SIPROM DR24

Graphical Configuration of the multifunction unit SIPART DR24

Manual

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SIPROM DR24

Operating Instructions

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SIPROM DR24

1. Introduction

SIPROM DR24 is a MS-WINDOWS application (32-Bit) for comfortable configuration of multifunction units SIPART DR24. It's possible to configure the old controllers DR24 (6DR2400-..) as well as the actual controllers (6DR2410-..).

The software includes a function library for the multifunction unit, which allows to define all function blocks on a maximum of 100 pages (FDEF). After defining and placing the blocks, they are connected from data sources to data sinks (FCON). Analog and binary signals are distinguished by colors. The position of the function blocks, i.e. their process sequence, is defined automatically.

The configuration entered via PC is saved on hard disk or diskette, output on a printer, or, if a SIPART DR24 is connected, transmitted to the controller via serial interface (RS 232C or Profibus DP).

For modification, storage, or tabular print-out, programs of the SIPART DR24 can be transferred to the PC as a tabular device data plan.

1.1 Components and Delivery

The software SIPROM DR24 is delivered on CD-ROM. The manual is on CD-ROM in the format MS-WINWORD.

A SETUP routine copies all files from the CD-ROM to a hard disk. The compressed files are decompressed during the copy procedure.

Contents of CD-ROM:

CD_DR24_221				
(Name 🔺	Size	Туре	Date Modified
	ackup		File Folder	28.01.2004 12:00
٦	Dokumentation		File Folder	28.01.2004 12:00
	콑 data1.cab	476 KB	WinZip-Datei	27.01.2004 14:38
	🖻 data1.hdr	24 KB	HDR File	27.01.2004 14:38
	콑 data2.cab	369 KB	WinZip-Datei	27.01.2004 14:38
	콑 data3.cab	1.424 KB	WinZip-Datei	27.01.2004 14:38
	콑 data4.cab	288 KB	WinZip-Datei	27.01.2004 14:38
	🔤 ikernel.ex_	332 KB	EX_File	05.10.2000 17:01
	🔟 layout.bin	1 KB	BIN File	27.01.2004 14:38
	LIESMICH.WRI	7 KB	WRI File	28.01.2004 11:57
	🖻 ReadMe.WRI	8 KB	WRI File	28.01.2004 11:58
	🖻 Setup.bmp	11 KB	BMP File	29.07.1999 13:09
	🛃 Setup.exe	53 KB	Application	05.10.2000 15:00
	🢁 Setup.ini	1 KB	Configuration Settings	15.01.2003 11:40
	🔟 setup.inx	152 KB	INX File	27.01.2004 14:38

1.2 Hardware and Software Requirements

Personal-Computer with Pentium CPU (e.g. SIMATIC-PG) in basic design for MS-WINDOWS XP, NT, 2000

RAM:	min. 64 MB
Hard disk:	10 MB free area
Drive:	CD-ROM
Graphic card:	fast graphic card (SVGA or better)
Serial Port:	COM 1 until COM 4 are supported
	Profibus DP via CP 5611 or CP 5511 for
	Laptops (cable see chapter 1.3.3)
Parallele interface:	LPT1 (CENTRONICS) for printings
Cable:	6DR2902-8AB for Point to Point-link
(RS 232C)	between PC (9-pol. female) and controller
	(9 pol. female)
(MPI-cabel, Profibus)	6ES7 901-0BF00-0AA0; 5m length

Note: By use of a SIMATIC programming device (e.g. PG 740) the hardware requirements for Profibus DP on the master side are not relevant. Via the integrated MPI-interface, it is possible to configure the SIPART DR24, if the software driver package "**SOFTNET-DP**" is installed.

Operating System:	MS-WINDOWS XP, NT, 2000	
	(MS-WINDOWS 95/98 as 32-Bit	Application)
Profibus DP driver:	SOFTNET DP Version ≥ 2.2	for CP 5611
	(6GK1 704-5DW61-3AA0)	(release: 10/2002)

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1.3 Connecting SIPART DR24 to the PC

The following links between SIPART controllers and higher-level systems can be realized with the interface module **6DR2803-8C** or **-8A**:

END-END connection (V.24/V.28 or RS 232C)



Figure 1.3.1 Setting RS 232C END-END with 6DR2803-8C



Figure 1.3.2 Setting RS 232C END-END with 6DR2803-8A

1.3.1 END-END data link (V.24/V.28 or RS 232C)

Generally, either shielded or unshielded round cable (e.g. LiYCY $4x0.14 \text{ mm}^2$) should be used for **END-END** data links. The maximum lengths are 10 m (shielded) and 30 m (unshielded).

PC - AT		SIPART D	OR SES
COM 1 4		6DR2803-8C	/ -8A
25 - pol. male		Jumper to END-E	ND
25 - pol. female C74451-A347-D	38	9 - pol. female C73451-A347-D3	9
TxD	PIN 2	PIN 3	RxD
RxD	PIN 3	PIN 2	TxD
GND	PIN 7	PIN 7 and 8	GND

PC - AT		SIPART D	
CONT 1 4		Jumper to END-E	ND
9 - pol. female C74451-A347-D	39	9 - pol. female C73451-A347-D3	9
RxD	PIN 2	PIN 2	TxD
TxD	PIN 3	PIN 3	RxD
GND	PIN 5	PIN 7 and 8	GND

 Table 1:
 END-END link (V.24 / V.28 / RS 232C)

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1.3.2 Profibus DP - Link

The Profibus interface (6DR2803-8P) uses another transmission technique as with RS 232C. A Point to Point link can be realized with a so called MPI cable (9-pin male).

