

Products for Specific Requirements



	Price groups		
	PG 15A, 470, 471, 477, 478, 42J, 4M1, 581, 582, 583, 584, 585, 586, 588, 593		
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Products for Specific Requirements

Introduction

Overview

Single-phase transformers



4AM



4AT

Version	Rated power kVA	Rated input voltage V AC	Rated output voltage V AC	Safety class	Page
Safety, isolating, control and mains transformers					
SIRIUS 4AM safety, mains and control transformers					
With one input voltage	0.063 ... 1.0	230 ± 5 %; 400 ± 5 %	24; 42	I	15/17
For European voltages	0.063 ... 1.0	400/230 ± 15 V	24; 42	I	15/18
In multi-voltage version	0.063 ... 1.0	550 ... 208; 600 ... 230	24	I	15/19
SIRIUS 4AM safety and mains transformers					
With one input voltage	0.025; 0.04	230 ± 5 %; 400 ± 5 %	24	I	15/20
SIRIUS 4AM, 4AT isolating, control and mains transformers					
4AM and 4AT with one input voltage	4AM: 0.063 ... 2.5; 4AT: 4 ... 10	230 ± 5 %; 400 ± 5 %; 440 ± 5 % 500 ± 5 %	110; 230 230	I	15/21 15/23
4AM with one input voltage without circuit breaker	4AM: 0.063 ... 2.5	690 ± 5 %	230	I	15/24
4AM in European voltage design	4AM: 0.063 ... 2.5	400/230 ± 15 V	2 × 115	I	15/24
4AM and 4AT in multi-voltage version	4AM: 0.063 ... 2.5; 4AT: 4 ... 10	550 ... 208; 600 ... 230	2 × 115	I	15/25

For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or [www.mdexx.com](#).

Three-phase transformers



4AP20



4AU

Version	Rated power kVA	Rated input voltage 3 AC V	Rated output voltage 3 AC V	Safety class	Page
Safety, isolating, control and mains transformers					
SIRIUS 4AP, 4AU isolating, control and mains transformers					
4AP and 4AU in two-voltage version	0.63 ... 10	Y 500-400/Δ 289-230	Y 400/Δ 230	I	15/31
4AP and 4AU in multi-voltage version	0.63 ... 16	Y 520 ... 360/Δ 300 ... 208	Y 400/Δ 230	I	15/31

For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or [www.mdexx.com](#).

Non-stabilized power supplies**4AV21/23****4AV20/22/24/26****4AV4****4AV3****4AV5****Filtered for supply of electronic controls**

Ripple		< 5 %	< 5 %	< 5 %	< 5 %	< 5 %
Phase		1	1	1	3	3
Rated input voltage	V AC	115 ... 415	115 ... 415	230 ... 415	200 ... 600	400 ... 415
Rated output voltage according to IEC 61131-2 suitable for SIMATIC systems	V DC	24	24	24	24	24
Rated output current	A	1 ... 4.2	2.5 ... 18	1.5 ... 6	15 ... 180	25, 35
Connection		Screw terminals/ flat connectors	Screw terminals/ flat connectors	Screw terminals/ flat connectors	Screw terminals/ flat connectors	Screw terminals/ flat connectors
Mounting		Standard rail mounting	Screw and/or standard rail mounting	Screw and/or standard rail mounting	Screw mounting	Screw mounting
UL approval at 60 °C		Yes	Yes	No	4AV30 ... 4AV35: Yes, 4AV36, 4AV38: No	No
Page		15/35	15/36	15/36	15/37, 15/38	15/37

**4AV98****4AV96****Unfiltered for supply of general loads**

Ripple		48.3 %	< 5 %
Phase		1	3
Rated input voltage	V AC	230 or 400	400 ± 5 %
Rated output voltage	V DC	24	30-27-24
Rated output current/ rated power		50 ... 315 W	4 ... 25 A
Connection		Screw terminals/flat connectors	Screw terminals/flat connectors
Mounting		Screw mounting	Screw mounting
UL approval		No	No
Page		15/39	15/40

For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or www.mdexx.com.

Products for Specific Requirements

Introduction

Stabilized power supplies



**6EP1
SITOP lite**



**6EP1
SITOP compact**



**6EP1
LOGO!Power**



**6EP1
SITOP smart**

SITOP power supplies

Phase		1	1	1	1, 3
Rated input voltage	V	120/230 AC	100 ... 230 AC, 120 ... 230 AC	100 ... 240 AC	120/230 AC, 3 AC 400 ... 500
Rated output voltage	V DC	24	24, 12	5, 12, 15, 24	24
Rated output current	A	2.5 ... 10	0.6 ... 6.5	1.3 ... 6.3	2.5 ... 40
Connection		Screw terminal connection	Screw terminal connection	Screw terminal connection	Screw terminal connection
Mounting		Standard rail mounting	Standard rail mounting	Standard rail mounting	Standard rail mounting
Approval		UL, cUL	NEC Class 2, UL, cUL	UL, cUL	UL, cUL
Page		15/41	15/42	15/43	15/44



**6EP1
SITOP modular**



**6EP1
Special design, special use**



**6EP1
Expansion modules**



**6EP1
Uninterruptible
24 V DC power supplies**

SITOP power supplies

Phase		1, 2, 3	1	1	1
Rated input voltage	V	120/230 ... 500 AC, 120/230 AC, 3 AC 400 ... 500; 600 DC	120/230 AC	24 DC	24 DC
Rated output voltage	V DC	24, 48	3 ... 52	U_0 – approx. 0.5, U_0 – approx. 1	24
Rated output current	A	5 ... 40	10	3.5 ... 20, 40, 4 x 3, 4 x 10	6 ... 40
Connection		Screw terminal connection	Screw terminal connection	Screw terminal connection	Screw terminal connection
Mounting		Standard rail mounting	Standard rail mounting	Standard rail mounting	Standard rail mounting (except: wall mounting with SITOP UPS500P)
Approval		UL, cUL	UL, cUL	NEC Class 2, UL, cUL	UL, cUL
Pages		15/45, 15/46	15/47	15/48, 15/49	15/50 ... 15/52

More power supply products see [Catalog KT 10.1 "SITOP Power Supply"](#) or www.siemens.com/sitop.

For more information about SIPLUS extreme power supplies see www.siemens.com/siplus-extreme.

Heating control systems



SIPLUS heating control systems				
	HCS3200	HCS716I	HCS724I	SIPLUS heating controller HCS300I
With integrated power outputs	✓	✓	✓	--
Design	Compact	Modular	Modular	Modular
• Compact design	9 power channels on only 0.12 m ²	192 power channels on only 0.2 m ²	384 power channels on only 0.4 m ²	--
• System structure	Compact unit	Four rack versions for up to 4 or 12 power output modules	Central interface for up to 16 power output modules	Basic unit for connection of 4 digital modules, 4 temperature modules and 1 current measurement or 1 current/voltage measuring module
• Mounting	Screw fixing with variable mounting angles	Screw fixing with mounting angles	Screw fixing with fixing lugs	Snap-on mounting onto TH 35 standard mounting rail or screw fixing using additional push-in lugs
• Degree of protection	IP65	IP00	IP20	IP20
Power outputs				
• The central solution for power outputs	Up to 4 kW per channel	Up to 2.3 kW per channel	Up to 4 kW per channel	Dependent on the solid-state switching relay used
• Power outputs	9 outputs 400 V AC	3 power output modules for selection: 8 or 16 output channels 230 V AC	3 power output modules for selection: LA724I HP, LA724I: 12 or 24 output channels 230/400 V AC LA724I SSR: for controlling external SIRIUS solid-state relays	Per digital module: 6 digital outputs for controlling external SIRIUS solid-state relays, available up to 90 A
• Zero-point switching solid-state switching devices	Integrated	--	--	External
• Zero-point switching triacs	--	Integrated	Integrated	--
• Protection of the outputs	With fine fuses in fuse holders	With fine fuses in fuse holders	Protection of the outputs with fine fuses in fuse holders which can be reached from the front	--
• Control for external fans	Control for external fan with 1 output 230 V AC up to 500 W	--	--	--
Open-loop/closed-loop control				
• Temperature measurement	--	--	--	Temperature module with four temperature inputs for Pt100/Pt1000 and thermoelements type J/K/L
• Software for temperature control	--	--	--	Optional TCP 3000 temperature control software
• Current measurement	--	--	3 x 400 A	3 measuring ranges: 2.4 ... 25 A, 10 ... 100 A, 20 ... 200 A
• Voltage measurement with compensation	Up to 400 V	--	Up to 400 V	Up to 690 V
Communication and diagnostics				
• Communication with higher-level control system through PROFIBUS DP	✓	✓	✓	✓
• Diagnostics functions	Detection of external and internal faults	Detection of external and internal faults	Detection of external and internal faults	Via the current measuring module and the current/voltage measuring module
• Easy data management with TIA	✓	✓	✓	✓
• Integrated line voltage sensing for compensation of line voltage fluctuations	Integrated	--	Optional	Optional though current/voltage measuring module
Connections				
• Network supply	Through plugs	Through terminals or plugs	Busbar system at the front	--
• Connection of heat emitter	Through plugs	Through plugs	Through plugs	--
• PROFIBUS DP connection	Through ECOFAST plugs	Over a 9-pin Sub D socket	Over a 9-pin Sub D socket	Over a 9-pin Sub D socket
• Connection of the 24 V DC power supply	Through ECOFAST plugs	--	--	Screw terminals
Pages	15/54 to 15/58	15/59 to 15/68	15/69 to 15/80	15/81 to 15/94

✓ Has this function

-- Does not have this function

For more information see [Industry Mall](#) or www.siemens.com/siplus-hcs.

Products for Specific Requirements

Introduction

Automatic door controls



SIDOOR AT12
elevator door drive

SIDOOR AT40
elevator door drive

SIDOOR ATD400V
elevator door drive

Control devices for elevators

Characteristics

• Application	Intelligent door control system for the operation of sliding doors	Intelligent door control system for the horizontal and vertical operation of sliding doors	Intelligent door control system for the operation of rising doors and rolling shutters for elevators
• Max. dynamic door weight	120 kg	400 kg	400 kg
• Automatic door weight detection – hence stable drive characteristics and reduced service costs	✓	✓	✓
• SIDOOR user software (included in the Software Kit) enables user-friendly operation and detailed diagnostics.	✓	✓	✓
• 1-button operation for the entire commissioning process	✓	✓	✓
• Flexible motor management	--	Three motor types for different power requirements	--
• Degree of protection	IP20	Motor IP54, IP40 for gear unit for 180 to 400 kg motor versions	Motor IP54, IP40 for gear unit for 400 kg motor version
• Power supply	Integrated switch-mode power supply – hence low installation costs	External application-optimized NT40 switch-mode power supply or external mains transformer	External application-optimized NT40 switch-mode power supply or external mains transformer
• Emergency power module 24 V DC	--	Optional	Optional
• Communication module	Integrated CAN module	Either relay or CAN module	Integrated relay module
• Communication interfaces	CANopen, USB via USB adapter, RS 485 – hence easy system integration	CANopen (optional), USB via USB adapter, RS 485 – hence easy system integration	USB via USB adapter, RS 485 – hence easy system integration
Pages	15/99 to 15/101	15/102 to 15/105	15/106 to 15/108

✓ Has this function

-- Does not have this function

Automatic door controllers for industrial applications [see next page](#).

Automatic door controls (continued)
SIDOOR ATD400K
cold room gate drives

SIDOOR ATD400W
machine tool door drive
Control devices for industrial applications**Characteristics**

• Application	Intelligent door control system for the operation of cold room gates	Intelligent door control system for the operation of machine tool doors
• Max. dynamic door weight	400 kg	400 kg
• Automatic door weight detection – hence stable drive characteristics and reduced service costs	✓	✓
• SIDOOR user software (included in the Software Kit) enables user-friendly operation and detailed diagnostics	✓	✓
• 1-button operation for the entire commissioning process	✓	✓
• "Cable-operated switch" function	When actuated, the gate opens with an adjustable opening width and hold-open time before closing again automatically.	--
• A higher force can be set for the first 10 cm of the opening movement (lifting the gate)	✓	--
• Flexible motor management	Two motor types for different power requirements	Three motor types for different power requirements
• Degree of protection	Motor IP54, IP40 for gear unit for 400 kg motor version	Motor IP54, IP40 for gear unit for 400 kg motor version
• Performance level according to ISO 13849-1	--	"d" (limitation of force and energy)
• Category according to ISO 13849-1	--	"2"
• Power supply	External mains transformer	External application-optimized NT40 switch-mode power supply or external mains transformer
• Emergency power module 24 V DC	Optional	Optional
• Communication module	Integrated relay module	Integrated relay module
• Communication interfaces	USB via USB adapter, RS 485	USB via USB adapter, RS 485
Pages	15/119 to 15/122	15/123 to 15/126

✓ Has this function

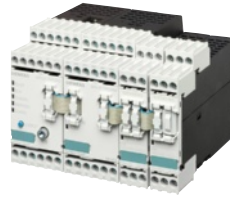
-- Does not have this function

 For more information see [Industry Mall](#) or www.siemens.com/sidoor.

Products for Specific Requirements

Introduction

Condition monitoring systems



	SIPLUS CMS1000	SIPLUS CMS2000	SIPLUS CMS4000
Monitoring			
• Of motors, generators, fans, pumps, etc.	✓	✓	✓
- For imbalance, misalignment, roller bearings	✓	✓	✓
• Max. number of vibration channels	1	16	180
Analysis methods			
Characteristic values			
• Bearing monitoring: DKW, based on K(t) according to VDI 3832	✓	✓	✓
• Vibration monitoring: RMS based on DIN ISO 10816-3	✓	✓	✓
• CREST factor, etc. application-specific characteristic values	--	--	✓
Vibration analysis			
• Parameterizable	--	✓	--
• Configurable	--	--	✓
• FFT, envelope curve, fingerprint comparison, trend analysis	--	✓	✓
• Orbit analysis, free configuration of other analysis methods	--	--	✓
Monitoring functions			
• Adjustable limit values for DKW and RMS: Warning and alarm	✓	✓	✓
• Adjustable alarm ranges for frequency spectrums	--	✓	✓
• Limit value monitoring of analog values	--	✓	✓
• Temperature monitoring	--	✓	✓
• Creation of own monitoring algorithms	--	--	✓
Recording functions			
• Raw data recording: Manually or event-triggered, snapshot of the FFT, characteristic values, long-term trend recording	--	✓	✓
• Black box for process data	--	--	✓
Visualization			
• Traffic light status display via binary outputs	✓	✓	--
• Local display	✓	--	--
• Parameterization and online diagnostics via standard web browser	--	✓	--
• Software SIPLUS CMS X-Tools	--	--	✓
Pages	15/128 to 15/134	15/135 to 15/145	See Industry Mall or www.siemens.com/siplus-cms

✓ Has this function

-- Does not have this function

For more information see Industry Mall or
www.siemens.com/siplus-cms.

Electrical charging components



	SIPLUS ECC1000 (CM-100)	SIPLUS ECC2000 (CM-230/CM-230-C)	SIPLUS ECC8000 (SYS-101A, SYS-102A, SYS-202A)
Version	Charging controllers for installing AC electric vehicle charging stations according to IEC 61851	Charging controllers for installing AC electric vehicle charging stations according to IEC 61851 with Ethernet connection	Function units (factory-wired and ready to install), comprising a charging controller and load feeder for installing electric vehicle charging stations according to IEC 61851
Pages	15/151 to 15/154	15/155 to 15/158	15/159 to 15/161

For more information see Industry Mall or
www.siemens.com/siplus-ecc.

Options

Delivery time class DT

The delivery time classes are specified in the selection tables in front of the article numbers.

The standard transport time for Germany is 1 day (see Chapter 16 "Appendix" → "Ordering notes").

The quoted delivery time class for the 4AM, 4AT, 4AP, 4AU transformers and the 4AV non-stabilized power supplies is applicable to an order quantity of up to 5 units.

The quoted delivery time class for the SIPLUS extreme power supplies and heating control systems is applicable to an order quantity of up to 9 units.

The quoted delivery time class for the door control systems is applicable to an order quantity of up to 10 units.

► Preferred type

This delivery time class applies with the degree of protection IP00, i.e. these units can be supplied immediately from stock¹⁾ and will be dispatched within 24 hours. The transport times depend on the destination and the mode of delivery.

Delivery time class B is applicable to an order quantity of 6 units and more.

Delivery time class A

The ordered units will be dispatched within 1 or 2 working days.

Delivery time class B is applicable to an order quantity of 6 units and more.

Delivery time class B

The ordered units will be dispatched within 3 to 5 working days.

Delivery time class C is applicable to an order quantity of 6 units and more.

Delivery time class C

The ordered units will be dispatched within 6 to 15 working days.

Delivery time class D is applicable to an order quantity of 6 units and more.

Delivery time class D

The ordered units, including enclosure and additional options, will be dispatched within 16 to 30 working days.

Delivery time class X

On request.

Orders for transformers and non-stabilized power supplies in customized versions or with special applications are handled exclusively by the company mdexx GmbH.

For customized transformers and non-stabilized power supplies not listed in our Catalog IC 10 please send your inquiries to mdexx GmbH:

trafo@mdexx.com

or by fax +49 (421) 5125-333.

mdexx GmbH will reply with all the data needed for you to place an order.

¹⁾ This is based on standard commercial orders – normal order!

More information

For more information about power supplies, transformers, reactors and filters, see www.siemens.com/sirius-supplying or www.mdexx.com.

Transformers for converter systems from Siemens see the following catalogs:

- Catalog NC 60, SINUMERIK & SIMODRIVE
- Catalog DA 65.10, SIMOVERT MASTERDRIVES Vector Control
- Catalog DA 65.11, SIMOVERT MASTERDRIVES Motion Control

Further information:

- SIPLUS extreme
see Industry Mall or www.siemens.com/siplus-extreme
- Heating control systems
see Industry Mall or www.siemens.com/siplus-hcs
- For door control systems
see Industry Mall or www.siemens.com/sidoor
- Conditioning monitoring systems
see Industry Mall or www.siemens.com/siplus-cms
- Electrical charging components
see Industry Mall or www.siemens.com/siplus-ecc

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Overview

4AM../4AT.. transformers

With the right transformer, the right voltage will be available at any conditions.

Our transformers are the right choice for each application: They work reliably, safely and worldwide under a wide range of different conditions.

Transformers are summarized in a user-friendly manner as:

- Isolating, control and mains transformers according to IEC 61558-2-4, -2-2, -2-1 or
- Safety, control and mains transformers according to IEC 61558-2-6, -2-2, -2-1

Note:

Mains transformers with ≤ 50 V on the output side are, in the case of SIRIUS transformers, always designed as safety transformers.

Our transformers provide optimal protection through high permissible ambient temperatures up to 40 °C or 55 °C, a high short-time rating in the case of control transformers, fuseless design and thanks to their compliance with safety standard IEC 61558, "Safety inside".

Connection methods

The transformers 4AM../4AT.. are available with screw terminals/flat connectors.



Screw terminals



Flat connectors

The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Support function

The transformers 4AM../4AT.. can also be ordered with the help of an online configurator.



Configurator available in the Industry Mall

The online configurator is indicated in the corresponding tables by the symbol shown on an orange background.

Article No. scheme

Digit of the Article No.	1st	2nd	3rd	4th	5th	6th	7th	–	8th	9th	10th	11th	12th	–	13th	14th	15th	16th
	☐	☐	☐	☐	☐	☐	☐		☐	☐	☐	☐	☐		☐	☐	☐	☐
Transformer product type	4	A																
Product group			☐															
Rated power				☐	☐													
Power level						☐												
Development status							☐											
Rated input voltage									☐	☐								
Rated output voltage											☐	☐						
Version, e. g. coil form													☐					
Application															☐	☐		
Degree of protection																	☐	
Connection type																		☐
Example	4	A	M	4	0	4	2	–	5	A	T	1	0	–	0	F	A	0

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

- High short-time rating of the SIRIUS transformers: Lower transformer rated power for a large number of contactors
- Suitable for "fuseless design": The small inrush current means that "circuit breakers for motor protection" can also be used on the primary side.
- **cULus** approvals for the USA and Canada: can be used worldwide without any problems
- Comprehensive type spectrum supplied from stock: rapid availability

Application

Transformers are used in industrial machines, process engineering, heating and air-conditioning equipment, etc., for supplying control and signaling circuits, when:

- Several electromagnetic loads (e.g. contactors) have to be controlled
- Control and signaling devices are used outside the control cabinet
- The operational voltage for the loads differs from the available voltage level
- Voltage matching for machines and installations with electrical isolation or as an autotransformer

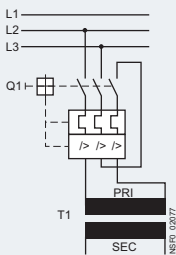
Generally our transformers are used for voltage matching of electrical devices, e.g. in communications, medical engineering and domestic appliances.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Technical specifications

General data		
Transformers	Type	4AM
• Version		EI core
• Performance range (with IP00)	kVA	0.025 ... 2.5
• Approvals		cULus
Voltage range	V	≤ 690
• Approvals for USA, Canada	V	≤ 600
Rated frequency	Hz	50 ... 60
Thermal class		B
• Acc. to UL/CSA		CLASS 130
Ambient conditions		H
		CLASS 180
Protection against harmful ambient conditions: Complete impregnation in polyester resin Climate-proof for installation in rooms with an external climate according to DIN 50010		
Rated ambient temperature		
• At rated power	°C	40
• Maximum value (after power reduction according to load characteristic ¹⁾)	°C	80
• Minimum value	°C	-25
Relative air humidity		
• Mean value up to	%	80
• Maximum value for 30 days/year	%	95
• At 40 °C occasionally	%	100
Protection class		I
Degree of protection		
• Without enclosure		IP00
Installation altitude		Up to 1 000 m above sea level (above this, power reduction is necessary)
Protective devices		
• External		The transformers can be protected against short circuits and overload on the primary and secondary side with motor starter protectors, see circuit diagram.  For reliable protection against short circuits, overload and touch, the cables between the output terminals of the transformer and the load must have a negligible line impedance. For more details see DIN VDE 0100 (Erection of low-voltage systems) Part 410, Part 520 (particularly section 525) and Part 610. Assigned protective devices (see "Primary-side short-circuit and overload protection with motor starter protectors" on pages 15/13 and 15/14)
Connection methods		
• Terminal arrangement ¹⁾		The permissible conductor cross-sections are assigned to the specified terminal types. Refer to DIN VDE 0298-4 and IEC 60204 (VDE 0113-1) for the permissible conductor cross-sections for the specified current according to the installation type . The terminals used are finger-safe according to EN 50274.
• Terminal versions and connectable cross-sections ¹⁾		Other terminal sizes than standard versions on request.
Mounting position		The permissible mounting position for each version is shown in the "Project Planning Aids" ¹⁾ .

¹⁾ See Reference Manual
"Single-Phase Transformers · Three-Phase Transformers",
<http://support.automation.siemens.com/WW/view/en/35681848>.

More technical specifications see
www.siemens.com/sirius-supplying
or
<http://support.automation.siemens.com/WW/view/en/22172730/133200>.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Rated power outputs at different ambient temperatures

- With electrically separated windings
- Degree of protection IP00
- According to IEC 61558, **cALUs**

Transformer	Rated power P_n	Permissible transformer load depending on the ambient temperature							
Type	kVA	$t_a = 60\text{ }^{\circ}\text{C}$ kVA	$t_a = 55\text{ }^{\circ}\text{C}$ kVA	$t_a = 50\text{ }^{\circ}\text{C}$ kVA	$t_a = 45\text{ }^{\circ}\text{C}$ kVA	$t_a = 40\text{ }^{\circ}\text{C}$ kVA	$t_a = 35\text{ }^{\circ}\text{C}$ kVA	$t_a = 30\text{ }^{\circ}\text{C}$ kVA	$t_a = 25\text{ }^{\circ}\text{C}$ kVA
4AM transformers									
4AM234	0.025	0.021	0.022	0.023	0.024	0.025	0.026	0.027	0.0278
4AM264	0.04	0.0336	0.0352	0.0368	0.0384	0.04	0.0416	0.0432	0.0444
4AM324	0.063	0.0529	0.0554	0.058	0.0605	0.063	0.0655 ¹⁾	0.068 ¹⁾	0.0699 ¹⁾
4AM344	0.1	0.084	0.088	0.092	0.096	0.1	0.104 ¹⁾	0.108 ¹⁾	0.111 ¹⁾
4AM384	0.16	0.134	0.141	0.147	0.154	0.16	0.166 ¹⁾	0.173 ¹⁾	0.178 ¹⁾
4AM404	0.25	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.278
4AM434	0.315	0.265	0.277	0.29	0.302	0.315	0.328	0.34	0.35
4AM464	0.4	0.336	0.352	0.368	0.384	0.4	0.416	0.432	0.444
4AM484	0.5	0.42	0.44	0.46	0.48	0.5	0.52	0.54	0.555
4AM524	0.63	0.529	0.554	0.58	0.605	0.63	0.655	0.68	0.699
4AM554	0.8	0.672	0.704	0.736	0.768	0.8	0.832	0.864	0.888
4AM574	1	0.84	0.88	0.92	0.96	1	1.04	1.08	1.11
4AM614	1.6	1.34	1.41	1.47	1.54	1.6	1.66	1.73	1.78
4AM644	2	1.68	1.76	1.84	1.92	2	2.08	2.16	2.22
4AM654	2.5	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.78
4AT transformers									
4AT303	4	3.88	4	4.12	4.24	4.4	4.52	4.64	4.76
4AT361	5	4.85	5	5.15	5.3	5.5	5.65	5.8	5.95
4AT363	6.3	6.11	6.3	6.49	6.68	6.93	7.12	7.31	7.5
4AT391	8	7.76	8	8.24	8.48	8.8	9.04	9.28	9.52
4AT393	10	9.7	10	10.3	10.6	11	11.3	11.6	11.9

¹⁾ For control transformers, the values $t_a = 40\text{ °C}$ apply.

