

## SIPART DR24 multifunction unit

### Product overview

#### Overview



SIPART DR24 is a process controller as single-channel or dual-channel controller for complex control tasks, with additional computing functions in the input area. The digital controller in 72 × 144 mm format is suitable for all process-specific tasks such as mathematical calculations, logic operations, open-loop controls and time-controlled closed-loop controls.

#### Application

The SIPART DR24 multifunction unit is used for calculating, open-loop and closed-loop control in process engineering. It can be freely configured to match the respective task. During structuring, the functions stored in the memory are called (see table on page 4/3) and connected through simple assignment to one another as well as with the inputs and outputs and the indicators and buttons of their operator control and display unit.

No programming knowledge is required for this task.

The multifunction unit can be connected to higher-level automation systems, control systems or process computers in analog, parallel connection technology as well as over an addressable serial interface with bus capability.

The multifunction unit is suitable for installation in panels, consoles or cabinets.

Application examples:

- Computer for mathematical equations, chronological processes, logic operations and parallel computation processes
- Programmers (timers) also in connection with closed-loop controllers, calculations and open-loop controllers
- Closed-loop controllers with continuous manipulated variable and/or three-point step controllers; inputs and outputs of the controller blocks can be freely configured, e.g. with computation and control functions; as individual controller or for parallel operation of up to four independent control loops, for selection controllers, cascade controllers, SPC or DDC operation
- Program controllers; up to 8 programs
- Boiler controllers with mathematical evaluation of the process variables (min./max. selection, correction calculator, etc.)
- Burner controllers with control functions
- Thermodynamic process controllers and calculations (enthalpy)
- Furnace and zone controllers with scheduled setpoint control and linearization
- Test bed open-loop and closed-loop control
- Process controllers along conveyor lines (e.g. conveyor belt) with dead time element
- Pump limit controllers
- Transformers of analog and binary process variables from and to serial interface
- Process monitoring (thresholds, failure messages, etc.)
- Dependent and mutual locking as well as override setpoint control
- Multiplexers for process variables and/or setpoints
- Weighted averaging using sampling values

**Application** (continued)**Functions (basic and complex functions) of the multifunction unit**

<b>Mathematical functions</b>		<b>Control functions</b>	
AbS	Absolute value	Ccn	PID controller with continuous output, S controller with internal or external tracking (4)
Add	Add	CSE	PID controller with continuous output, S controller with internal or external tracking (4)
AMPL	Differential amplifier	CSi	PID controller with continuous output, S controller with internal or external tracking (4)
div	Divide, reciprocal value		
FUL	Function generator (3)	<b>Logic functions</b>	
FUP	Function generator (2)	And	AND
LG	Logarithm base 10	dFF	D-Flipflop
LinE	Linear equation	Eor	EXCLUSIVE OR
Ln	Logarithm base e	nAnd	NAND, also inverse
MuLt	Multiply, negate	nor	NOR, also inverse
Pot	Potentiate	or	OR
CPT	P/T correction calculator (2)	tFF	T-Flipflop
root	Square root extraction	tiME	Timer
SUB	Subtract, negate	CoUn	Counter
SPr	Split range (8)	PUM	Pulse width modulation (4)
<b>Time functions</b>		<b>Switches</b>	
AFi	Adaptive filter (2)	MUP	Measuring point switch (multiplexer) (2)
diF	Differentiate (high-pass)	ASo	Changeover switch for analog variables
FILt	Filter (low-pass)	bSo	Changeover switch for binary variables
Ain	Integrator, analog input (4)	Cnt	Demultiplexer
bin	Integrator, binary input (6)	<b>Memory functions</b>	
tiM	Timer	AMEM	Analog value memory
dti	Dead time element (2)	dFF	D-Flipflop
CLoc	Timer (1)	Ain	Integrator with analog input, tracked (see above)
<b>Comparison functions</b>		bin	Integrator with binary input, tracked (see above)
dEbA	Response threshold	NAME	Maximum memory
LiMi	Limiter	MiME	Minimum memory
MASE	Maximum selection	tFF	T-Flipflop
MiSE	Minimum selection	<b>Programmings</b>	
AMPL	Differential amplifier	CLoc	Timer (see above)
CoMP	Comparator with hysteresis, limit encoder		

The functions marked with (x) are complex functions that can each be used x times (x = 1, 2 or 3). All other functions are basic functions that can be used in any order and frequency (max. 109 times).

The short names of the functions are displayed during parameter assignment and structuring by the 7-segment indicators of the multifunction unit.

