

# SIEMENS

## SIPART DR – Closed-Loop Controllers for Clear-Cut Process Control



# SIPART DR

## The First Family for All Applications

Over the years, users have increasingly turned to SIPART DR for industrial process control.

There are several very good reasons for this: Apart from the high quality and control response and experience in over 200.000 installations, the SIPART DR range of controllers provides an unparalleled design and operating concept within the clear framework of a graded product range and delivery direct from stock.

SIPART DR controllers are available in the following versions, sorted according to application area:

**SIPART DR19** - in 96 x 96 mm format for industrial applications such as mechanical and systems engineering, for thermal processes in the steel or ceramics industry, in painting, water treatment or bottling plants.  
SIPART DR 19 provides an extensive functional scope combined with clear operator control and display technology.

The following controllers are recommended for applications in the process industry:

The **SIPART DR20 / SIPART DR21** are ideal solutions for all standard tasks with various performance profiles for display, control functions and status messages.

The **SIPART DR22** is intended for complex closed-loop control systems, a wide variety of computing functions in the input range, any number of inputs and outputs and a convenient process display.

The **SIPART DR24** is a multitalented unit for all process-specific tasks such as mathematical calculations, logic operations, open-loop controls, time-controlled closed-loop controls, single until four channel controllers. All these features set the SIPART DR24 apart from other process controllers in the automation world.

All products and options are available immediately, direct from stock.

You receive them within 3 days - anywhere in Europe.

If you want to give yourself a refresher course in control technology, you're talking to the right people. We hold a selection of control courses in our training centers, with special emphasis on practical hands-on experience.



Industrial controllers

### SIPART DR19

This unique controller sets standards in its class for display and operating convenience

#### Input structure

Fixed setpoint controller	x / up to 5 setpoints
Follow-up controller	x
Ratio controller / variable	x / x
Cascade controller	-
Override controller	-
SPC - / DDC -controller	x / -
Independent controllers	1
Program controller	x

#### Output structure

Cont.-action controller (20mA)	x
Step-action controller	
-Binary signal (24 V)	x
-Relay	x
Two-step controller for heating/cooling	
-Binary signal (24 V)	x
-Relay	x

#### Input and output signals

20 mA analog inputs*	0, max. 3
Direct probe connections	1, max. 3
Analog outputs*	1
Binary inputs*	2, max. 7
Binary outputs*	2, max. 8
Slot for optional module	4

#### Display and signalling functions

Digital indicators (LED)	2 x 4 digit
Analog indicators (LED)	1 x 21 segments
Signal diodes / of which alarms	11 / 4

#### Other performance features

Adaptive tuning	x
Arithmetic	-
Interface RS232	x (Option)
RS485	x (Option)
Profibus interface	x (Option)
PC-based configuration software	SIAMATIC PDM
Auxiliary power UC	24 V
AC	115 V / 230 V
Front dimensions (mm)	96 x 96
Mounting depth (mm)	199
Front design	



**Process controllers  
SIPART DR20**

This proven controller is ideal for all standard tasks with experience in over 100,000 installations



**Process controllers  
SIPART DR21**

This convenient controller is suitable for all standard tasks with extensive display features



**Process controllers  
SIPART DR22**

The universal controller for complex closed-loop control systems with

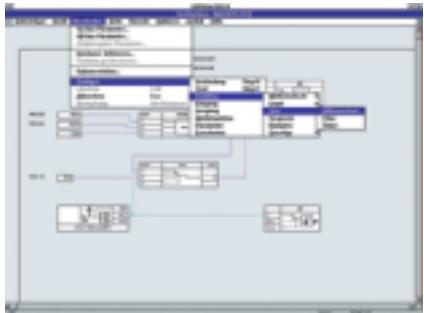


**Process controllers  
SIPART DR24**

The configurable multitalented controller with control and computing capability, for complex closed-loop control tasks with extensive display features