Operation characteristics

- According to IEC 61558-2-6, IEC 61558-2-4, IEC 61558-2-2, IEC 61558-2-1

Transformer	Rated power P_n 50 Hz ... 60 Hz 1 000 m above sea level degree of protection IP00	Core size	Voltage rise in no-load operation (operating temperature) u_A approx.	Voltage drop on rated load ¹⁾ u_R approx.	Short-circuit voltage ¹⁾ u_Z approx.	Degree of efficiency η approx.
Type	kVA		%	%	%	%
4AM transformers: $t_a = 40\text{ }^{\circ}\text{C/B}$						
4AM234	0.025	EI 60/20	26	17.6	17.6	74
4AM264	0.04	EI 66/22	23	15.3	15.3	76
4AM324	0.063	EI 84/28	10	8.4	8.4	85
4AM344	0.1	EI 84/42	10	7.7	7.7	86
4AM384	0.16	EI 96/44	10.4	7.6	7.7	86
4AM404	0.25	EI 96/58	7.2	5.4	5.4	89
4AM434	0.315	EI 105/60	6.6	4.9	5	90
4AM464	0.4	EI 120/52	5.7	4.3	4.4	91
4AM484	0.5	EI 120/72	5	3.8	3.8	91
4AM524	0.63	EI 150/48	4.7	3.6	3.7	92
4AM554	0.8	EI 150/65	4	3	3.1	92
4AM574	1	EI 150/90	3.2	2.5	2.5	93
4AM614	1.6	EI 174/82	2.4	1.9	2.1	96
4AM644	2	EI 174/102	2.1	1.7	1.9	96
4AM654	2.5	EI 192/110	1.6	1.3	1.6	96
4AT transformers: $t_a = 55\text{ }^{\circ}\text{C/H}$						
4AT303	4	UI 150/75	3.8	2.7	2.9	95
4AT361	5	UI 180/75	5.5	3.8	3.9	94
4AT363	6.3	UI 180/75	4.3	3.1	3.3	95
4AT391	8	UI 210/70	4.3	3.1	3.3	95
4AT393	10	UI 210/70	3.5	2.5	3.3	96

Calculation of power loss P_V

$$P_V = \frac{P_n (100 - \eta)}{\eta} \text{ [kW]}$$

¹⁾ Winding reference temperature: 20 °C.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Primary-side short-circuit and overload protection with motor starter protectors

Version with one input voltage

Trans- former	Rated power P_n	Motor starter protector version: Motor protection ¹⁾	Rated input voltage U_{1N} in V																						
Type	kVA	Type	690	660	600	575	550	525	500	480	460	440	415	400	380	240	230	220	208	200	190				
4AM transformers																									
4AM234	0.025	3RV2011-□□□10 Set value in A	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0CA 0.18	0CA 0.18	0CA 0.19	0CA 0.2	0DA 0.22	0DA 0.22				
4AM264	0.04	3RV2011-□□□10 Set value in A	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.12	0AA 0.13	0BA 0.14	0BA 0.14	0BA 0.14	0BA 0.15	0CA 0.18	0CA 0.18	0EA 0.28	0EA 0.28	0EA 0.29	0EA 0.3	0FA 0.35	0FA 0.35				
4AM324	0.063	3RV2011-□□□10 Set value in A	0BA 0.14	0BA 0.14	0BA 0.15	0BA 0.16	0CA 0.18	0CA 0.18	0CA 0.18	0CA 0.19	0CA 0.19	0DA 0.22	0DA 0.22	0DA 0.22	0DA 0.24	0FA 0.37	0GA 0.45	0GA 0.45	0GA 0.45	0GA 0.45	0GA 0.47				
4AM344	0.1	3RV2011-□□□10 Set value in A	0DA 0.22	0DA 0.23	0EA 0.28	0EA 0.28	0EA 0.28	0EA 0.3	0FA 0.35	0FA 0.35	0FA 0.35	0FA 0.36	0FA 0.37	0GA 0.45	0GA 0.7	0JA 0.7	0JA 0.7	0JA 0.72	0JA 0.9	0KA 0.9	0KA 0.9				
4AM384	0.16	3RV2011-□□□10 Set value in A	0FA 0.35	0FA 0.35	0FA 0.39	0FA 0.4	0FA 0.42	0GA 0.45	0GA 0.46	0GA 0.48	0GA 0.5	0HA 0.55	0HA 0.56	0HA 0.58	0HA 0.61	0KA 0.96	0KA 1	1AA 1.1	1AA 1.1	1AA 1.2	1AA 1.2				
4AM404	0.25	3RV2011-□□□10 Set value in A	0HA 0.55	0HA 0.55	0HA 0.57	0HA 0.59	0JA 0.7	0JA 0.7	0JA 0.7	0JA 0.7	0JA 0.74	0KA 0.9	0KA 0.9	0KA 0.9	0KA 0.9	1BA 1.4	1BA 1.5	1CA 1.8	1CA 1.8	1CA 1.8	1CA 1.8				
4AM434	0.315	3RV2011-□□□10 Set value in A	0JA 0.7	0JA 0.7	0JA 0.71	0JA 0.74	0KA 0.9	0KA 0.9	0KA 0.9	0KA 0.9	1AA 1.1	1AA 1.1	1AA 1.1	1AA 1.1	1AA 1.1	1CA 1.8	1CA 2.2	1DA 2.2	1DA 2.2	1DA 2.2	1DA 2.2				
4AM464	0.4	3RV2011-□□□10 Set value in A	0KA 0.9	0KA 0.9	0KA 0.9	0KA 0.92	1AA 1.1	1AA 1.1	1AA 1.1	1AA 1.1	1AA 1.2	1BA 1.4	1BA 1.4	1BA 1.4	1BA 1.4	1DA 2.2	1DA 2.3	1EA 2.8	1EA 2.8	1EA 2.8	1EA 2.8				
4AM484	0.5	3RV2011-□□□10 Set value in A	1AA 1.1	1AA 1.1	1AA 1.1	1BA 1.4	1BA 1.4	1BA 1.4	1BA 1.4	1BA 1.4	1BA 1.5	1BA 1.8	1CA 1.8	1CA 1.8	1CA 1.8	1CA 2.8	1EA 3.5	1FA 3.5	1FA 3.5	1FA 3.5	1FA 3.5				
4AM524	0.63	3RV2011-□□□10 Set value in A	1AA 1.2	1BA 1.4	1BA 1.4	1BA 1.4	1BA 1.5	1BA 1.6	1BA 1.8	1BA 1.8	1CA 1.8	1CA 1.9	1DA 2.2	1DA 2.2	1DA 2.2	1FA 3.5	1FA 3.5	1FA 3.7	1GA 4.5	1GA 4.5	1GA 4.5				
4AM554	0.8	3RV2011-□□□10 Set value in A	1CA 1.8	1CA 1.8	1CA 1.8	1DA 2.2	1DA 2.2	1DA 2.2	1DA 2.2	1DA 2.2	1DA 2.2	1EA 2.8	1EA 2.8	1EA 2.8	1EA 2.8	1GA 4.5	1GA 4.5	1HA 5.5	1HA 5.5	1HA 5.5	1HA 5.5				
4AM574	1	3RV2011-□□□10 Set value in A	1DA 2.2	1DA 2.2	1DA 2.2	1DA 2.3	1DA 2.4	1EA 2.8	1EA 2.8	1EA 2.8	1EA 2.8	1EA 3	1FA 3.5	1FA 3.5	1FA 3.5	1HA 5.5	1HA 5.7	1JA 7	1JA 7	1JA 7	1JA 7				
4AM614	1.6	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1FA 3.5	1FA 3.5	1FA 3.5	1FA 3.7	1GA 3.9	1GA 4.5	1GA 4.5	1GA 4.5	1GA 4.6	1HA 5.5	1HA 5.5	1HA 5.5	1HA 5.6	1KA 9	-- 11	-- 11	-- 11	-- 11	-- 11				
4AM644	2	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1GA 4.5	1GA 4.5	1GA 4.5	1GA 4.5	1HA 5.5	1HA 5.5	1HA 5.5	1HA 5.5	1HA 5.7	1JA 7	1JA 7	1JA 7	1JA 7	-- 11	-- 11	-- 14	-- 14	-- 14	-- 14				
4AM654	2.5	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1GA 4.5	1GA 5.5	1HA 5.5	1HA 5.5	1HA 5.7	1JA 7	1JA 7	1JA 7	1JA 9	1KA 9	1KA 9	1KA 9	1KA 9	-- 14	-- 14	-- 17	-- 17	-- 17	-- 20				
4AT transformers																									
4AT303	4	3RV2011-□□□10 3RV2021-□□□10 3RV1031-□□□10 Set value in A	1JA 8	1JA 8	1KA 9	1KA 9	1KA 9	-- 10	-- 11	-- 11	-- 11	-- 12	-- 12	-- 13	-- 14	-- 22	-- 22	-- 23	-- 24	-- 28	-- 28				
4AT361	5	3RV2011-□□□10 3RV2021-□□□10 3RV1031-□□□10 Set value in A	1KA 10	1KA 10	1KA 11	-- 11	-- 12	-- 14	-- 14	-- 14	-- 15	-- 16	-- 16	-- 17	-- 28	-- 28	-- 29	-- 31	-- 32	-- 36	-- 36				
4AT363	6.3	3RV2021-□□□10 3RV1031-□□□10 Set value in A	4AA 12	4AA 12	4BA 14	4BA 14	4BA 15	4CA 17	4CA 17	4CA 17	4CA 18	4DA 20	4DA 20	4DA 21	-- 36	-- 36	-- 36	-- 38	-- 39	-- 41	-- 41				
4AT391	8	3RV2021-□□□10 3RV1031-□□□10 3RV1041-□□□10 Set value in A	4BA 15	4BA 15	4CA 17	4CA 18	4CA 18	4DA 20	4DA 20	4DA 21	-- 22	-- 23	-- 24	-- 25	-- 28	-- 42	-- 43	-- 45	-- 48	-- 50	-- 52				
4AT393	10	3RV2021-□□□10 3RV1031-□□□10 3RV1041-□□□10 Set value in A	4CA 18	4CA 19	4DA 21	4DA 22	-- 23	-- 24	-- 25	-- 26	-- 28	-- 28	-- 30	-- 31	-- 32	-- 51	-- 57	-- 57	-- 59	-- 64	-- 64				

¹⁾ Two-pole or single-pole motor starter protectors can be connected (3 conducting paths in series), see circuit diagram on page 15/11.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

European voltage and multi-voltage version

Trans- former	Rated power P_n	Motor starter protector ¹⁾	Rated input voltage U_{1N} in V																						
Type	kVA	Type	690	660	600	575	550	525	500	480	460	440	415	400	380	240	230	220	208	200	190				
Motor starter protector version for 4AM transformers: Transformer protection																									
4AM234	0.025	3RV2411-□□□10 Set value in A	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.11	0AA 0.12	0CA 0.19	0CA 0.2	0CA 0.2	0CA 0.23	0CA 0.24	0CA 0.25				
4AM264	0.04	3RV2411-□□□10 Set value in A	0AA 0.11	0AA 0.11	0AA 0.12	0AA 0.12	0AA 0.13	0BA 0.14	0BA 0.14	0BA 0.15	0BA 0.16	0BA 0.16	0BA 0.17	0BA 0.18	0CA 0.19	0DA 0.3	0DA 0.32	0DA 0.32	0EA 0.35	0EA 0.35	0EA 0.38				
4AM324	0.063	3RV2411-□□□10 Set value in A	0BA 0.15	0BA 0.15	0BA 0.17	0CA 0.18	0CA 0.19	0CA 0.2	0CA 0.2	0CA 0.21	0DA 0.22	0DA 0.23	0DA 0.25	0DA 0.26	0DA 0.27	0FA 0.43	0FA 0.45	0FA 0.47	0GA 0.49	0GA 0.5	0GA 0.55				
4AM344	0.1	3RV2411-□□□10 Set value in A	0DA 0.25	0DA 0.26	0EA 0.29	0EA 0.3	0EA 0.31	0EA 0.33	0EA 0.34	0FA 0.35	0FA 0.35	0FA 0.39	0FA 0.41	0FA 0.43	0FA 0.45	0HA 0.72	0HA 0.75	0HA 0.75	0JA 0.83	0JA 0.85	0JA 0.9				
4AM384	0.16	3RV2411-□□□10 Set value in A	0FA 0.39	0FA 0.4	0GA 0.45	0GA 0.45	0GA 0.49	0GA 0.51	0GA 0.54	0HA 0.55	0HA 0.55	0HA 0.6	0HA 0.65	0HA 0.67	0HA 0.71	0KA 1.1	0KA 1.1	0KA 1.2	1AA 1.3	1AA 1.35	1AA 1.4				
4AM404	0.25	3RV2411-□□□10 Set value in A	0HA 0.55	0HA 0.6	0HA 0.66	0HA 0.69	0JA 0.7	0JA 0.75	0JA 0.8	0JA 0.82	0JA 0.85	0KA 0.9	0KA 0.95	0KA 0.99	0KA 1	1BA 1.65	1BA 1.7	1BA 1.8	1BA 1.9	1BA 1.9	1BA 2				
4AM434	0.315	3RV2411-□□□10 Set value in A	0JA 0.7	0JA 0.75	0JA 0.8	0JA 0.85	0KA 0.9	0KA 1	0KA 1	0KA 1	0KA 1	0KA 1.1	0KA 1.2	1AA 1.24	1AA 1.3	1CA 2	1CA 2.1	1CA 2.2	1CA 2.3	1CA 2.4	1CA 2.5				
4AM464	0.4	3RV2411-□□□10 Set value in A	0KA 0.9	0KA 0.9	0KA 1	0KA 1	1AA 1.1	1AA 1.1	1AA 1.2	1AA 1.3	1AA 1.35	1AA 1.4	1AA 1.48	1BA 1.55	1BA 1.63	1DA 2.6	1DA 2.7	1DA 2.8	1DA 3	1DA 3.1	1DA 3.2				
4AM484	0.5	3RV2411-□□□10 Set value in A	1AA 1.1	1AA 1.1	1AA 1.3	1AA 1.35	1BA 1.4	1BA 1.4	1BA 1.5	1BA 1.6	1BA 1.65	1BA 1.75	1BA 1.85	1CA 1.9	1CA 2	1CA 3.2	1EA 3.3	1EA 3.5	1EA 3.7	1EA 3.8	1EA 4				
4AM524	0.63	3RV2411-□□□10 Set value in A	1AA 1.35	1BA 1.4	1BA 1.5	1BA 1.6	1BA 1.7	1CA 1.8	1CA 1.9	1CA 1.9	1CA 2	1CA 2.1	1CA 2.2	1DA 2.3	1DA 2.5	1FA 3.9	1FA 4	1FA 4	1FA 4.5	1FA 4.7	1FA 5				
4AM554	0.8	3RV2411-□□□10 Set value in A	1BA 1.5	1CA 1.8	1CA 2	1CA 2.1	1CA 2.2	1DA 2.3	1DA 2.4	1DA 2.5	1DA 2.6	1DA 2.7	1DA 2.9	1EA 3	1EA 3.1	1GA 5	1GA 5	1GA 5.5	1GA 5.8	1GA 6	1GA 6.3				
4AM574	1	3RV2411-□□□10 Set value in A	1DA 2.2	1DA 2.3	1DA 2.5	1DA 2.6	1DA 2.7	1EA 2.9	1EA 3	1EA 3.1	1EA 3.3	1EA 3.4	1EA 3.6	1FA 3.8	1FA 4	1HA 6.3	1HA 6.5	1HA 6.5	1HA 7	1HA 7.6	1HA 8				
4AM614	1.6	3RV2411-□□□10 Set value in A	1FA 3.6	1FA 3.7	1FA 4.1	1FA 4.3	1GA 4.5	1GA 4.7	1GA 5	1GA 5	1GA 5.4	1GA 5.6	1GA 5.9	1GA 6.2	1GA 6.3	1KA 10	1KA 10.5	1KA 11	1KA 12	1KA 12.3	1KA 12.5				
4AM644	2	3RV2411-□□□10 Set value in A	1FA 4.4	1GA 4.6	1GA 5	1GA 5.3	1HA 5.5	1HA 5.8	1HA 6.1	1HA 6.3	1HA 6.6	1HA 6.9	1HA 7.3	1HA 7.6	1HA 8	4AA 12.5	4AA 13	4AA 13.5	4AA 14.5	4AA 15	4AA 16				
4AM654	2.5	3RV2411-□□□10 3RV2421-□□□10 Set value in A	1HA 5.5	1HA 5.8	1HA 6.4	1HA 6.6	1JA 7	1JA 7.3	1JA 7.5	1JA 8	1JA 8.3	1JA 8.7	1JA 9.2	1KA 9.5	1KA 10	4BA 16	4BA 16.5	4BA 17	4BA 18.5	4BA 19	-- 4DA 20				
Motor starter protector version for 4AT transformers: Motor protection																									
4AT303	4	3RV2011-□□□10 3RV2021-□□□10 3RV1031-□□□10 Set value in A	1JA 8	1JA 8	1KA 9	1KA 9	1KA 10	-- 11	-- 11	-- 11	-- 11	-- 12	-- 12	-- 13	-- 14	-- 22	-- 22	-- 23	-- 24	-- 28	-- 28				
4AT361	5	3RV2011-□□□10 3RV2021-□□□10 3RV1031-□□□10 Set value in A	1KA 10	1KA 10	1KA 11	-- 11	-- 12	-- 14	-- 14	-- 14	-- 15	-- 16	-- 16	-- 17	-- 17	-- 28	-- 28	-- 29	-- 31	-- 32	-- 36				
4AT363	6.3	3RV2021-□□□10 3RV1031-□□□10 Set value in A	4AA 12	4AA 12	4BA 14	4BA 14	4BA 15	4CA 17	4CA 17	4CA 17	4CA 18	4CA 20	4DA 20	4DA 21	4DA 21	-- 4GA 36	-- 4GA 36	-- 4GA 36	-- 4GA 39	-- 4GA 39	-- 4HA 41				
4AT391	8	3RV2021-□□□10 3RV1031-□□□10 3RV1041-□□□10 Set value in A	4BA 15	4BA 15	4CA 17	4CA 18	4CA 20	4DA 20	4DA 21	4DA 22	-- 23	-- 24	-- 25	-- 28	-- 42	-- 43	-- 44	-- 45	-- 4JA 48	-- 4JA 50	-- 4JA 52				
4AT393	10	3RV2021-□□□10 3RV1031-□□□10 3RV1041-□□□10 Set value in A	4CA 18	4CA 19	4DA 21	4DA 22	-- 24	-- 25	-- 26	-- 28	-- 28	-- 30	-- 31	-- 32	-- 51	-- 57	-- 57	-- 59	-- 69	-- 69	-- 64				

¹⁾ Two-pole or single-pole motor starter protectors can be connected (3 conducting paths in series), see circuit diagram on page 15/11.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Secondary-side short-circuit and overload protection with motor starter protector

Transformer	Rated power P_n	Motor starter protectors					
		Version: Motor protection ¹⁾	Rated output voltage U_{2N} in V				
Type	kVA	Type	230	115	110	42	24
4AM transformers							
4AM234	0.025	3RV2011-□□□10 Set value in A	0AA 0.14	0DA 0.26	0DA 0.29	0HA 0.75	1AA 1.3
4AM264	0.04	3RV2011-□□□10 Set value in A	0CA 0.21	0FA 0.41	0FA 0.45	0KA 1.2	1CA 2.1
4AM324	0.063	3RV2011-□□□10 Set value in A	0EA 0.34	0HA 0.68	0HA 0.72	1BA 1.9	1EA 3.3
4AM344	0.1	3RV2011-□□□10 Set value in A	0GA 0.55	0KA 1.1	0KA 1.14	1DA 3	1GA 5.2
4AM384	0.16	3RV2011-□□□10 Set value in A	0JA 0.86	1BA 1.72	1BA 1.82	1FA 4.8	1JA 8.4
4AM404	0.25	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1AA -- 1.37	1DA -- 2.7	1DA -- 2.8	1HA -- 7.4	-- 4AA 13
4AM434	0.315	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1BA -- 1.72	1EA -- 3.4	1EA -- 3.6	1JA -- 9.4	-- 4BA 16.5
4AM464	0.4	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1CA -- 2.2	1FA -- 4.4	1FA -- 4.6	1KA -- 12	-- 4CA 21
4AM484	0.5	3RV2011-□□□10 3RV2021-□□□10 3RV1031-□□□10 Set value in A	1DA -- -- 2.7	1GA -- -- 5.4	1GA -- -- 5.7	-- 4AA -- 15	-- -- 4EA 26
4AM524	0.63	3RV2011-□□□10 3RV2021-□□□10 3RV1031-□□□10 Set value in A	1EA -- -- 3.4	1HA -- -- 6.8	1HA -- -- 7.2	-- 4BA -- 18.8	-- -- 4FA 33
4AM554	0.8	3RV2011-□□□10 3RV2021-□□□10 3RV1031-□□□10 Set value in A	1FA -- -- 4.4	1JA -- -- 8.8	1JA -- -- 9.2	-- 4DA -- 24	-- -- 4GA 42
4AM574	1	3RV20 11-□□□10 3RV10 31-□□□10 3RV10 41-□□□10 Set value in A	1GA -- -- 5.4	1KA -- -- 10.8	1KA -- -- 11.4	-- 4EA -- 30	-- -- 4JA 52
4AM614	1.6	3RV2011-□□□10 3RV1031-□□□10 3RV1041-□□□10 Set value in A	1JA -- -- 8.6	-- 4BA -- 17	-- 4BA -- 18.5	-- 4HA -- 48	-- -- 4LA 81
4AM644	2	3RV2011-□□□10 3RV1031-□□□10 3RV1041-□□□10 Set value in A	1KA -- -- 10.9	-- 4DA -- 22	-- 4DA -- 23	-- 4JA 60	-- -- 4MA 101
4AM654	2.5	3RV2021-□□□10 3RV1031-□□□10 3RV1041-□□□10 3VF3211-□□□□□-0AA0 Set value in A	4AA -- -- -- 13.6	-- 4EA -- -- 27	-- 4EA -- -- 28	-- 4KA -- -- 72	-- -- -- 1BU41 125
4AT transformers							
4AT303	4	3RV2021-□□□10 3RV1031-□□□10 Set value in A	4CA -- 21	-- 4GA 41	-- -- --	-- -- --	-- -- --
4AT361	5	3RV1031-□□□10 3RV1041-□□□10 Set value in A	4EA -- 26	-- 4JA 51	-- -- --	-- -- --	-- -- --
4AT363	6.3	3RV1031-□□□10 3RV1041-□□□10 Set value in A	4FA -- 32	-- 4KA 64	-- -- --	-- -- --	-- -- --
4AT391	8	3RV1031-□□□10 3RV1041-□□□10 Set value in A	4GA -- 41	-- 4LA 81	-- -- --	-- -- --	-- -- --
4AT393	10	3RV1041-□□□10 Set value in A	4JA 51	4MA 100	-- --	-- --	-- --

¹⁾ Two-pole or single-pole motor starter protectors can be connected (3 conducting paths in series), see circuit diagram on page 15/11.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Short-time rating of control transformers $P_{\text{short-t.}}^{1)} = f(p.f.)$ for $U_2 = 0.95 \times U_{2N}$

Trans- former	Rated power P_n	Short-time rating $P_{\text{short-t.}}^{1)}$ with p.f. of										Voltage rise in no-load operation (operating temperature) u_A %	Voltage drop on rated load (at 20 °C) u_R %	Short- circuit voltage (at 20 °C) u_Z %
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1			
Type	kVA	kVA	kVA	kVA	kVA	kVA	kVA	kVA	kVA	kVA	kVA			
4AM transformers														
4AM324	0.063	0.56	0.37	0.28	0.23	0.19	0.16	0.14	0.12	0.12	0.11	10	8.4	8.5
4AM344	0.1	0.96	0.62	0.46	0.37	0.31	0.26	0.23	0.21	0.19	0.17	10	7.7	7.7
4AM384	0.16	1.52	0.98	0.73	0.58	0.49	0.42	0.37	0.33	0.3	0.28	10.4	7.6	7.7
4AM404	0.25	2.5	1.62	1.24	1	0.85	0.74	0.66	0.59	0.54	0.51	7.2	5.4	5.4
4AM434	0.315	3.4	2.15	1.63	1.33	1.12	0.97	0.86	0.77	0.71	0.67	6.6	4.9	5
4AM464	0.4	3.51	2.53	2	1.67	1.44	1.26	1.13	1	0.95	0.92	5.7	4.3	4.4
4AM484	0.5	5.34	3.75	2.9	2.4	2	1.75	1.55	1.4	1.3	1.25	5	3.8	3.8
4AM524	0.63	5.05	3.85	3.15	2.7	2.35	2.1	1.9	1.75	1.65	1.6	4.7	3.6	3.7
4AM554	0.8	7.69	5.8	4.65	3.9	3.4	3	2.7	2.5	2.3	2.25	4	3	3.1
4AM574	1.0	12.1	8.85	7	5.85	5	4.4	3.95	3.6	3.3	3.2	3.2	2.5	2.5
4AM614	1.6	12.1	10.3	9	8.1	7.3	6.8	6.4	6.1	5.9	6.4	2.4	1.9	2.1
4AM644	2	15.8	13.5	11.9	10.7	9.7	9	8.5	8.1	7.9	8.6	2.1	1.7	1.9
4AM654	2.5	19.6	17.3	15.6	14.3	13.3	12.5	12	11.6	11.5	13.2	1.6	1.3	1.6
4AT transformers														
With one input voltage														
4AT303	4	31.2	25	20.9	18	16	14.4	13.2	12.2	11.6	11.7	3.8	2.7	2.9
4AT361	5	44.3	32.5	25.8	21.4	18.5	16.1	14.4	13.1	12.1	11.6	5.5	3.8	3.9
4AT363	6.3	40.7	33.4	28.4	24.9	22.5	20.3	18.7	17.5	16.7	16.9	4.3	3.1	3.3
4AT391	8	52.7	43.1	36.5	31.8	28.5	25.6	23.4	21.9	20.8	21.3	4.3	3.1	3.3
4AT393	10	42	37.7	34.4	31.9	30	28.4	27.3	26.7	26.8	29	3.5	2.5	3.3
In multi-voltage version														
4AT303	4	45.8	32.6	25.4	20.9	17.8	15.5	13.8	12.5	11.5	11	4.1	2.9	2.9
4AT361	5	48	36.7	27.9	22.6	19	16.5	14.6	13.1	12	11.2	5.9	4	4.1
4AT363	6.3	54.9	42.1	33.8	28.4	24.5	21.7	19.5	17.8	16.5	16.1	4.7	3.2	3.3
4AT391	8	70	53.6	43	36	31.1	27.5	24.8	22.6	21	20.4	4.6	3.2	3.3
4AT393	10	64.1	53.3	45.8	40.5	36.4	33.3	30.9	29.1	27.9	29.4	3.7	2.6	2.9

¹⁾ $P_{\text{short-t.}}$ applies to up to 300 contactor operations per hour. The specified power is the typical maximum short-time rating.

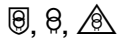
Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AM
 safety, mains and control transformers

Overview

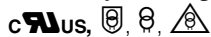
- According to IEC 61558-2-6, -2-1, -2-2
- **cULus**
- $t_a = 40\text{ °C/B}$
- 50/60 Hz AC
- Degree of protection IP00
- For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or www.mdexx.com.