## SIPART DR24 multifunction unit

### Technical description

#### Design

The SIPART DR24 has a modular structure and is therefore service-friendly as well as easy to convert and retrofit. It consists of a basic unit in which additional signal converters can be inserted to expand the range of application. These modules are inserted in the slots on the back of the device (see figure "SIPART DR24 multifunction unit, rear view")

The basic unit consists of:

- Front module with the control and display elements
- Main circuit board with CPU and terminal strips
- Polycarbonate enclosure with connector circuit board and power supply unit

The electrical connections between the individual modules are established via the connector circuit board screwed into the enclosure. The main circuit board is inserted into slot 1 on the back and interlocked. It has one 10-pin and one 14-pin plug-in terminal strip via which all inputs and outputs of the basic unit are connected. Five additional slots can be occupied by option modules if the number of field signal adaptations to the process provided in the basic unit is not sufficient for the intended task.

There is a short-circuit proof L+ output (24 V DC, 100 mA) for supplying transmitters.

The power supply, a galvanically isolated controlled switched mode power supply, is in a closed metal enclosure and is permanently screwed onto the polycarbonate enclosure of the device.

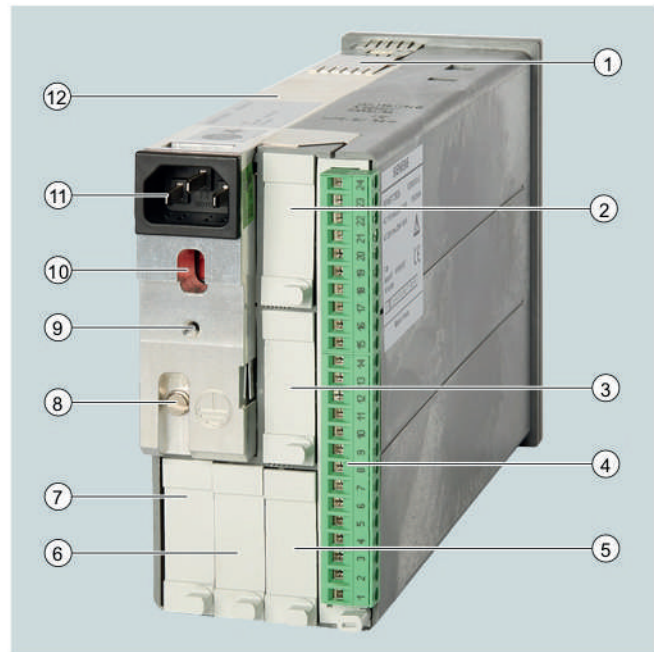
Available versions:

- 6DR2410-4 for auxiliary power 24 V UC
- 6DR2410-5 for auxiliary power 230 V AC, can be switched to 115 V AC

Brief voltage interruptions of the auxiliary power are bridged without affecting the respective device function. All voltage produced by the power supply unit is stabilized and short-circuit proof (thermal fuse and current monitoring).

The input of the power supply unit is protected against overvoltage. A filter ensures that interference pulses cannot enter the devices from the mains and that switching pulses cannot enter the mains supply from the power supply unit.

The output power of the power supply unit can supply multiple consumers referenced to ground (active binary outputs, signal converts) with 24 V (see technical specifications).



SIPART DR24 multifunction unit, rear view

- |    |   |
|----|---|
| 1  | Protective conductor - contact spring                                 |
| 2  | Slot 6  |
| 3  | Slot 5  |
| 4  | Slot 1 (main circuit board)   |
| 5  | Slot 2  |
| 6  | Slot 3  |
| 7  | Slot 4 (SES: RS 232 / RS 485, PROFIBUS DP)                            |
| 8  | Grounding screw   |
| 9  | Mounting rail (included in the scope of delivery of the relay module) |
| 10 | Changeover switch line voltage  |
| 11 | Power plug  |
| 12 | Power supply unit   |

### Mode of operation

The programs created by the user are saved in the processor-controlled SIPART DR24.

#### Analog input area

The basic unit has 3 analog inputs with galvanic isolation which can be connected either with standard voltage signals (0/0.2 to 1 V or 0/2 to 10 V) or standard current signals (0/4 to 20 mA).

In addition to these 3 analog inputs, a module with 3 further inputs in the same design can be inserted on slot 5 and on slot 6. These can also be switched between 0 V to 10 V and 0/4 mA to 20 mA. For very complex tasks or to connect other input signals, 2 additional input modules can be inserted in slots 2 and 3. This allows not only standard current or voltage signals to be processed, but also the signals of directly connected PT 100 resistance thermometers, thermocouples and potentiometers.

This means that a total of up to 11 analog inputs is available.