Since Personal computers have no interface for Profibus DP, a special master card CP 5611 (or a CP 5511 in a laptop) has to plug into a PC.

Additionally to the card, a special driver software for MS-WINDOWS (SOFTNET DP) has to be installed.

The pin configuration of the cable follows from Fig. 1.3.7.

The Profibus cable have to set in position ON at the master side and the (last) slave with its terminating resistor.

6GK1 561-1AA00 6ES7 901-0BF00-0AA0

6XV1 830-0EH10 6ES7 972-0BA41-0XA0

Standard cable:	(see catalog: IK PI 2004)
Type of cable:	02Y (ST) CY
Terminating resistor:	150 \pm 15 Ω bei 3 bis 30 MHz
Conductor cross section:	\geq 0.64 mm ²
Working capacitance:	28.5 nF / km

Siemens-Order No.:

CP 5511.	
CP 5611:	
MPI – Cable:	
Standard cable:	
Bus connectors:	

≥ 0.64 mm² 28.5 nF / km 6GK1 551-1AA00

(Length: 5.00 m)

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Fig. 1.3.3 Profibus DP – Master – Slave link

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Configuration in "Settings", "Control Panel":

1. CP 5611 / 5511 and driver installation



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Introduction

2. MPI interface in a SIMATIC PG (PG 740,..)

Set PG/PC Interface (V5.0)	Properties - MPI-ISA on board(MPI)	×
Access Path	MPI	
Access Point of the Application: S70NLINE (STEP 7) -> MPHSA on board(MPI) (Standard for STEP 7)	Station Parameters PG/PC is the only master on the bus Address:	
Interface Parameter Assignment Used: MPHSA on board(MPI) NPHSA on board(Auto) MPHSA on board(CMP ROFIBUS) MPHSA on board(FDL) MPHSA on board(FVL) MPHSA on board(MPI) (Assigning Parameters to an On-Board MPHSA for an MPI Network)	Ime-out: 1 s Network Parameters Transmission Bate: Highest Station Address:	
Interfaces Add/Remove: Select OK Abbrechen	OK <u>S</u> tandard Abbrechen Hilfe	

On a Profibus DP with more than one master (PC/PG and SIMATIC S5/S7) there is a marking "PG/PC is the onely master on the bus" necessary in the settings according to point 1 or 2!.

1.4 Default settings in a SIPART DR24

For a communication with a PC, the SIPART DR24 must be prepared with default settings. If necessary, the factory settings are set with the function "All Preset" (Apst). In the level "Structure" (STRU) - "Off-Line-Parameters" (OFPA), the slave adress of the SIPART DR24 must be programmed accordingly:

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Operation	Display
Press gray key, tA5, for approx. 6 sec	"PS" in digital display dd3
Select "OFPA" with key tA2	"oFPA" / "roLL" / "PS"
Acknowledge with tA6	"oFPA" / "SEt" / "PS"
Acknowledge with tA4 for approx. 6 sec	"0.0" / "dA1.1" / "dA"
Select parameter "Snr" with tA6	"0" / "SES" / "Snr"
If required, change station number with tA2/tA3	
All other parameters of the serial interface remain in factory settings	
Return to process level with 2 x tA1	all displays are dark

1.5 Installing the Software from CD-ROM to Hard Disk

- Start from MS-WINDOWS XP (or MS-WINDOWS 95/98/NT 4.0/2000)
- Insert CD-ROM with SIPROM DR24 in the corresponding drive.
- Select command **Run** from the menu **File** of the Program-Manager or File-Manager.
- Enter **<LW>:setup** in the command line.
- Start by hitting the RETURN key or by clicking "**OK**".

This starts the SIPROM DR24 installation program which gives the necessary instructions for the installation:

Note: Before installing an update version, you should deinstall the old version via "Control Panel". The user data under "CONFIGxx" are not erased.

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- Directory:

The default directory is **C:\SIPROM\SIP_DR24**. If required, this path (drive and directory) can be changed.

SETUP will generate the program group "**Siemens Process Devices**" from where the program is started with "START, Programs, <Program group>".

1.6 Starting the Program under MS-WINDOWS XP (or NT, 2000)

SIPROM is started by <LeftClk> on the SIPROM DR24 icon in the program group.

 Image: Signed Signed

For a few seconds a SIPROM flash window appears:

After approx. 5 s the first window appears automatically. By pressing any button, you will come to the window, where you are asked to start for servicing or as a Specialist without delay time. Via *"Specialist"* you put in your password.

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The window "Password" appears after the flash of SIPROM DR24 in a few seconds. Then you can choose between "Specialist" and "Maintenance".

assword	? >
Specialist	ОК
Pasword:	Cancel

Insert your valid password and acknowledge with [OK]. The default setting for the initial program start is **SIEMENS** (big or small letters). The "Specialist" can change this setting at any time.

See chapter 2.1.7 "Options / Change Password.

2. Functions of SIPROM DR24

Generally, the former functionality of SIPROM DR24 under MS-WINDOWS 3.1 or MS-WIN95 has been maintained. In some points, however, the program has been extended.

The following extensions with regard to elder versions have been implemented:

- 1. New install procedure (InstallShield); Deinstallation is included
- 2. New filenames according to other SIPROM programs
- 3. Select language in install procedure: GERMAN/ENGLISH
- 4. New print functions
- 5. More document functions; Front- / Rear side and block diagram more Edit-functions
- 6. Zoom-function in EDIT window
- 7. Integration of all new functions of SIPART DR24 (6DR2410-..)
- 8. Now: 32-Bit-application for MS-WINDOWS XP (NT, 2000, 95, 98)
- 9. Communication via Profibus DP (CP 5611, 5511)
- 10. Protection of user program with keyword
- 11. Conversion of old DR24 data and continuation with modifications
- 12. Display program for process values and status information

2.1 Functions of the working window



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2.1.1 File, <u>N</u>ew ...