x	x / up to 2 setpoints	x / free configuration	x / free configuration
x	x	x	x
x / -	x / x	x / x	x / x
-	-	x	x
-	-	x	x
x / x	x / x	x / x	x / x
1	1	2	4
-	-	-	x
x (standard unit: cont.-action contr.)	x	x	x
x(Option)	x	x	x
x (standard unit: step-action contr.)	x	-	-
x(Option)	x	-	x
x (standard unit: step-action contr.)	x	-	-
2, max. 4	2, max. 4	3, max. 11	3, max. 11
0, max. 2	0, max. 2	0, max. 2	0, max. 2
1 (standard unit: cont.-action contr.)	1	3, max. 9	3, max. 9
1, max. 2	2, max. 7	4, max. 14	4, max. 14
1, max. 5	2, max. 8	8, max. 16	8, max. 16
4	4	5	5
1 x 4 digit	1 x 4 digit	2 x 4 1/2 digit	2 x 4 1/2 digit
1 x 2 digit	1 x 2 digit	1 x 3 digit	1 x 3 digit
1 x 21 segments	2 x 30 segments	2 x 30 segments	2 x 30 segments
6 / 2	11 / 4	11 / 4	11 / 4
-	x	x	x
-	-	x	x
x (Option)	x (Option)	x (Option)	x (Option)
-	x (Option)	x (Option)	x (Option)
x (Option)	x (Option)	x (Option)	x (Option)
SIMATIC PDM	SIMATIC PDM	SIMATIC PDM	SIPROM DR24
24 V	24 V	24 V	24 V
115 V / 230 V	115 V / 230 V	115 V / 230 V	115 V / 230 V
72 x 144	72 x 144	72 x 144	72 x 14
190	197	278	278
NAMUR-compliant	NAMUR-compliant	NAMUR-compliant	NAMUR-compliant

# Software Adds to the Attraction of Our Controllers

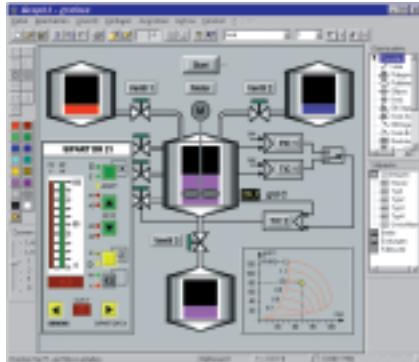


In addition to their reliability, SIPART DR controllers are characterized particularly by the ease of operation, thanks to indicators and operating elements located on the front panel of the unit. A variety of software packages is available, supporting serial communication with PCs and SIMATIC PLCs. These packages make SIPART DR controllers even easier to handle and expand their application area even further.

## Configuration, feedback documentation and archiving

SIMATIC PDM: The SIPART DR19, DR 20, DR21 and DR22 controllers are integrated in SIMATIC PDM, which is a universal tool for configuring and parameterizing intelligent process devices via a uniform operator interface. The device parameters and functions are represented in the same way for all process devices supported by SIMATIC PDM and independent of the communication link. SIMATIC PDM executes both under Windows 95 and Windows NT. As regards the SIPART DR controllers, communication links for Profibus-DP or RS232C / RS 485 (from end of 1999) can be configured.

SIPROM DR24:SIPROM DR24 makes graphical configuration of the multi-functional SIPART DR 24 child's play. SIPROM DR24 can be installed under Windows NT and provides communication links for Profibus-DP or RS232C / RS 485.



## Man-machine interface

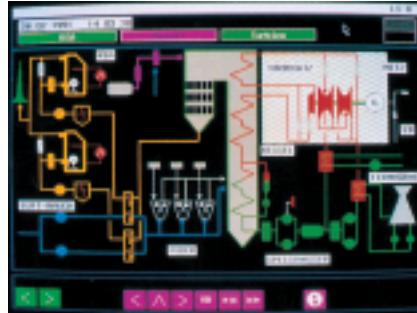
WinCC is a convenient man-machine interface for enhanced operator control and process monitoring on PC. Based on the powerful Windows 95 / Windows NT operating system, WinCC provides all the visualization functions to make process control simple and transparent: trend charts, alarm logs, flow charts and much more.

