort

3.12.1 Goto ... Section of the XRF-List

See also:

Commands in the XRF-list menu

You jump among the separate operands sections of the XRF-List by calling this commands *Goto*. Press the following hot-keys as abbreviation (First char of the operands)

I	Input
Q	Output
F	Flag
D	Data
T	Time
C	Counter
S	Special flag
P	Periphery

3.12.2 Editor - find XRF

See also:

Commands in the XRF-list menu

Call this command for displaying the block where the entered operand exists. Then the cursor is set on that line where the operand occurs.

You also call this command by pressing the key **ENTER**.

3.12.3 Assort the XRF-list

See also:

Commands in the XRF-list menu

Call this command for assorting the XRF-list. When you call this command you first enter options of the XRF-list assortment. You get explication of this command by pressing the *Help*-button in this dialog.

You enter the options how to assort the XRF-list in the following dialog:

There are the following options:

- *Sequence of the operands*

  You enter here the order of the operands in the XRF-list. Choose for each place in the order (1-10) the type of operand that you want. Each place in the order can be used by only one type of operands.

- *Sequence of the operands' address*
- *Sequence of the number of the bit (only for bit-operands)*

  You enter here to assort the operands' addresses and the number of the bit whether increasing or decreasing.

- *Sequence of the operands' size*

  You enter the way to assort the size of the operands' size. The assortment will be made in a section for each type of operand. Choose the order (1-4) in the sequence for the operands' size. Each place in the order can be used by only one operands' size.

- *Sequence of blocks, in which an operand has been found*

  You enter here the order (1-7) of the blocks, in which one special operand has been found.
  Each place in the order can be used by only one block.

4 The Option S7

The S7-Option could access PLC's S7-300 and S7-400. You could choose the S7 or S5 by pressing or releasing the following button:

The button shows the state which will be used when pressed, above we are in S5-Mode and will be going to S7: When you pressed the button again you select S5:

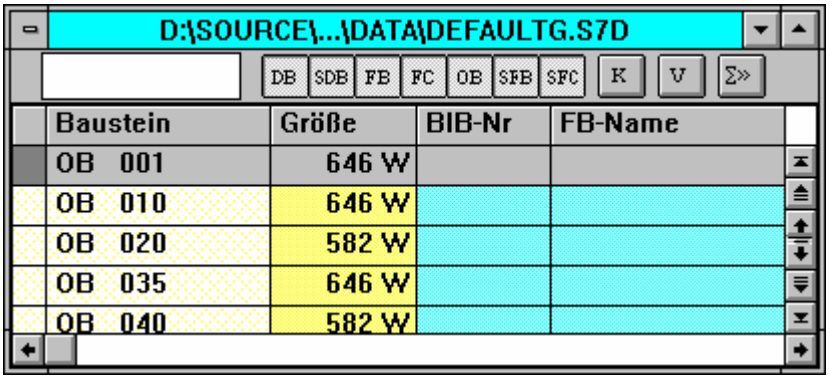
The default MPI-Adress is PLC-Number 2, you could change the MPI-address in the dialog "interfaces" in the Menu "options":

In the interface-dialog you could configure the interface, for example if an MPI-Protocol is used and what for a MPI-adress is used. The value lies between 1 and 126.

After configuration you could now access the PLC, don't forget to put the key-switch to RUN-P or STOP:

- Start or Stop the PLC
- read the block list directory of the PLC
- read, write und change blocks
- erase blocks and the PLC complete

When you open a block-list from the PLC, the buttons of the block-list-view are changed to the corresponding blocks, there are no programm-blocks, graph-5 blocks or extended function-blocks possible. There are new types of system-funcion-blocks, functions or system-data-blocks:



You could choose which blocks are visible and which are invisible. If the button is pressed, the corresponding blocks are visible. In the above sample all blocks except comment-blocks and label-data-blocks are visible.

When you create a **new** block with PG-2000, there will be created Standart-parameters if possible. The data used is read from a Library-File. This is possible for S5 and S7, you could configure this beahvior of PG-2000 in ”options/configuration”:

When there is a corresponding block in the library-file, then this block will copied instead of creating a blank block. The Library-Files have the following names and meanings:

filename	description
DEFAULTG.S5D	german language, S5-program
DEFAULTE.S5D	english language, S5-program
DEFAULTF.S5D	french language, S5-program
DEFAULTG.S7D	german language, S7-program
DEFAULTE.S7D	english language, S7-program
DEFAULTF.S7D	french language, S7-program

This files have the same format as normal S5/S7-files, so you could change them indiviualy. If you want change them, you **must** disable the option in options/configurations. All Lines and Parameters are inserted, so Programm-Lines and comments are possible to enter and inserted automatically:

5 Die Option Controller

5.1 Introduction

The version control system allows the user to log, comment and restore every change made to an S5 or S7 project. The version control system distinguishes between two levels: First, recording all changes to a database, second, backup the current state and start a new database. But you can always restore from any archive you made or from the current database.

The version control system works per project: You can decide on every open command if you want to start/continue a versioning. Also it is possible to have one project with versioning and one without open at the same time in PG 2000. And you can decide on "Save as..." if you want to continue the versioning.

To trace every change back to the user who made it, a user management is built into the system. You can switch to another user name every time you want to.

All changes can simply be viewed in a history that gives you information on all saved data: When, who, in wich module, and so on. From here, you can restore or compare older versions, or branch them to a new project.

5.2 The different modes

In some cases, it is wise to document every little step. In another situation, this will prevent you from working efficiently. For that reason, you can switch between three different modes in the version control system, that will be described in the following:

When in mode "**Change**", you will be prompted most frequently to comment your changes: In addition to the big window "Comment changes", that will appear for example when you create a new module, you will get a small window "Instant comment" even when you only change a single line of source code. This mode makes sense, as you can suppose from the name, mostly when you change some code after you already finished the program, for example when working directly at the production line.

When you're still writing your program, you may like to use the mode "**Develop**". All instant comments are omitted here, but, for example when closing a window, you will be prompted to comment all your changes so far.

Last, in mode "**Manual**", all changes are written "blindly" to the database. But the user can press a button to insert a comment any time he wants to.

There are some exceptions to this modes: For example when you create a new versioning or backup a project, you always will be prompted for a comment.

5.3 The commands in the "Versioning" menu

New archive:
Shows the dialog to backup the current project.

Project history:
Shows the dialog with the version list.

Project properties:
Shows the dialog with project properties.

Manual / Develop / Change:
Switches between the different modes described above.

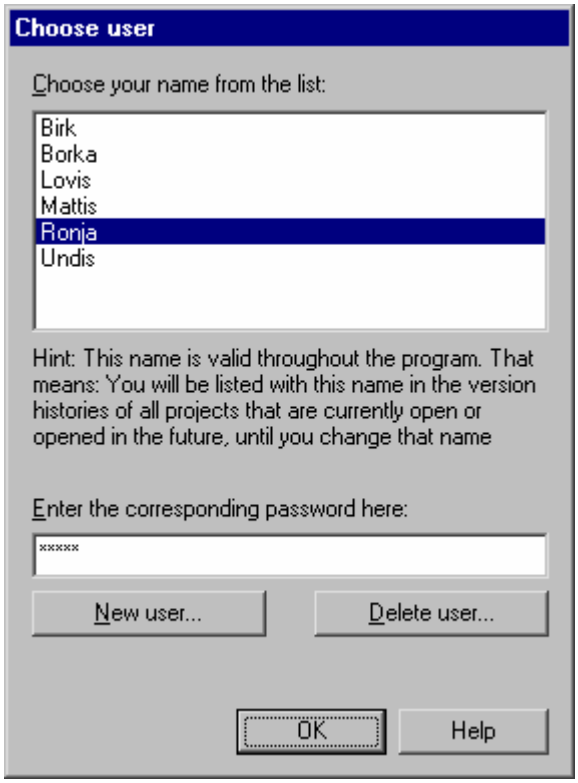
Comment entry:
Shows the dialog to insert an additional comment into the version list.

Change user:
Shows the dialog for the user management.

Settings:
Shows the dialog with version control settings.