By selecting "**Graphic Layout**", an empty schematic is opened in the working area for graphic layout.

By selecting "Tabular Layout", you reach the working area for Tabular Layout.

In both cases the factory settings are loaded.

The graphic and tabular layouts are not linked within the software, that means that a DR24 cannot be read out in graphical mode.

Functions

After selecting a new graphical layout, an empty schematic appears with a function block library on the left side. The empty schematic has the format "Landscape".

Ļ	SIPR	OM DR24	2.2 -	[nonam	ie2]			
	🗌 File	Controller	Edit	Insert	Page	Options	Window	Help
	Comp Mathe	arison Co ematical L	mplex .ogical	Other Timing				
		<mark>vp s</mark> vps	Add Add					
		iv	LG					
		inE inE	Ln Ln					
	M M	l uLt ULt	Pot Pot					
		<mark>oot</mark> oot	SUB SUB					

2.1.2 File, Open ...

Open					<u>?</u> ×
Look in:	CONFIG01		•	(† 🖻 🔿	
Recent Desktop My Documents My Computer	図 2PCCN1.G24 図 3_CCN.G24 図 CCN1.G24 図 CCN1_2.G24 図 MATHCON.G24 図 MATHCON.G24				
My Network	File name:	TST_cloc2_RH.g24		•	Open
Places	Files of type:	Graphic Layout (*.g24)		•	Cancel
		Taphic Layout (*,924) Tabular Layout (*,124) Graphic Layout(*,pic) All Files (*,*)			

If you select one of the existing files with the extension ***.g24**, ***.t24 and *.pic** the conversion is done automatically.

Afterwards this file can be modified for a new DR24 (6DR2410-) by quitting with "<u>No</u>". All Input- and Output-functions stay in the 2-level-format, when it was an old file, by quitting with "<u>Y</u>es".

The 4-channel-format can be created with a new schematic or after converting with "No" to DR2410.

Regarding the kind of the loaded file, SIPROM DR24 switches to the actual device type:

SIPROM	DR24	×
?	You have set the device type to 6DR2410. The loaded program has the type 6DR2400. The device type can be changed to 6DR2400 (-> Yes), or the program can be converted for device type 6DR2410 (-> N0). Warning: A converted program cannot be reconverted! Change device type?	
	<u>Yes</u> <u>N</u> o	

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Functions

Selecting the extension *.**pic** loads a circuit design created under GEM/3 from a disk or hard-disk and converts it for further processing. PIC-files, which only include tabular device data are automatically loaded to the tabular layout.

Important!

A new device ist better set to factory settings with the function *"ALL PRESET"* in order that the extended RAM area is erased.

2.1.3 Controller, Load from controller ...

Load from contro	? ×		
Station number:	24 🔹	ОК	
		Cancel	

That function reads out a SIPART DR24 in tabular layout.

On the PC interface -COMx or PROFIBUS-DP- is connected a DR24 with the specified station number (example: 24).

2.1.4 Select controller type

Bevor you work with a graphic- or tabular layout you can select an old DR24 (6DR2400-) or a new one (6DR2410-).

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2.1.5 Options, Program ...

<u>? ×</u>
OK
Cancel

Important:

With "UNDO possible" you will get a loss of performance related to the type of PC, the existing area of RAM or the make of the graphics board!

2.1.6 Options, <u>Data Transmission</u> ...

ties	?×
COM1 💌	OK
9600 💌	Cancel
norM 💌	
no L 💌	
EvEn 💌	
	ties COM1 9600 norM no L EvEn V

With SIPROM DR24 it is possible to configure the controller via RS 232C and Profibus DP (CP 5611 / CP 5511). The parameters have to be the same on each side!

Modified settings remain active until they are rechanged, even after terminating SIPROM DR24.

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Functions

2.1.7 Options, Change Password ...

Change password	? ×
Old password:	
New password:	Cancel
Confirm password:	

The default setting of the password for a specialist "SIEMENS" can be changed with that function.

2.1.8 Options, Language ...

That function selects GERMAN or ENGLISH.

2.1.9 Help, Contents ...

The menu item "Help" includes all the different help functions of SIPROM DR24.

"About SIPROM DR24" displays the current release of the program.

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2.2 Functions in the working area

Ļ	🚦 SIPROM DR24 V2.2 - [noname3]							
	🗌 File - Contro	ller Edit	Insert	Page	Options	Window	Help	
	Comparison Mathematical	Complex Logical	Other Timing					
	<mark>Abs</mark> AbS	<mark>Add</mark> Add						
	div div	<mark>LG</mark> LG						
	LinE LinE	Ln Ln						

This window provides functions for creating a graphical data set for the SIPART DR24. Available data are read either from hard disk / diskette or from the connected controller for tabular layout.

The following menues are inserted to the working window:

Graphical layout:	<u>E</u> dit, <u>I</u> nsert, <u>P</u> age, <u>W</u> indow

Tabular layout: <u>Edit, Window</u>

Functions

2.2.1 <u>F</u>ile, <u>P</u>rint ...

🚦 SIPROM DR24 V	2.2 - [noname3]		Print	? ×
File Controller New Open Close Save Page Setup Print Compare Exit	Edit Insert Page Ctrl+N r r r Ctrl+O ng r r Ctrl+S r r r Ctrl+P r r r	Options	 Online parameters Offline parameters Clock parameters Clock parameters Hardware definition UNI-Module parameters Documentation inputs Documentation outputs Front side Rear side Graphic layout All Current page 	OK Cancel Setup Print preview

The function "*File, Print*" can print a graphical or tabular data set and/or the documentation of the device.

