SIPART
Software

9

Notes:

Parameterization and configuration of the controllers SIPART DR19, DR21 and DR22 with SIMATIC PDM software!
For detailed information about SIMATIC PDM see catalog FI 01.

The whole programs mentioned in this catalog section are class B software products. The „Agreement concerning the use of software products with a unique payment" is valid for these programs.
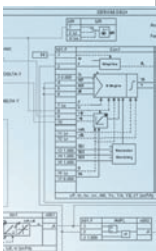
SIPART Software

Application

The SIPART DR compact controllers are microprocessor-controlled autonomous devices and can be used for reliable automation of processes. Process operation and monitoring as well as parameterization and configuring are carried out on the front module (control unit) of these controllers.

In addition to their use as individual devices in stand-alone mode, the SIPART DR compact controllers also enable serial communication with automation systems or personal computers for central operation and monitoring or for parameterization and configuring. The controllers are equipped with an RS 232/485 or PROFIBUS DP interface module for these tasks.

The RS 232/485 interface module 6DR2803-8C provides electrical isolation between the individual controllers and the higher-level system. Any combination of up to 32 SIPART DR devices can be connected via the addressable interfaces.

In RS 232 mode, the interface is implemented as a point-to-point. The SIPART DR controllers (see Overview Section 8) can also communicate with higher-level systems using an RS 485 interface.

The PROFIBUS DP interface module 6DR2803-8P permits up to 122 controllers to be connected as slaves to master modules in a programmable controller such as e.g. SIMATIC S5 or S7. The controllers are connected via a common line (2-wire copper or fiber-optic cable). Refer to Catalog IK PI for the PROFIBUS accessories (Order No.: E86060-K6710-A101-A9-7600).

Design

In RS 485 mode (see Overview Section 8), a bus driver is not required. The controllers are connected directly to the central unit or the interfaces (see Fig. 9/1).

In PROFIBUS DP mode the controllers are connected to a DP master module in series using a 2-wire copper cable (Fig. 9/3). SIMATIC NET repeaters or optical link modules (OLM) are required to cover longer distances (see Catalog IK PI).

Hardware components

■ Serial interface (SES) 6DR2803-8C

The interface module has a nine-way subminiature connector to connect it to the bus cable. Jumpers on the interface module enable a choice to be made between RS 232 mode (point-to-point) or RS 485 mode.
The terminating resistor required for RS 485 operation is already present on the interface module.

■ PROFIBUS DP interface (6DR2803–DP)

The interface module directly satisfies the PROFIBUS DIN 19245, Parts 1 and 3 (without additional bus driver). The module has a 9-contact Sub-D socket for connection to the PROFIBUS DP. Standardized PROFIBUS plugs can be used (see Catalog IK PI).

■ Connecting cable
1. SIPART DR19/DR21/DR22 "New"/DR24 "New" controller – system from other manufacturer connection using RS 485

The communication to higher-level systems takes place with a 2–wire connection via an RS 485 interface.
The 9-way female connector for round cables is preferred for the connection.
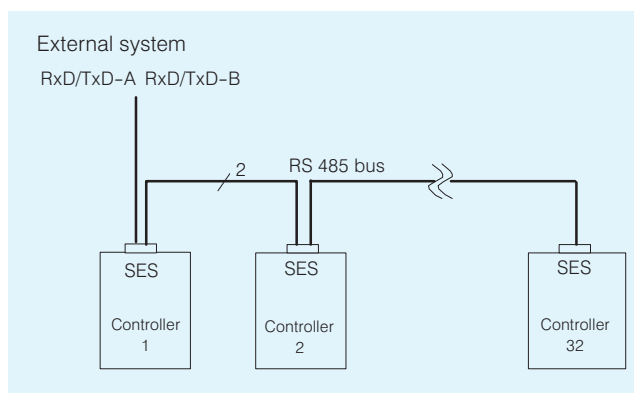

Fig. 9/1   Serial interface using RS 485

2. Controller – Personal Computer as point-to-point connection

Two different cables with different connectors are available:

– 25-way male connector (e.g. COM 1 of SIMATIC programmers) and a 9-way female connector to the controller.

– 9-way female connector (e.g. COM 1/2 with standard personal computers) and a 9-way female connector to the controller.