#### Analog output area

The basic unit has 3 analog outputs. In addition, a module with 3 analog outputs and 3 binary inputs can be inserted on slot 5 and on slot 6. The total of 9 analog outputs produce a current signal of 0 to 20 mA or 4 to 20 mA.

#### Binary input and output area

The basic unit has 4 binary inputs BE1 to BE4 and 8 binary outputs BA1 to BA8. If the number of binary inputs or outputs offered by the basic unit is not sufficient, it can be increased by inserting additional option modules in the controller. Slots 5 and 6 on the back of the controller are provided for this purpose. In each of these two slots, either an expansion module with five binary inputs, an expansion module with four 24 V DC binary outputs or a module with two binary outputs (relays) can be inserted ( $\leq 35$  V UC,  $\leq 5$  A).

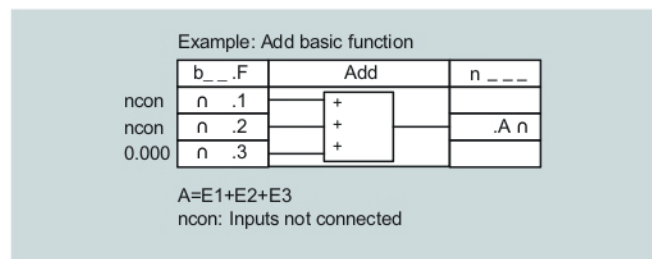
The binary outputs are active. They return a 24 V DC signal.

Floating outputs are available when the relay module with 2 binary outputs is used. Furthermore, a coupling relay module can be clipped to a mounting rail on the back of the controller. This additional module can contain either two or four relays with one changeover contact each which are controlled directly from the binary outputs.

### Function area

The function area is located between the input area and the output area. It contains the following: 32 different basic functions that can be used as desired up to 109 times.

15 different complex functions that can be used multiple times. In addition, the function area contains adjustable parameters and a number of constants and alarm messages that can be freely interconnected. The required functions are selected or defined in "Structuring" mode (structuring mode FdEF), interconnected (structuring mode FCon) and positioned in the program sequence for the processing order (structuring mode FPoS).



Basic function block, adder; the preassigned inputs (e.g. I3 = 0.000) can simply be overwritten if required

Interconnection is completely permissive. Each data source can be connected to any number of data sinks. Structuring work is minimized by hiding data sources and sinks of undefined function blocks and by hiding unsuitable assignments of sources and sinks (e.g. analog with binary).

Certain parameters can be changed during operation (online parameters). All other parameters (e.g. timer parameters) are set offline in structuring mode.

#### Arithmetic

The analog variables are processed in floating point arithmetic within a decimal number range from -1019 to +1019.

The input and output variables of the multifunction unit are input or output in the signal range 0/4 to 20 mA or 0 to 10 V, corresponding to 0 to 100 %. These ranges are mapped in arithmetic as calculation values 0 to 1. The computing operations are performed with these number values.

#### Interconnectable parameters

The linear parameters PL1 to PL40 can be set in 4 digits, the parameters Pd1 to Pd40 - preferably for time constants - can be set in logarithmic ranking over a very wide range. The PL and Pd parameters can be set online in process mode.