All parts of the device data (ONPA, OFPA, ... ec.) and even the complete connections on the rear side and front functions can be selected. When no data are selected, only the documentation header is printed out.

Another printer is selected via the function *Printer Setup*, in which other formats as "Portrait" or "Landscape" can be adapted.

The button *Print Preview* shows you the print in advance on the screen. This function shows the graphical and tabular device data on one or two pages at the same moment, which could be zoomed in two stages.

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2.2.2 File, Compare ...

The function "*File, Compare*" compares an actual data set in the RAM area with a file or with device data from a DR24. The differences in the different levels (Parameters, Hdef, Fdef, Fcon and Fpos) can be monitored via buttons and be printed out if required.



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Functions

SIEMENS

2.2.3 <u>C</u>ontroller, <u>L</u>oad from Controller ...

🚺 S	IPROM DR24 ¥2.2	Load from contro	ller	<u>? ×</u>
File	Controller Options Help			
	Load from Controller	Station number:	24 🚍	OK
	Save to Controller			Cancel
	Change Keyword			
	6DR2400			

After selecting [OK] the communication is started. The status display is monitored in the following window>

Data Transmission 🙎 🗙						
Data transmission is finished						
Close						

After [Close] the DR24 data can be monitored and changed in tabular layout format.

The function "Controller, Save to Controller ..." follows the same way.

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2.2.4 <u>Controller, Change Keyword ...</u>

Change keyword		<u>?</u> ×		
Station number:	24 🗧	ОК		
		Cancel		
Change keyword				<u>? ×</u>
Old keyword:	Г		🔽 Inaktiv	ОК
New keyword:	Г		🗹 Inaktiv	Cancel
Confirm keyword:	Г		🗹 Inaktiv	

That function will protect a user program in the referenced controller.

Activate Keyword:

- Select "New keyword" and "Confirm keyword"
- Edit keyword between "0 ... 65534"
- The protection is activated at once; only the On-Line-parameters can be changed now, all other levels are blocked; in the display "BLS" is monitored.

Change Keyword:

- Switch all edit fields to "activ"
- Edit "Old keyword"
- Edit "New keyword" and "Confirm keyword"

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Deactivate Keyword:

- With the keyword "65535" (FFFF_{Hex}) the protection is canceled permanent.
- If there is a wrong trial, the next trial can be started after a certain time:

1. Trial:	ca. 1 min.
2. Trial:	ca. 5 min.
3. Trial:	ca. 10 min.
each following trial:	ca. 1.5 hours

Starting with software release: **C5** the keyword protection of OFPA, CLPA, CAE4/5, HdEF, FdEF, FCON and FPOS in the SIPART DR24 (6DR2410-) can be realized.

Caution: By loss of the actual keyword, the controller have to be send back to the manufacturer!

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(blank page)

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3 Graphical Layout

Only the **Specialist** can carry out the following actions. A graphic layout is created by **inserting** blocks on one or several **pages** and by dragging **links** and - in case of paging - **transitions** between the blocks. Free **text** entries can be added to the created schematic. A block can be either a **function**, an **input**, an **output**, a **signaling function**, a **parameter**, or a **constant**.

3.1 Number of pages

The space requirements of the current graphic circuit can be defined in the menu item *Page / Numbers*:

🚦 SIPROM DR24 ¥2.2 - [3_CCN.	G24]
Tile Controller Edit Insert	Page Options Window Help
Comparison Complex Other Mathematical Logical Timing	Numbers Overview Selection
Abs Add	Load Save
div LG	145.5
Line Ln	tA5.U=YES/no (hdEF)
Page numbers	? ×
Horizontal: 🛛 🛨	OK Cancel

In the above dialog box, the space requirement was set to 9 pages. The maximum page number is 100; i.e., 10 vertical and 10 horizontal pages arranged in a matrix.

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3.2 Page Overview

The function "**Page, Overview**" prepositions a maximum of 10 visable function blocks on the selected pages.

It is possible to select more than 10 blocks, so far there is enough place on a selected page.

Functions on	page 173		? ×
Available Functions: Add AMEM AMPL And ASo bSo CoMP CoUn dFba	Add >>	Used Functions: AbS CoMP bSo Eor FiLt	Close

Page ov	erview									? 🗙
Page	FB 1	FB 2	FB 3	FB 4	FB 5	FB 6	FB 7	FB 8	FB 9	FB 10
1/1	Eor	And	AMPL	AMPL	AMPL	FiLt	FiLt	FiLt		
1/2	bin1	bin2	bin3							
2/1 2/2 2/3 3/1 3/2 3/3	Cen1 Cen2 Cen3	Cnt1								
					C	Clos	e]	Ch	ange	

Processing continues with the function *Page / Selection...* if another page than 1/1 is required.

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Select page	? ×
Horizontal: 🚦 🜩	OK
Vertical: 1 🛨	Cancel

With the menu *"Insert",* all the required blocks are selected, placed on the pages, and connected. Often used blocks are drawn from the left library window with the mouse to the actual page (FDEF).

SIPROM DR24 V2.2 - [3_CCN.G24]								
📰 File Control	ler Edit	Insert	Page	Options	Window	Help		
Comparison	Complex	Conr Text	ection	l	Ctrl+V Ctrl+T			
Mathematical	Logical	Func	tions		•	Mathematica	▶	
Aba		Inpu	t		•	Logical	•	AND
Aus	Auu	Output 🕨				Time	•	NAND
AbS	Add	Signalling Functions				Compare	•	OR
		Para	meters		•	Complex	►	NOR
		Cons	tants		+	Others	►	EXOR
div	LG							T-Flipflop
diu	10	1						D-Flipflop
	La					*****	a	Counter
		1			tA		dEF)	
LinE	Ln							
LinE	Ln	-						

3.3 Save pages



Partial circuits created on one page can be saved to the hard disk with the function *"Page, Save"*. Loading partial circuits with the function *"Page, Load"* from the hard disk to an empty page is possible, too.