5.4 Dialogs in the Controller

5.4.1 Choose user



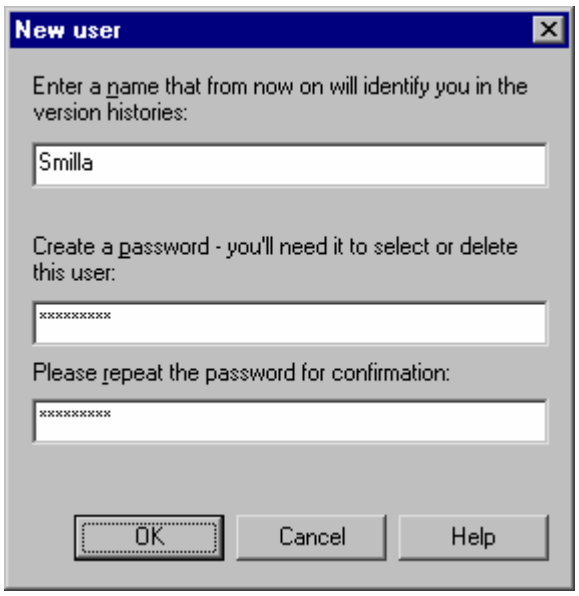
User list:
Choose the name that shall identify you in the version histories.

Password field:
Every user has a corresponding password. You can only choose or delete a user, after you have entered here the password belonging to the user marked in the list above.

New user:
If you are not yet in the list, you can add your name here.

Delete user:
If a name is no longer needed, you can delete it with this button.

5.4.2 New user

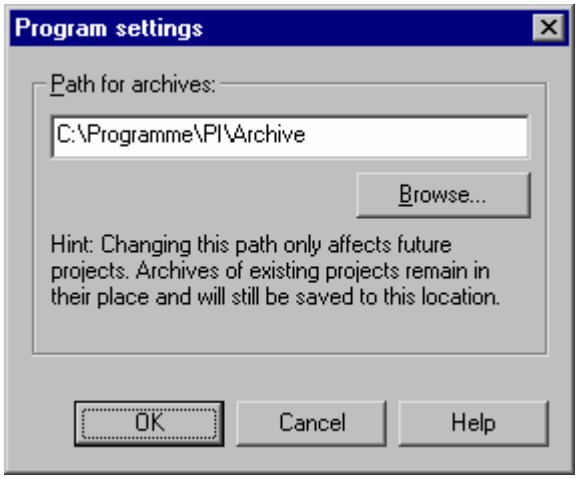


Name field:
Type in the name that shall identify you in the version histories.

Password field 1:
Type in the password that shall belong to the new user.

Password field 2:
Retype the password here to avoid typing errors.

5.4.3 Program settings

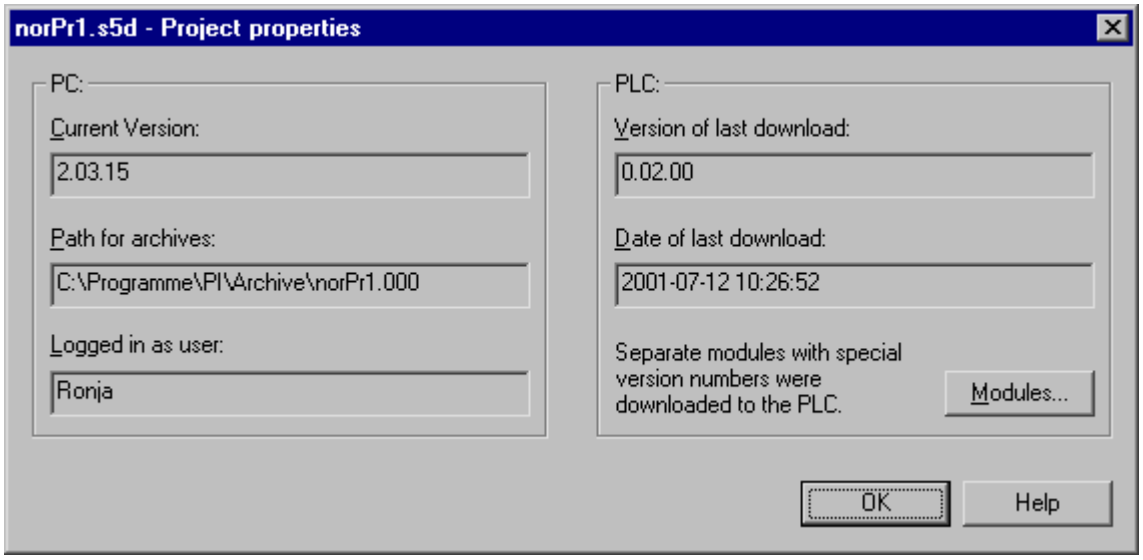


Path for archives:
The last changes are stored directly in the path where your project file resides. But when you create an archive, this data will be stored in one central location for all projects. You can enter this path here. If it doesn't exist, the computer will prompt for your confirmation to create it. Each project gets its own subdirectory that has the name of the project file it belongs to, but instead of the extension "S5D" oder "S7P", it has "000". Or "001" if the name is already used by a project with the same name in another location. You can view the generated name in the project properties.

You don't need to access these directories yourself, because the whole archive management is done from the version history.

Browse:
To prevent you from typing a whole directory path, you can choose an existing path here.

5.4.4 Project properties



PC – Current version:
This corresponds to the last entry in the current version history, so this is the current state of the project file on the PC.

PC – Path for archives:
Below this path, all archives for this project will be stored. Be aware of the extension (000, 001, and so on), to not mix up two different projects.

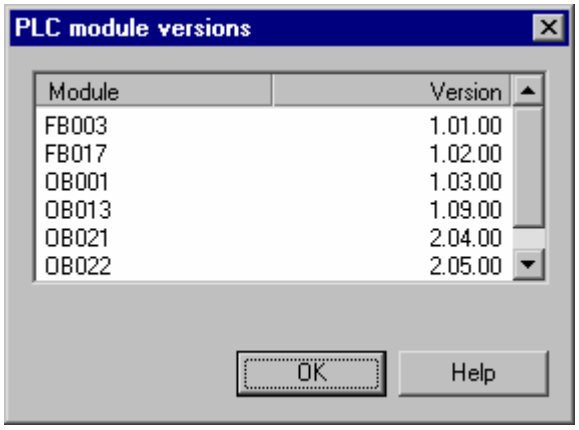
PC – Logged in as user:
All changes currently made are stored along with this name in the database.

PLC – Version of last download:
This is when the whole project was saved to the PLC.

PLC – Date of last download:
This is when the whole project was saved to the PLC.

Modules:
If you have downloaded single modules to the PLC, you ca see in a list what versions these modules have on the PLC. This list will be cleared next time you save the whole project to the PLC.