#### Battery-supported RAM

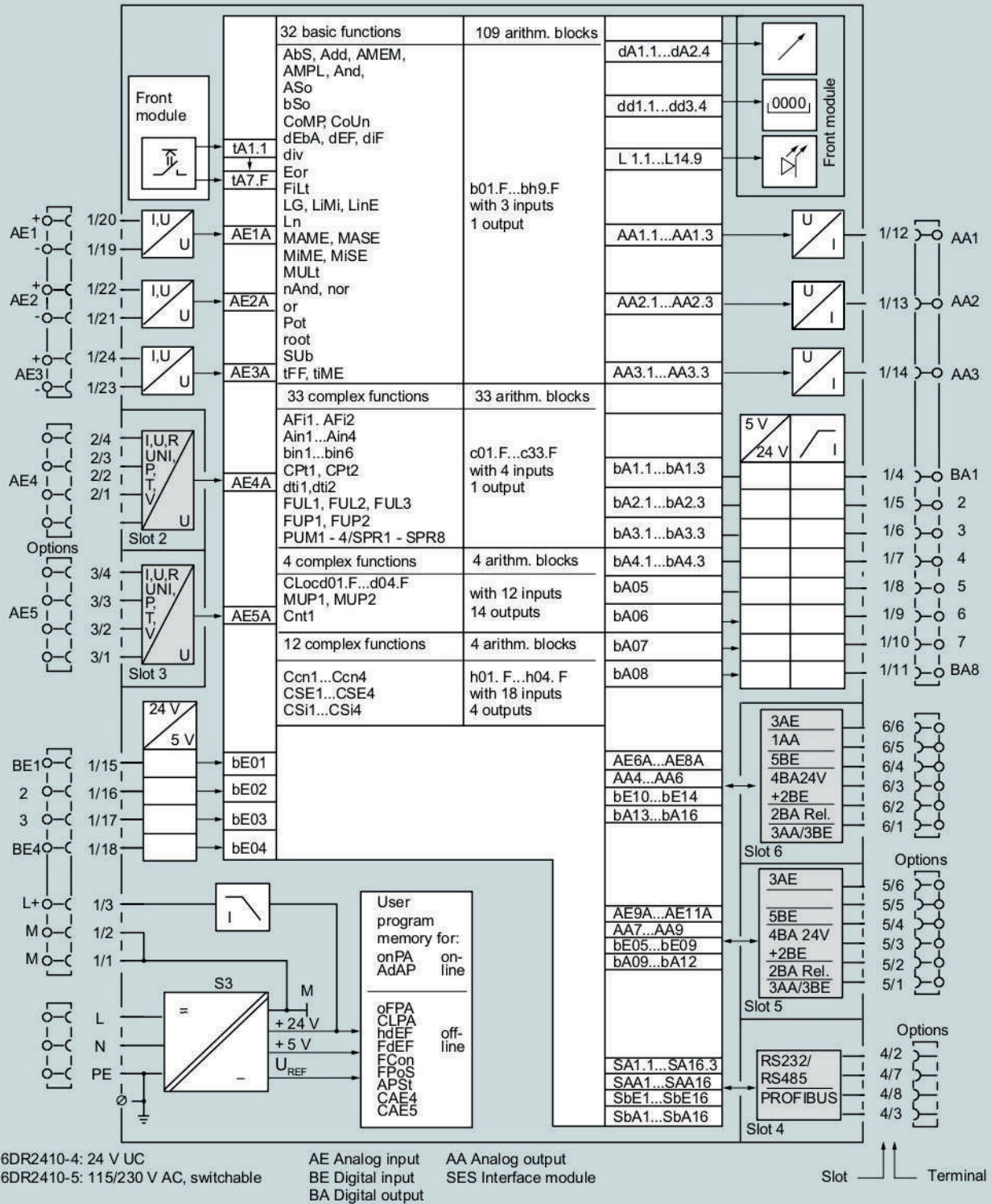
During a power failure, all instantaneous values of counting, time and memory functions can optionally be secured.

# SIPART DR24 multifunction unit

## Technical description

### Mode of operation (continued)

Blockschaltbild



SIPART DR24 multifunction unit, function block diagram

## Function

### "Basic functions and complex functions" function area

The function blocks are called (defined) in any number and in any order in structuring mode FdEF. The data sinks (inputs) can be connected with any data sources during interconnection (FCon), e.g. with outputs of other blocks, with parameters or with changeable calculation values. The basic functions and their short names are provided in the table "Functions (basic and complex functions) of the multifunction unit".

#### Communication with higher-level systems

Using an interface module (option), the SIPART DR24 controller can send and receive operating states, process variables, parameters and function interconnections.

The following interface modules are available:

#### PROFIBUS DP module

- Transmission rate up to 1.5 Mbps
- Addressing range up to 125  
(Number of possible devices on PROFIBUS is determined by the master interface, the data area of the interface and the amount of configured process data)

#### SES module RS 232 / RS 485

- Transmission rate 9.6 Kbps
- RS 232 as point-to-point connection
- RS 485 bus, up to 32 devices

### Monitoring function

The multifunction unit has monitoring routines: The alarm messages are available as data sources. They can activate binary outputs, initiate function sequences or switch analog outputs to safety values, for example.

#### Self-diagnostics

Comprehensive monitoring routines check the internal data traffic cyclically or after a POWER ON or watchdog reset.

If a fault is detected, an error message is automatically output by the front indicators which indicates the cause of the error and options for resolving it.

#### Restart conditions

Brief interruptions of the operating voltage are bridged depending on the current load of the device by the storage effect of the power supply unit. In the event of a longer power failure, the configured parameters and structures are retained in a non-volatile, plug-in user program memory. The last operating mode, the last setpoint and the last manipulated variable are also loaded into a non-volatile memory.

#### Blocking of input level as well as the parameter assignment and structure level

Switchover to the parameter assignment and structuring level can be blocked via binary inputs.

The binary function BLS blocks switchover to the structuring level. However, in addition to normal process control, online control parameters and adaptation can be set.

In contrast, the binary function BLPS completely blocks switchover of the device from the process control level.