The files have the extension *.**p24**. While loading, the software checks whether the blocks are still available or not. If not there will be a message box.

Important:

Old *.p24 files are not converted!

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3.4 Example Circuit



Figure 3.4.1: Example circuit from the manual SIPART DR24 (page 7-4 ff)

All graphic elements are inserted to page 1/1 and page 2/1 via the menu item *Insert*. The connections are inserted with the function *Insert, Connection* or the short-cut key *Ctrl+V*. The page transitions are inserted on the right edge outside the work space via mouse click.

Select page	? ×
Horizontal: 🙎 🗧	ОК
Vertical: 1 🛨	Cancel

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The free text entries are added via *Insert, Text* or the short-cut key *Ctrl+T*. The Edit-function is supported by the keys **DEL**, **BACKSPACE**, ... , but not **TAB**.

A quick page transition from page 1/1 to page 2/1 is carried out with the short-cut key $CTRL \rightarrow$ (cf. chap. 7).



Figure 3.4.2: Page 2 of the example circuit

3.5 Graphic properties

Starting from "Factory settings" its possible to change the graphical properties of the function blocks, the page transitions, the connection dots and text strings. The function will be select via "**Options / Graphic...**"

Graphic Properties		a 🛛
Arithmetic block	Connection	
- Line	Branching point	ОК
Weight [mm]: 01 🗧	Radius (mm): 0.8 🛨	Cancel
Color: Change	Line analog	
- Font	Weight [mm]: 0.1 🛨	
Arial, 8 Pt. Change	Color: Change	
	Line binary	
Page transition	Weight [mm]: 0.1 🌩	
Size	Color	
Height [mm]: 4 🕂		
Width [mm]: 10 🛨	- Text	
- Line	Font	
Weight [mm]: 0.1 🛬	Arial, 8 Pt. Change	
Color: Change		
Font		
Arial, 8 Pt. Change		

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4 Tabular Layout

The tabular layout is opened with the menue **File**, **New** Then, the pull down menu **Edit** displays the different configuration levels **Parameters**, **Define Hardware** (Hdef), **Define Functions** (Fdef), **Connect Functions** (Fcon), **Position Functions** (Fpos) and **Documentation**. Like for graphic circuit design, the different parameters are selected in pull down menus. The parameters of the Clock function block and the option "UNI-module" are only released, when the function "Cloc" was defined in FDEF or "Uni_..." in HDEF for AE4/5 was defined.

🚦 SIPROM DR24 V	2.2 - [noname2]	
🔄 File Controller	Edit Options Window Help	
	On-line Parameters Off-line Parameters Clock Parameters	
	Define Hardware Define Functions Connect Functions Position Function Setting UNI-Module(s)	
	Documentation	Protocol Header Inputs Outputs Front Side Rear Side

A new function is assigned either by selecting an arithmetic block and then [**Change...**] via mouse click or directly by double-click. In the selection list of **New Functions**, the valid functions of an arithmetic block

In the selection list of **New Functions**, the valid functions of an arithmetic block are displayed. The abbreviations of the function blocks are identical to the ones in the SIPART DR24 manual.

Ft	unction definitio	n (FDEF)	? ×	
	Arithmetic block	Function 🔺	Close	
	Ь01.F	AMPL		
	Ь02.F	AMPL	Change	
	Ь03.F	ndEF		
	Ь04.F	ndEF		
	605.F	ndEF	Function definition	(FDEF) 🦹 🗙
	Ь06.F	ndEF		
	607.F	ndEF	Arithmetic block	Function
	508.F	ndEF	Ь03.F	ndEF
	509.F	ndEF		
	D10.F	ndEF	New Function:	AbS 🔹
		NDEF		
		NGEF	OK	
	DI3.F	ndEF		MISE
	514.F	nuer		MIME
	616 F	ndEF		MASE
	617 F	ndEE		MAME
	618 F	ndEE		Ln
	619 F	ndEF		LinE
	620.F	ndEF		
	b21.F	ndEF		
	b22.F	ndEF 🔽		
	4			
1				

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Via mouse click and [**Change...**] or double mouse click on a **Data Sink**, a new **data source** can be assigned.

In the selection list **New Data Source**, the available data sources are displayed.



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Via mouse click and [**Change...**] or double mouse click on an [**Arithmetic block No.**], a new arithmetic block is assigned for the sequential programming. In the selection list **Arithmetic block**, the available arithmetic blocks are displayed.

Function positioning (FPOS)	?×
No. Arithmetic block	Close
002 h02.F 003 h03.F	Insert
004 h04.F 005 npos	Delete
006 npos 007 npos	Not Positioned
008 npos 009 npos 010 npos	Function positioning (FPOS) ? ×
010 npos 011 npos 012 npos	No. Arithmetic block
013 npos 014 npos	UU5 npos
015 npos 016 npos	Arithmetic Block: 601.F
017 npos 018 npos	OK (602.F d01.F
019 npos 020 npos 021 npos	
021 npos 022 npos 023 npos	

Note: With "Not Positioned", npos spacings are generated. These spaces are rejected as errors by the controller firmware, only after data transmission is completed.