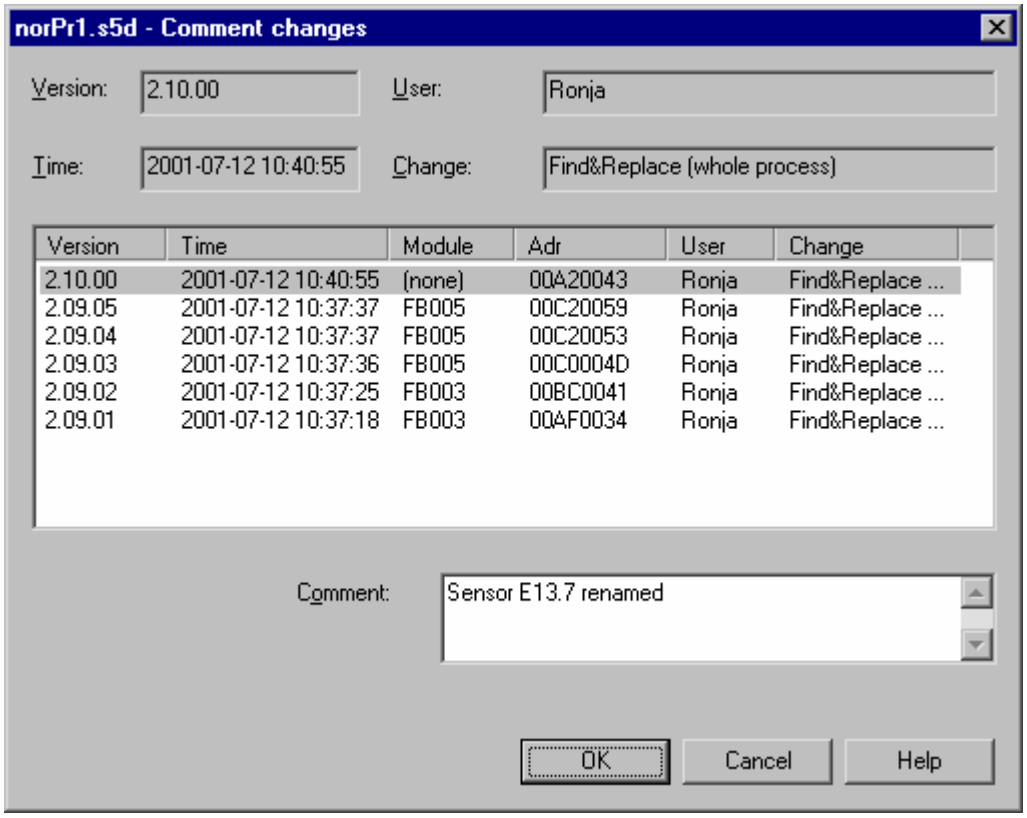
5.4.5 PLC module versions



Module:
Names of all modules that were downloaded separately to the PLC, and for that reason have a different version than the rest of the project on the PLC, normally meaning they are newer than the rest.

Version:
Downloaded version of this module. If you download the same module a second time, naturally the old version will be overwritten instead of appearing a second time in the list.

5.4.6 Comment changes



Version:
Versionnumbers of the current change. Be aware that every entry, even a pure comment entry, gets its own number.

Position 1: increased whenever you backup the project.
Position 2: increased for "big" changes, for example creating a new module.
Position 3: increased for "small" changes, for example changing a single line of code.

Time:
Date and time of the current change.

User:
The name you chose from the user list.

Change:
The type of change you are about to describe now.

List of changes:
Here you can see how the entry will appear in the history. In addition to the data already shown above, you can see to what modules the changes correspond. Depending on the chosen mode, you can see a varying number of entries here.

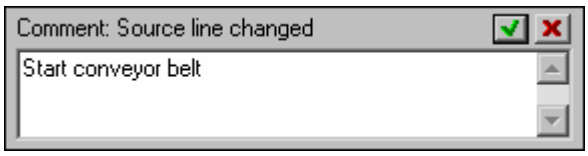
Mode "*Change*": For most types of changes, there will only be one entry with the information for the current change. But for example "Find and replace" can scan through several modules on many different positions. You will be prompted to comment such an operation when it finished completely and see all corresponding locations here.

Mode "*Develop*": As all instant comments are omitted in that mode to allow efficient working, you will see here all changes done since your last comment.

Mode "*Manual*": Same as "Develop", except that you have to decide yourself when to insert the next comment for all the changes done so far. These changes will be listed here.

Comment:
Type in the comment you wish, may be on several lines.

5.4.7 Instant comment



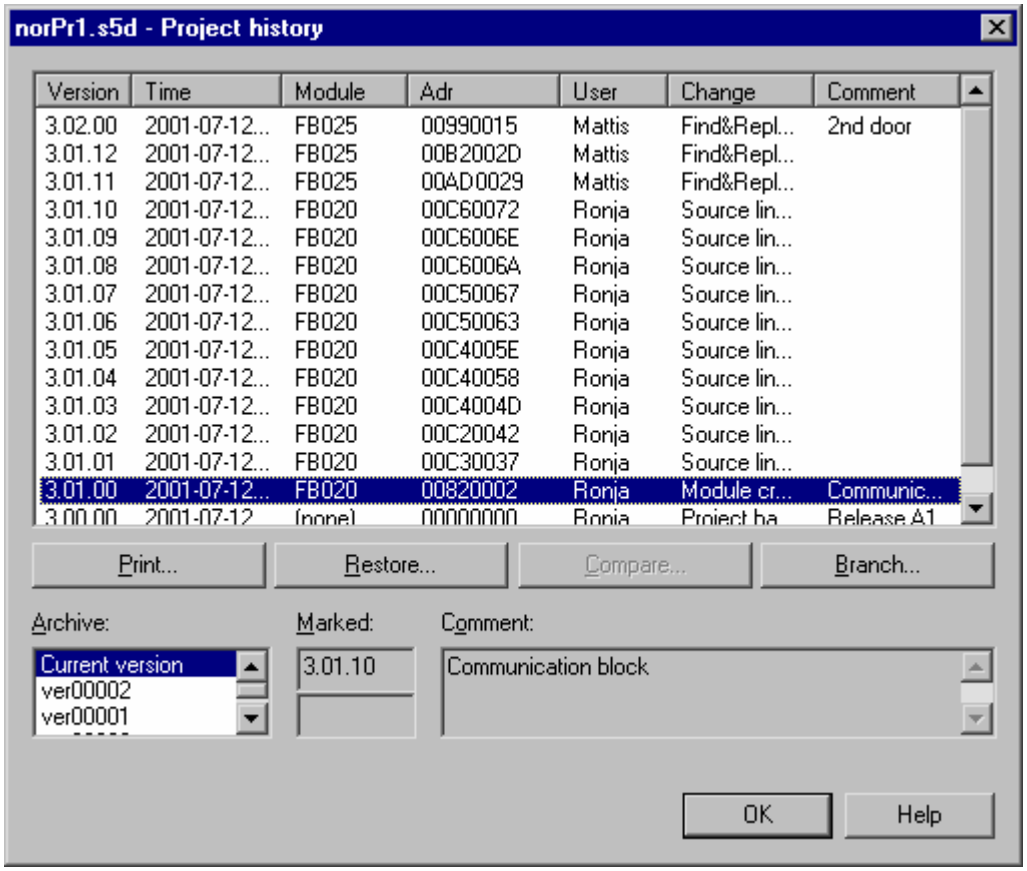
Comment:
Here you can read the type of change you just made.

Input field:
Type in the comment you wish, may be on several lines.

OK (green hook):
This will close the window and insert your comment in the version history. You can also reach this button by pressing the tab key after you typed in your comment. Then press the return or space key to click the button.

Cancel (red cross):
This will close the window WITHOUT inserting your comment into the version history. Surely, the data entry will be stored, but with an empty comment field. You can get the same effect by pressing the escape key (regardless whether you have typed some comment or not).

5.4.8 Project history



Version list:
This list contains all changes since the last backup. You can adjust the column widths by dragging the column borders in the title line with the mouse. Additionally, a click on the column title will sort the whole list after that column. But some actions are only possible when the list is sorted the original order (by version).

Print:
You can choose in the following dialog to print the whole list or only a selected area. Do a LEFT mouse click on the first entry to be printed. Then search for the last entry, hold down the shift key and click on the last entry to be printed. This will select all the entries between the first and the last. If you want to select or deselect several non-continguous entries, you can do this by holding down the control key while pressing the mouse button. If the entries are too wide to fit on your paper, try to switch to landscape mode in the properties of your chosen printer.

Restore:
This button becomes available when exactly one version is marked (see below: "Marked"). It opens the separate dialog "Restore version". The whole process is described there.

Compare:
This button becomes available when exactly two versions are marked (see below: "Marked"). The two versions will be copied to two temporary directories and handed over to PG 2000's built-in compare routine as two new projects. After comparing, the two directories will be deleted. The current version is not affected by this process.