 SIRIUS 4AM single-phase transformer
 with screw terminals/flat connectors


Selection and ordering data

With one input voltage

Rated input voltage U_{1N} 230 V $\pm$ 5 %,
rated output voltages U_{2N} 24 V or 42 V



PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 4M1

Rated power P_n	Short-time rating $P_{short-t.}^{1)}$	DT ²⁾ U_{2N} 24 V			DT ²⁾ U_{2N} 42 V		
		Screw terminals/ flat connectors		Cu weight per PU approx.	Screw terminals/ flat connectors		Cu weight per PU approx.
		Configurator			Configurator		
		Article No.	Price per PU	kg	Article No.	Price per PU	kg
Degree of protection IP00, standard version³⁾							
0.063	0.19	A	4AM3242-4TN00-0EA0	0.260 A	4AM3242-4TV00-0EA0		0.260
0.1	0.31	A	4AM3442-4TN00-0EA0	0.260 A	4AM3442-4TV00-0EA0		0.260
0.16	0.49	A	4AM3842-4TN00-0EA0	0.320 A	4AM3842-4TV00-0EA0		0.320
0.25	0.85	A	4AM4042-4TN00-0EA0	0.600 A	4AM4042-4TV00-0EA0		0.580
0.315	1.12	A	4AM4342-4TN00-0EA0	0.710	--		
0.4	1.44	A	4AM4642-4TN00-0EA0	1.050 D	4AM4642-4TV00-0EA0		1.100
0.5	2	A	4AM4842-4TN00-0EA0	1.050 D	4AM4842-4TV00-0EA0		1.100
0.63	2.35	A	4AM5242-4TN00-0EA0	1.770 D	4AM5242-4TV00-0EA0		1.700
0.8	3.4	A	4AM5542-4TN00-0EA0	1.880	--		
1	5	A	4AM5742-4TN00-0EA0	1.910 D	4AM5742-4TV00-0EA0		2.000
Degree of protection IP00, standard rail mounting³⁾							
0.063	0.19	A	4AM3242-4TN00-0EA0	0.260 A	4AM3242-4TV00-0EA0		0.260
0.1	0.31	A	4AM3442-4TN00-0EA0	0.260 A	4AM3442-4TV00-0EA0		0.260
0.16	0.49	A	4AM3842-4TN00-0EA0	0.320 A	4AM3842-4TV00-0EA0		0.320
0.25	0.85	A	4AM4042-4TN00-0EA0	0.600 A	4AM4042-4TV00-0EA0		0.580
0.315	1.12	D	4AM4342-4TN00-0EB0	0.710	--		
0.4	1.44	D	4AM4642-4TN00-0EB0	1.050	--		
0.5	2	D	4AM4842-4TN00-0EB0	1.050	--		

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AM

safety, mains and control transformers

With one input voltage

Rated input voltage U_{1N} 400 V $\pm$ 5 %,
rated output voltages U_{2N} 24 V or 42 V



PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 4M1

Rated power P_n	Short-time rating $P_{short-t.}$ ¹⁾	DT ²⁾	U_{2N} 24 V	Cu weight per PU approx.	DT ²⁾	U_{2N} 42 V	Cu weight per PU approx.
			Screw terminals/ flat connectors			Screw terminals/ flat connectors	
			Configurator			Configurator	
kVA	kVA		Article No.	Price per PU		Article No.	Price per PU
				kg			kg
Degree of protection IP00, standard version³⁾							
0.063	0.19	A	4AM3242-5AN00-0EA0	0.280	--	4AM3442-5AV00-0EA0	0.290
0.1	0.31	A	4AM3442-5AN00-0EA0	0.290 A		4AM3842-5AV00-0EA0	0.340
0.16	0.49	A	4AM3842-5AN00-0EA0	0.340 A		4AM4042-5AV00-0EA0	0.610
0.25	0.85	A	4AM4042-5AN00-0EA0	0.590 A		4AM4342-5AV00-0EA0	0.670
0.315	1.12	A	4AM4342-5AN00-0EA0	0.750 D			
0.4	1.44	A	4AM4642-5AN00-0EA0	1.030	--		
0.5	2	A	4AM4842-5AN00-0EA0	1.030 D		4AM4842-5AV00-0EA0	1.100
0.63	2.35	A	4AM5242-5AN00-0EA0	1.800	--		
0.8	3.4	A	4AM5542-5AN00-0EA0	1.860 D		4AM5542-5AV00-0EA0	1.900
1	5	A	4AM5742-5AN00-0EA0	1.860 D		4AM5742-5AV00-0EA0	2.000
Degree of protection IP00, standard rail mounting³⁾							
0.063	0.19	A	4AM3242-5AN00-0EA0	0.280 A		4AM3242-5AV00-0EA0	0.280
0.1	0.31	A	4AM3442-5AN00-0EA0	0.290 A		4AM3442-5AV00-0EA0	0.290
0.16	0.49	A	4AM3842-5AN00-0EA0	0.340 A		4AM3842-5AV00-0EA0	0.340
0.25	0.85	A	4AM4042-5AN00-0EA0	0.590 A		4AM4042-5AV00-0EA0	0.610
0.315	1.12	D	4AM4342-5AN00-0EB0	0.750	--		
0.4	1.44	D	4AM4642-5AN00-0EB0	1.030	--		
0.5	2	D	4AM4842-5AN00-0EB0	1.030	--		

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

For European voltages

Rated input voltage U_{1N} 400/230 V $\pm$ 15 V,
rated output voltages U_{2N} 24 V or 42 V



PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 4M1

Rated power P_n	Short-time rating $P_{short-t.}$ ¹⁾	DT ²⁾	U_{2N} 24 V	Cu weight per PU approx.	DT ²⁾	U_{2N} 42 V	Cu weight per PU approx.
			Screw terminals/ flat connectors			Screw terminals/ flat connectors	
			Configurator			Configurator	
kVA	kVA		Article No.	Price per PU		Article No.	Price per PU
				kg			kg
Degree of protection IP00, standard version³⁾							
0.063	0.19	A	4AM3242-8JN00-0EA0	0.330	--		
0.1	0.31	A	4AM3442-8JN00-0EA0	0.330	--		
0.16	0.49	A	4AM3842-8JN00-0EA0	0.400	--		
0.25	0.85	A	4AM4042-8JN00-0EA0	0.690	--		
0.315	1.12	D	4AM4342-8JN00-0EA0	1.000	--		
0.4	1.44	D	4AM4642-8JN00-0EA0	1.500	--		
0.5	2	D	4AM4842-8JN00-0EA0	1.500	--		
0.63	2.35	D	4AM5242-8JN00-0EA0	2.400	--		
1	5	D	4AM5742-8JN00-0EA0	2.800	--		
Degree of protection IP00, standard rail mounting³⁾							
0.063	0.19	A	4AM3242-8JN00-0EA0	0.330 X		4AM3242-8JV00-0EA0	0.340
0.1	0.31	A	4AM3442-8JN00-0EA0	0.330	--		
0.16	0.49	A	4AM3842-8JN00-0EA0	0.400 X		4AM3842-8JV00-0EA0	0.450
0.25	0.85	A	4AM4042-8JN00-0EA0	0.690 X		4AM4042-8JV00-0EA0	0.820

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AM safety, mains and control transformers

In multi-voltage version

Rated input voltage U_{1N}
550-525-500-480-460-440-415-400-380-230-208 V,
rated output voltages U_{2N} 24 V



PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 4M1

Rated power P_n	Short-time rating $P_{short-t.}^{1)}$	DT ²⁾	Screw terminals/ flat connectors Configurator	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU kg
Degree of protection IP00, standard version³⁾				
0.063	0.19	A	4AM3242-8DN00-0EA0	0.320
0.1	0.31	A	4AM3442-8DN00-0EA0	0.300
0.16	0.49	A	4AM3842-8DN00-0EA0	0.420
0.25	0.85	A	4AM4042-8DN00-0EA0	0.630
0.315	1.12	A	4AM4342-8DN00-0EA0	0.830
0.4	1.44	A	4AM4642-8DN00-0EA0	1.200
0.5	2	A	4AM4842-8DN00-0EA0	1.280
0.63	2.35	A	4AM5242-8DN00-0EA0	1.930
0.8	3.4	D	4AM5542-8DN00-0EA0	2.600
1	5	D	4AM5742-8DN00-0EA0	2.800
Degree of protection IP00, standard rail mounting³⁾				
0.063	0.19	A	4AM3242-8DN00-0EA0	0.320
0.1	0.31	A	4AM3442-8DN00-0EA0	0.300
0.16	0.49	A	4AM3842-8DN00-0EA0	0.420
0.25	0.85	A	4AM4042-8DN00-0EA0	0.630

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

In multi-voltage version

Rated input voltage U_{1N}
600-575-550-525-500-480-460-440-415-400-240-230 V,
rated output voltages U_{2N} 24 V



PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 4M1

Rated power P_n	Short-time rating $P_{short-t.}^{1)}$	DT ²⁾	Screw terminals/ flat connectors Configurator	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU kg
Degree of protection IP00, standard version³⁾				
0.063	0.19	A	4AM3242-8EN00-0EA0	0.340
0.1	0.31	A	4AM3442-8EN00-0EA0	0.340
0.16	0.49	A	4AM3842-8EN00-0EA0	0.440
0.25	0.85	A	4AM4042-8EN00-0EA0	0.670
0.315	1.12	A	4AM4342-8EN00-0EA0	0.880
0.4	1.44	A	4AM4642-8EN00-0EA0	1.280
0.5	2	A	4AM4842-8EN00-0EA0	1.240
0.63	2.35	A	4AM5242-8EN00-0EA0	2.040
Degree of protection IP00, standard rail mounting³⁾				
0.063	0.19	A	4AM3242-8EN00-0EA0	0.340
0.1	0.31	A	4AM3442-8EN00-0EA0	0.340
0.16	0.49	A	4AM3842-8EN00-0EA0	0.440
0.25	0.85	A	4AM4042-8EN00-0EA0	0.670
0.315	1.12	D	4AM4342-8EN00-0EB0	0.880
0.5	2	A	4AM4842-8EN00-0EA0	1.240

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AM safety and mains transformers

Overview

- According to IEC 61558-2-6, -2-1
- cULus**
- $t_a = 40\text{ °C/B}$
- 50/60 Hz AC
- Degree of protection IP00
- For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or www.mdexx.com.



SIRIUS 4AM single-phase transformer
with screw terminals/flat connectors



Selection and ordering data

With one input voltage

Rated input voltage U_{1N} 230 V $\pm$ 5 %,
rated output voltages U_{2N} 24 V

cULus, , 

Rated power P_n	Short-time rating $P_{short-t}$	DT ¹⁾	Screw terminals/ flat connectors Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU			kg
Degree of protection IP00, standard version							
0.025	--	A	4AM2342-4TN00-0EA0	1	1 unit	4M1	0.100
0.04	--	A	4AM2642-4TN00-0EA0	1	1 unit	4M1	0.140
Degree of protection IP00, standard rail mounting							
0.025	--	D	4AM2342-4TN00-0EB0	1	1 unit	4M1	0.100
0.04	--	D	4AM2642-4TN00-0EB0	1	1 unit	4M1	0.140

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

With one input voltage

Rated input voltage U_{1N} 400 V $\pm$ 5 %,
rated output voltages U_{2N} 24 V

cULus, , 

Rated power P_n	Short-time rating $P_{short-t}$	DT ¹⁾	Screw terminals/ flat connectors Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU			kg
Degree of protection IP00, standard version							
0.025	--	A	4AM2342-5AN00-0EA0	1	1 unit	4M1	0.100
0.04	--	A	4AM2642-5AN00-0EA0	1	1 unit	4M1	0.160
Degree of protection IP00, standard rail mounting							
0.025	--	D	4AM2342-5AN00-0EB0	1	1 unit	4M1	0.100
0.04	--	D	4AM2642-5AN00-0EB0	1	1 unit	4M1	0.160

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AM, 4AT
isolating, control and mains transformers

Overview

- According to IEC 61558-2-4, -2-2, -2-1
- cULus¹⁾
- 4AM: $t_a = 40\text{ °C/B}$, 4AT: $t_a = 55\text{ °C/H}$
- 50/60 Hz AC
- Degree of protection IP00
- For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or www.mdexx.com.



SIRIUS 4AM single-phase transformer with screw terminals/flat connectors (left) and SIRIUS 4AT single-phase transformer with screw terminals (right)

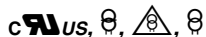


¹⁾ cULus approval for voltages $\leq 600\text{ V}$ (excl. tapping).

Selection and ordering data

With one input voltage

**Rated input voltage U_{1N} 230 V $\pm 5\%$,
rated output voltages U_{2N} 110 V or 230 V**



PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 4M1

Rated power P_n	Short-time rating $P_{short-t.}$ ¹⁾	DT ²⁾	U_{2N} 110 V			U_{2N} 230 V		
			Screw terminals ³⁾ / flat connectors ³⁾	Configurator	Cu weight per PU approx.	Screw terminals ³⁾ / flat connectors ³⁾	Configurator	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU	kg	Article No.	Price per PU	kg
Degree of protection IP00, standard version⁴⁾								
0.063	0.19	A	4AM3242-4TJ10-0FA0		0.270 A	4AM3242-4TT10-0FA0		0.270
0.1	0.31	A	4AM3442-4TJ10-0FA0		0.270 A	4AM3442-4TT10-0FA0		0.270
0.16	0.49	A	4AM3842-4TJ10-0FA0		0.320 A	4AM3842-4TT10-0FA0		0.330
0.25	0.85	A	4AM4042-4TJ10-0FA0		0.570 A	4AM4042-4TT10-0FA0		0.610
0.315	1.12	A	4AM4342-4TJ10-0FA0		0.730 A	4AM4342-4TT10-0FA0		0.740
0.4	1.44	A	4AM4642-4TJ10-0FA0		1.000 A	4AM4642-4TT10-0FA0		1.040
0.5	2	A	4AM4842-4TJ10-0FA0		1.050 A	4AM4842-4TT10-0FA0		1.030
0.63	2.35	A	4AM5242-4TJ10-0FA0		1.700 A	4AM5242-4TT10-0FA0		1.720
0.8	3.4	A	4AM5542-4TJ10-0FA0		1.780 A	4AM5542-4TT10-0FA0		1.780
1	5	A	4AM5742-4TJ10-0FA0		1.920 A	4AM5742-4TT10-0FA0		1.910
1.6	7.3	D	4AM6142-4TJ10-0FA0		4.100 A	4AM6142-4TT10-0FA0		3.960
2	9.7	D	4AM6442-4TJ10-0FA0		4.700 A	4AM6442-4TT10-0FA0		4.430
2.5	13.3	D	4AM6542-4TJ10-0FA0		6.400 A	4AM6542-4TT10-0FA0		6.560
4	16	D	4AT3032-4TJ10-0FA0		9.900 D	4AT3032-4TT10-0FA0		9.900
Degree of protection IP00, standard rail mounting⁴⁾								
0.063	0.19	A	4AM3242-4TJ10-0FA0		0.270 A	4AM3242-4TT10-0FA0		0.270
0.1	0.31	A	4AM3442-4TJ10-0FA0		0.270 A	4AM3442-4TT10-0FA0		0.270
0.16	0.49	A	4AM3842-4TJ10-0FA0		0.320 A	4AM3842-4TT10-0FA0		0.330
0.25	0.85	A	4AM4042-4TJ10-0FA0		0.570 A	4AM4042-4TT10-0FA0		0.610
0.315	1.12	D	4AM4342-4TJ10-0FB0		0.730 D	4AM4342-4TT10-0FB0		0.740
0.4	1.44	--	--		D	4AM4642-4TT10-0FB0		1.040
0.5	2	--	--		D	4AM4842-4TT10-0FB0		1.030

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ The 4AT types are only supplied with screw terminals.

⁴⁾ For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

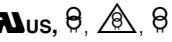
Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AM, 4AT isolating, control and mains transformers

With one input voltage

Rated input voltage U_{1N} 400 V $\pm$ 5 %,
rated output voltages U_{2N} 110 V or 230 V

c 

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 4M1

Rated power P_n	Short-time rating $P_{short-t.}^{1)}$	DT ²⁾	U_{2N} 110 V			U_{2N} 230 V		
			Screw terminals ³⁾ / flat connectors ³⁾	Configurator	Cu weight per PU approx.	Screw terminals ³⁾ / flat connectors ³⁾	Configurator	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU	kg	Article No.	Price per PU	kg
Degree of protection IP00, standard version⁴⁾								
0.063	0.19	A	4AM3242-5AJ10-0FA0		0.280 A	4AM3242-5AT10-0FA0		0.280
0.1	0.31	A	4AM3442-5AJ10-0FA0		0.280 A	4AM3442-5AT10-0FA0		0.270
0.16	0.49	A	4AM3842-5AJ10-0FA0		0.340 A	4AM3842-5AT10-0FA0		0.320
0.25	0.85	A	4AM4042-5AJ10-0FA0		0.600 A	4AM4042-5AT10-0FA0		0.640
0.315	1.12	A	4AM4342-5AJ10-0FA0		0.750 A	4AM4342-5AT10-0FA0		0.760
0.4	1.44	A	4AM4642-5AJ10-0FA0		0.980 A	4AM4642-5AT10-0FA0		1.020
0.5	2	A	4AM4842-5AJ10-0FA0		1.040 A	4AM4842-5AT10-0FA0		1.020
0.63	2.35	A	4AM5242-5AJ10-0FA0		1.700 A	4AM5242-5AT10-0FA0		1.700
0.8	3.4	A	4AM5542-5AJ10-0FA0		1.770 A	4AM5542-5AT10-0FA0		1.770
1	5	A	4AM5742-5AJ10-0FA0		1.850 A	4AM5742-5AT10-0FA0		1.880
1.6	7.3	A	4AM6142-5AJ10-0FA0		4.130 A	4AM6142-5AT10-0FA0		3.970
2	9.7	D	4AM6442-5AJ10-0FA0		4.700 A	4AM6442-5AT10-0FA0		4.360
2.5	13.3	A	4AM6542-5AJ10-0FA0		5.900 A	4AM6542-5AT10-0FA0		5.970
4	16	D	4AT3032-5AJ10-0FA0		9.900 D	4AT3032-5AT10-0FA0		9.900
5	18.5	D	4AT3612-5AJ10-0FA0		6.900 D	4AT3612-5AT10-0FA0		6.850
6.3	22.5	--	--		D	4AT3632-5AT10-0FA0		11.300
8	28.5	--	--		D	4AT3912-5AT10-0FA0		12.800
10	30	--	--		D	4AT3932-5AT10-0FA0		22.100
Degree of protection IP00, standard rail mounting⁴⁾								
0.063	0.19	A	4AM3242-5AJ10-0FA0		0.280 A	4AM3242-5AT10-0FA0		0.280
0.1	0.31	A	4AM3442-5AJ10-0FA0		0.280 A	4AM3442-5AT10-0FA0		0.270
0.16	0.49	A	4AM3842-5AJ10-0FA0		0.340 A	4AM3842-5AT10-0FA0		0.320
0.25	0.85	A	4AM4042-5AJ10-0FA0		0.600 A	4AM4042-5AT10-0FA0		0.640
0.4	1.44	--	--		D	4AM4642-5AT10-0FB0		1.020
0.5	2	--	--		D	4AM4842-5AT10-0FB0		1.020

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ The 4AT types are only supplied with screw terminals.

⁴⁾ For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AM, 4AT
isolating, control and mains transformers
With one input voltage
**Rated input voltage U_{1N} 440 V $\pm$ 5 %,
 rated output voltages U_{2N} 110 V or 230 V**
c

 PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 4M1

Rated power P_n	Short-time rating $P_{short-t.}$ ¹⁾	DT ²⁾	U_{2N} 110 V	Cu weight per PU approx.	DT ²⁾	U_{2N} 230 V	Cu weight per PU approx.
			Screw terminals³⁾/ flat connectors³⁾			Screw terminals³⁾/ flat connectors³⁾	
			Configurator			Configurator	
kVA	kVA		Article No.	Price per PU		Article No.	Price per PU
				kg			kg
Degree of protection IP00, standard version⁴⁾							
0.063	0.19	D	4AM3242-5CJ10-0FA0	0.240 A		4AM3242-5CT10-0FA0	0.260
0.1	0.31	D	4AM3442-5CJ10-0FA0	0.260 A		4AM3442-5CT10-0FA0	0.260
0.16	0.49		--	A		4AM3842-5CT10-0FA0	0.380
0.25	0.85	D	4AM4042-5CJ10-0FA0	0.590 A		4AM4042-5CT10-0FA0	0.590
0.315	1.12	D	4AM4342-5CJ10-0FA0	0.670 A		4AM4342-5CT10-0FA0	0.710
0.4	1.44		--	A		4AM4642-5CT10-0FA0	1.080
0.5	2		--	A		4AM4842-5CT10-0FA0	1.000
0.63	2.35		--	A		4AM5242-5CT10-0FA0	1.700
0.8	3.4		--	A		4AM5542-5CT10-0FA0	1.730
1	5	D	4AM5742-5CJ10-0FA0	2.000 A		4AM5742-5CT10-0FA0	1.850
1.6	7.3	D	4AM6142-5CJ10-0FA0	4.100 A		4AM6142-5CT10-0FA0	3.900
2	9.7	D	4AM6442-5CJ10-0FA0	4.700 A		4AM6442-5CT10-0FA0	4.430
2.5	13.3	D	4AM6542-5CJ10-0FA0	6.400 D		4AM6542-5CT10-0FA0	6.400
4	16	D	4AT3032-5CJ10-0FA0	9.900 D		4AT3032-5CT10-0FA0	9.900
5	18.5		--	D		4AT3612-5CT10-0FA0	6.900
6.3	22.5		--	D		4AT3632-5CT10-0FA0	11.300

 ⚙ For online configurator see www.siemens.com/sirius/configurators.

 1) For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

2) The delivery time class depends on the quantity, see page 15/9 "Options".

3) The 4AT types are only supplied with screw terminals.

4) For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

With one input voltage
**Rated input voltage U_{1N} 500 V $\pm$ 5 %,
 rated output voltages U_{2N} 230 V**
c

Rated power P_n	Short-time rating $P_{short-t.}$ ¹⁾	DT ²⁾	Screw terminals³⁾/ flat connectors³⁾		PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
			Configurator					
kVA	kVA		Article No.	Price per PU				kg
Degree of protection IP00, standard version⁴⁾								
0.063	0.19	A	4AM3242-5FT10-0FA0		1	1 unit	4M1	0.250
0.1	0.31	A	4AM3442-5FT10-0FA0		1	1 unit	4M1	0.280
0.16	0.49	A	4AM3842-5FT10-0FA0		1	1 unit	4M1	0.360
0.25	0.85	A	4AM4042-5FT10-0FA0		1	1 unit	4M1	0.640
0.315	1.12	A	4AM4342-5FT10-0FA0		1	1 unit	4M1	0.760
0.4	1.44	A	4AM4642-5FT10-0FA0		1	1 unit	4M1	1.010
0.5	2	A	4AM4842-5FT10-0FA0		1	1 unit	4M1	1.010
0.63	2.35	A	4AM5242-5FT10-0FA0		1	1 unit	4M1	1.700
0.8	3.4	A	4AM5542-5FT10-0FA0		1	1 unit	4M1	1.760
1	5	A	4AM5742-5FT10-0FA0		1	1 unit	4M1	1.870
1.6	7.3	A	4AM6142-5FT10-0FA0		1	1 unit	4M1	4.250
2	9.7	A	4AM6442-5FT10-0FA0		1	1 unit	4M1	4.370
2.5	13.3	A	4AM6542-5FT10-0FA0		1	1 unit	4M1	5.980
4	16	D	4AT3032-5FT10-0FA0		1	1 unit	4M1	9.900
5	18.5	D	4AT3612-5FT10-0FA0		1	1 unit	4M1	6.900
6.3	22.5	D	4AT3632-5FT10-0FA0		1	1 unit	4M1	11.300
8	28.5	D	4AT3912-5FT10-0FA0		1	1 unit	4M1	12.800
10	30	D	4AT3932-5FT10-0FA0		1	1 unit	4M1	22.100
Degree of protection IP00, standard rail mounting⁴⁾								
0.063	0.19	A	4AM3242-5FT10-0FA0		1	1 unit	4M1	0.250
0.1	0.31	A	4AM3442-5FT10-0FA0		1	1 unit	4M1	0.280
0.16	0.49	A	4AM3842-5FT10-0FA0		1	1 unit	4M1	0.360
0.25	0.85	A	4AM4042-5FT10-0FA0		1	1 unit	4M1	0.640
0.315	1.12	D	4AM4342-5FT10-0FB0		1	1 unit	4M1	0.760

 ⚙ For online configurator see www.siemens.com/sirius/configurators.

 1) For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

2) The delivery time class depends on the quantity, see page 15/9 "Options".

3) The 4AT types are only supplied with screw terminals.

4) For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AM, 4AT isolating, control and mains transformers

With one input voltage

Rated input voltages U_{1N} 690 V $\pm 5\%$ ¹⁾,
rated output voltage U_{2N} 230 V



Rated power P_n	Short-time rating $P_{short-t.}$ ²⁾	DT ³⁾	Screw terminals/ flat connectors Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU			kg
Degree of protection IP00, standard version⁴⁾							
0.063	0.19	D	4AM3242-5MT10-0FA0	1	1 unit	4M1	0.240
0.1	0.31	D	4AM3442-5MT10-0FA0	1	1 unit	4M1	0.260
0.16	0.49	D	4AM3842-5MT10-0FA0	1	1 unit	4M1	0.320
0.25	0.85	D	4AM4042-5MT10-0FA0	1	1 unit	4M1	0.590
0.315	1.12	D	4AM4342-5MT10-0FA0	1	1 unit	4M1	0.670
0.4	1.44	D	4AM4642-5MT10-0FA0	1	1 unit	4M1	1.100
0.5	2	D	4AM4842-5MT10-0FA0	1	1 unit	4M1	1.100
0.63	2.35	D	4AM5242-5MT10-0FA0	1	1 unit	4M1	1.700
0.8	3.4	D	4AM5542-5MT10-0FA0	1	1 unit	4M1	1.900
1	5	D	4AM5742-5MT10-0FA0	1	1 unit	4M1	2.000
1.6	7.3	D	4AM6142-5MT10-0FA0	1	1 unit	4M1	4.100
2	9.7	D	4AM6442-5MT10-0FA0	1	1 unit	4M1	4.700
2.5	13.3	D	4AM6542-5MT10-0FA0	1	1 unit	4M1	6.400
Degree of protection IP00, standard rail mounting⁴⁾							
0.063	0.19	D	4AM3242-5MT10-0FA0	1	1 unit	4M1	0.240
0.1	0.31	D	4AM3442-5MT10-0FA0	1	1 unit	4M1	0.260
0.16	0.49	D	4AM3842-5MT10-0FA0	1	1 unit	4M1	0.320
0.25	0.85	D	4AM4042-5MT10-0FA0	1	1 unit	4M1	0.590

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ Without cULus approval.

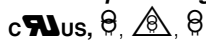
²⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

³⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

⁴⁾ For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

For European voltages

Rated input voltage U_{1N} 400/230 V ± 15 V,
rated output voltage U_{2N} 2 x 115 V



Rated power P_n	Short-time rating $P_{short-t.}$ ¹⁾	DT ²⁾	Screw terminals ³⁾ / flat connectors ³⁾ Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU			kg
Degree of protection IP00, standard version⁴⁾							
0.063	0.19	A	4AM3242-8JD40-0FA0	1	1 unit	4M1	0.290
0.1	0.31	A	4AM3442-8JD40-0FA0	1	1 unit	4M1	0.340
0.16	0.49	A	4AM3842-8JD40-0FA0	1	1 unit	4M1	0.430
0.25	0.85	A	4AM4042-8JD40-0FA0	1	1 unit	4M1	0.660
0.315	1.12	A	4AM4342-8JD40-0FA0	1	1 unit	4M1	0.830
0.4	1.44	A	4AM4642-8JD40-0FA0	1	1 unit	4M1	1.210
0.5	2	A	4AM4842-8JD40-0FA0	1	1 unit	4M1	1.270
0.63	2.35	A	4AM5242-8JD40-0FA0	1	1 unit	4M1	2.180
0.8	3.4	A	4AM5542-8JD40-0FA0	1	1 unit	4M1	2.310
1	5	A	4AM5742-8JD40-0FA0	1	1 unit	4M1	2.320
1.6	7.3	A	4AM6142-8JD40-0FA0	1	1 unit	4M1	4.540
2	9.7	A	4AM6442-8JD40-0FA0	1	1 unit	4M1	4.840
2.5	13.3	A	4AM6542-8JD40-0FA0	1	1 unit	4M1	6.000
Degree of protection IP00, standard rail mounting⁴⁾							
0.063	0.19	A	4AM3242-8JD40-0FA0	1	1 unit	4M1	0.290
0.1	0.31	A	4AM3442-8JD40-0FA0	1	1 unit	4M1	0.340
0.16	0.49	A	4AM3842-8JD40-0FA0	1	1 unit	4M1	0.430
0.25	0.85	A	4AM4042-8JD40-0FA0	1	1 unit	4M1	0.660

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ The 4AT types are only supplied with screw terminals.

⁴⁾ For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

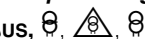
Single-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AM, 4AT
isolating, control and mains transformers

In multi-voltage version

Rated input voltage U_{1N} 550-525-500-480-460-440-415-400-380-230-208 V,
rated output voltage U_{2N} 2 × 115 V

c 

Rated power P_n	Short-time rating $P_{short-t.}^{1)}$	DT ²⁾	Screw terminals ^{3)/} flat connectors ³⁾ Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU			kg
Degree of protection IP00, standard version⁴⁾							
0.063	0.19	A	4AM3242-8DD40-0FA0	1	1 unit	4M1	0.310
0.1	0.31	A	4AM3442-8DD40-0FA0	1	1 unit	4M1	0.340
0.16	0.49	A	4AM3842-8DD40-0FA0	1	1 unit	4M1	0.440
0.25	0.85	A	4AM4042-8DD40-0FA0	1	1 unit	4M1	0.680
0.315	1.12	A	4AM4342-8DD40-0FA0	1	1 unit	4M1	0.820
0.4	1.44	A	4AM4642-8DD40-0FA0	1	1 unit	4M1	1.170
0.5	2	A	4AM4842-8DD40-0FA0	1	1 unit	4M1	1.260
0.63	2.35	A	4AM5242-8DD40-0FA0	1	1 unit	4M1	1.990
0.8	3.4	A	4AM5542-8DD40-0FA0	1	1 unit	4M1	2.190
1	5	A	4AM5742-8DD40-0FA0	1	1 unit	4M1	2.250
1.6	7.3	A	4AM6142-8DD40-0FA0	1	1 unit	4M1	4.520
2	9.7	A	4AM6442-8DD40-0FA0	1	1 unit	4M1	4.260
2.5	13.3	A	4AM6542-8DD40-0FA0	1	1 unit	4M1	5.470
4	16	D	4AT3032-8DD40-0FA0	1	1 unit	4M1	9.300
5	18.5	D	4AT3612-8DD40-0FA0	1	1 unit	4M1	7.300
6.3	22.5	D	4AT3632-8DD40-0FA0	1	1 unit	4M1	12.200
8	28.5	D	4AT3912-8DD40-0FA0	1	1 unit	4M1	13.900
10	30	D	4AT3932-8DD40-0FA0	1	1 unit	4M1	23.700
Degree of protection IP00, standard rail mounting⁴⁾							
0.063	0.19	A	4AM3242-8DD40-0FA0	1	1 unit	4M1	0.310
0.1	0.31	A	4AM3442-8DD40-0FA0	1	1 unit	4M1	0.340
0.16	0.49	A	4AM3842-8DD40-0FA0	1	1 unit	4M1	0.440
0.25	0.85	A	4AM4042-8DD40-0FA0	1	1 unit	4M1	0.680
0.4	1.44	D	4AM4642-8DD40-0FB0	1	1 unit	4M1	1.170
0.5	2	D	4AM4842-8DD40-0FB0	1	1 unit	4M1	1.260

For online configurator see www.siemens.com/sirius/configurators.

1) For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

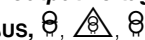
2) The delivery time class depends on the quantity, see page 15/9 "Options".

3) The 4AT types are only supplied with screw terminals.