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5 Edit Parameters

Via the menu item **Edit**, the parameter levels **On-Line Parameters**, **Off-Line Parameters**, **Clock Parameters** and **UNI-modules** (**CAE4/5**) could be selected. The Clock- and CAE4/5 parameters are selectable, when they are definened in HdEF or FDEF.

SIPROM DR24 V2.2 - [3_CCN.G24]								
📰 File Controller 🛛	Edit Insert	Page	Options	Window	Help			
Comparison Cor Mathematical Lo	On-line Pa Off-line Pa Clock Para	rameter Irameter meters.	s rs					
Abs AbS	Define Har Position Fu Setting UN	dware Inctions II-Modul	 e(s)		-			
	Documenta	ation			•			
div	Delete		De	el	5			
div	Cancel		Es	ic .	ļ			
	Undo		Al	t+Backspa	ce			
LinE LinE	Text Lu Ln		F	2				

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5.1 **On-Line-Parameters**

On-line parameter (ONPA)				? ×
Parameter	Sian	Value	Dimension	Setting range
Repetition rate digital display 1 input 1	dd1.1 dr	1	Cycles	1 to 100
Repetition rate digital display 1 input 2	dd1.2 dr	1	Cycles	1 to 100
Repetition rate digital display 1 input 3	dd1.3 dr	1	Cycles	1 to 100 —
Repetition rate digital display 1 input 4	dd1.4 dr	1	Cycles	1 to 100
Depotition rate digital display 2 input 1	440 1 Av	1	Cuolos	1 to 100
On-line parameter (ONPA)				? ×
Parameter Sign Value D Decadic parameter 2 Pd2 5 1	imension , s, 100, %	Setting ra	ange 9984]
	1	New Value	e: 夏	
		OK	Cancel	
Decadic parameter 4	Pd4	10	1, s, 100, %	0.100 to 9984
Decadic parameter 5	Pd5	10	1, s, 100, %	0.100 to 9984
Decadic parameter 6	Pd6	10	1, s, 100, %	0.100 to 9984
Decadic parameter 7	Pd7	10	1, s, 100, %	0.100 to 9984
	(Close	Change.	

New Values within the Setting Range can be entered in this box. Values outside the setting range are rejected. The new value is adopted by clicking [**OK**], clicking [**Cancel**] leads back to the **On-**

Line Parameters dialog.

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5.2 Off-Line-Parameters

Off-line parameter (OFPA)					?×
Parameter Start of scale analog display 1 input 1 Full scale analog display 1 input 1 Start of scale analog display 1 input 2 Full scale analog display 1 input 2 Off-line parameter (OFPA)	Sign V dA1.1 dA 1 dA1.1 dE 1 dA1.2 dA 1 dA1.2 dA 1 dA1.2 dA 1	/alue 0.0 100.0 0.0 100.0	Dimension % % % %	Setting range -139.9 to 199.9 -199.9 to 199.9 -199.9 to 199.9 -199.9 to 199.9 199.9 to 199.9 100.0 to 100.0	* ? ×
Parameter Start of scale analog display 1 input 1	Sign V dA1.1 dA (N	/alue 0.0 Iew Val OK	Dimension % lue: 0.0 Car	Setting range -199.9 to 199.9 ncel	
Full scale analog display 2 input 4 Decimal point digital display 1 input 1 Start of scale digital display 1 input 1 Full scale digital display 1 input 1	dA2.4 dE 1 dd1.1 dP dd1.1 dA 1 dd1.1 dE 1	100.0 0.0 100.0 Close	% Cha	-199.9 to 199.9 to -1999 to 19999 -1999 to 19999 -1999 to 19999	Y

New **Values** within the **Setting Range** can be entered in this box. Values outside the setting range are rejected.

The new value is adopted by clicking [OK], clicking [Cancel] leads back to the Off-Line Parameters dialog.

The parameters of the serial interface (Baudrate,, ... etc.) are not displayed. The printout of OFPA shows the controller adress always as "zero".

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5.3 Clock Parameters

Clock Parameters can be selected only, when the Clock function has been defined as type **d01.F**, **d02.F**, or **d03.F** in the **Define Function** level (FDEF).

Clock parameter (CLPA)				?×
Parameter Clock format relative clock Number of program cycles Acceleration factor Number of intervals program 1	Sign CLFo CLCY CLSB CLPr1 CLPr2	Value h,' CYCL 3 no	Dimension h,min / min,s 1	Setting range h,' or '," CYCL, 1 to 255 3 to 360 no, 01 to 40 ro, 01 to 40
Clock parameter (CLPA)				? ×
Parameter Sig Number of program cycles CL	jn <u>Value</u> CY CYCL	Dimer 1	nsion Setting r CYCL, 1 New Value:	range to 255 CYCL
			ОК	Cancel
			Close	Change

The change dialog for the required parameter is opened via mouse click and [**Change...**] or directly by double-click.

New **Values** within the **Setting Range** can be entered in this box. Values outside the setting range are rejected.

The new value is adopted by clicking [**OK**], clicking [**Cancel**] leads back to the **Clock Parameters** dialog.

Parameters

5.4 Define Hardware

Hardware definition (HDEF)		? ×
Hardware function Signal range analog input 5 Signal range analog input 6 Signal range analog input 7 Signal range analog input 8	Sign Value Range AE5 Uni no, 0 MA, 4 MA, Uni, Uni AE6 no no, 0 MA, 4 MA AE7 no no, 0 MA, 4 MA AE8 no no, 0 MA, 4 MA	
Hardware definition (HDEF)		? ×
Hardware function Sign Value Signal range analog input 5 AE5 Uni	Range no, 0 MA, 4 MA, Uni_, Uni New value: Uni_ V 0 MA 4 MA Uni. V	
Serial interface Key switchning key 1 Key switchning key 2 Key switchning key 3	SES YES no, YES KA1.U no no, YES, FOUR KA2.U no no, YES, FOUR KA3.U no no, YES, FOUR Close Change	4

The change dialog for the required parameter is opened via mouse click and [**Change...**] or directly by double-click.