The binary function bLB blocks operation of the device

#### Display technology

The SIPART DR24 multifunction unit is equipped with analog and digital indicators (see figure "SIPART DR24 multifunction unit" under "Overview").

The two analog indicators consist of one red and one green vertical LED chain. 1 or 2 LEDs light up alternately. The center of the indicator field shows the measured value.

The resolution of the two indicators is thus 1.7 %. The LED chain on the right can also be structured as binary indicator. Ten equidistant LEDs can then be controlled with binary signals. Of the three digital indicators, two are 4½-digit and one is 3-digit. All of them can be structured in physical units or in percentages.

There are also 13 LEDs on the front of the device for displaying operating states, alarms etc. All LEDs are freely interconnectable.

#### Process control

Behind the front panel foil, there are 7 freely interconnectable short-stroke buttons that can be simply operated by pressing on the bulges in the foil (see figure "SIPART DR24 multifunction unit" under "Overview").

All control and display elements (indicators, LED and operating buttons) of the front module can be switched to up to 4 data sources or data sinks for multiple use.

The front panel foil has a slit at the bottom so that an individual label can be inserted.

The measuring point label can be exchanged independent of this.

## SIPART DR24 multifunction unit

### Technical specifications

#### Technical specifications

General data	
Mounting position	Any
Climate class according to IEC 721	
• Part 3-1 Storage 1K2	-25 ... +75 °C
• Part 3-2 Transport 2K2	-25 ... +75 °C
• Part 3-3 Operation 3K3	0 ... +50 °C
Degree of protection according to EN 60 529	
• Front	IP64
• Enclosure	IP30
• Connections	IP20

#### Device design

##### Electrical safety

- According to DIN EN 61 010 Part 1
- Protection class I
- Protective separation of line connection and field signals
- Clearance and creepage distances, unless expressly mentioned otherwise, for overvoltage category III and pollution degree 2

EC Declaration of Conformity No. 691.001

CE mark: Conformity regarding EMC Directive 89/336/EEC and NS Directive 73/23/EEC.

Interference emission, noise immunity according to EN 61 326, NAMUR NE21 8/98

General data	
Weight, basic unit, without options	Approx. 1.2 kg
Color	
• Frame of the front module	RAL 7037
• Front surface	RAL 7035
Material	
• Enclosure and front frame	Polycarbonate, glass-fiber reinforced
• Front film	Polyester
Auxiliary power terminal	
• 115/230 V AC	Three-pin device plug IEC 320/V
• 24 V UC	Two-pin special connector
Connection system for process signals	Multi-pin screw terminal blocks, coded, plug-in for conductor cross-section 1.5 mm <sup>2</sup> (AWG 14)
Protective conductor connection	Grounding screw

A mounting rail can be installed on the PSU rear panel. The mounting rail is included in the scope of delivery of the coupling relay module.

Auxiliary power				
Nominal voltage	230 V AC, switchable	115 V AC, switchable	24 V UC	24 V UC
Operating voltage range	187 ... 276 V AC	93 ... 138 V AC	20 ... 28 V AC	20 ... 35 V DC <sup>1)</sup>
Frequency range	48 ... 63 Hz	48 ... 63 Hz	48 ... 63 Hz	–
Peak voltages not periodical according to VDE 160				
• 1.3 ms	≤ 780 V	≤ 390 V	≤ 70 V	≤ 70 V
• 10 μs	≤ 1500 V	≤ 1500 V	≤ 500 V	≤ 500 V
External current $I_{Ext}^{2)}$	450 mA	450 mA	450 mA	450 mA
Power consumption				
Active power/apparent power (capacitive)				
Basic unit				
• Without options, without $I_{Ext}$	8 W/17 VA	8 W/13 VA	8 W/11 VA	8 W
• With options, without $I_{Ext}$	13 W/25 VA	13 W/20 VA	13 W/18 VA	13 W
• With options, with $I_{Ext}$	26 W/45 VA	26 W/36 VA	28 W/35 VA	28 W
Permissible voltage dips <sup>3)</sup>				
Basic unit				
• Without options, without $I_{Ext}$	≤ 90 ms	≤ 70 ms	≤ 55 ms	≤ 30 ms
• With options, without $I_{Ext}$	≤ 80 ms	≤ 60 ms	≤ 50 ms	≤ 25 ms
• With options, with $I_{Ext}$	≤ 50 ms	≤ 35 ms	≤ 35 ms	≤ 20 ms
Test voltages (1 min)				
• Primary-secondary	1.5 kV AC	1.5 kV AC	500 V AC	500 V AC
• Primary protective conductor	1.5 kV AC	1.5 kV AC	500 V AC	500 V AC
• Secondary protective conductor	700 V DC	700 V DC	700 V DC	700 V DC

<sup>1)</sup> Including harmonics.