4) For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

In multi-voltage version

Rated input voltage U_{1N} 600-575-550-525-500-480-460-440-415-400-240-230 V,
rated output voltage U_{2N} 2 × 115 V

c 

Rated power P_n	Short-time rating $P_{short-t.}^{1)}$	DT ²⁾	Screw terminals ^{3)/} flat connectors ³⁾ Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU			kg
Degree of protection IP00, standard version⁴⁾							
0.063	0.19	A	4AM3242-8ED40-0FA0	1	1 unit	4M1	0.290
0.1	0.31	A	4AM3442-8ED40-0FA0	1	1 unit	4M1	0.390
0.16	0.49	A	4AM3842-8ED40-0FA0	1	1 unit	4M1	0.400
0.25	0.85	A	4AM4042-8ED40-0FA0	1	1 unit	4M1	0.650
0.315	1.12	A	4AM4342-8ED40-0FA0	1	1 unit	4M1	0.860
0.4	1.44	A	4AM4642-8ED40-0FA0	1	1 unit	4M1	1.260
0.5	2	A	4AM4842-8ED40-0FA0	1	1 unit	4M1	1.210
0.63	2.35	A	4AM5242-8ED40-0FA0	1	1 unit	4M1	2.080
0.8	3.4	A	4AM5542-8ED40-0FA0	1	1 unit	4M1	2.330
1	5	A	4AM5742-8ED40-0FA0	1	1 unit	4M1	2.400
1.6	7.3	A	4AM6142-8ED40-0FA0	1	1 unit	4M1	4.630
2	9.7	A	4AM6442-8ED40-0FA0	1	1 unit	4M1	4.450
2.5	13.3	A	4AM6542-8ED40-0FA0	1	1 unit	4M1	5.190
Degree of protection IP00, standard rail mounting⁴⁾							
0.063	0.19	A	4AM3242-8ED40-0FA0	1	1 unit	4M1	0.290
0.1	0.31	A	4AM3442-8ED40-0FA0	1	1 unit	4M1	0.390
0.16	0.49	A	4AM3842-8ED40-0FA0	1	1 unit	4M1	0.400
0.25	0.85	A	4AM4042-8ED40-0FA0	1	1 unit	4M1	0.650
0.5	2	D	4AM4842-8ED40-0FB0	1	1 unit	4M1	1.500

For online configurator see www.siemens.com/sirius/configurators.

1) For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

2) The delivery time class depends on the quantity, see page 15/9 "Options".

3) The 4AT types are only supplied with screw terminals.

4) For types 4AM32 to 4AM40, standard rail mounting is integrated in the standard version.

Three-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Overview

4AP../4AU.. transformers

With the right transformer, the right voltage will be available at any conditions.

Our transformers are the right choice for each application: They work reliably, safely and worldwide under a wide range of different conditions.

Transformers are summarized in a user-friendly manner as:

- Isolating, control and mains transformers according to IEC 61558-2-4, -2-2, -2-1 or
- Safety, control and mains transformers according to IEC 61558-2-6, -2-2, -2-1 (see [Industry Mall and Interactive Catalog CA 01](#) or [www.mdexx.com](#))

Note:

Mains transformers with ≤ 50 V on the output side are, in the case of SIRIUS transformers, always designed as safety transformers.

Our transformers provide optimal protection through high permissible ambient temperatures up to 40 °C or 55 °C, a high short-time rating in the case of control transformers, fuseless design and thanks to their compliance with safety standard IEC 61558, "Safety inside".

Connection methods

The transformers 4AP../4AU.. are available with screw terminals/ flat connectors.



Screw terminals



Flat connectors

The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Support function

The transformers 4AP../4AU.. can also be ordered with the help of an online configurator.



Configurator available in the Industry Mall

The online configurator is indicated in the corresponding tables by the symbol shown on an orange background.

Article No. scheme

Digit of the Article No.	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th
	☐	☐	☐	☐	☐	☐	☐	-	☐	☐	☐	☐	-	☐	☐	☐
Transformer product type	4	A														
Product group			☐													
Rated power				☐	☐											
Power level						☐										
Development status							☐									
Rated input voltage								☐	☐							
Rated output voltage										☐	☐					
Protective device												☐				
Application													☐	☐		
Degree of protection															☐	
Connection type																☐
Example	4	A	P	3	0	4	2	-	8	B	C	4	0	-	0	H A 0

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

- High short-time rating of the SIRIUS transformers: Lower transformer rated power for a large number of contactors
- Suitable for "fuseless design": The small inrush current means that "circuit breakers for motor protection" can also be used on the primary side
- **cTÜV** approvals for the USA and Canada: can be used worldwide without any problems
- Comprehensive type spectrum supplied from stock: rapid availability

Application

Transformers are used in industrial machines, process engineering, heating and air-conditioning equipment, etc., for supplying control and signaling circuits, when:

- Several electromagnetic loads (e.g. contactors) have to be controlled
- Control and signaling devices are used outside the control cabinet

- The operational voltage for the loads differs from the available voltage level
- Voltage matching for machines and installations with electrical isolation or as an autotransformer

Generally our transformers are used for voltage matching of electrical devices, e.g. in communications, medical engineering and domestic appliances.

Three-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Technical specifications

General data		
Transformers	Type	4AP
• Version		3UI core
• Performance range (with IP00)	kVA	0.16 ... 5
• Approvals		
Voltage range	V	≤ 690
• Approvals for USA, Canada	V	≤ 600
Rated frequency	Hz	50 ... 60
Thermal class		B
• Acc. to UL/CSA		CLASS 130
Ambient conditions		H
		CLASS 180
		Protection against harmful ambient conditions: Complete impregnation in polyester resin. Climate-proof for installation in rooms with an external climate according to DIN 50010
Rated ambient temperature		
• At rated power	°C	40
• Maximum value (after power reduction according to load characteristic ¹⁾)	°C	80
• Minimum value	°C	– 25
Relative air humidity		
• Mean value up to	%	80
• Maximum value for 30 days/year	%	95
• At 40 °C occasionally	%	100
Protection class		I
Degree of protection		
• Without enclosure		IP00
Installation altitude		Up to 1 000 m above sea level (above this, power reduction is necessary)
Protective devices		
• External		The transformers are protected from short circuits and overload on the primary and secondary side with motor starter protectors. For reliable protection against short circuits, overload and touch, the cables between the output terminals of the transformer and the load must have a negligible line impedance. For more details see DIN VDE 0100 (Erection of low-voltage systems) Part 410, Part 520 (particularly section 525) and Part 610. Assigned protective devices (see "Primary-side short-circuit and overload protection with motor starter protectors" on page 15/29)
Connection methods		
• Terminal arrangement ¹⁾		The permissible conductor cross-sections are assigned to the specified terminal types. Refer to DIN VDE 0298-4 and IEC 60204 (VDE 0113-1) for the permissible conductor cross-sections for the specified current according to the installation type. The terminals used are finger-safe according to EN 50274.
• Terminal versions and connectable cross-sections ¹⁾		Other terminal sizes than standard versions on request.
Mounting position		The permissible mounting position for each version is shown in the "Project Planning Aids" ¹⁾ .

¹⁾ See Reference Manual
"Single-phase transformers · Three-phase transformers",
<http://support.automation.siemens.com/WW/view/en/35681848>.

More technical specifications see
www.siemens.com/sirius-supplying
or
<http://support.automation.siemens.com/WW/view/en/22172732/133200>.

Three-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Rated outputs at different ambient temperatures

- With electrically separated windings
- Degree of protection IP00
- According to IEC 61558, **cRAus**

Transformer	Rated power P_n	Permissible transformer load depending on the ambient temperature t_a of							
Type	kVA	60 °C kVA	55 °C kVA	50 °C kVA	45 °C kVA	40 °C kVA	35 °C kVA	30 °C kVA	25 °C kVA
4AP transformers									
4AP204	0.63	0.529	0.554	0.580	0.605	0.630	0.655	0.680	0.699
4AP214	1	0.840	0.880	0.920	0.960	1	1.04	1.08	1.11 1.78
4AP254	1.6	1.34	1.41	1.47	1.54	1.60	1.66	1.73	
4AP274	2.5	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.78
4AP304	4	3.36	3.52	3.68	3.84	4	4.16	4.32	4.44
4AP305	5	4.20	4.40	4.60	4.80	5.50	5.20	5.40	5.55
4AU transformers									
4AU303	6.3	6.11	6.30	6.49	6.68	6.93	7.12	7.31	7.50
4AU361	8	7.76	8	8.24	8.48	8.80	9.04	9.28	9.52
4AU363	10	9.70	10	10.3	10.6	11	11.3	11.6	11.9
4AU393	16	15.5	16	16.5	17	17.6	18.1	18.6	19

Operation characteristics

- According to IEC 61558-2-6, IEC 61558-2-4, IEC 61558-2-1

Transformer Type	Rated power P_n 50 Hz ... 60 Hz 1 000 m above sea level degree of protection IP00 kVA	Core size	Voltage rise in no-load operation (operating temperature) u_A approx. %	Voltage drop on rated load ¹⁾ u_R approx. %	Short-circuit voltage ¹⁾ u_Z approx. %	Degree of efficiency η approx. %
4AP transformers: $t_a = 40\text{ °C/B}$						
4AP204	0.63	3UI 90/30	9.3	6.8	6.8	89
4AP214	1	3UI 90/50	6.4	4.8	4.8	92
4AP254	1.6	3UI 114/62	4.9	3.6	3.6	93
4AP274	2.5	3UI 132/70	4.5	3.4	3.4	94
4AP304	4	3UI 150/75	3.5	2.6	2.7	95
4AP305	5	3UI 150/75	2.8	2.1	2.2	96
4AU transformers: $t_a = 55\text{ °C/H}$						
4AU303	6.3	3UI 150/75	3.8	2.6	2.6	96
4AU361	8	3UI 180/75	5.1	3.6	3.6	94
4AU363	10	3UI 180/75	4.1	2.9	3	95
4AU393	16	3UI 210/70	3.2	2.3	2.8	96

Higher ratings and other conditions on request.

¹⁾ Winding reference temperature: 20 °C.

Calculation of power loss P_V

$$P_V = \frac{P_n (100 - \eta)}{\eta} \text{ [kW]}$$

Three-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Primary-side short-circuit and overload protection with motor starter protectors

Trans- former	Rated power P_n	Motor starter protectors Version: Motor protection	Rated input voltage U_{1N} in V																	
Type	kVA	Type	520	500	480	460	440	420	400	380	360	300	288	277	265	254	242	230	220	208
4AP transformers																				
4AP204	0.63	3RV2011-□□□10 Set value in A	0KA 0.95	0KA 0.95	1AA 1.1	1AA 1.1	1AA 1.1	1AA 1.2	1AA 1.2	1AA 1.3	1BA 1.5	1CA 1.8	1CA 1.9	1CA 2	1CA 2	1CA 2	1DA 2.2	1DA 2.2	1DA 2.2	1DA 2.3
4AP214	1	3RV2011-□□□10 Set value in A	1BA 1.5	1BA 1.5	1CA 1.7	1CA 1.8	1CA 1.8	1CA 2	1CA 2	1CA 2.3	1DA 2.8	1EA 2.8	1EA 2.9	1EA 3.1	1EA 3.2	1EA 3.2	1EA 3.2	1EA 3.2	1FA 3.5	1FA 3.5
4AP254	1.6	3RV2011-□□□10 Set value in A	1DA 2.3	1DA 2.3	1EA 2.8	1EA 2.8	1EA 2.8	1EA 3	1EA 3	1FA 3.5	1FA 3.5	1GA 4.5	1GA 4.5	1GA 4.9	1GA 5	1GA 5	1HA 5.5	1HA 5.5	1HA 5.5	1HA 5.6
4AP274	2.5	3RV2011-□□□10 Set value in A	1FA 3.6	1FA 3.6	1FA 4	1GA 4.5	1GA 4.5	1GA 4.5	1GA 4.5	1HA 5.8	1HA 5.8	1JA 7	1JA 7	1JA 7.5	1JA 7.5	1JA 8	1JA 8	1JA 8	1KA 9	1KA 9
4AP304	4	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1HA -- 5.7	1HA -- 5.7	1HA 6	1JA 7	1JA 7	1JA 7	1JA 7.2	1JA 8	1KA 9	-- 4AA 11	-- 4AA 11	-- 4AA 12	-- 4AA 12	-- 4AA 13	-- 4AA 13	-- 4BA 14	-- 4BA 14	-- 4BA 14
4AP305	5	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1JA -- 7.2	1JA -- 7.2	1JA 8	1KA 9	1KA 9	1KA 9	1KA 9	-- 4AA 11	-- 4AA 11	-- 4AA 13	-- 4BA 14	-- 4BA 15	-- 4BA 15	-- 4BA 16	-- 4CA 17	-- 4CA 17	-- 4CA 17	-- 4CA 17
4AU transformers																				
4AU303	6.3	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1KA -- 9	1KA -- 9	1KA 10	1KA 10	1KA 10	-- 4AA 11	-- 4AA 11	-- 4AA 12	-- 4AA 13	-- 4BA 15	-- 4BA 16	-- 4BA 16	-- 4CA 17	-- 4CA 18	-- 4CA 19	-- 4DA 20	-- 4DA 20	-- 4DA 22
4AU361	8	3RV2021-□□□10 3RV1031-□□□10 Set value in A	4AA -- 12	4AA -- 12	4AA 13	4AA 13	4AA 13	4BA 14	4BA 15	4BA 15	4BA 16	4CA 20	4CA 20	4CA 21	4CA 22	4CA 23	4DA 24	4DA 25	-- 4EA 26	-- 4EA 28
4AU391	12.5	3RV2021-□□□10 3RV1031-□□□10 Set value in A	4CA -- 9	4CA -- 19	4CA 20	4CA 20	4DA 20	4DA 22	4DA 22	4DA 23	4DA 25	-- 4FA 30	-- 4FA 31	-- 4FA 32	-- 4FA 34	-- 4FA 35	-- 4FA 37	-- 4FA 39	-- 4FA 40	-- 4GA 43
4AU393	16	3RV2021-□□□10 3RV1031-□□□10 Set value in A	4DA -- 24	4DA -- 24	4DA 25	4DA 25	-- 4EA 26	-- 4FA 28	-- 4FA 28	-- 4FA 30	-- 4FA 31	-- 4FA 38	-- 4FA 39	-- 4FA 40	-- 4HA 43	-- 4HA 44	-- 4HA 47	-- 4HA 49	-- 4HA 50	-- 4HA 50

Three-Phase Transformers

Safety, Isolating, Control and Mains Transformers

General data

Secondary-side short-circuit and overload protection with motor starter protectors

Transformer	Rated power P_n	Motor starter protectors	Rated output voltage U_{2N} in V	
Type	kVA	Version: Motor protection Type	400	230
4AP transformers				
4AP204	0.63	3RV2011-□□□10 Set value in A	0KA 1.1	1BA 1.9
4AP214	1	3RV2011-□□□10 Set value in A	1BA 1.7	1DA 3
4AP254	1.6	3RV2011-□□□10 Set value in A	1DA 2.7	1FA 5
4AP274	2.5	3RV2011-□□□10 Set value in A	1FA 4.2	1HA 7.5
4AP304	4	3RV2011-□□□10 Set value in A	1HA 6.7	1KA 12
4AP305	5	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1JA -- 8.5	-- 4AA 15
4AU transformers				
4AU303	6.3	3RV2011-□□□10 3RV2021-□□□10 Set value in A	1KA -- 11	-- 4BA 19
4AU361	8	3RV2021-□□□10 Set value in A	4AA 14	4DA 24
4AU363	10	3RV2021-□□□10 3RV1031-□□□10 Set value in A	4BA -- 17	-- 4EA 29
4AU393	16	3RV1031-□□□10 Set value in A	4EA 27	4HA 47

Short-time rating of control transformers $P_{\text{short-t.}}^{1)} = f(p.f.)$ for $U_2 = 0.95 \times U_{2N}$

Trans- former	Rated power P_n	Short-time rating $P_{\text{short-t.}}^{1)}$ with p.f. of										Voltage rise in no-load operation (operating temperature) u_A %	Voltage drop on rated load (at 20 °C) u_R %	Short- circuit voltage (at 20 °C) u_Z %
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1			
Type	kVA	kVA	kVA	kVA	kVA	kVA	kVA	kVA	kVA	kVA	kVA			
4AP transformers														
4AP204	0.63	4.5	3.3	2.6	2.1	1.8	1.6	1.4	1.3	1.2	1.1	9.3	6.8	6.8
4AP214	1	9.3	6.5	5	4.1	3.5	3	2.7	2.4	2.2	2.1	6.4	4.8	4.8
4AP254	1.6	21	14	10	8.3	6.9	5.9	5.2	4.7	4.2	3.9	4.9	3.6	3.6
4AP274	2.5	37	24	17	14	11	9.9	8.7	7.8	7	6.5	4.5	3.4	3.4
4AP304	4	60	40	30	24	20	18	16	14	13	12	3.5	2.6	2.7
4AP305	5	53	41	34	29	25	22	20	19	18	17	2.8	2.1	2.2
4AU transformers														
4AU303	6.3	64.5	48.5	39	32.5	28	25	22.5	20.5	19	18.5	3.5	2.6	2.6
4AU361	8	83	58.5	45	37	31.5	27.5	24	22	20	19	5.1	3.6	3.6
4AU363	10	80.5	63	52	44	39	35	31.5	29	27.5	27	4.1	2.9	3
4AU393	16	85	74	66	60	55	51.5	48.5	46.5	46	51	3.2	2.3	2.8

¹⁾ $P_{\text{short-t.}}$ applies to up to 300 contactor operations per hour.

Three-Phase Transformers

Safety, Isolating, Control and Mains Transformers

SIRIUS 4AP, 4AU
isolating, control and mains transformers

Overview

- According to IEC 61558-2-4, -2-2, -2-1
- cULus**
- 4AP: $t_a = 40\text{ °C/B}$, 4AU: $t_a = 55\text{ °C/H}$
- 50/60 Hz AC
- Degree of protection IP00
- For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or [www.mdexx.com](#).



SIRIUS 4AP20 (left) and SIRIUS 4AU (right) three-phase transformers



Selection and ordering data

In two-voltage version

Rated input voltage U_{1N} 3 AC ∇ 500-400 V/ Δ 289-230 V,
rated output voltage U_{2N} 3 AC ∇ 400 V/ Δ 230 V

cULus,

Rated power P_n	Short-time rating $P_{short-t.}^{1)}$	DT ²⁾	Screw terminals ^{3)/} flat connectors ³⁾ Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU			kg
Degree of protection IP00							
0.63	1.8	A	4AP2042-8BC40-0HA0	1	1 unit	4M1	2.550
1	3.5	A	4AP2142-8BC40-0HA0	1	1 unit	4M1	3.140
1.6	6.9	X	4AP2542-8BC40-0HA0	1	1 unit	4M1	4.100
2.5	11	A	4AP2742-8BC40-0HA0	1	1 unit	4M1	4.570
4	20	X	4AP3042-8BC40-0HA0	1	1 unit	4M1	9.200
6.3	28	D	4AU3032-8BC40-0HA0	1	1 unit	4M1	13.500
10	39	D	4AU3632-8BC40-0HA0	1	1 unit	4M1	16.300

For online configurator see [www.siemens.com/sirius/configurators](#).

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ The 4AU transformers are only supplied with screw terminals.

In multi-voltage version

Rated input voltage U_{1N}
3 AC ∇ 520-500-480-460-440-420-400-380-360 V/ Δ 300-289-277-266-254-240-230-220-208 V,
rated output voltage U_{2N}
3 AC ∇ 400 V/ Δ 230 V

cULus,

Rated power P_n	Short-time rating $P_{short-t.}^{1)}$	DT ²⁾	Screw terminals ^{3)/} flat connectors ³⁾ Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
kVA	kVA		Article No.	Price per PU			kg
Degree of protection IP00							
0.63	1.8	X	4AP2042-8CC40-0HA0	1	1 unit	4M1	2.800
1	3.5	X	4AP2142-8CC40-0HA0	1	1 unit	4M1	2.900
1.6	6.9	X	4AP2542-8CC40-0HA0	1	1 unit	4M1	4.800
2.5	11	X	4AP2742-8CC40-0HA0	1	1 unit	4M1	5.200
4	20	X	4AP3042-8CC40-0HA0	1	1 unit	4M1	9.400
6.3	28	D	4AU3032-8CC40-0HA0	1	1 unit	4M1	16.000
8	32	D	4AU3612-8CC40-0HA0	1	1 unit	4M1	13.000
10	39	D	4AU3632-8CC40-0HA0	1	1 unit	4M1	21.000
16	55	D	4AU3932-8CC40-0HA0	1	1 unit	4M1	43.000

For online configurator see [www.siemens.com/sirius/configurators](#).

¹⁾ For p.f. = 0.5 and $U_2 = 0.95 \times U_{2N}$.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ The 4AU transformers are only supplied with screw terminals.

Non-Stabilized Power Supplies

General data

Overview

With SIRIUS power supplies, we offer a full range of first-class products. The complete type series ensure uniform voltages and minimum downtimes. They cover all important input voltages worldwide.

Connection methods

4AV.. non-stabilized power supplies are available with screw terminals/flat connectors.



Screw terminals



Flat connectors

The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Support function

4AV non-stabilized power supplies can also be ordered with the help of an online configurator.



Configurator available in the Industry Mall

The online configurator is indicated in the corresponding tables by the symbol shown on an orange background.

Article No. scheme

Digit of the Article No.		1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	
		□□□	□	□	□	□	–	□	□	□	□	–	□	□
Power supplies		4 A V												
Versions														
20	Single-phase, filtered, t_a max. 60 °C/B, suitable for connection to public supply networks and industrial networks		□	□										
26														
30	Three-phase, filtered, t_a max. 60 °C/B, suitable for connection to public supply networks and industrial networks													
35														
36, 38	Three-phase, unfiltered, t_a max. 60 °C/B, suitable for connection to public supply networks and industrial networks													
41	Single-phase, filtered, t_a = 40 °C/B, suitable for connection to industrial networks													
51	Three-phase, filtered, t_a = 40 °C/B, suitable for connection to industrial networks													
96	Three-phase, unfiltered, t_a = 50 °C/B													
98	Single-phase, unfiltered, t_a = 50 °C/B													
Power level					□	□								
Application								□						
Development status									□					
Impregnated transformer										□				
Serial number											□	□		
Connection type													□	
Mounting type/options														□
Example		4 A V	2	0	0	0	–	2	E	B	0	0	–	0 A

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Non-Stabilized Power Supplies

Filtered for Supply of Electronic Controls

General data

Overview

4AV2, 4AV3, 4AV4 and 4AV5 power supplies deliver a non-stabilized DC voltage of 24 V DC based on single-phase or

three-phase safety transformers with downstream rectifiers and capacitor filtering (4AV36 and 4AV38 without capacitor filtering).

Benefits

The rugged design of the 4AV units makes them extremely reliable. They are extremely stable when confronted with external mains failures and have a damping effect on EMC.

They are also highly suitable for supplying capacitive loads, because when the loads are connected only minimal voltage dips occur.

Application

The 4AV2, 4AV3, 4AV4 and 4AV5 units are used for:

- Supplying general electrical loads
- Supplying control circuits
- Power supply to electronic controllers They comply with the requirements of IEC 61131-2 "Programmable logic controllers – equipment specifications and tests" and are suitable for SIMATIC or other systems.

Rated power and rated current

The specifications in the selection tables are based on fixed reference conditions in which the devices have the rated power or rated current:

- Uninterrupted duty P_n
- Frequency AC 50 Hz to 60 Hz
- Installation altitude up to 1 000 m above sea level
- Degree of protection IP00
- Ambient temperature t_a

Ambient conditions

The units are designed for mounting in enclosed controllers and electronics cabinets. They are climate-proof for installation in rooms with an external climate according to DIN 50010.

Limit values

- Ambient temperature with rated power and rated current for types:
 - 4AV2 and 4AV3: Up to +60 °C
 - 4AV4 and 4AV5: Up to +40 °C
 - Minimum value for all types: -25 °C
- Relative air humidity:
 - At +40 °C occasionally up to 100 %
 - Annual average up to 80 %
 - Occasional condensation possible

Technical specifications

Single- and three-phase DC power supplies

Direct voltage 24 V DC Limit values	IEC 61131-2	Typical value				Conditions
		4AV2	4AV3	4AV4	4AV5	
Ripple	≤ 5 %	2.2 ... 2.7 %	4.2 %	3.0 ... 3.7 %	4.2 %	At rated current
Direct voltage 24 V DC						
• Upper limit	30 V	≤ 28.8 V	≤ 28.8 V	≤ 30 V	≤ 30 V	For mains overvoltage +6 % and no-load operation
• Lower limit						For mains undervoltage –10 % and rated current
- arithmetic mean value	20.4 V	20.4 V	20.5 V	20.4 V	20.4 V	
- lower peak value	19.2 V	19.3 V	19.3 V	19.2 V	19.2 V	
• Rated value		23.5 V	23.5 V	23.5 V	23.5 V	For rated mains voltage and rated current

Load rating of the power supplies with 3RT1 contactors for DC operation

- Sizes S00 to S3 with DC solenoid systems:
power at closing = power when closed. The DC power supplies can be loaded up to their rated currents.
- Sizes S6 to S12:
When operating the rectifier units at –10 % mains undervoltage

Contact- tor	Number of 3RT1 ¹⁾ contactors that can be operated simultaneously with preloading																											
	4AV20/ 4AV21		4AV23		4AV22		4AV24		4AV26		4AV30		4AV31		4AV32		4AV33		4AV34		4AV35		4AV36		4AV38			
Type	①	②	①	②	①	②	①	②	①	②	①	②	①	②	①	②	①	②	①	②	①	②	①	②	①	②		
3RT1.5	--	--	--	--	1	1	2	1	3	1	2	1	3	2	4	2	7	5	8	5	14	10	22	16	42	30		
3RT1.6	--	--	--	--	1	1	1	1	2	1	1	1	2	1	2	1	4	3	4	3	7	5	11	8	22	15		
3RT1.7	--	--	--	--	--	--	1	--	1	--	1	--	1	1	2	1	3	2	3	2	5	4	9	6	16	12		

① No-load operation

② Rated current

¹⁾ The number of contactors can be significantly increased by using additional banks of capacitors which must be connected externally.