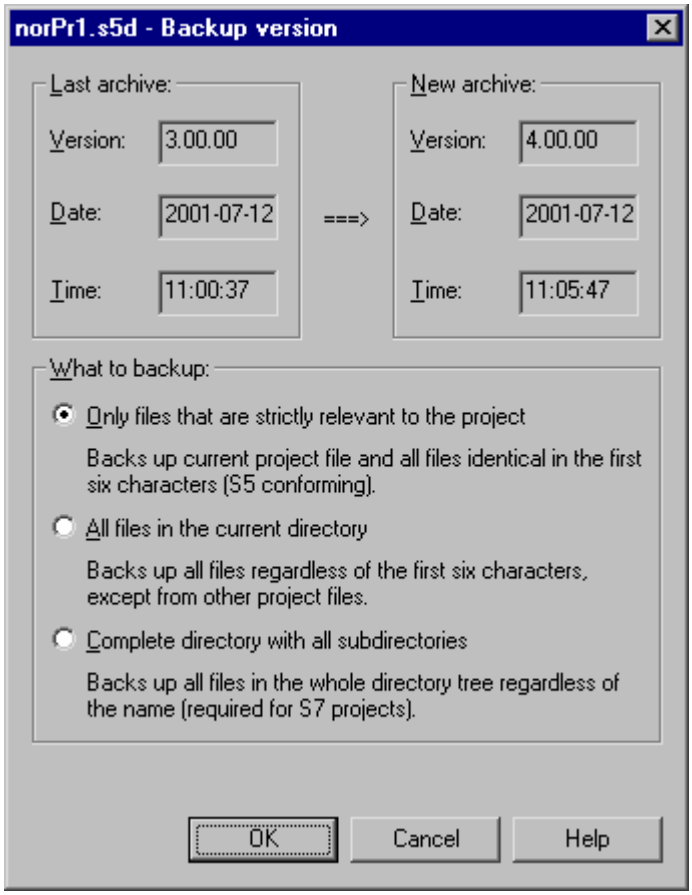
Branch:
This button becomes available when exactly one version is marked (see below: "Marked"). This version will be copied to an empty directory you have to choose and is begun as a whole new project. The old project will not be changed, but the process will be noted down in both project histories.

Archive:
Here you can switch between all available archives for this project and view all changes ever done. You can see only the changes between to backups at the same time.

Marked:
The buttons to restore, compare or branch projects relate to these fields. You enter a version here either by clicking on a list entry with the RIGHT mouse button, or, assuming you navigate through the list using the cursor keys, by pressing the space key. A second version will be selected, like in many windows applications, by simultaneously holding down the control key. Hereby it is possible to mark any two versions, even out of two different archives, by first selecting one version with the RIGHT mouse button, then switching to another archive, then selecting the second version with the RIGHT mouse button while holding down the control key.

Comment:
This field will display the comment of the currently selected entry, so that you can better read even multi-line comments.

5.4.9 Backup version

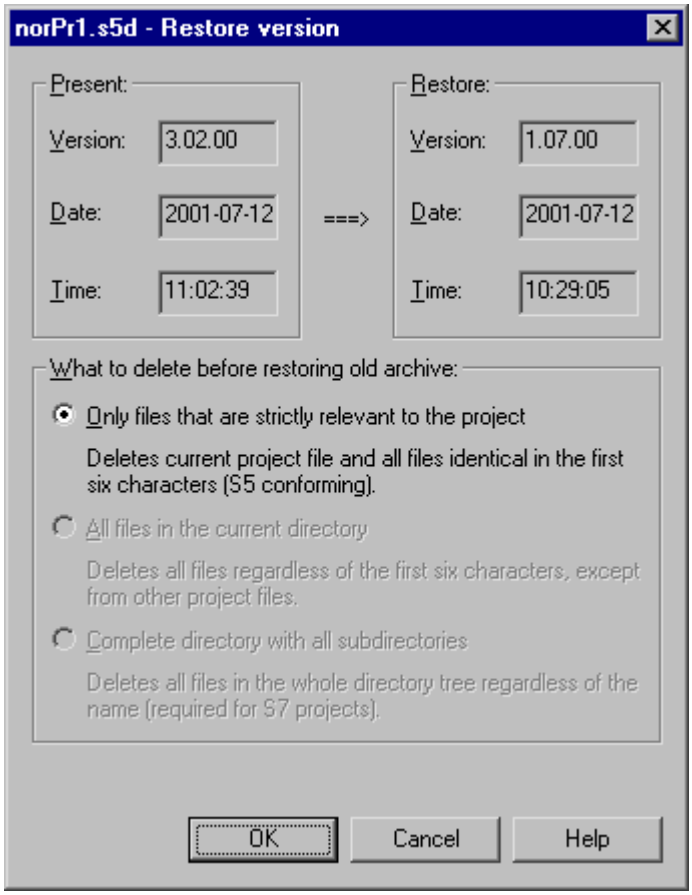


Last archive:
This will inform you when the last backup was made.

New archive:
This is the resulting version when you now decide to create the archive.

What to backup:
Here you choose the level, meaning how many files you want to backup. S7 projects always should be backed up with all subdirectories, otherwise most parts of the project would be left out. At first sight it may be clever to use this method also for S5 projects – just to be shure not to miss anything. But this can take too much time if there are many subdirectories not belonging to te project at all. One example: You have stored your project in the harddisk's root directory (a thing you never should do): In that case, the program would try to backup your whole harddisk! But the most important thing is: You must be very careful when restoring a version that was backed up with subdirectories to prevent things to be "restored" that do not belong to your project, only because they were unnecessarily saved during the backup process.

5.4.10 Restore version



Present:
The version of your current project state on the PC.

Restore:
The version you just have decided to restore.

What to delete before restoring old archive:
This selection not only affects file deletion, but this is the most important point. To better understand, here is a simplified overview of the restore process:

1. Making a backup copy. If the restore process fails, this copy will be wrote back. So, if you select "too much", this process can last unnecessarily long.

2. In case you restore from an archive: Unpacking of the files you selected here. This means, for example, you have the possibility to only unpack the files that are strictly relevant to the project even if you created the archive including all subdirectories.

3. To prevent mixing up old and new files, all new ones will be deleted before unpacking the archive. This means: The whole path including all subdirectories if you choose the last option. Files and directories not belonging to the project will also be deleted and replaced by their old versions (so far they existed the time the archive was created). This is surely not what you intended to do, so be careful to select the proper mode!

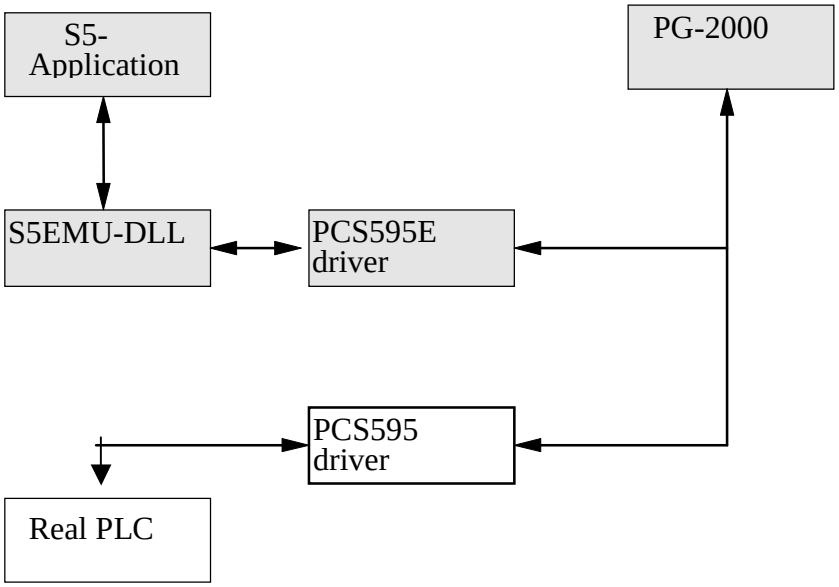
For safety reasons, you only can delete the amount of files also stored in the archive, meaning you can never delete the whole directory tree if only the files strictly relevant to the project are stored in the archive. But if you restore from the current database, you naturally have all options available, as they only affect the size of your backup copy.

In general, it is always better to only have one project per directory on your harddisk. With S7 projects you don't have the choice, but also for S5 projects it is more safe if you don't want to delete "neighbouring" files by mistake.

The process of restoring:
After unpacking the archive (in case you don't restore out of the current database), PG 2000 will restore every single entry (apart from pure comment entries that don't affect the project at all). Some settings, for example view settings, don't affect the project, but PG 2000 in general. When the program runs over a change of that kind during the restore process, the corresponding line will be highlighted in the version history and you will be asked wether you want to restore that setting.

6 The Option S5-Emu

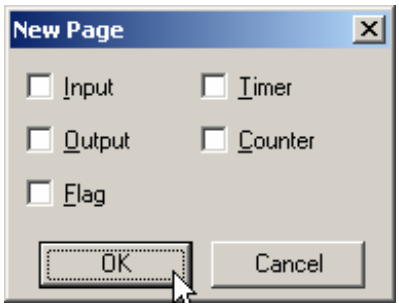
6.1 Structure



The S5-Emu application uses functions from the S5EMU.DLL, which is the simulated PLC. On the same DLL the PG-2000 is using, so both of them use the same PLC where PG-2000 uses a helper-DLL between S5Emu and PG-2000.