<sup>2)</sup> From L+, BA and AA.

<sup>3)</sup> The load voltage of the analog outputs is hereby reduced to 13 V, L+ is reduced to +15 V, and the voltage at the binary outputs drops to +14 V.

## Technical specifications (continued)

Inputs and outputs, display technology	
<b>Analog inputs AE1, AE2, AE3 and AE6 ... AE11 (signal converter 6DR2800-8A)</b>	
Input signal range	0/199.6 ... 998 mV or 0/2 ... 10 V
• Voltage	0/4 ... 20 mA
• Current	
Input resistance	
• Difference (voltage)	200 kΩ
• Difference (current)	49.9 Ω ±0.1 %
• Common mode	> 500 kΩ
Common mode voltage	0 ... 10 V
Filter time constant	50 ms
Temperature influence on the	
• Zero point	0.05 %/10 K
• Full scale value	0.1 %/10 K
<b>Analog outputs AA1 ... AA3</b>	
Nominal signal range	0 ... 20 mA or 4 ... 20 mA
Total operating range	0 ... 20.5 mA or 3.6 ... 20.5 mA
Load voltage	-1 ... +18 V
Max. permissible inductive load	≤ 0.1 H
No-load voltage	≤ 26 V
Time constant	300 ms
Residual ripple 900 Hz	≤ 0.2 %
Resolution	≤ 0.1 %
Zero point error	≤ 0.3 % of measuring span
Full-scale value error	≤ 0.3 % of measuring span
Linearity error	≤ 0.05 % of measuring span
Load dependence	≤ 0.1 %
Temperature influence on the	
• Zero point	≤ 0.1 %/10 K
• Full scale value	≤ 0.1 %/10 K
<b>Transmitter supply L+</b>	
Nominal voltage	20 ... 26 V
Load current	≤ 100 mA, short-circuit proof
Short-circuit current	≤ 200 mA, clocked
<b>Binary inputs BE1 ... BE4</b>	
Signal state "0"	≤ 4.5 V or open
Signal state "1"	≥ 13 V
Static destruction limit	±35 V
Input resistance	≥ 27 kΩ
<b>Binary outputs BA1 ... BA8 (with wired OR diodes)</b>	
Signal state "0"	≤ 1.5 V
Signal state "1"	+19 ... 26 V
Load current	< 50 mA
Short-circuit current	< 80 mA, clocked
Cycle time	> 60 ms depending on user program

Inputs and outputs, display technology	
<b>A/D conversion</b>	
Process	Successive approximation, per input > 120 conversions and averages within 20 or 16.67 ms
Resolution	11 bits = 0.06 %
Zero point error	≤ 0.2 % of measuring span
Full-scale value error	≤ 0.2 % of measuring span
Linearity error	≤ 0.2 % of measuring span
Temperature influence on the	
• Zero point	≤ 0.05 %/10 K
• Full scale value	≤ 0.1 %/10 K
<b>Parameters</b>	
Set	with tA 2/3 (more – less)
• Speed	Progressive
Accuracy	
• Time parameters	≤ ± 0.05 % across the entire temperature range corresponding to resolution, absolute
• All others	
<b>Display technology</b>	
<b>Digital displays dd1, dd2</b>	
• Color dd1	4½-digit, 7-segment LED display green
• Color dd2	red
Number height	7 mm
Display range	Beginning and end adjustable
Number range	-1999 ... 19999
Decimal point	adjustable
Repeat rate	1 ... 100 cycles/display
Resolution	1 digit, but not better than A/D converter
Display error	According to A/D converter and analog inputs
<b>Digital display dd3</b>	
Color	three digits, 7-segment LED display yellow
Number height	7 mm
Display range	Beginning and end adjustable
Number range	-199 ... 999
Decimal point	adjustable
Repeat rate	1 ... 100 cycles/display, adjustable
Resolution	1 digit, but not better than A/D converter
Display error	According to A/D converter and analog inputs
<b>Analog displays dA1, dA2</b>	
• Color dA1	red
• Color dA2	green
Display range	LED chain with 30 LEDs
Signal range	-199.9 ... 199.9 %, adjustable
Overflow	< -0.85 % of display range, 1st LED flashes > 100.85 % of display range, 30th LED flashes
Resolution	1.7 % of display range, through alternate lighting of 1 or 2 LEDs, the center of the light field is considered as pointer
Repeat rate	Cyclic