Non-Stabilized Power Supplies

Filtered for Supply of Electronic Controls

General data

Primary-side short-circuit protection, secondary-side short-circuit and overload protection

Rectifier unit	Ambient temperature t_a	Rated output current I_d	Primary-side protection against short circuits (line protection) by means of motor starter protector ¹⁾²⁾ or fuse								Secondary-side protection against short-circuit and overload by means of motor starter protector or fuse	
			Type	Rated input voltage U_{1N}							Type	
				575 V (600 V)	500 V	460 V (480 V)	400 V (415 V)	230 V (240 V)	200 V	115 V (120 V)		
Type	°C	DC A										
Single-phase												
4AV21	60	1	3RV2011-□□□10 Set value in A	--	--	--	0CA 0.24	0FA 0.4	--	0JA 0.9	Built-in electrical short-circuit/overload protection fuse	--
	40	1.2	3RV2011-□□□10 Set value in A	--	--	--	0DA 0.29	0FA 0.48	--	0KA 1.1		
4AV20	60	2.5	3RV2011-□□□10 Set value in A	--	--	--	0FA 0.4	0HA 0.6	--	1BA 1.6	3RV2011-□□□10 Set value in A	1DA 2.5
	40	3	3RV2011-□□□10 Set value in A	--	--	--	0.48 0.48	0.72 0.72	--	1.9 1.9		
4AV23	60	3.5	3RV2011-□□□10 Set value in A	--	--	--	0HA 0.55	0JA 0.7	--	1CA 2	Built-in electrical short-circuit/overload protection fuse	--
	40	4.2	3RV2011-□□□10 Set value in A	--	--	--	0.66 0.66	0.84 0.84	--	2.4 2.4		
4AV22	60	5	3RV2011-□□□10 Set value in A	--	--	--	0HA 0.6	1AA 1.1	--	1DA 2.4	3RV2011-□□□10 Set value in A	1GA 5
	40	6	3RV2011-□□□10 Set value in A	--	--	--	0.72 0.72	1.3 1.3	--	2.9 2.9		
4AV24	60	10	3RV2011-□□□10 Set value in A	--	--	--	1CA 1.8	1DA 2.4	--	1GA 5	3RV2011-□□□10 Set value in A	1KA 10
	40	12	3RV2011-□□□10 Set value in A	--	--	--	2.2 2.2	2.9 2.9	--	6 6		
4AV26	60	15	3RV2011-□□□10 Set value in A	--	--	--	1CA 2	1EA 3.2	--	1HA 6	3RV2021-□□□10 Set value in A	4BA 15
	40	18	3RV2011-□□□10 Set value in A	--	--	--	2.4 2.4	3.8 3.8	--	7.2 7.2		
4AV4101	40	1.5	3RV2011-□□□10 Set value in A Fuse gG in A	--	--	--	0BA 0.15	0DA 0.27	--	--	Integrated blade-type fuse FK2	4 A
4AV4103	40	3	3RV2011-□□□10 Set value in A Fuse gG in A	--	--	--	0.5 0.5	1 0.7	--	--		
4AV4106	40	6	3RV2011-□□□10 Set value in A Fuse gG in A	--	--	--	0JA 0.8	0KA 1.2	--	--	Integrated blade-type fuse FK2	15 A
4AV4110	40	10	3RV2011-□□□10 Set value in A Fuse gG in A	--	--	--	2 1	1 1	--	--		
4AV4110	40	10	3RV2011-□□□10 Set value in A Fuse gG in A	--	--	--	1BA 1.6	1CA 2.4	--	--	Integrated blade-type fuse FK2	25 A
4AV4110	40	10	3RV2011-□□□10 Set value in A Fuse gG in A	--	--	--	4 4	4 4	--	--		
3-phase												
4AV30	60	9/10	3RV2011-□□□10 Set value in A	0FA 0.4	0FA 0.4	0FA 0.4	0HA 0.6	0KA 1	0KA 1	--	3RV2011-□□□10 Set value in A	1KA 9/10
	40	11/12	3RV2011-□□□10 Set value in A	0.48	0.48	0.48	0.72	1.2	1.2	--	3RV2011-□□□10 Set value in A	11/12
4AV31	60	13.5/15	3RV2011-□□□10 Set value in A	0HA 0.6	0HA 0.6	0HA 0.6	0KA 1	1BA 1.6	1CA 2	--	3RV2021-□□□10 Set value in A	4BA 14/15
	40	16/18	3RV2011-□□□10 Set value in A	0.72	0.72	0.72	1.2	1.9	2.4	--	3RV2021-□□□10 Set value in A	16/18
4AV32	60	18/20	3RV2011-□□□10 Set value in A	0HA 0.6	0KA 1	0KA 1	0KA 1	1BA 1.6	1DA 2.4	--	3RV1031-□□□10 Set value in A	4DA 18/20
	40	21.5/24	3RV2011-□□□10 Set value in A	0.72	1.2	1.2	1.2	1.9	2.9	--	3RV1031-□□□10 Set value in A	21.5/24
4AV33	60	27/30	3RV2011-□□□10 Set value in A	1CA 1.8	1CA 1.8	1CA 1.8	1CA 2	1EA 3.2	1FA 4	--	3RV1031-□□□10 Set value in A	4FA 28/30
	40	32.5/36	3RV2011-□□□10 Set value in A	2.2	2.2	2.2	2.4	3.8	4.8	--	3RV1031-□□□10 Set value in A	32.5/36
4AV34	60	36/40	3RV2011-□□□10 Set value in A	1CA 2	1CA 2	1CA 2	1DA 2.4	1GA 5	1GA 5	--	3RV1041-□□□10 Set value in A	4HA 36/40
	40	43/48	3RV2011-□□□10 Set value in A	2.4	2.4	2.4	2.9	6	6	--	3RV1041-□□□10 Set value in A	43/48
4AV35	60	45/50	3RV2011-□□□10 Set value in A	1DA 2.4	1DA 2.4	1EA 3.2	1FA 4	1HA 6	1HA 6	--	3RV1041-□□□10 Set value in A	4JA 45/50
	40	54/60	3RV2011-□□□10 Set value in A	2.9	2.9	3.8	4.8	7.2	7.2	--	3RV1041-□□□10 Set value in A	54/60
4AV36	60	80	3RV2011-□□□10 Set value in A	--	1HA 6	--	1HA 6	--	--	--	3RV1041-□□□10 Set value in A	4MA 80
	40	96	3RV2011-□□□10 Set value in A	--	7.2	--	7.2	--	--	--	3RV1041-□□□10 Set value in A	96
4AV38	60	150	3RV2011-□□□10 Set value in A	--	1KA 10	--	1KA 12	--	--	--	3VL2716-1DC33-0AA0 Set value in A	150/800
	40	180	3RV2021-□□□10 Set value in A	--	4AA 12	--	4AA 14	--	--	--	3VL3720-1DC36-0AA0 Set value in A	
4AV5125	40	25	3RV2011-□□□10 Set value in A Fuse gG in A	--	--	--	1BA 1.6	--	--	--	3RV1031-□□□10 Set value in A Fuse gG in A	4EA 25
4AV5135	40	35	3RV2011-□□□10 Set value in A Fuse gG in A	--	--	--	1CA 2.4	--	--	--	3RV1031-□□□10 Set value in A Fuse gG in A	4FA 35

¹⁾ In the event of a short circuit on the supply lines between the protective device and the input side of the unit, the rated short-circuit breaking capacity of the protection equipment must be taken into account with regard to the maximum possible prospective short-circuit current at the place of installation.

²⁾ Circuit recommendation for single-phase power supplies, see circuit diagram on page 15/11.

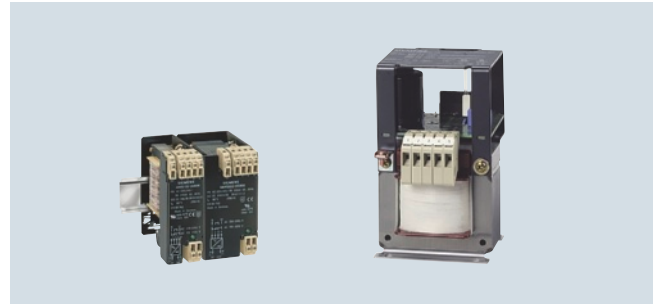
Non-Stabilized Power Supplies

Filtered for Supply of Electronic Controls

**SIRIUS 4AV2, 4AV4 power supplies,
filtered, single-phase**

Overview

- Rated output voltage U_{2N} 24 V DC according to IEC 61131-2¹⁾ and SIMATIC for input voltage +6 % to -10 % and load 0 % to 100 %
- Safety transformer according to IEC 61558-2-6
- 4AV21, 4AV23: **cFLUs** at 60 °C, ;
4AV20, 4AV22, 4AV24, 4AV26: **cFLUs** at 60 °C, ;
4AV41:
- 4AV2: t_a = max. 60 °C/B,
4AV41: t_a = 40 °C/B
- Varistor suppressor circuit
- Status LED
- EMC according to IEC 62041:
 - 4AV2: Suitable for connection to public supply networks (residential environments) and industrial networks (industrial environments);
 - 4AV4: Suitable for connection to industrial networks (industrial environments)
- Ripple < 5%
- For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or www.mdexx.com.



SIRIUS 4AV21, 4AV23 (left) and 4AV20, 4AV22 to 4AV24 (right) power supplies

- ¹⁾ IEC 61131-2: equipment specification for power supply and interface for programmable controllers.
For limit values for 24 V DC see [Reference Manual "Power Supplies Non-Stabilized - Stabilized"](#),
<http://support.automation.siemens.com/WW/view/en/35681104>.

Selection and ordering data

Rated input voltage U_{1N} ¹⁾ 230 (240)-115 (120) V,
rated output voltage U_{2N} 24 V DC

cFLUs,

Rated output current I_d		DT ²⁾	Screw terminals/ flat connectors Configurator		PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
60 °C/B IEC 61558 cFLUs	40 °C/B IEC 61558							
DC A	DC A		Article No.	Price per PU				kg
Integrated standard rail mounting								
1	1.2	A	4AV2102-2EB00-0A		1	1 unit	4M1	0.290
3.5	4.2	A	4AV2302-2EB00-0A		1	1 unit	4M1	0.390

For online configurator see www.siemens.com/sirius/configurators.

- ¹⁾ During operation at the mains voltages listed in brackets, the upper limit for 24 V DC according to IEC 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 30.6 V can be achieved.

- ²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

Rated input voltage U_{1N} ¹⁾ 400 (415) V,
rated output voltage U_{2N} 24 V DC

cFLUs,

Rated output current I_d		DT ²⁾	Screw terminals/ flat connectors Configurator		PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
60 °C/B IEC 61558 cFLUs	40 °C/B IEC 61558							
DC A	DC A		Article No.	Price per PU				kg
Integrated standard rail mounting								
1	1.2	A	4AV2106-2EB00-0A		1	1 unit	4M1	0.290
3.5	4.2	A	4AV2306-2EB00-0A		1	1 unit	4M1	0.410

For online configurator see www.siemens.com/sirius/configurators.

- ¹⁾ During operation at the mains voltages listed in brackets, the upper limit for 24 V DC according to IEC 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 30.6 V can be achieved.

- ²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

Non-Stabilized Power Supplies

Filtered for Supply of Electronic Controls

SIRIUS 4AV2, 4AV4 power supplies, filtered, single-phase

Rated input voltage U_{1N} ¹⁾ 400 (415)-230 (240) V with tapping ± 15 V,
rated output voltage U_{2N} 24 V DC

4AV2: c  **us, ; 4AV41: **

Rated output current I_d		DT ²⁾	Screw terminals/ flat connectors Configurator	 	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
60 °C/B IEC 61558 c  us	40 °C/B IEC 61558							
DC A	DC A		Article No.	Price per PU				kg
Screw mounting³⁾								
2.5	3	A	4AV2000-2EB00-0A		1	1 unit	4M1	0.390
5	6	A	4AV2200-2EB00-0A		1	1 unit	4M1	0.630
10	12	A	4AV2400-2EB00-0A		1	1 unit	4M1	1.030
15	18	A	4AV2600-2EB00-0A		1	1 unit	4M1	2.300
--	1.5	X	4AV4101-2EB00-0A		1	1 unit	4M1	0.300
--	3	A	4AV4103-2EB00-0A		1	1 unit	4M1	0.670
--	6	A	4AV4106-2EB00-0A		1	1 unit	4M1	0.520
Standard rail mounting								
2.5	3	A	4AV2000-2EB00-0A		1	1 unit	4M1	0.390
5	6	A	4AV2200-2EB00-0B		1	1 unit	4M1	0.630
10	12	X	4AV2400-2EB00-0B		1	1 unit	4M1	1.030
--	1.5	X	4AV4101-2EB00-0B		1	1 unit	4M1	0.300
--	3	A	4AV4103-2EB00-0A		1	1 unit	4M1	0.670
--	6	A	4AV4106-2EB00-0A		1	1 unit	4M1	0.520

 For online configurator see www.siemens.com/sirius/configurators.

¹⁾ During operation at the mains voltages listed in brackets, the upper limit for 24 V DC according to IEC 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation with types 4AV4, 31.4 V can be achieved.

²⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

³⁾ Types 4AV20, 4AV4103 and 4AV4106 are equipped with an integrated standard rail mounting as standard.

Rated input voltage U_{1N} 400 (415)-230 (240)-115 (120) V,
rated output voltage U_{2N} 24 V DC

c  **us, **

Rated output current I_d		DT ¹⁾	Screw terminals/ flat connectors Configurator	 	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
60 °C/B IEC 61558 c  us	40 °C/B IEC 61558							
DC A	DC A		Article No.	Price per PU				kg
Screw mounting²⁾								
2.5	3	A	4AV2001-2EB00-0A		1	1 unit	4M1	0.350
5	6	A	4AV2201-2EB00-0A		1	1 unit	4M1	0.620
10	12	A	4AV2401-2EB00-0A		1	1 unit	4M1	0.970
15	18	A	4AV2601-2EB00-0A		1	1 unit	4M1	2.220
Standard rail mounting								
2.5	3	A	4AV2001-2EB00-0A		1	1 unit	4M1	0.350
5	6	X	4AV2201-2EB00-0B		1	1 unit	4M1	0.620
10	12	X	4AV2401-2EB00-0B		1	1 unit	4M1	0.970

 For online configurator see www.siemens.com/sirius/configurators.

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

²⁾ Types 4AV20 are equipped with an integrated standard rail mounting as standard.

Non-Stabilized Power Supplies

Filtered for Supply of Electronic Controls

**SIRIUS 4AV3, 4AV5 power supplies,
filtered, three-phase**

Overview

- Rated output voltage U_{2N} 24 V DC according to IEC 61131-2¹⁾ and SIMATIC for input voltage +6 % to -10 % and load 0 % to 100 %
- Safety transformer according to IEC 61558-2-6
- 4AV30 to 4AV35: **cFLus** at 60 °C, ; 4AV36, 4AV38, 4AV51:
- 4AV3: $t_a = \max. 60$ °C/B, 4AV51: $t_a = 40$ °C/B
- Varistor suppressor circuit
- Status LED
- EMC according to IEC 62041:
 - 4AV3 suitable for connection to public supply networks (residential environments) and industrial networks (industrial environments);
 - 4AV5 suitable for connection to industrial networks (industrial environments)
- Ripple < 5 %
- For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or www.mdexx.com.



SIRIUS 4AV30 to 4AV33 (left) and 4AV38 (right) power supplies

¹⁾ IEC 61131-2: equipment specification for power supply and interface for programmable controllers.
For limit values for 24 V DC see [Reference Manual "Power Supplies Non-Stabilized - Stabilized"](#),
<http://support.automation.siemens.com/WW/view/en/35681104>.

Selection and ordering data

**Rated input voltage U_{1N} 400 (415) V with tapping ± 20 V, Δ 230 V with tapping ± 10 V,
rated output voltage U_{2N} 24 V DC**

cFLus,

Rated output current I_d		Additional capacitance	Ripple	Buffer time for $U_1 = U_{1N} - 10\%$	DT ¹⁾	Screw terminals/ flat connectors Configurator		PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
60 °C/B IEC 61558 cFLus	40 °C/B IEC 61558										
DC A	DC A	μF	%	ms		Article No.	Price per PU				kg
Standard version											
10	12	--	< 5	--	A	4AV3000-2EB00-0A		1	1 unit	4M1	1.470
15	18	--	< 5	--	A	4AV3100-2EB00-0A		1	1 unit	4M1	1.420
20	24	--	< 5	--	A	4AV3200-2EB00-0A		1	1 unit	4M1	2.440
30	36	--	< 5	--	A	4AV3300-2EB00-0A		1	1 unit	4M1	2.780
40	48	--	< 5	--	A	4AV3400-2FB00-0A		1	1 unit	4M1	4.710
50	60	--	< 5	--	A	4AV3500-2FB00-0A		1	1 unit	4M1	5.590
Additional capacitors (aluminum electrolyte)											
10	12	10 000	2	1	X	4AV3000-2EB00-0C		1	1 unit	4M1	1.470
15	18	10 000	3	0.6	X	4AV3100-2EB00-0C		1	1 unit	4M1	1.420
20	24	10 000	3	0.4	X	4AV3200-2EB00-0C		1	1 unit	4M1	2.440
30	36	10 000	4	0.7	X	4AV3300-2EB00-0C		1	1 unit	4M1	2.780
40	48	10 000	3	0.7	X	4AV3400-2FB00-0C		1	1 unit	4M1	4.710
50	60	10 000	4	0.3	X	4AV3500-2FB00-0C		1	1 unit	4M1	5.590

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

**Rated input voltage U_{1N} 400 (415) V with tapping ± 20 V,
rated output voltage U_{2N} 24 V DC**

Rated output current I_d		Ripple	DT ¹⁾	Screw terminals/ flat connectors Configurator		PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
60 °C/B IEC 61558	40 °C/B IEC 61558								
DC A	DC A	%		Article No.	Price per PU				kg
Standard version									
--	25	< 5	A	4AV5125-2EB00-0A		1	1 unit	4M1	1.830
--	35	< 5	A	4AV5135-2EB00-0A		1	1 unit	4M1	3.180

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

Non-Stabilized Power Supplies

Filtered for Supply of Electronic Controls

SIRIUS 4AV3, 4AV5 power supplies, filtered, three-phase

Rated input voltage U_{1N} 500-400 (415) V,
rated output voltage U_{2N} 24 V DC

c **us**, 

Rated output current I_d		Additional capacitance	Ripple	Buffer time for $U_1 = U_{1N} - 10\%$	DT ¹⁾	Screw terminals/ flat connectors	Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
60 °C/B IEC 61558	40 °C/B IEC 61558										
DC A	DC A	μF	%	ms		Article No.	Price per PU				kg
Standard version											
15	18	--	< 5	--	A	4AV3101-2EB00-0A		1	1 unit	4M1	1.640
30	36	--	< 5	--	A	4AV3301-2EB00-0A		1	1 unit	4M1	2.840
50	60	--	< 5	--	A	4AV3501-2FB00-0A		1	1 unit	4M1	5.830

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

Rated input voltage U_{1N} 500-400 (415) V,
rated output voltage U_{2N} 24 V DC



Rated output current I_d		Additional capacitance	Ripple	Buffer time for $U_1 = U_{1N} - 10\%$	DT ¹⁾	Screw terminals/ flat connectors	Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
60 °C/B IEC 61558	40 °C/B IEC 61558										
DC A	DC A	μF	%	ms		Article No.	Price per PU				kg
Standard versions (unfiltered)											
80	96	--	< 5	--	A	4AV3601-2EB00-0A		1	1 unit	4M1	8.040
150	180	--	< 5	--	D	4AV3801-2EB00-0A		1	1 unit	4M1	14.400
Additional capacitors (aluminum electrolyte)											
80	96	2 × 10 000	4	0.2	X	4AV3601-2EB00-0C		1	1 unit	4M1	8.040

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

Rated input voltage U_{1N} 575 (600)-500-460 (480)-400 (415)-230 (240)-200 V,
rated output voltage U_{2N} 24 V DC

c **us**, 

Rated output current I_d		Additional capacitance	Ripple	Buffer time for $U_1 = U_{1N} - 10\%$	DT ¹⁾	Screw terminals/ flat connectors	Configurator	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
60 °C/B IEC 61558	40 °C/B IEC 61558										
DC A	DC A	μF	%	ms		Article No.	Price per PU				kg
Standard version											
9	11	--	< 5	--	A	4AV3002-2EB00-0A		1	1 unit	4M1	1.300
13.5	16	--	< 5	--	A	4AV3102-2EB00-0A		1	1 unit	4M1	1.130
27	32.5	--	< 5	--	A	4AV3302-2EB00-0A		1	1 unit	4M1	2.210
36	43	--	< 5	--	A	4AV3402-2FB00-0A		1	1 unit	4M1	4.180
45	54	--	< 5	--	A	4AV3502-2FB00-0A		1	1 unit	4M1	5.420
Additional capacitors (aluminum electrolyte)											
9	11	10 000	2	1	X	4AV3002-2EB00-0C		1	1 unit	4M1	1.300

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

Non-Stabilized Power Supplies

Unfiltered for Supply of General Loads

**SIRIUS 4AV98 power supplies,
unfiltered, single-phase**

Overview

The 4AV98 power supplies comprise single-phase safety transformers according to IEC 61558-2-6 with downstream bridge connection rectifiers without capacitor filtering.

- Rated output voltage U_d 24 V DC
- Safety transformer according to IEC 61558-2-6
- 
- $t_a = 50\text{ °C/B}$
- Varistor suppressor circuit
- Short-circuit and overload protection on the output side with top-mounted fuse
- Ripple 48 %
- For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or [www.mdexx.com](#).



SIRIUS 4AV9806-6CB00-2N power supply

Application

The single-phase 4AV98 devices are especially suitable for supplying resistive and inductive loads whose operational voltages place no special demands with regard to ripple.

Rated power and rated current

The specifications in the selection tables are based on fixed reference conditions in which the devices have the rated power or rated current:

- Uninterrupted duty P_n
- Frequency AC 50 Hz to 60 Hz
- Installation altitude up to 1 000 m above sea level
- Degree of protection IP00
- Ambient temperature t_a

Ambient conditions

The devices are climate-proof for installation in rooms with an external climate according to DIN 50010.

Limit values:

- Ambient temperature
 - At rated power or rated current: +50 °C
 - Minimum value: -25 °C
- Relative air humidity
 - At +40 °C occasionally up to 100 %
 - Annual average up to 80 %
 - Occasional condensation possible

Selection and ordering data

**Rated input voltage U_{1N} 230 V,
rated output voltage U_d 24 V DC**



Rated power P_{2N}	Voltage rise during no-load operation u_A	DT ¹⁾	Screw terminals/ flat connectors Configurator		PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
W	%		Article No.	Price per PU				kg
50	24	X	4AV9806-4CB00-2N		1	1 unit	4M1	0.200
125	14	X	4AV9806-6CB00-2N		1	1 unit	4M1	0.400
200	11	X	4AV9806-7CB00-2N		1	1 unit	4M1	0.600
315	10	X	4AV9806-8CB00-2N		1	1 unit	4M1	1.100

 For online configurator see [www.siemens.com/sirius/configurators](#).

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

**Rated input voltage U_{1N} 400 V,
rated output voltage U_d 24 V DC**



Rated power P_{2N}	Voltage rise during no-load operation u_A	DT ¹⁾	Screw terminals/ flat connectors Configurator		PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
W	%		Article No.	Price per PU				kg
50	24	X	4AV9807-0CB00-2N		1	1 unit	4M1	0.200
80	18	X	4AV9807-1CB00-2N		1	1 unit	4M1	0.300
125	14	X	4AV9807-2CB00-2N		1	1 unit	4M1	0.400
200	11	X	4AV9807-3CB00-2N		1	1 unit	4M1	0.600

 For online configurator see [www.siemens.com/sirius/configurators](#).

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

Non-Stabilized Power Supplies

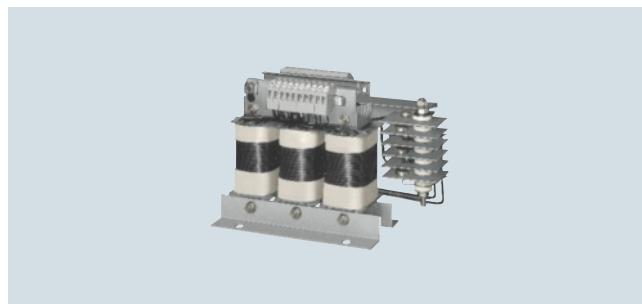
Unfiltered for Supply of General Loads

**SIRIUS 4AV96 power supplies,
unfiltered, three-phase**

Overview

The 4AV96 power supplies comprise three-phase safety transformers according to IEC 61558-2-6 with downstream bridge connection rectifiers without capacitor filtering.

- Rated output voltage U_d 30-27-24 V DC
- Safety transformer according to IEC 61558-2-6
- 
- $t_a = 50\text{ °C/B}$
- Shield winding between input and output winding
- Varistor suppressor circuit
- Designed and approved according to VW equipment specification
- Ripple < 5 %
- For more products see [Industry Mall](#) and [Interactive Catalog CA 01](#) or [www.mdexx.com](#).



SIRIUS 4AV9604-.CB00-2N power supply

Application

VW approval

The 4AV96 three-phase units are designed and approved according to the VW equipment specifications.

Rated power and rated current

The specifications in the selection tables are based on fixed reference conditions in which the devices have the rated power or rated current:

- Uninterrupted duty P_n
- Frequency AC 50 Hz to 60 Hz
- Installation altitude up to 1 000 m above sea level
- Degree of protection IP00
- Ambient temperature t_a

Ambient conditions

The devices are climate-proof for installation in rooms with an external climate according to DIN 50010.

Limit values:

- Ambient temperature
 - At rated power or rated current: +50 °C
 - Minimum value: -25 °C
- Relative air humidity
 - At +40 °C occasionally up to 100 %
 - Annual average up to 80 %
 - Occasional condensation possible

Technical specifications

Primary-side short-circuit and overload protection

Rectifier unit	Rated output current I_d	Primary-side short-circuit and overload protection for the rectifier with motor starter protector	
		Motor starter protectors	Set value at 400 V AC
Type	DC A	Type	A
4AV9604-1CB00-2N	4	3RV2011-0EA10	0.28
4AV9604-5CB00-2N	12	3RV2011-0JA10	0.8
4AV9604-2CB00-2N	25	3RV2011-1CA10	1.8

Selection and ordering data

**Rated input voltage U_{IN} 400 V with tapping $\pm 5\%$,
rated output voltage U_d 30-27-24 V DC**



Rated output current I_d	Voltage rise during no-load operation u_A	VW material No.	DT ¹⁾	Screw terminals/ flat connectors	PU (UNIT, SET, M)	PS*	PG	Cu weight per PU approx.
DC A	V			Configurator				kg
Article No.				Price per PU				
4	3.5	6142	X	4AV9604-1CB00-2N	1	1 unit	4M1	0.800
12	3.3	6141	X	4AV9604-5CB00-2N	1	1 unit	4M1	1.400
25	3.1	6145	X	4AV9604-2CB00-2N	1	1 unit	4M1	2.500

 For online configurator see [www.siemens.com/sirius/configurators](#).

¹⁾ The delivery time class depends on the quantity, see page 15/9 "Options".

Stabilized Power Supplies

SITOP Power Supplies

**SITOP lite,
single-phase**

Overview

The SITOP lite range of power supplies is designed for standard requirements in industrial environments and offers all important functions at a favorable price, of course without compromising quality and the proverbial SITOP reliability. The wide range input with manual switchover supports connection to a variety of single-phase supply systems. Thanks to the slim design, the primary switched power supplies have a low space requirement on the standard mounting rail, and their excellent degree of efficiency ensures low thermal losses in the control cabinet. Short-circuit and overload protection as well as UL approval for export ensure problem-free use.

- 24 V/2.5 A, 5 A and 10 A for industrial applications with basic requirements
- Single-phase wide range input with manual switchover
- Narrow width
- Excellent degree of efficiency
- Green LED for "24 V o.k."
- Can be switched in parallel
- No lateral installation clearances required
- Ambient temperature range of 0 °C to 60 °C (from 45 °C with derating)
- Cooling through natural convection
- Short-circuit and overload protection
- Certification acc. to UL

Selection and ordering data

Version	Inputs Rated voltage U_e rated	Outputs Rated voltage U_a rated	Rated current I_a rated	Dimensions (W x H x D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Power supplies 24 V										
 6EP1332-1LB00	2.5 A	120/230 V AC (93 ... 132 V AC/ 187 ... 264 V AC)	24 V DC ±3 %	2.5 A	32,5 x 125 x 125	A	6EP1332-1LB00	1	1 unit	593
 6EP1333-1LB00	5 A	120/230 V AC (93 ... 132 V AC/ 187 ... 264 V AC)	24 V DC ±3 %	5 A	50 x 125 x 125	A	6EP1333-1LB00	1	1 unit	593
 6EP1334-1LB00	10 A	120/230 V AC (93 ... 132 V AC/ 187 ... 264 V AC)	24 V DC ±3 %	10 A	70 x 125 x 125	A	6EP1334-1LB00	1	1 unit	593

For other units and versions see [Catalog KT 10.1](#)
"SITOP Power Supply".

Stabilized Power Supplies

SITOP Power Supplies

SITOP compact, single-phase

Overview

The SITOP PSU100C power supply series for the low performance range features an extremely space-saving, narrow design which makes it suitable in particular for distributed applications in switchboxes or small control cabinets. The switching power supply units are characterized by low power loss over the entire load range. With losses being extremely small even in no-load operation, these units are predestined for example for supplying machines and plants which are often operated in stand-by mode. The switching power supply units have a wide range input for AC and DC networks, with plug-in terminals which facilitate easy electrical connection.

- 24 V/0.6 A, 1.3 A, 2.5 A, 4 A and 3.7 A NEC Class 2; 12 V/2 A and 6.5 A
- Small mounting area thanks to narrow design
- Wide range input for 85 V to 264 V AC and 110 V to 300 V DC
- High degree of efficiency over the entire load range, up to 28 % energy savings compared to comparable units
- Low energy consumption in no-load operation and stand-by, possible energy savings of up to 53 %
- Adjustable output voltage
- Green LED for "output voltage o.k."
- Plug-in terminals
- Temperature range from -20 °C to +70 °C
- Comprehensive certification, e.g. ATEX, NEC Class 2 (24 V/3.7 A)

Selection and ordering data

	Version	Inputs Rated voltage $U_{e \text{ rated}}$	Outputs Rated voltage $U_{a \text{ rated}}$	Rated current $I_{a \text{ rated}}$	Dimensions (W x H x D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Power supplies 24 V											
 6EP1331-5BA00	0.6 A	100 ... 230 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	24 V DC ±3 %	0.6 A	22.5 x 80 x 100	A	6EP1331-5BA00		1	1 unit	584
 6EP1331-5BA10	1.3 A	100 ... 230 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	24 V DC ±3 %	1.3 A	30 x 80 x 100	A	6EP1331-5BA10		1	1 unit	584
 6EP1332-5BA00	2.5 A	100 ... 230 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	24 V DC ±3 %	2.5 A	45 x 80 x 100	A	6EP1332-5BA00		1	1 unit	584
 6EP1332-5BA10	4 A	100 ... 230 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	24 V DC ±3 %	4 A	52.5 x 80 x 100	A	6EP1332-5BA10		1	1 unit	584
 6EP1332-5BA20	3.7 A NEC Class 2	120 ... 230 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	24 V DC ±3 %	3.7 A	52.5 x 80 x 100	A	6EP1332-5BA20		1	1 unit	584
Power supplies 12 V											
 6EP1321-5BA00	2 A	100 ... 230 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	12 V DC ±3 %	2 A	30 x 80 x 100	A	6EP1321-5BA00		1	1 unit	584
 6EP1322-5BA10	6.5 A	100 ... 230 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	12 V DC ±3 %	6.5 A	52.5 x 80 x 100	A	6EP1322-5BA10		1	1 unit	584

For other units and versions see Catalog KT 10.1
"SITOP Power Supply".