These DLL's are loaded on demand from the Windows-Kernel. For example if only PG-2000 is loaded and the block-list of the S5-Emulator is used then only PG-2000 with the driver PCS595E.DLL and S5EMUDLL.DLL is loaded in memory.

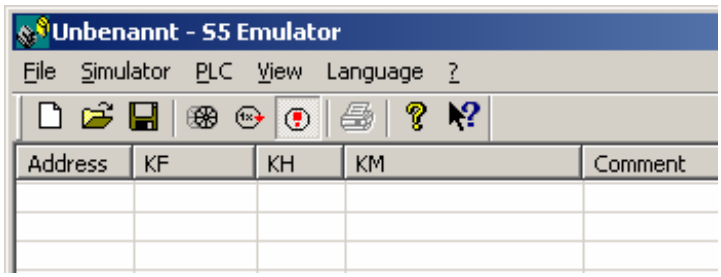
6.2 The S5EMU Application - A short introduction



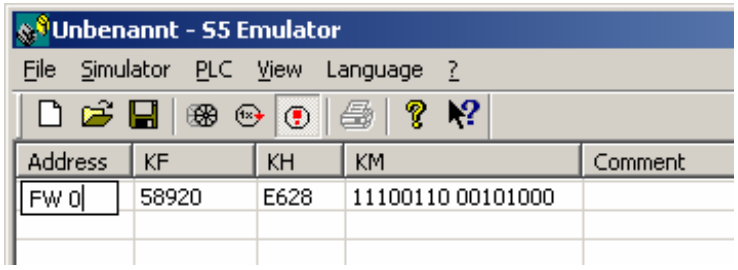
After you start the application with a double-click on the icon, the above dialog is displayed. You could choose one of the checkboxes or left blank and confirm with ”OK”

You choose the checkbox ”Input” if you want to show the inputs IB 0 to IB 31
You choose the checkbox ”Output” if you want to show the outputs QB 0 to QB 31
You choose the checkbox ”Flag” if you want to show the flags FB 0 to FB 31
You choose the checkbox ”Timer” if you want to show the timer T 0 to T 31
You choose the checkbox ”Counter” if you want to show the counter C 0 to C 31

You could even choose none of the checkboxes to get an blank view:



A new Window is opend, in which the Variables and their values together with a comment could be defined:



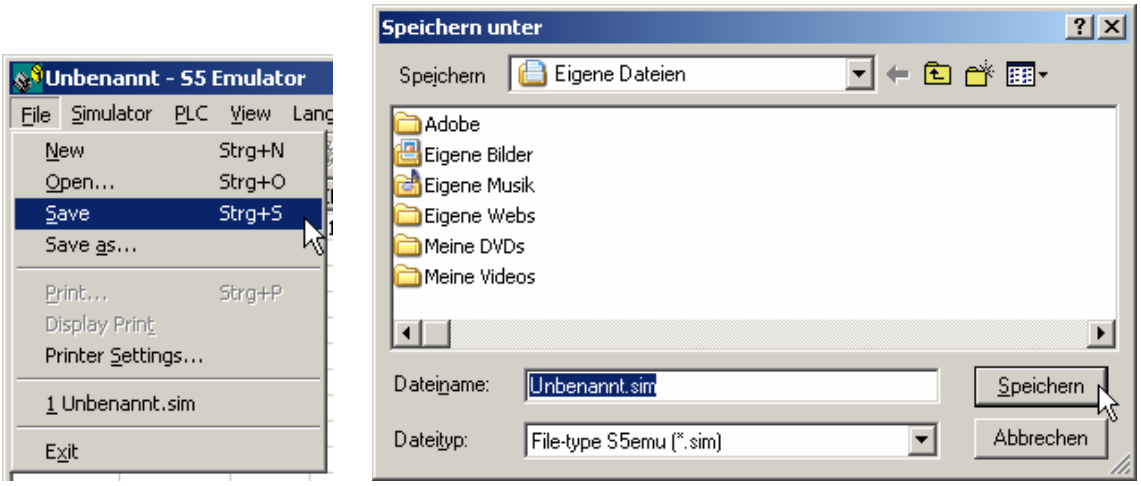
With a doubble-click onto an element in the table you could then change this value.
The values are confirmed with **<ENTER>.** To delete a line press the „Del“-Key, insert a new line with the “Ins”-Key.

In Default the emulator is not running, that means the cyclic block OB1 is **not** executed.

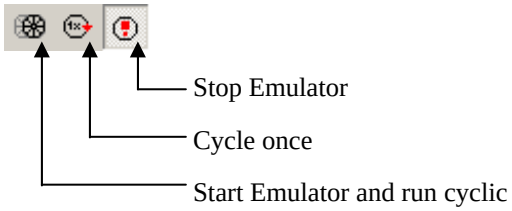
You could use following Operands, where they are always displayed in the choosen language:

Adresse				Beschreibung
E I	0.0 123.4			Input, Bit
EB IB	3 123			Input, Byte
EW IW	120 124			Input, Word
A Q	0.0 123.4			Output, Bit
AB IB	3 124			Output, Byte
AW IW	120 124			Output, Word
M F	0.0 123.4			Flags, Bit
MB FB	3 123			Flags, Byte
MW FW	120 124			Flags, Word
DB	10	D	0.1	Data bit from Data-Block
DB	10	DW	10	Data words from Data-Block
T	5			timer-word
Z C	6 123			counter-word

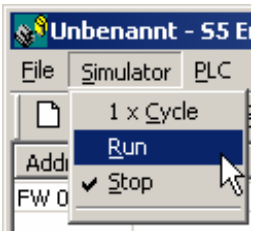
The Data in the table could be permannetly saved in a file and retrieved from a file:



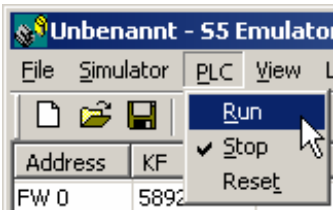
The User has now the following 3 possibilities to test his program:



You could do the same within the menu:



The state of the emulated PLC is shown in the menu and could also be changed there:

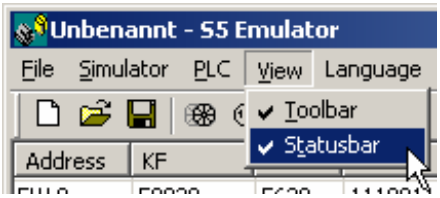


RUN = Set the Key-Switch to Run (Start PLC)

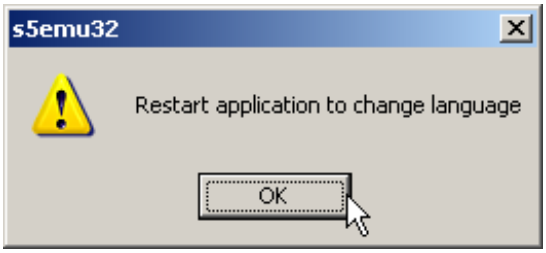
STOP = Set the Key-Switch to Stop (Stop PLC)

Reset = Clear the PLC completely

The View is customizable (show/hide Tool/Statusbar):



The used language is choosable, restart application to change the GUI to the desired language:

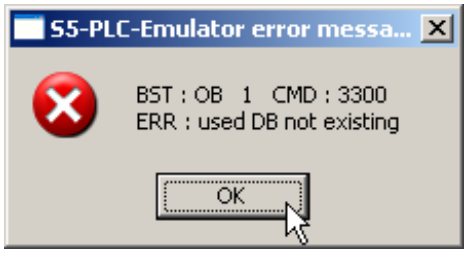


6.3 Error-Messages

When errors occurs then the Simulation is showing an error-message which describes the error and position..
The following errormessages exists:

"illegal OpCode"
"STS or STP"
"SPA FB, the FB does not exists" or "SPB FB, the FB does not exists"
"SPA OB, the OB does not exists" or "SPB OB, the OB does not exists"
"SPA PB, the PB does not exists" or "SPB PB, the PB does not exists"
"SPA SB, the SB does not exists" or "SPB SB, the SB does not exists"
"0x70 , unknown OpCode"
"SPB , the block-type is not known"
"SPx , unknown type of jump"
"No more User-Memory"
"OB 1 not existing"
"unknown indirect Command"
"unknown Shift/Rotate-Command"
"unknown Complement-Command"
"used DB not existing"
"Data-Word in DB not existing"
"unknown Load-Command" or "unknown Transfer-Command"
"unknown Akku-Operation"
"unknown binary Akku-Operation"
"unknown Akku-Comparison"
"OB 1 not existing"
"unknown binary Bit-Comparison"
"unknown Bit-Operand"
"unknown Bit-Operation"
"unknown Akku-Operation (Byte)"
"unknown Akku-Operation (Word)"
"unknown KLE Stack-Operation"
"KLE Stack Underflow"
"unknown Alarm-Operation"
"LIR, unknown Register" or "TIR, unknown Register"
"unknown Type of Timer" or "unknown Type of Counter"
"unknown Type of Reset"
"BFW, unknown Type"
"KLE Stack Overflow"
"recursive call of OB 13"
"Overflow of cycle-time"
"Timerword is too great" or "Counterword is too great"
"unknown type of timer"

If an error occurs the PLC show the following and stopps the execution, where after correction the problem the stop-switch must be turned to restart (first STOP then RUN!):



following data is displayed:

- BST The block in which the error occured
- CMD hex-code of the executed command
- ERR Errormessage in plain text

Attention: The simulated PLC reacts more extremly as an original PLC, for example on acces on a data-word which not exists the simulated PLC is stopped but a real PLC works further with the false value.

7 PG-2000 and S5-Emu

!

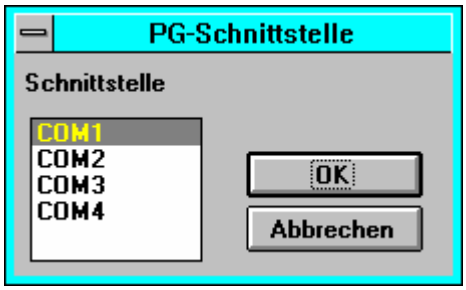
7.1 Configuration

There are two possible types of accessing from PG-2000 and S5-EMU

1. two PC's are wired with a null-modem cable, on one PC runs S5-EMU on the other PG-2000 or another programming system.
2. The user selects on file-selection instead of "PLC" the button "S5-Emulator"

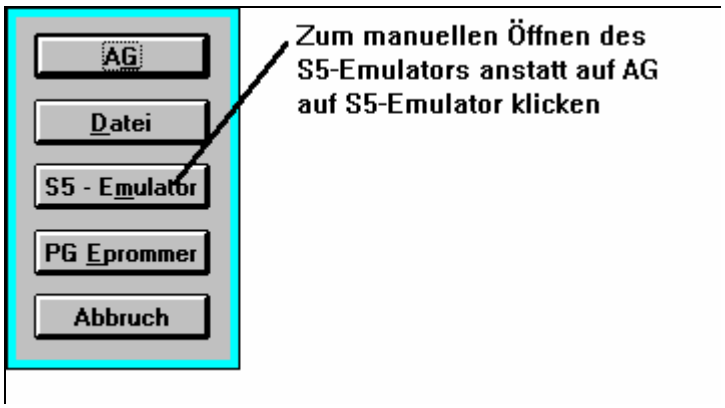
7.1.1 Serial connection

Choose in the menu-point "Simulator/PG-Schnittstelle" the used serial port for S5-Emulator:

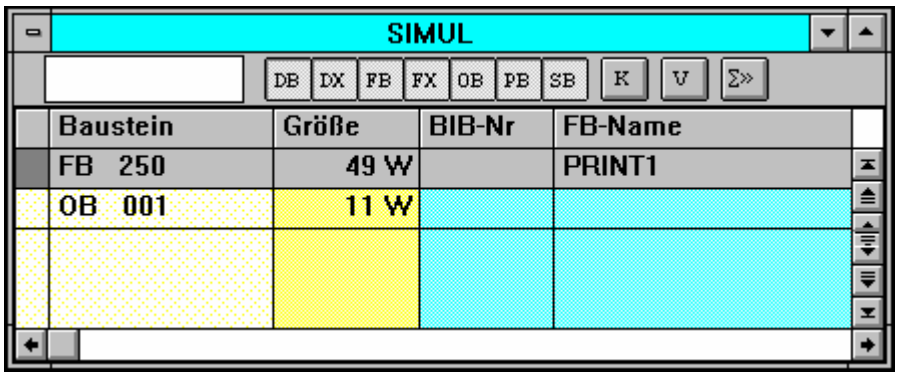


7.1.2 File open - connection

The user opens the simulated PLC with the menu "file/open":



After a short time the block-list of the simulated PLC appears on screen::



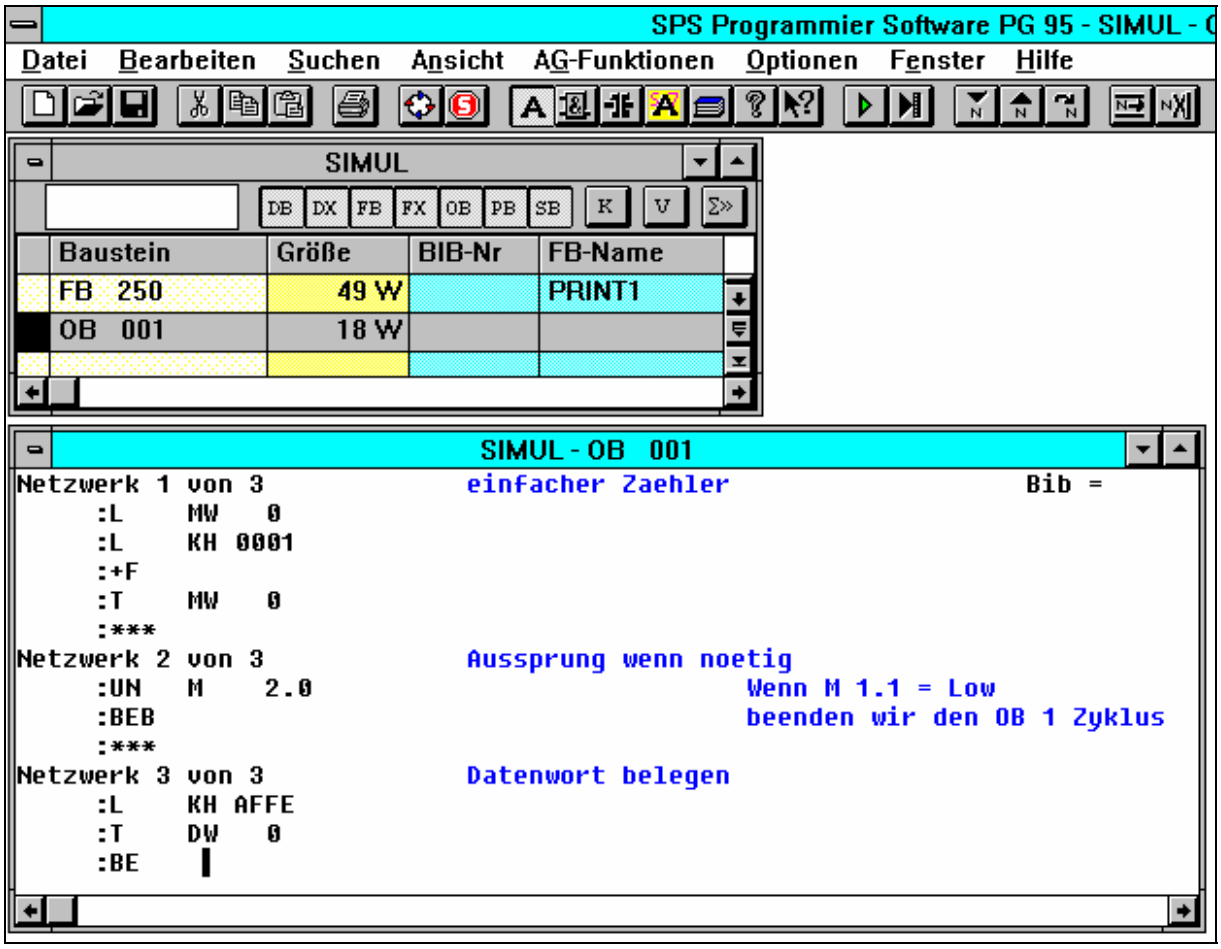
The FB 250 is a internal block, the OB 1is newly created. The editing and usage of the simulated PLC is analog to a real PLC.