## SIPART DR24 multifunction unit

### Selection and ordering data

Selection and ordering data	Article No.
<b>SIPART DR24 multifunction unit</b>	
Basic unit in 72 × 144 mm format, with	
<ul style="list-style-type: none"> <li>• 3 analog inputs</li> <li>• 3 analog outputs</li> <li>• 4 binary inputs</li> <li>• 8 binary outputs</li> <li>• User program memory</li> </ul>	
<b>Design</b>	
• For auxiliary power 24 V UC	<b>6DR2410-4</b>
• For auxiliary power 230 V/115 V AC, switchable	<b>6DR2410-5</b>
<b>Accessories (signal converters)</b>	
<b>Module for analog signals</b>	
• For current 0/4 ... 20 mA or voltage 0/0.2 ... 1 V or 0/2 ... 10 V	<b>6DR2800-8J</b>
• For resistance-based sensors (R module)	<b>6DR2800-8R</b>
• UNI module for TC/RTD/R/mV signals, programmable	<b>6DR2800-8V</b>
• Reference junction terminal for TC, internal (use in connection with UNI module)	<b>6DR2805-8A</b>
• With 3 analog outputs 0/4 ... 20 mA and 3 binary inputs	<b>6DR2802-8B</b>
• With 3 analog inputs 0/4 ... 20 mA or 0/0.2 ... 1 V or 0/2 ... 10 V	<b>6DR2800-8A</b>
<b>Module for switching signals</b>	
• With 5 binary inputs	<b>6DR2801-8C</b>
• With 4 binary outputs and 2 binary inputs	<b>6DR2801-8E</b>
• With 2 relay outputs	<b>6DR2801-8D</b>
<b>Coupling relay module</b>	
• With 4 relays (250 V AC)	<b>6DR2804-8A</b>
• With 2 relays (250 V AC)	<b>6DR2804-8B</b>
<b>Interface modules</b>	
• For serial communication (SES) via RS 232 or RS 485	<b>6DR2803-8C</b>
• PROFIBUS DP module	<b>6DR2803-8P</b>
<b>Documentation</b>	
The entire documentation is available for download free of charge in various languages at: <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>	
SIPART DR24 - 6DR2410 controller, operating instructions • German, English	<b>C79000-G7400-C153</b>
SIPART DR22 / DR24 - 6DR2210-4/-5 and 6DR2410-4/-5 controllers, installation and operating manual • German, English	<b>C79000-M7474-C38</b>
Serial SIPART DR24 - bus interface, operating instructions • German, English	<b>C73000-B7400-C135</b>

### Scope of delivery

The scope of delivery of the SIPART DR24 multifunction unit includes:

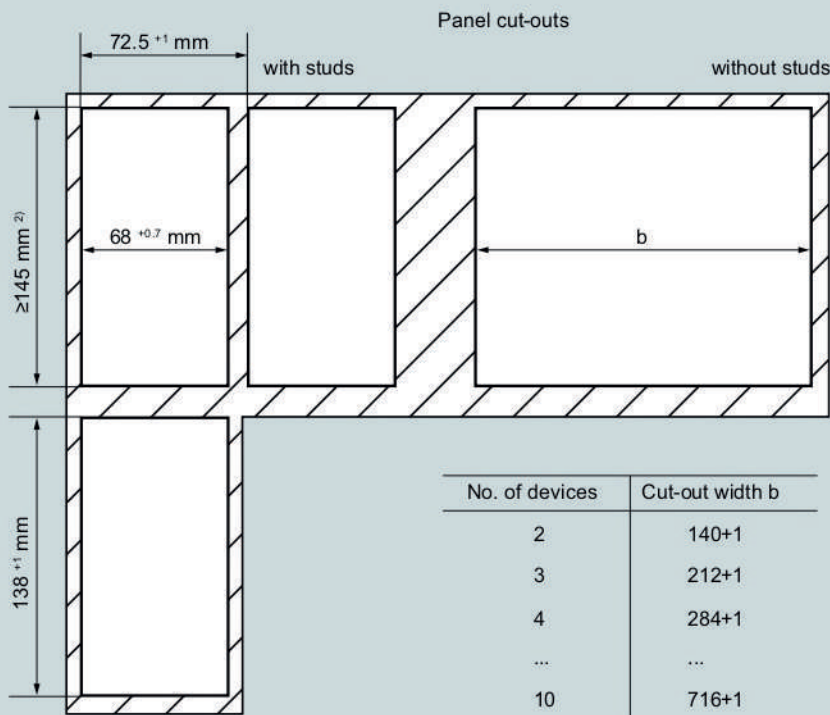
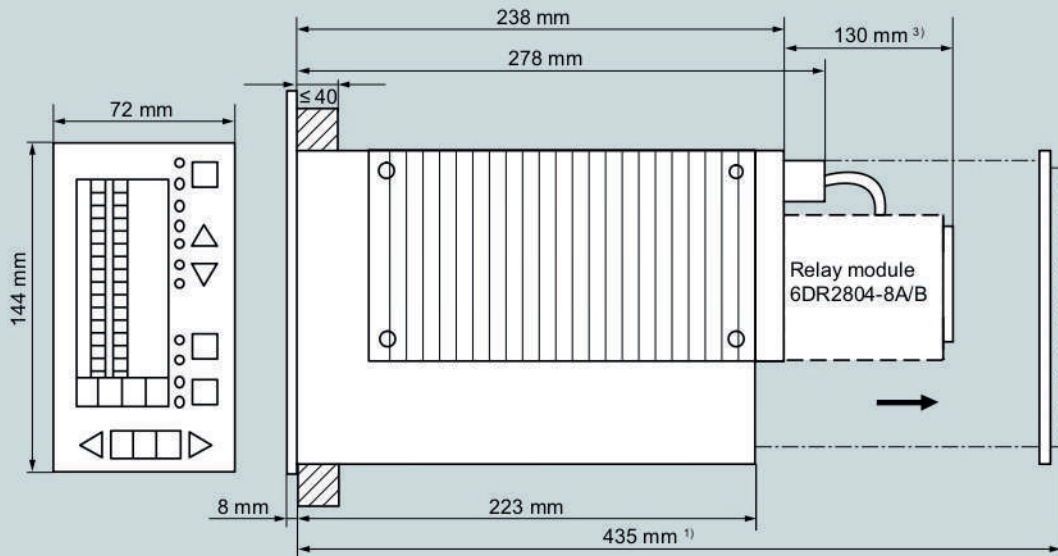
- 1 process controller according to the configuration
- 1 device plug according to IEC 320/V with auxiliary power 115/230 V AC or one plug with auxiliary power 24 V UC
- 2 clamping elements, plug-in