3. Controller – PROFIBUS-DP connection

PROFIBUS provides a comprehensive range of bus components for electrical and optical transmission (see Catalog IK PI).
Different connecting cables (for point-to-point connection) for controller configuring via PROFIBUS-DP are available e.g.:
6ES7 901-4BD00-0XA0   (IK PI)
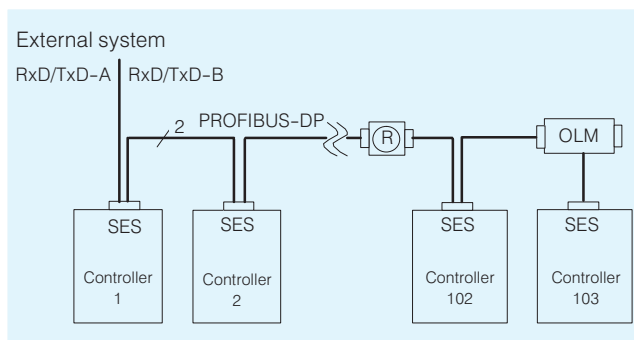6ES7 901-0BF00-0AA0   (IK PI)

Fig. 9/2   Serial interface using PROFIBUS DP

9

Serial interface/hardware

Technical data

Connectable devices	For PROFIBUS DP up to address 125
SIPART DR19 controllers	Software release B01 or newer
SIPART DR20 controllers	Software release B07 or newer (max. Adr. 31)
SIPART DR21 controllers	Software release A07 or newer
SIPART DR22 / DR22N controllers	Software release B07 / (C03) or newer
SIPART DR24 / DR24N multi-function unit	Software release B04 / (C03) or newer

Serial interface
6DR2803-8C

Transmittable signals	V.24/V.28 signals to CCITT-V.24: TxD (103), RxD (104) and GROUND (102) or SIPART bus or RS 485 2-wire system (with SIPART DR19, DR21, DR 22N or DR24N only)
Transmittable data	Status flags, process variables, parameter settings and configuring switch settings
No. of addressable devices per connection	Max. 32
Transmission	Asynchronous, half-duplex
Transmission rate	300, 600, 1200, 2400, 4800 or 9600 bit/s
Character frame	10 bit (start bit, 7 data bits of an ASCII character starting with the LSB, parity bit and stop bit), even or odd parity
Transmission procedure	To DIN 66 258, Part 1, configuration A or B, optionally with or without longitudinal redundancy check LRC, before or after the end-of-message ETX, normal or complementary longitudinal redundancy check
Galvanic isolation	Between TxD, Rxd and the controller

PROFIBUS-DP interface
6DR2803-8P

Transmittable signals	RS 485, PROFIBUS-DP/V1 protocol
Transmittable data	Status flags, process variables, parameters and configuring switches
Transmission procedure PROFIBUS DP/V1 protocol	To DIN 19 245 Parts 1 and 3 European standard: EN 50 170
Transmission rate	9.6 kbits/s to 1.5 Mbits/s
Station No.	0 to 125 (note software version of controller) (0 to 31 with SIPART DR20)
Electrical isolation between RxD/TxD -P/-N and the device	Max. UC 50 V common-mode voltage
Test voltage	AC 500 V
Repeater control signal CNTR-P	5 V –0.4 V/+0.2 V, short-circuit-proof
Cable lengths: per segment at 1.5 Mbits/s	200 m; for further data see IK PI

Ordering data

	Order No.
RS 232/RS 485 interface module (SES), switchable for SIPART DR compact controllers	6DR2803-8C
PROFIBUS-DP module for SIPART DR compact controllers for direct communication via the PROFIBUS DP	6DR2803-8P
RS 232 connecting cable for point-to-point connection, for controller to PC on COM interface	
– 9-way female to 9-way female	6DR2902-8AB
– 25-way male from PC to 9-way female on controller	6DR2902-8AC
Length: 5 m	

Connection for ribbon cable/round cable

Female connector 9-way for round cable (screw-type, for interface module)	C73451-A347-D39
	(see Catalog IK PI)
PROFIBUS-DP connecting cable point-to-point connection for controller to PC/PG with CP 5611, 5511 or MPI interface	
PROFIBUS con. cable: 3 m (IK PI)	6ES7 901-4BD00-0XA0
MPI cable 5 m (IK PI)	6ES7 901-0BF00-0AA0

Operating Instructions "V.28 Serial Interface"
These instructions are only required if you wish to write your own communications software. The interfaces are described in the controller manuals and operating instructions.

For SIPART DR20 controller (Internet)	
– German	C73000-B7400-C128
– English	C73000-B7476-C128

The following Instructions can be downloaded from Internet (www.siemens.com/sipartdr)
SIPART DR
PROFIBUS interface / Instructions
(Description of the communication via PROFIBUS DP with the controller SIPART DR19/20/21/22/24)
– German
– English

SIPART DR19, 21, 22 and 24
Serial SIPART 6DRxx Bus interface / Instructions
(Description of the communication via RS 232, RS 485 or PROFIBUS DP)
– German
– English

Available ex-stores:
Items marked ▬ are available ex-stores.