Overview

With LOGO!Power power supplies it is possible not only for 24 V loads to benefit from the advantages of a stabilized power supply – loads with a 5 V, 12 V and 15 V supply voltage can now do likewise. For each of these three voltages there are two levels of current available, and for 24 V there is even a 4 A version in a width of only 90 mm.

The primary switched power supplies can be used for a wide range of different applications: In automation systems for industry and buildings, solar technology, measurement and closed-loop control, sensor technology, for supplying electronic circuits in TTL technology, etc.

Advantages of LOGO!Power power supplies:

- Two performance classes each with 5 V, 12 V and 15 V; three performance classes with 24 V
- Compact design with 54 mm, 72 mm or 90 mm width
- Flat step profile, ideal also for mounting in small distribution boards
- Design adapted to LOGO!
- Constant current in case of overloading, for reliable connection of difficult loads such as DC/DC transformers and motors
- Large setting range for the output voltage, using potentiometers which are easy to reach from the front
- Green LED indicator for "output voltage o.k."
- For universal use – in industry and public low-voltage systems – worldwide
- Wide range input from 85 to 264 V AC for virtually any network in the world
- Large temperature range from -20 °C to +70 °C for universal use
- High EMC standards
- Extensive approvals and certifications according to CE, UL/cUL, FM, GL (shipbuilding) and ATEX
- Constant stabilized output voltage protects connected loads
- Parallel switching option permitted to increase performance
- Versions for use in severe ambient conditions (SIPLUS extreme)

Selection and ordering data

	Ver- sion	Inputs Rated voltage U_e rated	Outputs Rated voltage U_a rated	Rated current I_a rated	Dimensions (W x H x D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	Power supplies 5 V										
	3 A	100 ... 240 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	5 V DC ±3 %	3 A	54 x 90 x 55	A	6EP1311-1SH03		1	1 unit	583
	6.3 A	100 ... 240 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	5 V DC ±3 %	6.3 A	72 x 90 x 55	A	6EP1311-1SH13		1	1 unit	583
	Power supplies 12 V										
	1.9 A	100 ... 240 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	12 V DC ±3 %	1.9 A	54 x 90 x 55	A	6EP1321-1SH03		1	1 unit	583
	4.5 A	100 ... 240 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	12 V DC ±3 %	4.5 A	72 x 90 x 55	A	6EP1322-1SH03		1	1 unit	583
	Power supplies 15 V										
	1.9 A	100 ... 240 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	15 V DC ±3 %	1.9 A	54 x 90 x 55	A	6EP1351-1SH03		1	1 unit	583
	4 A	100 ... 240 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	15 V DC ±3 %	4 A	72 x 90 x 55	A	6EP1352-1SH03		1	1 unit	583
	Power supplies 24 V										
	1.3 A	100 ... 240 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	24 V DC ±3 %	1.3 A	54 x 90 x 55	A	6EP1331-1SH03		1	1 unit	583
						D	6AG1331-1SH03-7AA0		1	1 unit	470
	2.5 A	100 ... 240 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	24 V DC ±3 %	2.5 A	72 x 90 x 55	A	6EP1332-1SH43		1	1 unit	583
						D	6AG1332-1SH43-7AA0		1	1 unit	471
	4 A	100 ... 240 V AC (85 ... 264 V AC/ 110 ... 300 V DC)	24 V DC ±3 %	4 A	90 x 90 x 55	A	6EP1332-1SH52		1	1 unit	583
						D	6AG1332-1SH52-7AA0		1	1 unit	470

For other units and versions see [Catalog KT 10.1](#)
"SITOP Power Supply".

For more information about SIPLUS extreme power supplies see
www.siemens.com/siplus-extreme.

Stabilized Power Supplies

SITOP Power Supplies

SITOP smart, single-phase and three-phase

Overview

Small in size, big in performance. SITOP smart requires little room on the standard mounting rail and offers high functionality at an attractive price. With its good-natured overload behavior, even loads with a high inrush current can be smoothly switched on. If required, 50 % extra power can be supplied for a duration of 5 s. In addition, the 24 V versions will permanently supply 120 % of the rated power provided the ambient temperature does not exceed 45 °C.

- For 24 V standard applications up to 40 A
- Compact design for small mounting area, no lateral clearance required
- Easy standard rail mounting
- Smooth switching on of loads with high inrush current such as DC/DC converters and motors

- More performance thanks to permanent 120 % of rated power up to an ambient temperature of 45 °C (24 V versions)
- Large setting range for the output voltage, using potentiometers which are easy to reach from the front
- Parallel switching option to increase performance
- Extensive certifications according to UL, CSA, GL (Germanischer Lloyd) and ATEX directives (Atmosphère Explosible)
- For universal use – in industry and public low-voltage systems – worldwide
- Can be combined with SITOP expansion modules and the uninterruptible power supplies (24 V versions)
- Versions for use in severe ambient conditions (SIPLUS extreme)

Selection and ordering data

	Version	Inputs Rated voltage U_e rated	Outputs Rated voltage U_a rated	Rated current I_a rated	Dimensions (W x H x D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	
Power supplies 24 V												
	Limitation of input current harmonics according to IEC 61000-3-2						6EP1332-2BA20		1	1 unit	582	
	2.5 A	120/230 V AC (85 ... 132 V AC/ 170 ... 264 V AC)	24 V DC ±3 %	2.5 A	32.5 x 125 x 125	A						
6EP1332-2BA20												
	Limitation of input current harmonics according to IEC 61000-3-2						6EP1333-2BA20		1	1 unit	582	
	5 A	120/230 V AC (85 ... 132 V AC/ 170 ... 264 V AC)	24 V DC ±3 %	5 A	50 x 125 x 125	A						
6EP1333-2BA20												
	Limitation of input current harmonics according to IEC 61000-3-2						6EP1334-2BA20 6AG1334-2BA20-4AA0		1	1 unit	582	
	10 A	120/230 V AC (85 ... 132 V AC/ 170 ... 264 V AC)	24 V DC ±3 %	10 A	70 x 125 x 125	A						
						D						582
6EP1334-2BA20, 6AG1334-2BA20-4AA0												
	20 A	120/230 V AC (85 ... 132 V AC/ 176 ... 264 V AC)	24 V DC ±3 %	20 A	115 x 145 x 150	A	6EP1336-2BA10		1	1 unit	582	
6EP1336-2BA10												
	10 A	3 AC 400 ... 500 V (3 AC 340 ... 550 V)	24 V DC ±3 %	10 A	90 x 145 x 150	A	6EP1434-2BA10		1	1 unit	582	
6EP1434-2BA10												
	20 A	3 AC 400 ... 500 V (3 AC 340 ... 550 V)	24 V DC ±3 %	20 A	90 x 145 x 150	A	6EP1436-2BA10 6AG1436-2BA10-7AA0		1	1 unit	582	
						D						471
	6EP1436-2BA10, 6AG1436-2BA10-7AA0											
	40 A	3 AC 400 ... 500 V (3 AC 360 ... 550 V)	24 V DC ±3 %	40 A	150 x 145 x 150	A	6EP1437-2BA20		1	1 unit	582	
6EP1437-2BA20												

For other units and versions see [Catalog KT 10.1 "SITOP Power Supply"](#).

For more information about SIPLUS extreme power supplies see www.siemens.com/siplus-extreme.

Stabilized Power Supplies

SITOP Power Supplies

**SITOP modular,
single-, two- and three-phase**

Overview

Compact basic units for single-phase, two-phase or three-phase connections and output currents from 5 A to 40 A form the basis of the SITOP modular stabilized supplies. Depending on the requirements, SITOP expansion modules can be connected in addition.

The compact design of the primary switched power supply requires only a small mounting surface. The rugged metal enclosure is also suitable for the harshest industrial applications. The standard rail mounting fixture is also made of metal. Mounting is therefore fast, easy and vibration-proof. Reliability and quality are further characteristics of the electronic design.

The large input voltage range and the international certifications enable operation in virtually any network worldwide. The single-phase basic units 5 A and 10 A have an ultra-wide input range up to 550 V, which even enables connection to two phases.

The robust SITOP PSU400M 6EP1536-3AA00 DC/DC converter is characterized by a wide DC input range from 200 V to 900 V, which permits connection to a variety of DC networks and battery systems. On the DC link of frequency-controlled drive systems, the efficient power supply enables a cost-efficient mains failure concept by using the braking energy to maintain the 24 V supply.

- Rugged metal enclosure for standard rail mounting
- 5 A and 10 A units with ultra-wide input range up to 500 V AC for single-phase and two-phase operation
- 20 A and 40 A units with wide range input for single-phase or three-phase connection
- Limitation of input current harmonics according to IEC 61000-3-2 (except 6EP1337-3BA00)
- High degree of efficiency up to 96 %
- 50 % extra power for connection of loads with a high power requirement
- Power boost of 300 % for the tripping of protective devices (not on PSU400M 6EP1536-3AA00)
- Adjustable output voltage up to 28.8 V
- 3-way status LED
- Selectable short-circuit response, constant current or latching disconnection
- Changeover for parallel operation
- 20 A and 40 A units with single-phase and three-phase connection, new 20 A and 40 A devices in compact design (70 mm and 150 mm wide)
- PSU400M 6EP1536-3AA00 with wide range input for DC voltages from 200 V to 900 V
- Can be combined with SITOP expansion modules and the uninterruptible power supplies
- Versions for use in severe ambient conditions (SIPLUS extreme)

Selection and ordering data

Ver- sion	Inputs Rated voltage U_e rated	Outputs Rated voltage U_a rated	Rated current I_a rated	Dimensions (W x H x D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Power supplies 24 V										
 6EP1333-3BA00, 6AG1933-3BA00- 2AA0	5 A 120 ... 230 V AC/ 230 ... 500 V (85 ... 264 V AC/ 176 ... 550 V AC)	24 V DC ±3 %	5 A	70 x 125 x 125	▶ D	6EP1333-3BA00		1	1 unit	581
						6AG1933-3BA00-2AA0		1	1 unit	471
						• SITOP modular • SIPLUS extreme for use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -40 ... +70 °C				
 6EP1334-3BA00, 6AG1334-3BA00- .AA0	10 A 120 ... 230 V AC/ 230 ... 500 V (85 ... 264 V AC/ 176 ... 550 V AC)	24 V DC ±3 %	10 A	90 x 125 x 125	▶ D D	6EP1334-3BA00		1	1 unit	581
						6AG1334-3BA00-4AA0		1	1 unit	471
						6AG1334-3BA00-2AA0		1	1 unit	471
						- For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) - For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -40 ... +60 °C				
 6EP1336-3BA10	20 A 120 ... 230 V AC (85 ... 275 V AC or 88 ... 350 V DC)	24 V DC ±3 %	20 A	90 x 125 x 125	A	6EP1336-3BA10		1	1 unit	581

Stabilized Power Supplies

SITOP Power Supplies

SITOP modular, single-, two- and three-phase

Ver- sion	Inputs Rated voltage U_e rated	Outputs Rated voltage U_a rated	Rated current I_a rated	Dimensions (W x H x D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Power supplies 24 V (continued)										
	20 A 120/230 V AC (85 ... 132 V AC/ 176 ... 264 V AC) Start-up from 3/183 V AC	24 V DC ±3 %	20 A	160 x 125 x 125						
6EP1336-3BA00, 6AG1936-3BA00- 4AA0, 6AG1336-3BA00- 7AA0	• SITOP modular • SIPLUS extreme - For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) - For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -40 ... +70 °C				►	6EP1336-3BA00		1	1 unit	581
					D	6AG1936-3BA00-4AA0		1	1 unit	471
					D	6AG1336-3BA00-7AA0		1	1 unit	471
	20 A 600 V DC (200 ... 900 V DC) Start-up from 400 V DC	24 V DC ±3 %	20 A	90 x 125 x 125	A	6EP1536-3AA00		1	1 unit	581
6EP1536-3AA00										
	20 A 3 AC 400 ... 500 V (3 AC 320 ... 550 V) Start-up from 3 AC 340 V	24 V DC ±3 %	20 A	160 x 125 x 125						
6EP1436-3BA00, 6AG1436-3BA00- 7AA0	• SITOP modular • SIPLUS extreme - for use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -40 ... +70 °C				►	6EP1436-3BA00		1	1 unit	581
					D	6AG1436-3BA00-7AA0		1	1 unit	471
	20 A 3 AC 400 ... 500 V (3 AC 320 ... 575 V)	24 V DC ±3 %	20 A	70 x 125 x 125	A	6EP1436-3BA10		1	1 unit	581
6EP1436-3BA10										
	40 A 120/230 V AC (85 ... 132 V AC/ 176 ... 264 V AC) Start-up from 95/190 V AC	24 V DC ±3 %	40 A	240 x 125 x 125						
6EP1337-3BA00, 6AG1337-3BA00- 7AA0	• SITOP modular • SIPLUS extreme - for use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -40 ... +70 °C				►	6EP1337-3BA00		1	1 unit	581
					D	6AG1337-3BA00-7AA0		1	1 unit	471
	40 A 3 AC 400 ... 500 V (3 AC 320 ... 575 V)	24 V DC ±3 %	40 A	150 x 125 x 150	A	6EP1437-3BA10		1	1 unit	581
6EP1437-3BA10, 6AG1437-3BA10- 7AA0	• SITOP modular • SIPLUS extreme - for use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -25 ... +70 °C				D	6AG1437-3BA10-7AA0		1	1 unit	471
	40 A 3 AC 400 ... 500 V (3 AC 320 ... 550 V) Start-up from 3 AC 340 V	24 V DC ±3 %	40 A	240 x 125 x 125	►	6EP1437-3BA00		1	1 unit	581
6EP1437-3BA00										
Power supplies 48 V										
	10 A 3 AC 400 ... 500 V (3 AC 320 ... 575 V)	48 V DC ±3 %	10 A	70 x 125 x 125	A	6EP1456-3BA00		1	1 unit	581
6EP1456-3BA00										
	20 A 3 AC 400 ... 500 V (3 AC 320 ... 550 V) Start-up from 3 AC 340 V	48 V DC ±3 %	20 A	240 x 125 x 125	A	6EP1457-3BA00		1	1 unit	581
6EP1457-3BA00										

For other units and versions see [Catalog KT 10.1](#)
"SITOP Power Supply".

For more information about SIPLUS extreme power supplies see
www.siemens.com/siplus-extreme.

Stabilized Power Supplies

SITOP Power Supplies

Special design, special use

Overview

SITOP flexi with steplessly adjustable output voltage:
one standard unit for various special voltages.

Selection and ordering data

Version	Inputs Rated voltage U_e rated	Outputs Rated voltage U_a rated	Rated current I_a rated	Dimensions (W x H x D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Power supplies 3 V to 52 V										
	Limitation of input current harmonics according to IEC 61000-3-2; adjustable output voltage 3 V to 52 V, output max. 10 A or 120 W Max. 10 A 120/230 V AC 3 ... 52 V DC 10 A 75 x 125 x 125 ▶ or 120 W (85 ... 132 V AC/ ±1 % 170 ... 264 V AC)					6EP1353-2BA00		1	1 unit	582

For other units and versions see [Catalog KT 10.1](#)
"SITOP Power Supply".

Stabilized Power Supplies

SITOP Power Supplies

Expansion modules

Overview

The SITOP expansion modules offer further functions:

The **signaling module** can be snapped onto the side of the 6EP1...-3BA00 basic unit; with floating signaling contacts "Output voltage o.k." and "Ready o.k."; with signal input for remote ON/OFF switching of the basic unit.

The SITOP PSE202U **redundancy module** uses diodes to disconnect two SITOP stabilized power supplies in parallel mode. If a power supply fails, the 24 V supply is reliably maintained. The 24 V/NEC Class 2 module can also be used to limit the output power to 100 VA in accordance with NEC Class 2.

- 24 V/10 A for the disconnection of two power supplies up to 5 A or one power supply up to 10 A per redundancy module
- 24 V/NEC Class 2 disconnects and limits the output to the Class 2 Limit (100 VA) of two power supplies from 5 A to 40 A
- Floating relay contact
- Green LED for signaling "Infeed 1 and 2 o.k."
- Switching threshold adjustable from 20 V to 25 V

The two **SITOP PSE200U selectivity modules** and the **SITOP select diagnostics module** are used in combination with 24 V power supplies for distributing the load current among up to four current branches per module and for monitoring the individual partial currents. Overloads or short circuits in individual branches are selectively switched off and the remaining load current paths remain unaffected. Individually adjustable rated current, LED, group alarm contact or signaling interface for channel-specific evaluation via SIMATIC S7 function block, standard rail mounting.

The **buffer module** bridges mains interruptions in the range of seconds. Buffer time 200 ms at 40 A, up to 1.6 s at 5 A load current. Multiplication possible through parallel circuit, maximum buffer time 10 s.

Versions for use in severe ambient conditions (SIPLUS extreme) are available.

Selection and ordering data

	Inputs Rated voltage $U_{e \text{ rated}}$	Outputs Rated voltage $U_{a \text{ rated}}$	Rated current $I_{a \text{ rated}}$	Dimensions (W × H × D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Signaling modules										
 6EP1961-3BA10, 6AG1961-3BA10- .AA0	--	--	--	25 × 125 × 125		6EP1961-3BA10		1	1 unit	581
	• SITOP signaling modules				►					
	• SIPLUS extreme					6AG1961-3BA10-7AA0		1	1 unit	471
	- For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -25 ... +70 °C				D					
						6AG1961-3BA10-6AA0		1	1 unit	471
- For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and with hard gold-plated contacts				D						
SITOP PSE202U redundancy modules										
 6EP1964-2BA00	24 V DC (19 ... 29 V DC)	U_e – approx. 0.5 V	10 A	30 × 80 × 100	A	6EP1964-2BA00		1	1 unit	588
 6EP1962-2BA00	24 V DC (19 ... 29 V DC)	U_e – approx. 0.5 V	3.5 A (NEC Class 2)	30 × 80 × 100	A	6EP1962-2BA00		1	1 unit	588
 6EP1961-3BA21, 6AG1961-3BA21- .AX0	24 V DC (24 ... 28.8 V DC)	U_e – approx. 0.5 V	20 A	70 × 125 × 125		6EP1961-3BA21		1	1 unit	588
	• SITOP redundancy modules				A					
	• SIPLUS extreme					6AG1961-3BA21-4AX0		1	1 unit	471
	- For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna)				D					
						6AG1961-3BA21-7AX0		1	1 unit	471
- For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -40 ... +70 °C				D						

Stabilized Power Supplies

SITOP Power Supplies

Expansion modules

Inputs Rated voltage U_e rated	Outputs Rated voltage U_a rated	Rated current I_a rated	Dimensions (W × H × D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SITOP PSE200U selectivity modules									
	24 V DC (22 ... 30 V DC)	--	4 x 3 A (0.5 ... 3 A)	72 × 80 × 72	A	6EP1961-2BA11	1	1 unit	586
	24 V DC (22 ... 30 V DC)	--	4 x 10 A (3 ... 10 A)	72 × 80 × 72	A	6EP1961-2BA21	1	1 unit	586
SITOP PSE200U selectivity modules with single-channel signaling									
	24 V DC (22 ... 30 V DC)	--	4 x 3 A (0.5 ... 3 A)	72 × 80 × 72	A	6EP1961-2BA31	1	1 unit	586
	24 V DC (22 ... 30 V DC)	--	4 x 10 A (3 ... 10 A)	72 × 80 × 72	A	6EP1961-2BA41	1	1 unit	586
SITOP select diagnostics modules									
	24 V DC (22 ... 30 V DC)	--	4 x 10 A (2 ... 10 A)	72 × 90 × 90	▶	6EP1961-2BA00	1	1 unit	586
Buffer modules									
	24 V DC (24 ... 28.8 V DC)	U_e – approx. 1 V	40 A	70 × 125 × 125					
	• SITOP buffer modules • SIPLUS extreme for use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -25 ... +70 °C				A	6EP1961-3BA01	1	1 unit	588
					D	6AG1961-3BA01-7AA0	1	1 unit	471

For other units and versions see [Catalog KT 10.1](#) "SITOP Power Supply".

For more information about SIPLUS extreme power supplies see www.siemens.com/siplus-extreme.

Stabilized Power Supplies

SITOP Power Supplies

24 V DC uninterruptible power supplies

Overview

To combat prolonged mains failures the 24 V SITOP power supply units can be upgraded into a 24 V DC uninterruptible power supply.

SITOP offers two systems for this purpose:

- Capacitors for 24 V buffering in the minutes range
- Battery modules as energy stores which provide a buffer in the hours range

The DC-UPS systems are used for example in machine-tool building, in the textile industry, on all types of production lines and filling plants, and in conjunction with 24 V industrial PCs. They prevent the negative consequences which often result from mains failures.

Selection and ordering data

DC-UPS with capacitors

In many PC-based automation solutions, greater damage can be prevented in case of mains failure by putting the system into a defined status.

The necessary backup of operating data and the subsequent controlled shutdown of the PC generally occurs within one minute. The highly capacitive double-layer capacitors of the SITOP UPS500 store enough energy to shut down PC-based systems safely and also offer unique advantages.

The capacitors themselves have a very long service life even at very high ambient temperatures. No maintenance or replacement of the energy storage unit is necessary, which means that the DC-UPS pays for itself after just a short time. And because the capacitors emit no gas, there is no need for control cabinet air extraction. Short charging times quickly restore the buffer readiness after a mains failure.

For use in the control cabinet, the SITOP UPS500S 15 A basic unit comes in a 2.5 and 5 kW version. For longer buffer times it is possible to attach up to three SITOP UPS501S expansion modules with 5 kW. The SITOP UPS500P basic units have degree of protection IP65 and are suitable for distributed use.

The USB interface and the software tool enable simple communication with a PC.

Version	Inputs Rated voltage $U_{e \text{ rated}}$	Outputs Rated voltage $U_{a \text{ rated}}$	Rated current $I_{a \text{ rated}}$	Dimensions (W x H x D)	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
				mm						

SITOP UPS500S

Basic units 15 A

2.5 kW

24 V DC

(22 ... 29 V DC)

infeed through

SITOP 24 V DC

24 V DC

±3 %

15.2 A +

approx.

2.3 A

(charging

mode)

120 x 125 x

125

A

6EP1933-2EC41

1

1 unit

585

5 kW

infeed through

SITOP 24 V DC

24 V DC

±3 %

15.2 A +

approx.

2.3 A

(charging

mode)

120 x 125 x

125

A

6EP1933-2EC51

1

1 unit

585

SITOP UPS501 expansion modules

5 kW

Infeed through

basic unit

--

--

70 x 125 x

125

A

6EP1935-5PG01

1

1 unit

585

6EP1933-2EC.1,
6EP1935-5PG01

SITOP UPS500P

Basic units 7 A, degree of protection IP65

5 kW

24 V DC

(22.5 ... 29 V DC)

infeed through

SITOP 24 V DC

24 V DC

±3 %

7 A +

approx.

2 A

(charging

mode)

400 (without

plug) x

80 x 80

A

6EP1933-2NC01

1

1 unit

585

10 kW

infeed through

SITOP 24 V DC

24 V DC

±3 %

7 A +

approx.

2 A

(charging

mode)

470 (without

plug) x

80 x 80

A

6EP1933-2NC11

1

1 unit

585

Connector set for SITOP UPS500P¹⁾

with input and output connector and assembled UPS cable in 2 m length

A

6EP1975-2ES00

1

1 unit

585

6EP1933-2NC01

6EP1933-2NC11

¹⁾ The connector set must be ordered as optional equipment.

DC-UPS with battery modules [see page 15/51 onwards](#).

For other units and versions [see Catalog KT 10.1 "SITOP Power Supply"](#).

Stabilized Power Supplies

SITOP Power Supplies

24 V DC uninterruptible power supplies

DC-UPS with battery modules

If the 24 V power supply has to be intermittently stored or a larger buffer power is required, the DC-UPS power supply lead power packs offers optimal maintenance-free security.

It bridges any mains failures for hours and delivers up to 40 A. This enables processes or subprocesses to be continued, measured values to continue to be recorded without interruption and communication is maintained.

High-performance industrial PCs require a somewhat higher energy demand and must be powered down. Especially if a large panel continues to be operated during the shutdown.

The sophisticated battery management of the compact DC-UPS modules enables optimal battery charging – and thus dependable buffer readiness. The active battery test function even checks the age of the battery. This makes preventive battery replacement unnecessary – and leads to significant cost savings.

The 24 V DC uninterruptible power supply with battery modules is comprised of DC UPS modules with 6 A, 15 A or 40 A output current and the battery modules 1.2 Ah, 3.2 Ah, 7 Ah and 12 Ah (containing lead rechargeable batteries with corrosion-resistant lead-calcium high-performance grid plates and glass fiber fleece) and 2.5 Ah (containing "high-temperature rechargeable batteries" type Reinblei).

All relevant signals are made via non-floating contacts, and also optionally via a serial interface or USB. The software tool enables easy integration on the software side.

Versions for use in severe ambient conditions (SIPLUS extreme) are available.

Ver- sion	Inputs Rated voltage $U_{e \text{ rated}}$	Outputs Rated voltage $U_{a \text{ rated}}$	Rated current $I_{a \text{ rated}}$	Dimensions (W × H × D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
DC UPS modules										
 6EP1931-2DC..	6 A DC 24 V (DC 22 ... 29 V)	24 V DC (mains operation: 21.5 ... 28.5 V, battery operation: 27.0 ... 18.5 V)	6 A	50 × 125 × 125						
						▶ 6EP1931-2DC21		1	1 unit	585
						▶ 6EP1931-2DC31		1	1 unit	585
						▶ 6EP1931-2DC42		1	1 unit	585
 6EP1931-2EC... 6AG1931-2EC21- 2AA0	15 A DC 24 V (DC 22 ... 29 V)	24 V DC (mains operation: 21.5 ... 28.5 V, battery operation: 27.0 ... 18.5 V)	15 A	50 × 125 × 125		▶ 6EP1931-2EC21		1	1 unit	585
						▶ 6EP1931-2EC31		1	1 unit	585
						▶ 6EP1931-2EC42		1	1 unit	585
						▶ 6AG1931-2EC21-2AA0		1	1 unit	471
					D					
 6EP1931-2FC... 6AG1931-2FC21- 7AA0	40 A DC 24 V (DC 22 ... 29 V)	24 V DC (mains operation: 21.5 ... 28.5 V, battery operation: 27.0 ... 18.5 V)	40 A	102 × 125 × 125		▶ 6EP1931-2FC21		1	1 unit	585
						▶ 6EP1931-2FC42		1	1 unit	585
						▶ 6AG1931-2FC21-7AA0		1	1 unit	471
					D					

Battery modules for DC-UPS modules [see page 15/52](#).

Stabilized Power Supplies

SITOP Power Supplies

24 V DC uninterruptible power supplies

Version	Charging voltage at +25 °C U_{charge}	Outputs Rated voltage $U_{\text{a rated}}$	Dimensions (W × H × D) mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Battery modules

For DC-UPS modules 6 A



6EP1935-6MC01

1.2 Ah	27.0 V DC	24 V DC (end of charge voltage: 27.0 V DC, exhaustive discharge protection: 18.5 V DC)	96 × 106 × 108 ▶		6EP1935-6MC01		1	1 unit	585
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For DC-UPS modules 6 A and 15 A

2.5 Ah/ high temperature recharge- able battery	27.7 V DC	24 V DC (end of charge voltage: 27.7 V DC, exhaustive discharge protection: 18.5 V DC)	265 × 151 × 91 ▶		6EP1935-6MD31		1	1 unit	585
3.2 Ah	27.0 V DC	24 V DC (end of charge voltage: 27.0 V DC, exhaustive discharge protection: 18.5 V DC)	190 × 151 × 82 ▶		6EP1935-6MD11		1	1 unit	585

For DC-UPS modules 6 A to 40 A



6EP1935-6ME21

7 Ah	27.0 V DC	24 V DC (end of charge voltage: 27.0 V DC, exhaustive discharge protection: 18.5 V DC)	186 × 168 × 121 ▶		6EP1935-6ME21		1	1 unit	585
12 Ah	27.0 V DC	24 V DC (end of charge voltage: 27.0 V DC, exhaustive discharge protection: 18.5 V DC)	253 × 168 × 121 ▶		6EP1935-6MF01		1	1 unit	585

For other units and versions see [Catalog KT 10.1 "SITOP Power Supply"](#).