New **Values** within the **Setting Range** can be entered in this box. Values outside the setting range are rejected.

The new value is adopted by clicking [**OK**], clicking [**Cancel**] leads back to the **Define Hardware** dialog.

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5.5 UNI - Modul (CAE4/5 - Parameters)

UNI-Module(s) settings (CAE4/CAE5)				<u>?</u> ×
Parameter Sensor type analog input 4 Temperature unit analog input 4 Thermocouple type analog input 4 Line resistance analog input 4	Sign SEnS AE4 unit AE4 tc AE4 Mr AE4	Value M∨ *C L 10.00	Dimension Ohm	Setting range Mv, to, in, to,EH, Pt.4L, Pt.3L, Pt.2L, r, r °C, °F, °AbS L, J, H, S, b, r, E, n, t, U, Lin 0.00 to 100.00 0.00 to 100.00
UNI-Module(s) settings (CAE4/CAE5)		BITT		? ×
Parameter Sign Valu Sensor type analog input 4 SEnS AE4 Mv	e Dimension New Val OK	n Settir Mv, t ue: too	ng range c.in, tc.EH, F e h Cancel	Pt.4L, Pt.3L, Pt.2L, r, r
Range end analog input 5	ME AE5	100.0		-1999 to 19999
	Close		Change	

The [**Change...**] dialog for the required parameter is opened via mouse click or directly by double-click.

New **Values** within the **Setting Range** can be entered in this box. Values outside the setting range are rejected. It is not a command to edit the parameters in big or small letters, with special characters (°) or linking dot.

Note: The value "H" for thermocouple type (tc / AE5) is equivalent to "K".

The new value is adopted by clicking [**OK**], clicking [**Cancel**] leads back to the **CAE4/5**- dialog.

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6 Documentation

Assignment and identification data of the controller setup are entered in these dialog boxes. The data appear in the printed controller documentation. You can use 20 characters with size 11 / Arial for landscape format and 13 characters with size 11 / Arial for portrait format

The header data are entered in the first dialog for the documentation cover and frame:

	<u> </u>
Company: Siemens AG	ОК
Name: A&D PI 1 MS	Cancel
Customer: Smith	
Order number: 08_11_2000	
Project: Check]
Measuring point: Test_01]
Label: 3_Ccn_G24]

The inputs of the SIPART DR24 are described by max. 110 characters / Arial/11 for the format DIN A4 / landscape.

Description inputs		? ×
Input Description AE1 AE2 AE3 AE4 AE5		<u> </u>
Description inputs		? ×
Input Description AE1	New Text: Analog input 01	
BE5 BE6 BE7 BE8		•
	Close Change	

In order to change text strings, you can use the standard edit keys, such as BACKSPACE, TAB, arrows, Del,

SIPROM DR24

The outputs of the SIPART DR24 are described by max. 110 characters / Arial/11 for the format DIN A4 / landscape.

Description outputs			?×
Output Description AA1 AA2 AA3 AA4 AA5			<u> </u>
Description outputs			? ×
Output Description AA1	New Text:	Analog output 01	
BA7 BA8 BA9 BA10			_
		Close Change	

In order to change text strings, you can use the standard edit keys, such as BACKSPACE, TAB, arrows, Del,

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Front display with examples for the different levels.

SIPROM DR24

Documentation

Rear side 🛛 🗙
Slot 1 Slot 2,, 6
1/23 (AE3) 1/24 (AE3+) PIN 1/23 1/21 (AE2) 1/22 (AE2+) PIN 1/21 1/19 (AE1+) 1/20 (AE1+) PIN 1/21 1/15 (BE1) 1/16 (BE2) 1/17 (BE3) 1/18 (BE4) PIN 1/15 1/12 (AA1) 1/13 (AA2) 1/14 (AA3) PIN 1/2 1/8 (BA5) 1/9 (BA6) 1/10 (BA7) 1/11 (BA8) PIN 1/8 1/4 (BA1) 1/5 (BA2) 1/6 (BA3) 1/7 (BA4) PIN 1/4 1/4 (BA1) 1/5 (BA2) 1/6 (BA3) 1/7 (BA4) PIN 1/4 1/4 (BA1) 1/3 (L+) PIN 1/4
OK Cancel Help



Rear side display of the different PIN connections.

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7	Short-cut Keys	
1.	Del	delete arithmetic block or link
2.	Esc	cancel action
3.	\leftarrow	scroll left
4.	\rightarrow	scroll right
5.	\uparrow	scroll up
6.	\downarrow	scroll down
7.	Shift + ←	scroll one line to the left
8.	Shift + \rightarrow	scroll one line to the right
9.	Shift + ↑	scroll one line up
10.	Shift + ↓	scroll one line down
11.	Ctrl + ←	scroll one page to the left
12.	$Ctrl + \rightarrow$	scroll one page to the right
13.	Ctrl + ↑	scroll one page up
14.	$Ctrl + \downarrow$	scroll one page down
15.	Ctrl + P	print
16.	Ctrl + O	load circuit design (Open file)
17.	Ctrl + N	new circuit design (New file)
18.	Ctrl + S	save circuit design (Save file)
19.	Ctrl + T	insert text
20.	Ctrl + V	insert link
21.	Alt + Backspace	undo last action
22.	I AB-key	l abulator ahead
23.	Shift + TAB-key	I abulator back
24.	Backspace	васкѕрасе

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8 Error messages

SIPROM	SIPROM DR24			
⚠	Timeout in waiting for the answer of the device			
	OK			
	Failed to open communication port			
	OK			

Check the connection of the SIPART DR24:

- the configuration of the PC interface
- cable connection
- power ON of the SIPART DR 24
- power OFF during transmission
- accordance of SIPART DR 24 configuration with OFPA: Station Number (Snr), Baud Rate (bdr), Longitudinal Parity Check (Lrc), Longitudinal Parity Position (LEt), Vertical Parity (Prt)
- <u>Note:</u> The configuration in SIPROM DR24 for data transmission and the configuration inside the controller have to be the same!