### Signal converters and accessories

The signal converters/modules are described in Catalog MP 31, section 5.

The software for assigning parameters via PC, coupling to systems and the accessories for coupling (plugs, cable drivers etc.) can be found in catalog section 6.

Dimensional drawings



SIPART DR24 multifunction unit and panel cutouts, dimensions in mm

## SIPART DR24 multifunction unit

### Accessories

#### Signal converters for SIPART DR24

#### Accessories

##### Signal converters for SIPART DR24

Modules for analog signals		SIPART DR24					Description on page
		Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	
U/I module	<b>6DR2800-8J</b>	AE4	AE5	-	-	-	5/4
3 x U/I module	<b>6DR2800-8A</b>	-	-	-	AE9/10/11	AE6/7/8	5/5
R module	<b>6DR2800-8R</b>	AE4	AE5	-	-	-	5/6
Pt 100 module	<b>6DR2800-8P</b>	(AE4) <sup>*)</sup>	(AE5) <sup>*)</sup>	-	-	-	5/7
UNI module (TC/RTD/R/U/I)	<b>6DR2800-8V</b>	AE4	AE5	-	-	-	5/8
3AA/3BE	<b>6DR2802-8B</b>	-	-	-	AA7/8/9 BE5/6/7	AA4/5/6 BE10/11/12	5/11

\*) Preferably use UNI module 6DR2800-8V.

Modules for switching signals		SIPART DR24					Description on page
		Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	
5BE	<b>6DR2801-8C</b>	-	-	-	BE5/6/7/8/9	BE10/11/12/13/14	5/12
2BA relay module	<b>6DR2801-8D</b>	-	-	-	BA9/10	BA13/14	5/13
4BA/2BE	<b>6DR2801-8E</b>	-	-	-	BA9/10/11/12 BE5/6	BA13/14/15/16 BE10/11	5/14

Interface module		SIPART DR24					Description on page
		Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	
SES module	<b>6DR2803-8C</b>	-	-	Yes	-	-	5/15
• RS 232/SIPART bus		-	-	Yes	-	-	5/15
• RS 485		-	-	Yes	-	-	5/15
PROFIBUS DP module	<b>6DR2803-8P</b>	-	-	Yes	-	-	5/16

Coupling relay module		SIPART DR24	Description on page
Mounting on the back is possible:			
With 4 relays	<b>6DR2804-8A</b>	Yes	5/17
With 2 relays	<b>6DR2804-8B</b>	Yes	5/17

In connection with the UNI module 6DR2800-8V, the following can be used depending on the application:		Description on page
Reference junction terminal	<b>6DR2805-8A</b>	5/8