For more information about SIPLUS extreme power supplies see www.siemens.com/siplus-extreme.

Overview



Heating control systems

SIPLUS HCS heating control systems: Industrial heating processes – maximum precision and efficiency

In manufacturing processes where temperature plays a crucial role, deviations of just a few degrees can cause enormous quality problems. To avoid this and to minimize rejection rates, high-precision and reliable, individual control of the electrical heating elements is essential.

Nearly all industrially manufactured products undergo heat treatment. Even slight deviations in the heating process can lead to a huge impairment of product quality.

To increase the quality and quantity of a heat-treated product it is important to be able to focus the energy required with the highest level of precision in terms of both time and space. The SIPLUS HCS ensures utmost precision in the control of electrical heating elements such as infrared heaters.

Three heating control systems are available:

- With integrated power outputs – compact design
- With integrated power outputs – modular design
- Without integrated power outputs

The SIPLUS HCS family of heating control systems saves time, costs and resources when it comes to configuring, commissioning, operation and maintenance.

This is achieved by:

- Simple integration into existing automation systems such as SIMATIC and SIMOTION
- Low wiring outlay and user-friendly engineering
- Intelligent diagnostics options for swift fault detection
- Service-friendly design thanks to ready-to-use function and data blocks
- Reduced volume in the control cabinet with spacing savings of up to 50 %

For an overview of available heating control systems, [see page 15/5](#).

For more information, [see Industry Mall](#) or www.siemens.com/siplus-hcs.

Benefits

- Significantly increased plant availability thanks to detailed, intelligent diagnostics functions and fast localization of faults in the heating process
- Simple integration into existing automation systems
- Automation from a single source: Easy data management with TIA
- Easy commissioning with STEP 7 and TIA portal

Application

The SIPLUS HCS heating control systems are designed for use in the SIMATIC industrial automation system and the SIMOTION motion control system.

They are used above all in the following industries and plants:

- Plastics industry: thermoforming, blow molding, injection molding and extrusion
- Automotive industry: drying tunnels in paint shops
- Food and beverage industry, e.g. packaging lines and PET blow molding

Heating Control Systems

With Integrated Power Outputs – Compact Design

General data

Overview

The distributed solution for deployment in proximity to heating elements – ideally suited for the linear setup of heat emitter arrays, for example when controlling heat emitter arrays to heat preforms in PET blow molding machines.

SIPLUS HCS3200 heating control system

Overview



SIPLUS HCS3200 heating control system with fixing brackets

The SIPLUS HCS3200 heating control system was developed as a compact solution for controlling linear heat emitter arrays.

Thanks to the high IP65 degree of protection, it can be used independently of a control cabinet in a distributed location near the emitters.

Benefits

- Rugged thanks to high IP65 protection

Application

- Heating solutions which require distributed connection of the heating control system with a high degree of protection, e.g.
 - PET blow molding machines
 - Roasting/baking/melting/drying of foodstuffs
- Applications with a small number of heater elements, e.g.
 - Vulcanizing machines
 - Spot repair emitters
 - Drying of coatings on headlights
- Applications requiring medium outputs, e.g.
 - Welding of tanks
 - Drying of paint, e.g. on gas tanks
 - Drying of coatings on alloy wheel rims
 - Forming of loudspeaker covers
 - Drying the screen printing on screens

Design

The main components of the HCS3200 heating control system are:

- HCS3200 device built into a metal enclosure with IP65 degree of protection
- Four mounting brackets for attaching the device (included in scope of supply)

Heating Control Systems

With Integrated Power Outputs – Compact Design

SIPLUS HCS3200 heating control system

Function

Communications

- Are executed via PROFIBUS DP at 12 Mbit/s
- For importing the parameter settings from the higher-level control system
- For transferring the diagnostics information to the higher-level control system
- Communication takes place via the ECOFAST X3/X4 plugs and can be looped through from device to device using daisy chaining.

Performance features

- Calculation of output control variables of power output channels
- Setpoints can be adjusted from 0 % to 100 % in increments of 1 %
- Zero cross-switching solid-state relays (SSR)
- External fan output for connection of a 230 V AC fan up to 500 W

Diagnostics

The following faults are detected:

- Heating element fault
- Breakdown of solid-state relay (SSR)
- Incoming line fuse has tripped
- Outgoing fuse has tripped or solid state relay (SSR) has high resistance
- Monitoring of the fan outlet

Air extraction

- An internal fan is used in order to obtain uniform heat distribution within the enclosure. The fan is controlled according to the internal temperature and is also monitored. If the fan is not functioning correctly, a fault is signaled to the user
- The internal fan is available as an accessory and can be replaced if it becomes defective

Power supply to the main circuit

- The power supply is two-phase with a voltage of 400 V AC ($\pm 10\%$)
- The mains frequency is 50/60 Hz ($\pm 5\%$)

Power supply to the internal electronics

- The internal electronics of the device must be supplied with 24 V DC $\pm 20\%$ (PELV = Protective Extra Low Voltage)
- The maximum current consumed per device is 0.25 A
- Connection for 24 V DC power supply and PROFIBUS DP via the ECOFAST X3/X4 plugs
- The 24 V DC supply can be looped through from device to device using daisy chaining

Power outputs

- Nine power outputs are available for each device
- Max. 4 000 W switching capacity per output
- Max. 25 200 W switching capacity per device

Fan output

An external 230 V AC fan with a maximum output of 500 W can be operated.

Temperature monitoring

The SIPLUS HCS3200 heating control system is fitted with a sensor for monitoring the internal temperature. When a temperature threshold that is permanently set in the hardware is overshoot, all the outputs (power outputs and the external fan) are automatically switched off to prevent damage to the device.

Fuses

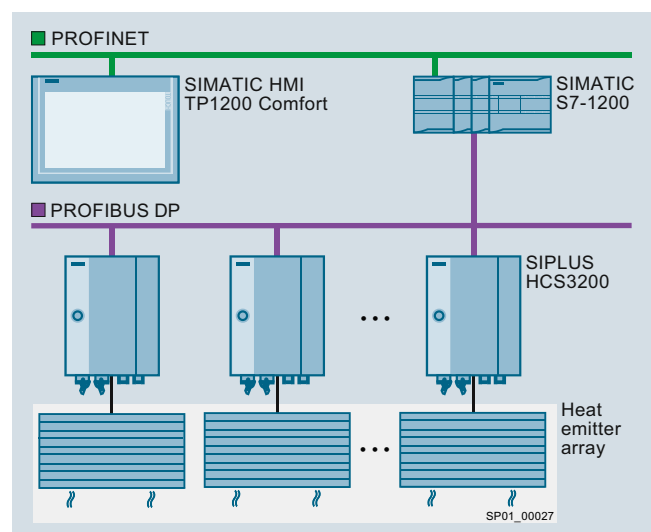
- Two gG 16 A fuses per power output for protecting the power outputs
- One gG 4 A fuse for protecting the fan output
- All fuses are fitted in fuse holders and are easily accessible

Integration

The SIPLUS HCS3200 heating control system is a distributed I/O device. It communicates via the PROFIBUS DP fieldbus with the SIMATIC S7 controller.

A complete system includes the following components:

- SIPLUS HCS3200 heating control system
- Higher-level control through SIMATIC S7 automation system with integrated interface for PROFIBUS DP or SIMOTION
- PROFIBUS DP
- Cabling
- Heat emitter array
- HMI panel (optional)



Application example with SIMATIC and SIPLUS HCS3200

Heating Control Systems

With Integrated Power Outputs – Compact Design

SIPLUS HCS3200 heating control system

Technical specifications

Type	6BK1932-0BA00-0AA0	
Product designation	HCS3200 fan	
General data		
Type of control of heat emitters	Half-wave control	
Type of load	Resistive load	
Reference designations according to IEC 81346-2	Q	
Degree of pollution	2	
Approvals/Certificates		
Certificate of suitability	CE	
Supply voltage		
Type of voltage of the supply voltage	AC	
Supply voltage at AC rated value	V	400
• Relative negative tolerance	%	10
• Relative positive tolerance	%	10
Supply voltage frequency		
• 1	Hz	50
• 2	Hz	60
• Relative symmetrical tolerance		5
Switching capacity current per phase maximum	A	63
Breaking capacity, short-circuit current limit (<i>I</i> _{cu}) at 400 V, rated value	kA	25
Type of electrical isolation	Optocoupler between main circuit and PELV	
Maximum permissible power carrying capacity	W	25 200
Type of electrical connection for supply voltage	Connector socket, 4-pole + PE	
Type of connectable conductor cross-sections for supply voltage		
• Finely stranded with end sleeve	mm²	3 x (6 ... 25), 1 x PE (6 ... 16)
• Finely stranded for AWG cables	AWG	3 x (8 ... 4), 1 x PE (10 ... 6)
Power electronics		
Number of outputs		
• For fans		1
• For heating power		9
Number of heat emitters per output, maximum	1	
Output voltage at the output		
• For heating power	V	400
• For fans	V	230
Power carrying capacity		
• Per output	W	200 ... 4 000
• For fans per output	W	60 ... 500
Output voltage at the output for heating power, rated value	V	400
Electrical separation between the outputs	No	
Version of short-circuit protection		
• At the output for fan		4 A melting fuse
• For heating power per output		16 A melting fuse
Type of electrical connection at output for heater and fan	Connector sockets, 20-pole + PE	
Type of connectable conductor cross-sections for heater and fans		
• Finely stranded with end sleeve	mm²	20 x (1.5 ... 4), 1 x PE (1.5 ... 16)
• Finely stranded for AWG cables	AWG	20 x (18 ... 12), 1 x PE (16 ... 6)
Measuring inputs for voltage		
Product function voltage measuring	Yes	
Communications		
Protocol is supported PROFIBUS DP protocol	Yes	
Interface version	PROFIBUS DP	
Transmission rate for PROFIBUS DP, maximum	Mbit/s	12
Type of electrical connection of the PROFIBUS interface	ECOFAST	
Display		
Number of status displays	2	
Type of status display using LEDs	• LED green = status indicator • LED red = fault indicator	

Heating Control Systems

With Integrated Power Outputs – Compact Design

SIPLUS HCS3200 heating control system

Type	6BK1932-0BA00-0AA0	
Product designation	HCS3200 fan	
Auxiliary circuit		
Design of the power supply	External	
Type of voltage	DC	
Supply voltage for electronics	V	24
• Relative symmetrical tolerance of the input voltage	%	20
Consumed current for electronics maximum	A	0.25
Monitoring functions		
Product function temperature monitoring	Yes	
Type of temperature monitoring	NTC thermistors	
Diagnostics functions	Fuse diagnostics	
• Blown fuse	Yes	
• Open circuit	Yes	
• Heat emitter break	Yes	
Mechanical features		
Mounting position	Vertical	
Type of mounting	Screw mounting	
Type of ventilation	Self-ventilation	
Shock resistance		
• According to IEC 60068-2-27	15 g/11 ms/3 shocks/axis	
• According to IEC 60068-2-29	25 g/6 ms/1 000 shocks/axis	
Vibration resistance		
• During operation according to IEC 60068-2-6	10 ... 58 Hz/0.075 mm, 58 ... 150 Hz/1 g	
• During storage according to IEC 60068-2-6	5 ... 9 Hz/3.5 mm, 9 ... 500 Hz/1 g	
IP degree of protection	IP65	
Dimensions		
• Width	mm	300
• Height	mm	380
• Depth	mm	200
Electromagnetic compatibility		
Conducted interference injection BURST according to IEC 61000-4-4	2 kV power supply cables/1 kV signal cables	
Conducted interference injection SURGE according to IEC 61000-4-5	• On supply cables: 1 kV symmetrical, 2 kV asymmetrical, (24 V DC supply only with external protective measure) • On PROFIBUS DP cable: 1 kV asymmetrical	
Conducted interference injection as high-frequency interference according to IEC 61000-4-6	10 V (0.15 ... 80 MHz)	
Electrostatic discharge according to IEC 61000-4-2	4 kV contact discharge/8 kV air discharge	
Field-related interference according to IEC 61000-4-3	10 V/m (80 ... 1 000 MHz), 3 V/m (1.4 ... 2.0 GHz), 1 V/m (2.0 ... 2.7 GHz)	
EMC emitted interference	According to IEC 61000-6-4:2007 + A1:2011	
Overvoltage category	III	
Climatic ambient conditions		
Ambient temperature		
• During operation	°C	0 ... 50
• During storage	°C	-40 ... +70
• During transport	°C	-40 ... +70
Air pressure		
• During operation	hPa	860 ... 1 080
• During storage	hPa	660 ... 1 080
Relative humidity		
• At 25 °C during operation maximum	%	95
• At 50 °C during operation maximum	%	50
Installation altitude at height above sea level maximum	m	2 000

Heating Control Systems

With Integrated Power Outputs – Compact Design

SIPLUS HCS3200 heating control system

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIPLUS HCS3200 heating control system						
 6BK1932-0BA00-0AA0 with fixing brackets	HCS3200 fan	X	6BK1932-0BA00-0AA0	1	1 unit	477

More information

For more product details see the operating instructions "SIPLUS HCS3200 Heating control system", <http://support.automation.siemens.com/WW/view/en/69048101>.

For more information see Industry Mall or www.siemens.com/siplus-hcs.

Heating Control Systems

With Integrated Power Outputs – Modular Design

General data

Overview

The cost-optimized, space-saving solution for use in a central control cabinet with an almost unlimited number of power outputs, e.g. for controlling the heat emitter arrays in thermoforming machines or drying ovens in the automotive industry.

SIPLUS HCS716I heating control system: General data

Overview



SIPLUS HCS716I heating control system

The SIPLUS HCS716I heating control system was developed as a cost-optimized controller of heat emitter arrays in thermoforming machines. It is suitable for all generally available radiation devices such as quartz, quartz material, ceramic, halogen and infrared radiation devices.

The SIPLUS HCS716I can be used wherever resistive loads of small to medium output require switching at low-cost in an industrial environment.

The SIPLUS HCS716I range is comprised of four racks and three power output modules.

Benefits

- High degree of modularity in terms of number of channels and channel performance

Application

The SIPLUS HCS716I heating control system is used, for example, to switch the small and medium output heat emitter arrays in thermoforming machines, drying ovens and packaging machines.

The SIPLUS HCS716I is a distributed I/O unit (slave) that communicates over the PROFIBUS DP fieldbus with a higher-level control system (master) such as SIMATIC S7/SIMOTION.

Design

The main components of the SIPLUS HCS716I heating control system are:

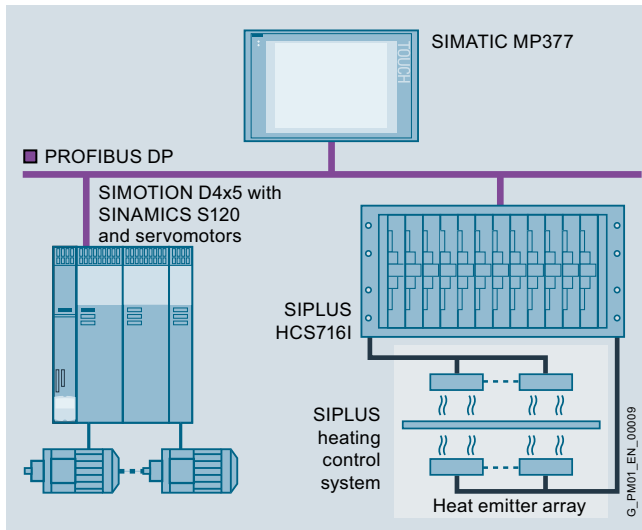
- 19" rack with bus board for inserting up to 4 or up to 12 power output modules, as well as a control module and CPU module
- Power output modules in double-height Eurocard format with 8/16 output channels
- Fan unit with one or three fans (option)
- Communication over PROFIBUS DP, e.g. with SIMOTION, SIMATIC S7, or industrial PC
- Plug-in card system on the front

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS716I heating control system: General data

Integration



Application example with SIMOTION, SINAMICS and SIPLUS HCS716I

Technical specifications

Type	6BK1700-2AA00-0AA1					2AA10-0AA1	2AA70-0AA0	2AA80-0AA0	3AA00-0AA0	6BK1700-2BA70-0AA1	4BA80-0AA0	4CA00-0AA0				
Product designation	Racks					Hinged frame		Mounting frame With flange		Without flange		Narrow version	Expansion frame	Power output modules		
													LA716	LA716I	LA716I HP	
Approvals/Certificates																
Certificate of suitability					CE, KCC											
Supply voltage																
Type of voltage of the supply voltage					AC											
Supply voltage at AC rated value					V	230				--	230					
• Relative negative tolerance					%	18										
• Relative positive tolerance					%	15										
Supply voltage frequency																
• 1					Hz	50										
• 2					Hz	60										
• Relative symmetrical tolerance					%	5										
Communications																
Interface version					PROFIBUS DP							System interface				
Mechanical features																
Mounting position					Horizontal							Vertical				
Type of mounting					In one hinged frame	Rear panel control cabinet							Fixing clips in racks			
Type of ventilation					Self-ventilation or forced ventilation											
Shock resistance according to IEC 60068-2-27					15 g/11 ms/3 shocks/axis											
Vibration resistance																
• During operation according to IEC 60068-2-6					10 ... 58 Hz/0.15 mm, 58 ... 150 Hz/1 g											
• During storage according to IEC 60068-2-6					5 ... 9 Hz/3.5 mm, 9 ... 500 Hz/1 g											
IP degree of protection					IP00											
Dimensions																
• Width					mm	483	510		202.7		31					
• Height					mm	265.5	310		309.5		233.4					
• Depth					mm	350	330		287		241		279			

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS716I heating control system: General data

Type	6BK1700-2AA00-0AA1	2AA10-0AA1	2AA70-0AA0	2AA80-0AA0	3AA00-0AA0	6BK1700-2BA70-0AA1	4BA80-0AA0	4CA00-0AA0
Product designation	Racks Hinged frame	Mounting frame With flange	Without flange	Narrow version	Expansion frame	Power output modules LA716 LA716I LA716I HP		
Electromagnetic compatibility								
Conducted interference injection BURST according to IEC 61000-4-4	2 kV power supply cables/2 kV signal cables							
Conducted interference injection SURGE according to IEC 61000-4-5	- On supply cables - 1 kV symmetrical - 2 kV asymmetrical - On PROFIBUS DP cable - 1 kV asymmetrical				--	- On power supply and signal cables - 1 kV symmetrical - 2 kV asymmetrical		
Conducted interference injection as high-frequency interference according to IEC 61000-4-6	10 V effective in the frequency range 0.15 ... 80 MHz, modulation 80 % AM with 1 kHz, assessment criterion A					10 V (0.15 ... 80 MHz)		
Electrostatic discharge according to IEC 61000-4-2	4 kV contact discharge/8 kV air discharge							
Field-related interference according to IEC 61000-4-3	10 V/m (80 ... 1 000 MHz), 3 V/m (1.4 ... 2.0 GHz), 1 V/m (2.0 ... 2.7 GHz)							
EMC emitted interference	According to IEC 61000-6-4:2007 + A1:2011							
Overvoltage category	III							
Climatic ambient conditions								
Ambient temperature								
• During operation • During storage • During transport	°C	0 ... 55						
	°C	-40 ... +70						
	°C	-40 ... +70						
Air pressure								
• During operation • During storage	hPa	860 ... 1 080						
	hPa	660 ... 1 080						
Relative humidity								
• At 25 °C - Max.	%	95						
Installation altitude at height above sea level, maximum	m	2 000						

More information

For more product details see the operating instructions "Heater controller SIPLUS HCS716I",
<http://support.automation.siemens.com/WW/view/en/50695867>.

For more information see Industry Mall or
www.siemens.com/siplus-hcs.

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS716I heating control system: Racks

Overview

The rack is the mechanical framework of the SIPLUS HCS716I and contains all the modules required to control the power outputs.

These are available in four different versions:

- Rack hinged frame
- Rack mounting frame
- Rack mounting frame without flange
- Rack mounting frame, narrow version, and expansion frame, narrow version

Rack hinged frame

The CPU module and the control module are located at the rear of the rack. This rack is suitable for installation in a hinged frame.



Rack hinged frame 6BK1700-2AA00-0AA1

Rack mounting frame

The CPU module and the control module are also located on the right side of the rack. This rack is suitable for direct installation in a control cabinet.



Rack mounting frame 6BK1700-2AA10-0AA1

Rack mounting frame without flange

The CPU module and the control module are also located on the right side of the rack. This rack is suitable for installation in a control cabinet. In contrast to the mounting frame, this version has no mounting bracket (flange) at the front.

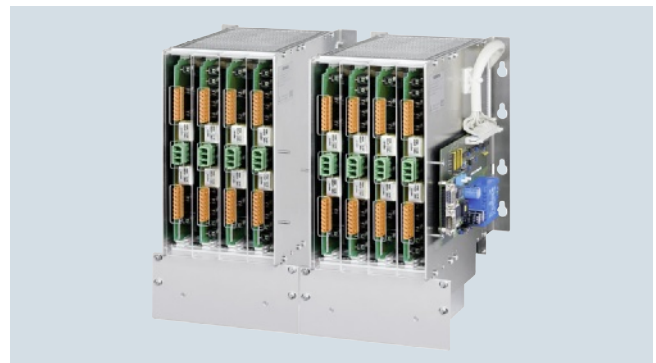


Rack mounting frame without flange 6BK1700-2AA70-0AA0

Rack mounting frame, narrow version, and expansion frame, narrow version

The CPU module and the control module are also located on the right side of the rack. This rack is suitable for installation in a control cabinet. It accommodates up to four power output modules and can be extended with the expansion frame to take a further four power output modules. The expansion frame is mounted on the left of the mounting frame, narrow version, and is connected to it by a cable.

A fan unit is also available as an accessory. It is fitted to the rack mounting frame, narrow version, and to the expansion frame, narrow version, from underneath.



Rack mounting frame narrow version 6BK1700-2AA80-0AA0 (right), and expansion frame narrow version 6BK1700-3AA00-0AA0 (left), with fan units 6BK1700-2GA10-0AA0 attached below



Fan unit 6BK1700-2GA10-0AA0

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS716I heating control system: Racks

Design

- 19" rack
 - Rear panel for CPU module, control module and bus module
 - Mountings for 4 or 12 power output modules
 - Partition as cover when slots are not all populated
- CPU module with PROFIBUS interface module
- Control module
 - Power supply for the modules of the heating control system
 - Decoding for controlling the power output modules
- Bus module
 - Contains 4 or 12 direct plug-in connectors for connecting the control module to the power output modules
- Heat dissipation possible with optional fan units

Function

Communications

- PROFIBUS DP
 - Import of the parameter settings from the higher-level control system
 - Transfer of the diagnostics information to the higher-level control system
- Internal system bus via bus PCB
- Controlling and monitoring up to 192 power channels

Performance features

- Calculation of the emitter manipulated variables of the power output channels
- Setpoint values are adjustable in 1 % increments from 0 % to 100 %

Diagnostics

- Evaluating the diagnostics information of the connected power output modules
- Automatic detection of the mains frequency

Forced ventilation

Depending on the switching capacity and ambient temperature, the rack may have to be force-ventilated. Fan units for this purpose are available as optional accessories (see page 15/65).

For detailed information see the operating instructions "SIPLUS HCS716I Heating Control System", <http://support.automation.siemens.com/WW/view/en/50695867>.

Technical specifications

Type	6BK1700-2AA00-0AA1					2AA10-0AA1	2AA70-0AA0	2AA80-0AA0	3AA00-0AA0
Product designation	Racks								
	Hinged frame	Mounting frame With flange		Without flange		Narrow version		Expansion frame	
General data									
Reference designations according to IEC 81346-2	K								
Number of slots	12							4	
Type of power output module connectable	LA716/LA716I/LA716I HP								
Pollution degree	2								
Supply voltage									
Active power input	W	15							
Mains failure buffering time	ms	20							
Recovery time after mains failure, typical	s	1							
Power carrying capacity									
• With fan per rack	kW	176						59	
• Without fan per rack	kW	67						22	
Type of electrical connection for supply voltage	Plug, 2-pole								
Type of connectable conductor cross-sections for supply voltage									
• Solid	mm²	1 x (0.2 ... 2.5)							
• Finely stranded with end sleeve	mm²	1 x (0.25 ... 2.5)							
• Finely stranded for AWG cables	AWG	24 ... 12							
Dimensions									
• Width	mm	483	510				202.7		
• Height	mm	265.5	310				309.5		
• Depth	mm	350	330				287		
Communications									
Protocol is supported PROFIBUS DP protocol	Yes								
Transmission rate for PROFIBUS DP, maximum	Mbit/s	12							
Type of electrical connection of the PROFIBUS interface	9-pin sub D socket								
Display									
Number of status displays	2								
Type of status displays using LEDs	• LED green = status indicator • LED red = fault indicator								

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS716I heating control system: Racks

Selection and ordering data

	Number of slots	Type of power output module connectable	Interface version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Rack hinged frame									
 6BK1700-2AA00-0AA1	12	LA716/LA716I/ LA716I HP	PROFIBUS DP	C	6BK1700-2AA00-0AA1		1	1 unit	477
Rack mounting frame									
 6BK1700-2AA10-0AA1	12	LA716/LA716I/ LA716I HP	PROFIBUS DP	C	6BK1700-2AA10-0AA1		1	1 unit	477
Rack mounting frame without flange									
 6BK1700-2AA70-0AA0	12	LA716/LA716I/ LA716I HP	PROFIBUS DP	C	6BK1700-2AA70-0AA0		1	1 unit	477
Rack mounting frame, narrow version									
 6BK1700-3AA00-0AA0 (left) with 6BK1700-2AA80-0AA0 (right) with fan units attached below	Mounting frame, narrow version								
	4	LA716/LA716I/ LA716I HP	PROFIBUS DP	C	6BK1700-2AA80-0AA0		1	1 unit	477
	Expansion frame, narrow version								
	4	LA716/LA716I/ LA716I HP	PROFIBUS DP	C	6BK1700-3AA00-0AA0		1	1 unit	477

Accessories [see next page](#).

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS716I heating control system: Racks

Accessories

Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
For rack hinged frame, rack mounting frame and rack mounting frame without flange						
Fan units¹⁾ • 230 V AC with 3 fans • 115 ... 230 V AC/24 V DC with 3 fans and speed monitoring These are fitted to the racks from below.		On request ¹⁾ On request ¹⁾				
For rack mounting frame, narrow version and expansion frame, narrow version						
		6BK1700-2GA10-0AA0		1	1 unit	477
Fan unit • 230 V AC with 1 fan This is attached from below to the rack mounting frame, narrow version and to the expansion frame, narrow version.						

6BK1700-2GA10-0AA0

¹⁾ Fan units for the rack hinged frames, rack mounting frames and rack mounting frames without flange are available from:
HEITEC AG see Chapter 16 "Appendix" → "External partners".

More information

For more information see [Industry Mall](#) or www.siemens.com/siplus-hcs.

Heating Control Systems

With Integrated Power Outputs – Modular Design

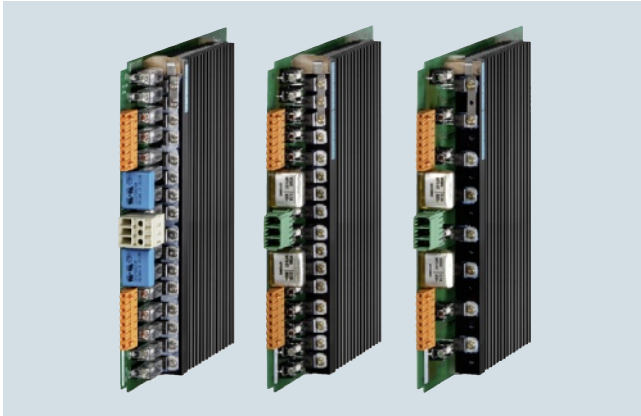
SIPLUS HCS716I heating control system: Power output modules

Overview

The power output modules are an important component of the SIPLUS HCS716I heating control system.

Three different power output modules can be used depending on the application:

- LA716 power output module – the **universal** version
- LA716I power output module – the **innovative** version
- LA716I HP power output module – the **HighPower** version



LA716 (left), LA716I (center) and LA716I HP (right) power output modules

LA716 power output module

The **universal** power output module provides 16 channels for switching on resistive loads. A maximum of 650 W can be used for each output channel.

LA716I power output module

The **innovative** power output module provides 16 channels for switching on resistive loads. A maximum of 1 150 W can be used for each output channel.

LA716I HP power output module

The **HighPower** version provides 8 channels for switching on resistive loads. A maximum of 2 300 W can be used for each output channel.