The SIPART/WinCC communications driver provides the user with all data from the SIPART controllers via the COM interface of the PC. This simplifies integration into WinCC.

## SIPART to SIMATIC link

In hybrid automation systems for industrial processes based on SIPART DR and SIMATIC, control tasks can simply be distributed by the PLC and solved on-site. The controllers offer a user-friendly, local, man-machine interface for this purpose.

All process data can be read by the host system via the serial link for further processing, and it also has access to the operation and parameterization functions of the on-site controllers.



The following types of link are available:

- Via RS232/SIPART bus and CP 544B communications processor to the SIMATIC S5-115U to 155U using the SIPART SW S5 link software.
- Via PROFIBUS DP and IM 308-C interface submodule to SIMATIC S5 using the SIPART S5 DP link software.
- Via PROFIBUS DP to SIMATIC S7-300/400 using the SIPART S7 DP link software.

The software packages SIPART SW S5 and SIPART S5 / S7 DP offer the user standard function blocks that present the controller data in the SIMATIC PLC for further processing and that reduce engineering costs considerably.

# Option Modules – For Tailor-Made Function Expansion Easy to Use: Just Install Them Whenever You Like



Even the standard configurations of SIPART DR controllers provide comprehensive closed-loop control hardware. However, for special applications, the standard units are easy to expand with option modules. The option modules are inserted from the rear side in the otherwise closed controller unit. This procedure is also possible during process operation. Special tools are not required. With a small number of exceptions, the option modules can be used in all SIPART DR controllers.

## The following option modules are available:

### [U/I module \(all controllers\)](#)

Current input 0/4 to 20 mA or voltage input 0/0.2 to 1V or 0/2 to 10 V, with electronic potential isolation

### [R-module \(all controllers\)](#)

for potentiometers up to 1200 Ohms

### [TC-module \(all controllers\)](#)

for thermocouple types

T, J, K, E, S, R, B, U, L

### [Pt 100 module \(all controllers\)](#)

for Pt 100 resistance thermometers

UNI module (SIPART DR 19/21/22/24)

for Pt 100 resistance thermometers or thermocouple types T, J, K, E, S, R, B, N, U, L or -175 mV + 175 mV, via intermediate connector also 0/4 to 20 mA or 0/2 to 10 V or resistance-type sensors to 2800 Ohms

### [3 x U/I module \(SIPART DR 22/24\)](#)

3 channels for current input 0/4 to 20 mA or voltage input 0/2 to 1 V or 0/2 to 10 V, with electronic potential isolation

### [y hold module \(SIPART DR 22/24\)](#)

1 analog output 0/4 to 20 mA, output is kept in operation on CPU failure in combination with an external power supply, and 1 x 24 V binary output for fault signalling

### [3AA/3BE module \(SIPART DR 22/24\)](#)

3 analog outputs 0/4 to 20 mA and 3 x 24 V binary inputs

### [5BE module \(SIPART DR 19/21/22/24\)](#)

5 x 24 V binary inputs

### [2-relay module \(all controllers\)](#)

2 relay outputs, selector switch, operating voltage up to 35 V



### [4BA/2BE module \(all controllers\)](#)

4 active 24 V binary outputs and 2 x 24 V binary inputs

### [Interface modules](#)

For communication with host systems, the following interface modules are available:

- Profibus DP (all controllers)
  - Transmission rates up to 1.5 Mbit/s
  - Up to 125 nodes on one bus
- RS 232/RS485 module
  - Transmission rates up to 9.6 Kbit/s.
  - RS 232 as end-end link or SIPART bus for up to 32 controllers (all controllers)
  - RS 485 up to 32 nodes (DR 19, DR 21, DR 22, DR 24)
    - Transmission rates up to 9.6 Kbit/s.

All process variables can be transmitted; operating states, setpoints, manipulated variables, parameters and structures can be transmitted and received.

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Subject to change without prior notice

Order No. E20001-A0040-P710-X-7600

Printed in Germany

DISPO 27900 / SEK 30493

41C6763 P1.ALLG.52.0.11 WS 04005.0

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