SIPROM DR24

On-line parameter (ONPA)	\times
Wrong value!	
OK)	

One of the parameters entered is outside the valid range.

SIPROM DR24		
	Please enter an integer between 1 and 10.	
	OK]	

Wrong input for number of pages (horizontal/vertical).

SIPROM DR24 🛛 🕅		
⚠	Function cannot be inserted!	
	OK	

It is not enough place for a new function block.

SIPROM	SIPROM DR24		
?	You have set the device type to 6DR2410. The loaded program has the type 6DR2400. The device type can be changed to 6DR2400 (-> Yes), or the program can be converted for device type 6DR2410 (-> N0). Warning: A converted program cannot be reconverted! Change device type?		

Collision between two different data sets!

SIPROM DR24

Error messages

SIEMENS

SIPROM DR24 🛛 🛛 🕅			
⚠	It is not possible to compare different device types.		
	OK.		

The data sets of a new DR24 and an old one are not comparable.

SIPROM DR24 🛛 🛛 🕅		
⚠	Wrong passwor!	
	OK	

Check your password once again.

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9 References

- /1/ Operating Instructions SIPART DR24, Serial SIPART DR24 V.28-Bus Interface Order number: C73000-B7476-C135
- /2/ Multifunction Unit Manual SIPART DR24, 6DR 2410 Order number: C79000-G7476-C153
- /3/ User's Guide Microsoft[®] Windows[™], Operating System NT Version 4.0 SP6 or greater Operating System XP Version 5.1 SP1 or greater
- /4/ The Windows[™] Interface An Application Design Guide

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10 Function Block EDITOR

With the editor "SIPROM DR24 Editor", the contours of the graphic blocks are changed on a default factory settings basis. The editor is located in the path "C:\SIPROM\SIP_DR24\" and is started from the File-Manager. However, the file "DR24CFG.INI" in the path "C:\SIPROM\SIP_DR24\" should be copied to a custom user path as backup, e.g. "C:\MYPATH\SIPROM\...", prior to starting.

A SIPROM DR24 Editor			
<u>F</u> ile	<u>Open</u> ⊻iew <u>C</u> ontroller	2	
	Eunctions •	Mathematical 🕨	dine.
	_Input ►	Logical 🔹 🕨	AND
	Output 🕨 🕨	<u>⊺</u> ime ►	<u>N</u> AND
10000	Signalling Functions	<u>C</u> ompare ►	<u>o</u> r
N. 390	Parameters •	C <u>o</u> mplex ►	NO <u>R</u>
	<u>C</u> onstants •	<u>O</u> thers 🕨 🕨	EXOR
			<u>T</u> -Flipflop
			<u>D</u> -Flipflop
177 M (10)			<u>C</u> ounter

After clicking **[OK]**, the modified coordinates are written to the respective positions of the file **"DR24CFG.INI"**.

The font size in the function blocks is adjusted to the block size via "File / Font".



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10.1 Example Subtractor (SUb)

Default factory settings for the coordinates of a subtractor:

🖬 SUb	
Width [mm]: 50 Height [mm]: 16 Width input [mm]: 15 Width output [mm]: 10 Height header [mm]: 4 Height footer [mm]: 0 Private parameters:	

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10.2 Example Binary Integrator (bin)

Default factory settings for the coordinates of a binary integrator:

🔚 bin1	
Width [mm]: Image: Constraint of the second sec	bin1 1 +4 in t UA, UE A .1A 2 -4 .1A 3 -4 .1A 1 +4 .

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10.3 Example Analog Input (AE1)

Default factory settings for the coordinates of an analog input:

E AE1	
Width [mm]:	
Height [mm]: 4	
Width input (mm):	
Width output [mm]: 15	
Height header [mm]: 0	
Height footer (mm):	
Private parameters:	
U od. 4mA (hdEF)	
Apply	

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11 Display of Process values

The program "SIPROM DR24 Display" shows all process variables and status bits, which could be found in the status registers STxx. The different variables can be selected from "<u>V</u>iew/Show process values" or "<u>V</u>iew/Show status register". The program is installed in "**C:/SIPROM/SIP_DR24**" and is started via "START, Programs ...".



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11.1 Process variables

25		? ×
**: <u>A</u> dd -> <- <u>R</u> emove	Show these p values in this : AE1 AE2 AE3 AA1.3 AA2.3 AA3.3 SAA1 SAA2 SAA3 SAA3 SAA3 SAA4	ocess sequence: Cancel
	23: <u>A</u> dd -> < <u>- R</u> emove	235 <u>A</u> dd -> <u>A</u> dd -> <u>AE1</u> <u>AE2</u> <u>AE3</u> AA1.3 AA2.3 AA3.3 SAA1 SAA2 SAA3 SAA3 SAA4 <u>U</u> P

11.2 Status registers



The meaning of the single bits, you will find in the manual "Serial interface of SIPART DR24" (C73000-B7476-C135): see CD-ROM under \Documentation.

SIPROM DR24