Attention: PLC-functions have only an effect on the simulated PLC when the blocklist or a block of the simulated PLC is activated.!

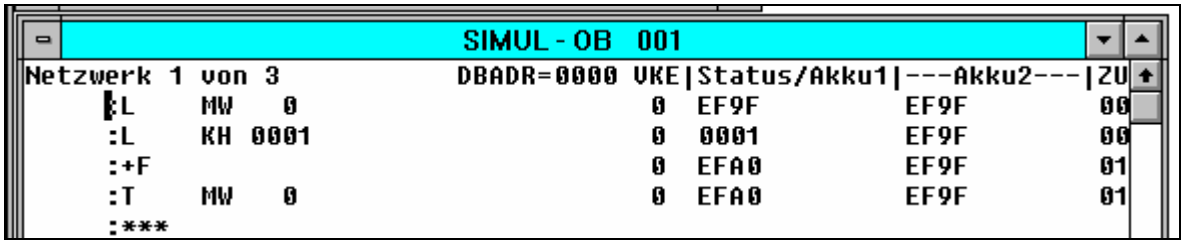
7.2 Example of an Error-correction with S5Emu

We would show the possibility of error-searching and correction with a simulated PLC.

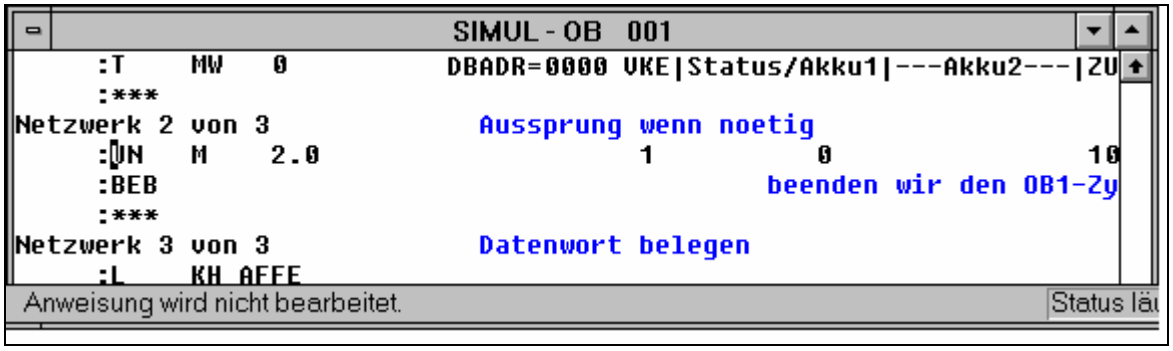
We open the saimulated PLC und insert following programm in OB 1:



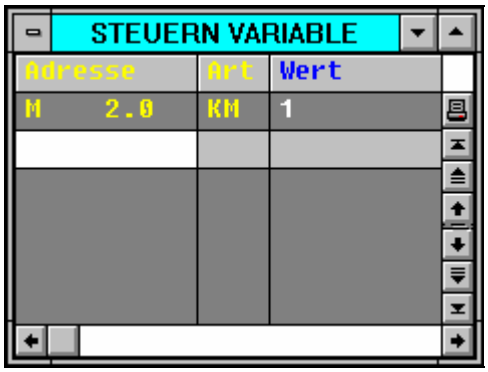
We start the ”force-block”, with the menu ”PLC-function/force-block”:



As we see, the counter is decreasing. Now we take a look at the second segment:

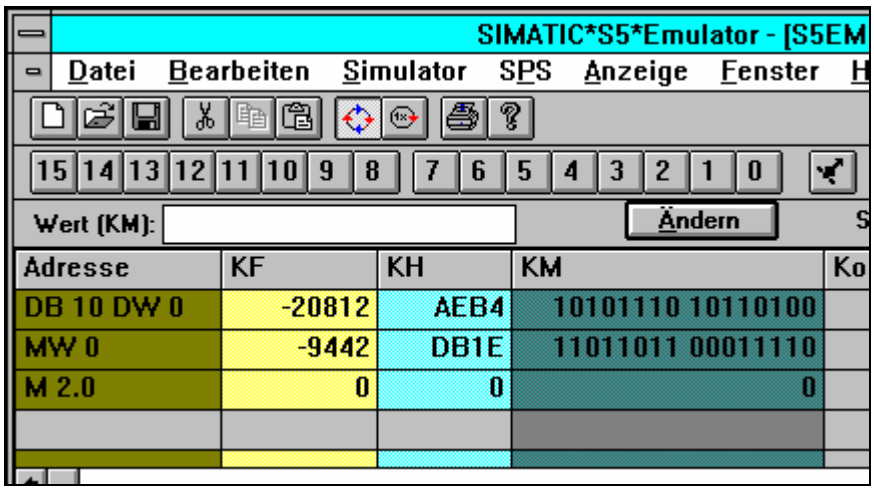


The cyclic block OB 1 is terminated every time, because we typed in the false Operand M 2.0. We stop the ”force-block” and open the ”force-variable” window, where we set the Flag M2.0 to 1:



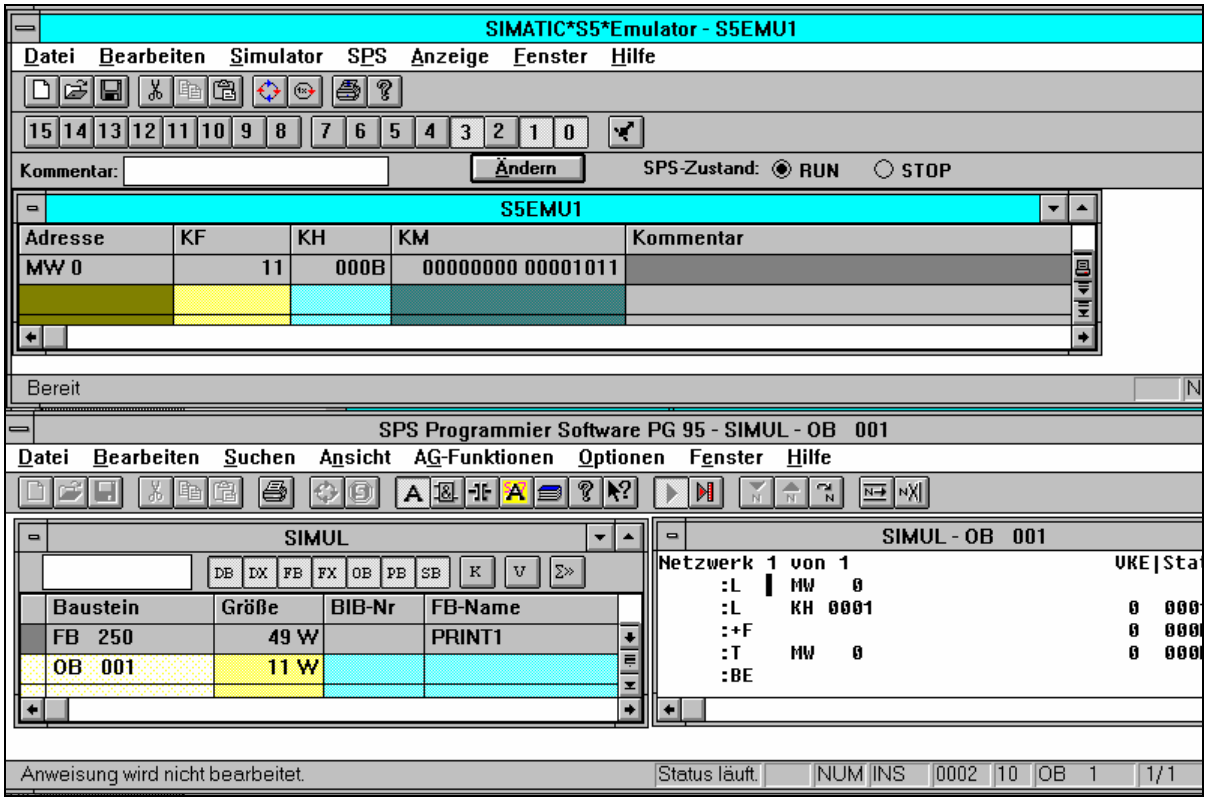
Immediately after transfering the 1 to the PLC we get an error, that the Data-block is missing, we have forgotten to generate and call the data-block. So now we create a new data-block 10 with a view data-words. Also we insert befor the first acces to the data-word an ”C DB 10”. After restarting the PLC the data-word is changing.