9

Communication driver for S7 / PCS 7

All replacement products of 6DR1126–xxxxx will be delivered via SIEMENS I&S IS E&C IT OOP 4 Khe

Contact: Roland Heid
E–Mail: Roland.Heid@siemens.com

SIPART Software

Graphic configuration using SIPROM DR24

Application

The SIPROM DR24 program is used for the graphic programming of the SIPART DR24 multi-function unit. It includes all the configuration and parameterization of the multi-function unit using a graphic operator interface (MS Windows).

SIPROM DR24 runs on the following computers:
1. Personal computer with operating system MS-Windows 95/98/NT/2000/XP
2. SIMATIC PGs programmable controllers with operating system MS-Windows 95/98/NT/2000/XP

The core functions of the SIPROM DR24 are:

- Documentation updating of complete user programs in the SIPART DR24 in tabular form. Controller data can be modified in the PC, saved, and downloaded again to the multi-function unit
- Function library containing all of the SIPART DR24 function elements.
- Positioning of the elements with a mouse click on maximum 100 sheets. Positioning can be carried out within one sheet or more (FDEF)
- Connection of function blocks from data source to data sink (FCON) where the analog and digital signals can be differentiated by their color
- Positioning (FPOS) of the function blocks i. e. the order of the software processing is automatically fixed. It can be changed at any time by a mouse click
- Parameter input in tabular form (ONPA, OFPA, CLPA)
- Transmission of complete graphic configuration to SIPART DR24, to the printer and on floppy or hard disk
- Duplication of user programs. The programs stored in a user program memory are fetched and then copied from the PC to other empty program memories.
- Documentation of complete multi-function unit: front assignment and rear including all inputs and outputs
- Moving of blocks without destroying interconnections.
- Insertion of text strings where required
- Symbol alignment using grid points (can be toggled on and off)
- Choice of graphical or tabular configuration
- Layout check over 2 pages
- Page by page storage and loading of partial circuits
- Multiple use of constants
- UNDO facility (can be toggled on and off)
- When processing a graphics circuit scaling up or reducing is possible (zooming)
- Controller data generated by previous SIPROM DR24 software versions can be edited.

Hardware and software requirements

- Hardware

  Personal Computer, permissible for MS-Windows XP
  - Hard disk ≥ 500 Mbyte
  - Memory capacity ≥ 64 Mbyte
  - CD-ROM drive
  - Color grafics card, supported by Microsoft Windows but at least with SuperVGA functionality (from 800*600 pixels upward)
  - Printers, plotters, supported by Microsoft Windows

  - DP master module for PC:
    CP 5611: 6GK1 561-1AA00
    DP master module for laptops:
    CP 5511: 6GK1 551-1AA00
  - SIMATIC PG with built-in MPI Interface

  - Serial interface in the SIPART DR24:
    RS 232: 6DR2803-8C
    PROFIBUS-DP: 6DR2803-8P
  - Connecting cable:
    for RS 232/"point-to-point" 6DR2902-8AB/-8AC
    for PROFIBUS-DP/3 m: 6ES7 901-4BD00-0XA0 see IK PI
    for PROFIBUS-DP/5 m: 6ES7 901-0BF00-0AA0 see IK PI

- Software

  - Operating system Microsoft Windows XP or operating system Microsoft Windows 95/98 (32-bit version only), 2000, NT 4
  - PROFIBUS-DP driver "Softnet DP" Version ≥ 2.2 for PCs/PGs, Order No. 6GK1 704-5DW61-3AA0 [1]
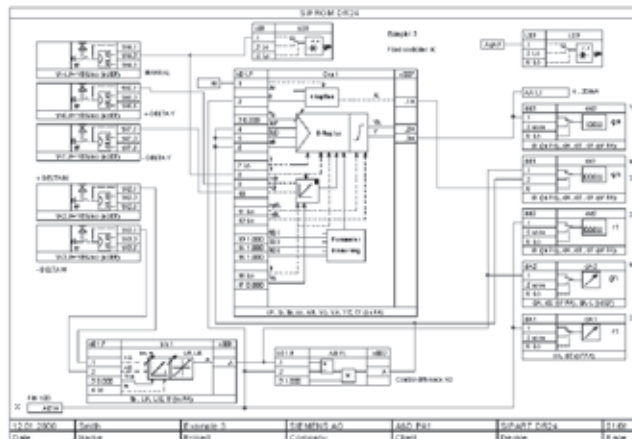

Fig. 9/5   SIPROM DR24

Ordering data

	Order No.
SIPROM DR24 program for SIPART DR24 controllers – German/English	6DR1127-1BA00
Update – German/English	6DR1127-1BA00-0UD3

Scope of supply SIPROM DR24
Program and manual (English and German) on CD-ROM

Update note
The update ordering requires the proof of an old complete individual license!

[1] The required drivers are not included in the SIMATIC programmable controller delivery.

9