We now start the application ”S5 Emu” und inserted some data to view:



When you change the bit M 2.0 with the mouse on the button ”0” the Data-word 0 is changed to ”AFFE”.

Finally an screen-shot of an simulated error-search in one PC with an simulated PLC and the programming system simultaneously working:



As you see, it is possible to use both programms together.

8 Help

8.1 Help for Comparison

Choose the type of the comparison by clicking the corresponding variable and enter the input and output parameters.

The following types of comparison are available:

- != compare to equal to
- >< compare to not equal to
- < compare to less than
- <= compare to less than or equal to
- > compare to greater than
- >= compare to greater than or equal to

See also: The following operands are available.

Symbol and Comment are to enter in ”Symbols files”.

8.2 Help for Timer Functions

Choose the type of the timer by clicking the corresponding variable and enter the input and output parameters.

The following timer types are available:

- SA T turn off delay time
- SE T turn on delay time
- SI T impulse
- SS T recording turn on delay time
- SV T lengthen impulse
- (R vor S) reset dominance

Symbol and Comment are to enter in ”Symbols files”.

8.3 Help for Counter Functions

Choose the type of the counter by clicking the corresponding variable and enter the input and output parameters.

There are the different types of counters:

- Counter up
- Counter down
- Reset priority

Symbol and Comment are to enter in ”Symbols files”.

8.4 Help for Flip-Flop's

You choose the type of the flip-flop by clicking the corresponding variable and enter the input parameters.

Bits are expected as operands:

- Input e.g. I1.2
- Output e.g. Q4.6
- Memory e.g. M3.5
- Flag e.g. F0.2
- Data e.g. D2.7

The following flip - flop - Types are available:

- SR - flip - flop (reset priority)
- RS - flip - flop (set priority)

Symbol and Comment are to enter in "Symbols files".

8.5 Help for Function Blocks

Choose one of the saved function blocks in this list by clicking the corresponding line and confirming with *OK*.

You can also select the function block by clicking twice the corresponding line.

8.6 Help for Operands

This operands are admitted:

- IB 0 to 127 Input byte
- IW 0 to 126 Input word
- QB 0 to 127 Output byte
- QW 0 to 126 Output word
- FB 0 to 255 Flag byte
- FW 0 to 254 Flag word
- DL 0 to 255 Data byte right
- DR 0 to 255 Data byte left
- DW 0 to 255 Data word
- T 0 to 127 Timer format
- C 0 to 127 Counter format
- KB 0 to 255 Constant as byte
- KF -32768 to 32767 Constant as fix point format
- KY 0 to 255 Constant as two bytes
- KH 0000 to FFFF Constant in hexadecimal format
- KM 0000 0000 0000 0000 to 1111 1111 1111 1111 Constant in bit format
- KC <ASCII-char> <ASCII-char> Constant as two char
- KT 000.0 to 999.3 Constant as timer format
- KZ 000 to 999 Constant as counter format

8.7 Help for Input Parameters

You enter the input and output parameters of the selected block here:

Bits are expected as operands:

- Input e.g. I1.2
- Output e.g. Q4.6
- Memory e.g. M3.5
- Flag e.g. F0.2
- Data e.g. D2.7

You invert a input by clicking variable.

The type of the output can be set to:

- = Equal output
- S Set output
- R Reset output

Symbol and Comment are to enter in ”Symbols files”.

8.8 Help for Goto Segment

Enter the number of the segment and confirm with OK.

The segment can also be selected by clicking twice on the corresponding line.

8.9 Help for Output Parameters

You enter the output parameters of the selected block here:

The following operands are needed:

- Input e.g. I1.2
- Output e.g. Q4.6
- Memory e.g. M3.5
- Flag e.g. F0.2
- Data e.g. D2.7

Symbol and Comment are to enter in ”Symbols files”.

The Type of the output can be set to:

- = Equal output
- S Set output
- R Reset output

8.10 Help for Force Outputs

You can set variables or inputs directly to that value that you want. The PLC needs not to be in STOP-mode.
You enter the name of the variable in the column Addresses (e.g. AB 2).
You enter the type of the output in the column Type (e.g. KM).
You enter the value in the column Value.
You may enter a comment in the column Comment.

8.11 Help for Force Variables

You can set variables or inputs directly to that value that you want.
You enter the name of the variable in the column Addresses (e.g. A 2.2).
You enter the type of the output in the column Type (e.g. KM).
You enter the value in the column Value.
You may enter a comment in the column Comment.

Operand	available formats
FY, QB, IB	KH (KM KY KC KF)
FW, QW, IW	KH (KM KY KC KF)
T	KT (KM KH)
C	KZ (KM KH)
DW, DL, DR	KH (KM KY KC KF)
DB	-
FD, QD, ID, DD	KH (KM KY KC KF)

8.12 Help for View PLC Memory

The address begin specifies the first address which represents the begin of the memory to read in the PLC.

You enter the format how to display the addresses in the box Address.

The memory content of the corresponding address is displayed in that way that you have defined in the box Representation.

If you want to display the content of the memory in two different way, you have to enter this in the boxes Display left and Display right.

8.13 Help for Error Messages

It is not possible to present this segment is CSF(S5) / FBD(S7) or LAD!

Press STL and this segment will be displayed in STL.

Then you change in a segment which can be presented in CSF(S5) / FBD(S7) or LAD and the selected presentation mode will be set automatically.

8.14 Help for S5-V5

8.14.1 Function keys like S5-V5

See also:

Function keys visible/invisible
Dialog Select Simatic S5-program

The Siemens S5-V5 function keys will be displayed above the status line. This keys are activated by pressing the function key F1 to F8. The activated function depends of the actual window. The holding of each function key may change if you press one function key. The actual holding of each function key is displayed by the text on the respective function key.
If you leave PG-2000 by using visible function keys, the actual options while be saved. So the Dialog Select Simatic S5-Program will run in the same presentation for the next time.

8.14.2 Dialog Select Simatic S5 Program

See also:

Function keys visible/not visible
Siemens S5-V5 function keys

If you leave PG-2000 by using visible function keys, the actual options while be saved. So the Dialog Select Simatic S5-Program will run in the same presentation for the next time. You enter the part to edit in Select Simatic S5 Program. Symbols-editing or STL-, CSF(S5)-, FBD(S7)- or LAD-editing is available. Activate the button *OK* for continuing or *Exit PG-2000* for leaving the program PG-2000. If you want to leave this mode with S5-V5 function keys you activate the button *Exit S5-V5*.

8.14.3 Dialog Settings

See also:

Function keys visible/invisible
Siemens S5-V5 function keys

You have chosen the STL-, CSF(S5)-, FBD(S7)- or LAD-programming in the Select Simatic S5 Program. You enter the following necessary default options in this dialog.

- The presentation mode for your blocks. (STL, CSF(S5) / FBD(S7), LAD)
- If you use Symbols.
- If you use a footer file for prints
- The name of the program file to load.
- The name of the symbols file to load.
- The name of the footer file to load.

You can choose a file in the following file dialog by activating the button *Select.* You confirm your choice by pressing *OK* and the selected file is filled in at the corresponding position. If you have done all the setting, you confirm with *OK* for to begin to edit.

8.14.4 Dialog Symbol-Settings

See also:

Function keys visible/invisible
Siemens S5-V5 Function keys

You have chosen the symbols editing in the Select Simatic S5 Program. You enter the following necessary default options in this dialog.

- If you use a footer file for prints
- The name of the symbols file to load.
- The name of the footer file to load.

You can choose a file in the following file dialog by activating the button *Select*. You confirm your choice by pressing *OK* and the selected file is filled in at the corresponding position. If you have done all the setting, you confirm with *OK* for to begin to edit.