Design

- Connection of the heat emitter via two 8-pole mating connectors (The heat emitters and the mating connectors are ordered separately)
- Mains infeed at the front:
 - LA716 power output module: 3-pole terminal (Lx/N/Ly)
 - LA716I and LA716I HP power output modules: 3-pole plug connector (Lx/N/Ly)

Function

Protector elements

- Power triacs with zero crossover switching
- Protection of triacs and opto-triacs against overvoltages by Transil diodes

Output power

LA716 power output module

- 16 power output channels 230 V each (8 outputs each per phase)
- Max. 10 400 W switching capacity per module

LA716I power output module

- 16 power output channels 230 V each (8 outputs each per phase)
- Max. 14 720 W switching capacity per module

LA716I HP power output module

- 8 power output channels 230 V each (4 outputs each per phase)
- Max. 14 720 W switching capacity per module

Temperature monitoring

There is an NTC thermistor on the heat sink for monitoring its temperature. In the event of an overtemperature, this temperature-dependent resistor issues a signal to the higher-level control system.

Fuses

LA716 power output module

- Each output is protected with a 5 A fuse in an accessible fuse holder for the protection of the power triacs.
- A fuse cover is available as touch protection.

LA716I power output module

- Each output is protected with a 5 A fuse in an accessible fuse holder for the protection of the power triacs.
- A plexiglass cover is available on the front side as touch protection.

LA716I HP power output module

- Each output is protected with a 10 A fuse in an accessible fuse holder for the protection of the power triacs.
- A plexiglass cover is available on the front side as touch protection.

Diagnostic option

Standard diagnostics are provided for detecting the following faults:

- Circuit breaker triac at high resistance or internal fuse blown
- Channel fuse blown on the module
- External faults such as a blown fuse, broken heat emitter or broken cable

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS716I heating control system: Power output modules

Technical specifications

Type	6BK1700-2BA70-0AA1		6BK1700-4BA80-0AA0		6BK1700-4CA00-0AA0						
Product designation	Power output modules LA716		LA716I		LA716I HP						
General data											
Type of control of heat emitters	Full-wave control										
Type of load	Resistive load										
Reference designations according to IEC 81346-2	Q										
Pollution degree	2										
Supply voltage											
Switching capacity current per phase, maximum	23		32								
Type of electrical isolation	Optocoupler between main circuit and SELV/PELV										
Power carrying capacity											
• Of the module for delta connection at 40 °C											
- With fan maximum							W	10 400	14 720		
- Without fan maximum							W	6 200	6 500		
• Maximum permissible	W	10 400	14 720								
Type of electrical connection for supply voltage	Terminal 3-pole										
Type of connectable conductor cross-sections for supply voltage											
• Solid							mm²	1 x (0,2 ... 6)	1 x (0,2 ... 10)		1 x (0,2 ... 10)
• Finely stranded with end sleeve							mm²	1 x (0,25 ... 4)	1 x (0,25 ... 6)		1 x (0,25 ... 6)
• Finely stranded for AWG cables							AWG	22 ... 10	24 ... 8		24 ... 8
Power electronics											
Number of outputs for heating power	16				8						
Number of heat emitters per output, maximum	1										
Output voltage with wye connection	230										
Version of the overvoltage protection	Transil diodes										
Power carrying capacity											
• Per output							W	75 ... 650	75 ... 1 150		75 ... 2 300
Output current at the output for heating power, rated value	A	5	10								
Type of short-circuit protection for heating power per output	5 A melting fuse					10 A melting fuse					
• Electrical separation between the outputs	No										
Type of electrical connection at output for heater	8-pole socket connector										
Type of connectable conductor cross-sections for heater											
• Solid							mm²	1 x (0.2 ... 1.5)			
• Finely stranded with end sleeve							mm²	1 x (0.2 ... 1.5)			
• Finely stranded for AWG cables							AWG	28 ... 16			
Dimensions											
• Width	mm	31	279								
• Height	mm	233.4									
• Depth	mm	241									
Auxiliary circuit											
Design of the power supply	Supply through racks										
Monitoring functions											
Product function temperature monitoring	Yes										
Type of temperature monitoring	NTC thermistors										
Diagnostics function	Voltage diagnostics										
• Blown fuse	Yes										
• Open circuit	Yes										
• Heat emitter break	Yes										

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS716I heating control system: Power output modules

Selection and ordering data

	Number of outputs for heating power	Power carrying capacity per output max. W	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
LA716 power output module								
	16	650	C	6BK1700-2BA70-0AA1		1	1 unit	477
LA716I power output module								
	16	1 150	C	6BK1700-4BA80-0AA0		1	1 unit	477
LA716I HP power output module								
	8	2 300	C	6BK1700-4CA00-0AA0		1	1 unit	477

Accessories

Version	For power output module	Type
Fuse		
5 A quick/250 V 10 A quick/250 V	LA716, LA716I LA716I HP	200021116 A5E00186303
Mating connectors		
3-pole for mains connection 8-pole for connection of the heat emitters	LA716I, LA716I HP LA716, LA716I, LA716I HP	A5E30280233 A5E00507233

More information

For more information see [Industry Mall](#) or
www.siemens.com/siplus-hcs.

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: General data

Overview



SIPLUS HCS724I heating control system

The SIPLUS HCS724I heating control system controls and switches heat emitter arrays and other resistive loads of medium to high output in the industrial environment.

It is connected through PROFIBUS DP and can be used together with for example SIMATIC S7 to form a highly modern and powerful automation system. As an option, a line-voltage sensing module can be integrated in order to compensate automatically and internally for variations in the line voltage.

Benefits

- Time savings by means of adaptation to each production process
- Excellent product quality thanks to integrated line voltage compensation

Application

The SIPLUS HCS724I heating control system is used for example for controlling heat emitter arrays:

- Thermoforming machines
- Blow molding machines
- Plastic welding machines
- Drying ovens

Design

The main components of the SIPLUS HCS724I heating control system are:

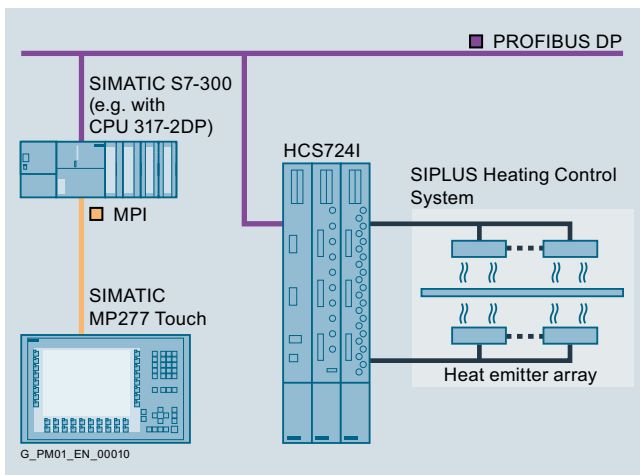
- Central interface module
- LA724I/LA724I HP/LA724I SSR power output modules: Up to 16 power output modules can be connected.
- Line-voltage sensing module (option)
- Fan module (option)

- Current measuring module (option)
- Communication over PROFIBUS DP, e.g. with SIMOTION, SIMATIC S7, or industrial PC

The central interface module and the LA724I/LA724I HP/LA724I SSR power output modules are installed in a metal enclosure and mounted on a mounting plate in the control cabinet.

Customized, distributed solutions are also possible.

Integration



Application example with SIMOTION, SINAMICS and SIPLUS HCS724I

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: General data

Technical specifications

Type	6BK1700-2BA30-0AA0	6BK1700-2BA00-0AA0	4BA70-0AA0	2BA10-0AA0	6ES7171-1XX00-6AA0	6ES7171-3AA00-0AA0	6BK1700-2BA40-0AA0
Product designation	Central interface module	Power output modules LA724I LA724I HP		LA724I SSR	Line-voltage sensing module	Fan module	Current measuring module
General data							
Reference designations according to IEC 81346-2	K	Q		K	T	G	T
Pollution degree	2						
Approvals/Certificates							
Certificate of suitability	CE, KCC						
Supply voltage							
Type of voltage of the supply voltage	AC				--	AC	--
Supply voltage at AC rated value	V	230					

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: General data

Type	6BK1700-2BA30-0AA0		6BK1700-2BA00-0AA0	4BA70-0AA0	2BA10-0AA0	6ES7171-1XX00-6AA0	6ES7171-3AA00-0AA0	6BK1700-2BA40-0AA0	
Product designation	Central interface module		Power output modules LA724I		LA724I HP	LA724I SSR	Line-voltage sensing module	Fan module	Current measuring module
Climatic ambient conditions									
Ambient temperature									
• During operation	°C	0 ... 55							
• During storage	°C	-40 ... +70							
• During transport	°C	-40 ... +70							
Air pressure									
• During operation	hPa	860 ... 1 080							
• During storage	hPa	660 ... 1 080							
Installation altitude at height above sea level, maximum			m	2 000					
Relative air humidity									
• At 25 °C									
- Max.	%	95							

More information

For more product details see the operating instructions "SIPLUS HCS724I Heating control system", <http://support.automation.siemens.com/WW/view/en/55336534>.

For more information see Industry Mall or www.siemens.com/siplus-hcs.

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: Central interface module

Overview



Central interface module

The central interface module is the intelligent processor module of the SIPLUS HCS724I heating control system.

Design

- Module encapsulated in a metal enclosure
- Two LEDs for operating state (green) and fault indication (red)
- PROFIBUS DP interface (up to 12 Mbaud)
- Rotary switch for setting the PROFIBUS DP address
- Serial interface RS 232 C
- Parallel bus interface for the power output modules
- Possibility of connecting a maximum of 16 LA724I/ LA724I HP/LA724I SSR power output modules per central interface module
- Expansion slot for line-voltage sensing module (optional)

Function

Communications

PROFIBUS DP

- Import of the parameter settings from the higher-level control system
- Transfer of the diagnostics information to the higher-level control system

Parallel bus (internal)

- Controlling and monitoring up to 384 power channels

Performance features

- Calculation of the emitter manipulated variables of the power channels
- Setpoint values are adjustable in 0.5 % increments from 0 % to 100 %
- Even load distribution over all power channels and over all SIPLUS HCS724I heating control systems operated as an integrated group
- Simple adaptation to each production process through the selection of up to four operating modes
- The various power output modules can be used in mixed operation

Diagnostics

- Evaluation of diagnostics information from connected power output modules
- Phase-sequence detection indicating whether phases L1, L2, and L3 are properly connected
- Automatic detection of the line frequency

Grid synchronization

In order to ensure synchronization of the power output modules with the connected power supply, the system is synchronized with phase L1. The respective switch-on times for phases L2 and L3 are then calculated automatically.

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: Central interface module

Technical specifications

Type	6BK1700-2BA30-0AA0	
General data		
Type of power output module connectable	• LA724I • LA724I HP • LA724I SSR (Up to 16 power output modules can be connected)	
Supply voltage		
Type of voltage of the supply voltage	AC	
Supply voltage at AC, rated value	V	230
• Relative negative tolerance of the supply voltage	%	18
• Relative positive tolerance of the supply voltage	%	15
Supply voltage frequency		
• Rated value 1	Hz	50
• Rated value 2	Hz	60
• Relative symmetrical tolerance	%	5
Active power input	W	35
Mains failure buffering time	ms	20
Recovery time after mains failure, typical	s	1
Type of electrical connection for supply voltage	Terminal 2-pole	
Type of connectable conductor cross-sections for supply voltage		
• Solid	mm²	1 x (0.5 ... 2.5)
• Finely stranded with end sleeve	mm²	1 x (0.5 ... 2.5)
• Finely stranded for AWG cables	AWG	26 ... 14

Type	6BK1700-2BA30-0AA0	
Communications		
Protocol is supported PROFIBUS DP protocol	Yes	
Transmission rate for PROFIBUS DP, maximum	Mbit/s	12
Type of electrical connection of the PROFIBUS interface	9-pin sub D socket	
Displays		
Number of status displays	2	
Type of status displays using LEDs	• LED green = status indicator • LED red = fault indicator	
Dimensions		
• Width • Height • Depth	- mm - mm - mm	50 480 210

Selection and ordering data

Interface version		Type of power output module connectable	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Central interface modules								
 6BK1700-2BA30-0AA0	PROFIBUS DP	• LA724I • LA724I HP • LA724I SSR	C	6BK1700-2BA30-0AA0		1	1 unit	477

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: Power output modules

Overview

The power output modules are an important component of the SIPLUS HCS724I heating control system.

Three different power output modules can be used depending on the application:

- LA724I power output module – the **universal** version
- LA724I HP power output module – the **HighPower** version
- LA724I SSR power output modules – the **high-current** version



LA724I (left), LA724I HP (center) and LA724I SSR (right) power output modules

LA724I power output module

The **universal** power output module provides 24 channels for switching on resistive loads. A maximum of 1 150 W can be used for each output channel.

LA724I HP power output module

The **HighPower** output module provides 12 channels for switching on resistive loads for voltages up to 400 V/max. and 10 A per channel.

LA724I SSR power output module

The 24-channel power output module is the **high-current** power output module for controlling external SSR solid-state relays (up to 90 A/load).

Design

- Modules encapsulated in a metal enclosure
- Connection of the phases via busbars
- Connection of the heat emitter via mating connectors (the heat emitters and the mating connectors are ordered separately).
- Channel fuses at the front
- Heat dissipation with the optimal fan module is possible for the LA724I and LA724I HP power output modules, [see page 15/79](#)
- Internal parallel bus interface
- Four diagnostics LEDs for displaying channel/module faults

Function

Protector elements

LA724I and LA724I HP power output modules

- Power triacs with zero crossover switching
- Protection of the triacs and opto-triacs by means of Transil diodes against overvoltage

LA724I SSR power output module

There are no power triacs here. Control of the load is handled via external SSR solid-state relays.

Output power

LA724I power output module

- 24 power output channels 230 V each (8 outputs per phase)
- Max. 1 150 W switching capacity per output
- Max. 7 360 W switching capacity per phase

LA724I HP power output module

- 12 power output channels 230 V/400 V each (4 outputs per phase)
- Max. 2 300 W/4 000 W switching capacity per output
- Max. 9 200 W switching capacity per phase with wye connection and max. 16 000 W switching capacity with delta connection

LA724I SSR power output module

24 channels with one digital control signal of 24 V (8 outputs per phase)

Forced ventilation

LA724I and LA724I HP power output modules

Depending on the switching capacity and ambient temperature, these power output modules may have to be force-ventilated. For this purpose, a fan module is available as an option, [see page 15/79](#).

For detailed information [see the operating instructions "SIPLUS HCS724I Heating Control System"](#), <http://support.automation.siemens.com/WW/view/en/55336534>.

Temperature monitoring

LA724I and LA724I HP power output modules

There is an NTC thermistor on the heat sink for monitoring its temperature. This temperature-dependent resistance sends a signal at $92\text{ °C} \pm 3\text{ °C}$ to SIMATIC S7-300. A second switching threshold at $100\text{ °C} \pm 3\text{ °C}$ switches off the power outputs of the module.

Supply voltage monitoring

LA724I SSR power output module

- The connected 24 V DC supply is monitored for failure. In case of failure, the outputs to the solid-state relay (SSR) are shut down.
- The drivers of the control outputs are monitored for correct functioning.

Fuses

LA724I power output module

- For each power output, there is a 5 A fuse in one of the fuse holders accessible from the front for protecting the power triacs, as well as a 32 A fuse per phase for limiting the phase current.

LA724I HP power output module

- For each power output, there is a 10 A fuse in a fuse holder accessible from the front for protecting the power triacs, as well as a 40 A fuse per phase for limiting the phase current.

LA716I SSR power output module

Protection for each channel is to be provided externally.

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: Power output modules

Diagnostic option

LA724I and LA724I HP power output modules

Standard diagnostics are provided for detecting the following faults:

- Internal fuse defective or triac at high-resistance
- Triac failed
- External faults such as a blown fuse, broken heat emitter or broken cable

If several heat emitters are connected to one output in parallel, failure of an individual heat emitter is detected by means of extended diagnostics.

LA724I SSR power output module

As an alternative, two different diagnostics methods are possible:

- Through diagnostics of the voltages from the load circuit, the following faults can be detected:
 - Solid-state relay (SSR) cannot be switched, infeed to SSR interrupted or external channel fuse dropped
 - Solid-state relay (SSR) cannot be switched, broken emitters or broken conductors
- Through diagnosis via the external current measuring module (see page 15/80) the following faults can also be detected (these diagnostics are recommended for fault detection on parallel switched emitters):
 - Rated power on the channel is overshoot
 - Rated power on the channel is undershot

Technical specifications

Type		6BK1700-2BA00-0AA0	6BK1700-4BA70-0AA0	6BK1700-2BA10-0AA0
Product designation		Power output modules		
		LA724I	LA724I HP	LA724I SSR
General data				
Type of control of heat emitters		Half-wave control		--
Type of load		Resistive load		Solid-state relay (SSR)
Supply voltage				
Type of voltage of the supply voltage		AC		
Supply voltage at AC, rated value	V	230	400	
• Relative negative tolerance of the supply voltage	%	18		
• Relative positive tolerance of the supply voltage	%	15		
Supply voltage frequency				
• Rated value 1	Hz	50		--
• Rated value 2	Hz	60		--
• Relative symmetrical tolerance of the supply voltage frequency	%	5		--
Current switching capacity				
• Per busbar a maximum of	A	120		
• Per phase a maximum of	A	32	40	--
Type of electrical isolation		Optocoupler between main circuit and SELV/PELV		
Power carrying capacity of the module				
• For delta connection at 40 °C				
- With fan maximum	kW	--	36.5	--
- Without fan maximum	kW	--	22.6	--
• With wye connection at 40 °C				
- With fan maximum	kW	22	21	--
- Without fan maximum	kW	14.4	13	--
Maximum permissible power carrying capacity	kW	22	48	--
Type of electrical connection for supply voltage		Busbars or ring terminal lugs		
Power electronics				
Number of outputs for heating power		24	12	--
Number of heat emitters per output maximum		5		--
Output voltage				
• With wye connection	V	230		--
• With delta connection	V	--	400	--
Version of the overvoltage protection		Transil diodes		
Power carrying capacity				
• Per output	W	75 ... 1 150	75 ... 4 000	--
Output current at the output for heating power, rated value	A	5	10	--
Type of short-circuit protection for heating power per output		5 A melting fuse	16 A melting fuse	--
Electrical separation between the outputs		No		
Type of electrical connection at output for heater		8-pole socket connector		
Type of connectable conductor cross-sections for heating				
• Solid	mm²	1 x (0.2 ... 1.5)		--
• Finely stranded with end sleeve	mm²	1 x (0.2 ... 1.5)		--
• Finely stranded for AWG cables	AWG	28 ... 16		--

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: Power output modules

Type	6BK1700-2BA00-0AA0	6BK1700-4BA70-0AA0	6BK1700-2BA10-0AA0
Product designation	Power output modules LA724I	LA724I HP	LA724I SSR
Digital outputs			
Supply voltage at DC			
• Rated value	V	--	20.4 ... 28.8
Type of electrical connection for supply voltage	--	--	2-pole plug
Type of connectable conductor cross-sections for supply voltage			
• Finely stranded with end sleeve	mm ²	--	1 x (0.2 ... 1.5)
• Finely stranded for AWG cables	AWG	--	28 ... 14
Number of semiconductor outputs	--	--	24
Type of the switching output	--	--	Semiconductor output (high side switch)
Type of voltage for the output voltages	--	--	DC
Output voltage for DC, rated value	V	--	24
Output voltage	V	--	18.4 ... 28.8
Output current at digital output when signal <1> max.	A	--	0.05
Electrical isolation between outputs and system interface	--	--	No
Switching performance	--	--	Monostable
Property of the output short-circuit-proof	--	--	Yes
Type of electrical connection on the digital outputs	--	--	8-pole plug
Type of connectable conductor cross-sections on the digital outputs			
• Solid	mm ²	--	1 x (0.2 ... 1.5)
• Finely stranded with end sleeve	mm ²	--	1 x (0.2 ... 1.5)
• Finely stranded for AWG cables	AWG	--	28 ... 14
Measuring inputs for current			
Type of electrical connection on the measuring inputs for current	Internal	--	Externally by 6-pole connector for current measuring module
Type of connectable conductor cross-sections on the measuring inputs for current			
• Solid	mm ²	--	1 x (0.2 ... 1.5)
• Finely stranded with end sleeve	mm ²	--	1 x (0.2 ... 1.5)
• Finely stranded for AWG cables	AWG	--	28 ... 14
Measuring inputs for voltage			
Diagnostics voltage			
• With wye connection of rated value	V	--	230
• Rated value with delta connection	V	--	400
Type of electrical connection on the measuring inputs for voltage	--	--	8-pole socket connector
Type of connectable conductor cross-sections on the measuring inputs for voltage			
• Solid	mm ²	--	1 x (0.2 ... 1.5)
• Finely stranded with end sleeve	mm ²	--	1 x (0.2 ... 1.5)
• Finely stranded for AWG cables	AWG	--	28 ... 16
Displays			
Number of status displays	4		
Type of status displays using LEDs			• 1 LED green = status indicator • 3 LED red = fault indicator per phase
Auxiliary circuit			
Design of the power supply	Power supply via central interface		
Monitoring functions			
Product function temperature monitoring	Yes	--	
Type of temperature monitoring	NTC thermistors	--	
Diagnostics function	Voltage and power diagnostics		
• Blown fuse	Yes		
• Open circuit	Yes		
• Heat emitter break	Yes		
Dimensions			
• Width	mm	50	
• Height	mm	480	
• Depth	mm	210	

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: Power output modules

Selection and ordering data

	Number of outputs for heating power	Number of semiconductor outputs	Power carrying capacity DT per output Max. W		Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
LA724I power output module									
	24	--	1 150	C	6BK1700-2BA00-0AA0		1	1 unit	477
LA724I HP power output module									
	12	--	4 000	C	6BK1700-4BA70-0AA0		1	1 unit	477
LA724I SSR power output module									
	--	24	--	X	6BK1700-2BA10-0AA0		1	1 unit	477

Accessories

Version	For power output module	Type
Mating connectors		
• For connection of the heat emitters (3 units required per power output module)	LA724I, LA724I HP	40018384
• For the 24 V DC supply	LA724I SSR	A5E00210675
• For connection of the solid state relay (SSR) (3 units required per power output module)	LA724I SSR	A5E00043661
• For connection of the current measuring module	LA724I SSR	A5E00210670
• For voltage diagnostics (3 units required for each power output module)	LA724I SSR	41818384
Fuse		
• 5 A quick/250 V	LA724I	200021116
• 16 A slow/500 V	LA724I HP	A5E01204540

Recommendation for solid-state relay (SSR) to be used

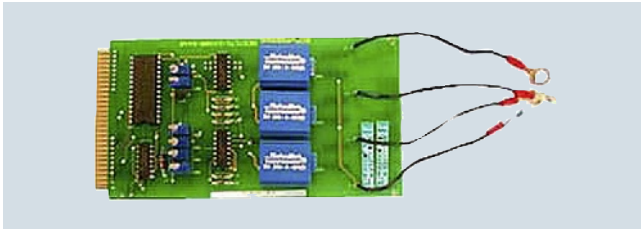
SIRIUS SC solid-state relays/contactors
e.g. 3RF2350-1AA02:
Solid-state contactor 50 A,
40 °C,
control voltage 24 V,
screw terminals

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: Line-voltage sensing module

Overview



Line-voltage sensing module

The line-voltage sensing module is an optional module for mains voltage sensing and correction.

The line-voltage sensing module is inserted from the front into the enclosure of the central interface module. The slot is located in the busbar area. If the line-voltage sensing module is not used, the opening is sealed with the busbar cover. When the line-voltage sensing function is used, the cover provides touch protection.

Design

- Connection of the phases L1, L2, L3 and of the neutral conductor via cable with Teflon insulation
- Printed circuit-boards terminals for central connection

Function

Line-voltage compensation

This function is required, if output power is to be automatically corrected in strongly fluctuating networks.

To implement this function, a line-voltage sensing module must be plugged in to at least one central interface module in a network of several HCS724I heating control system.

The correction factors are calculated and transmitted to the PROFIBUS DP master. The DP master then distributes these values to all HCS724I DP slaves.

Voltage measuring for advanced diagnostics

In order to measure the voltage values for advanced diagnostics, a line-voltage sensing module is required for each central interface.

The measured voltage value is used for fault detection for parallel switched emitters.

Note:

The central interface is only delivered ex works without a line-voltage sensing module. If you want to compensate for line-voltage fluctuations, you must order both modules (line-voltage sensing module and central interface module) and connect them together on site.

Technical specifications

Type	6ES7171-1XX00-6AA0	
Supply voltage		
Design of the power supply	Power supply via central interface	
Measuring inputs for current		
Product function current measurement	No	
Measuring inputs for voltage		
Product function voltage measuring	Yes	
Operational voltage		
• At 50 Hz at AC	V	187 ... 264
• At 60 Hz at AC	V	187 ... 264
• Relative measuring accuracy relative to the measured voltage value	%	3
Operating frequency	Hz	50 ... 60
Type of electrical connection on the measuring inputs for voltage		
M6 ring terminal lug		
Dimensions		
• Width	mm	86
• Height	mm	22
• Depth	mm	160

Selection and ordering data

Supply voltage at AC rated value	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
V						
Line-voltage sensing module¹⁾						
230	C	6ES7171-1XX00-6AA0		1	1 unit	477



6ES7171-1XX00-6AA0

¹⁾ Inserted in the central interface module.

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: Fan module

Overview



Fan module for installation underneath two power output modules

The fan module is available for reliable heat dissipation of the LA724I and LA724I HP power output modules. The fan module is a standard fan in an IP00 enclosure.

The fan module can be connected to

- 2 LA724I or LA724I HP power output modules

or

- 1 central interface module and 1 LA724I or LA724I HP power output module

Technical specifications

Type	6ES7171-3AA00-0AA0	
Supply voltage		
Supply voltage at AC, rated value	V	230
• Relative negative tolerance of the supply voltage	%	18
• Relative positive tolerance of the supply voltage	%	15
Supply voltage frequency		
• Rated value 1	Hz	50
• Rated value 2	Hz	60
• Relative symmetrical tolerance of the supply voltage frequency	%	5
Active power input	W	6
Type of electrical connection for supply voltage	Terminal 2-pole	
Type of connectable conductor cross-sections for supply voltage		
• Solid	mm ²	1 x (0.2 ... 2.5)
• Finely stranded with end sleeve	mm ²	1 x (0.25 ... 2.5)
• Finely stranded for AWG cables	AWG	24 ... 12
Dimensions		
• Width	mm	100
• Height	mm	50
• Depth	mm	162

Selection and ordering data

Supply voltage at AC Rated value	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
V						
Fan module¹⁾						
230	D	6ES7171-3AA00-0AA0		1	1 unit	477



6ES7171-3AA00-0AA0

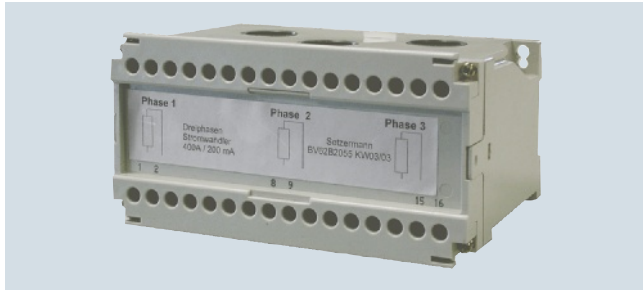
¹⁾ Mounted below two LA724I / LA724I HP power output modules in each case.

Heating Control Systems

With Integrated Power Outputs – Modular Design

SIPLUS HCS724I heating control system: Current measuring module

Overview



Current measuring module

The current measuring module is an optional module for diagnostics-based current measurement when connected to the LA724I SSR power output module.

The module is required when heat emitters are connected in parallel and failure of a single heat emitter is to be detected using a current measurement.

It is mounted in the control cabinet on a sturdy mounting surface (recommended) or on a standard mounting rail.

Technical specifications

Type	6BK1700-2BA40-0AA0	
Measuring inputs for current		
Product function current measurement	Yes	
Current measuring range	A	1 ... 400
• Relative measuring accuracy relative to the measured current value	%	1
Operating frequency		
• Rated value 1	Hz	50
• Rated value 2	Hz	60
Type of electrical connection for the main circuit	Straight-through transformers	
Diameter of the feed-through opening	m	22
Dimensions		
• Width	mm	150
• Height	mm	77.5
• Depth	mm	115

Selection and ordering data

Current measuring range	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
A						
Current measuring module						
1 ... 400	C	6BK1700-2BA40-0AA0		1	1 unit	477



6BK1700-2BA40-0AA0

Accessories

Version	Type
Mating connectors for connection of the current measuring module to the LA724I SSR power output module	A5E00210670

Note on the cable to be used between the LA724I SSR power output module and the current measuring module

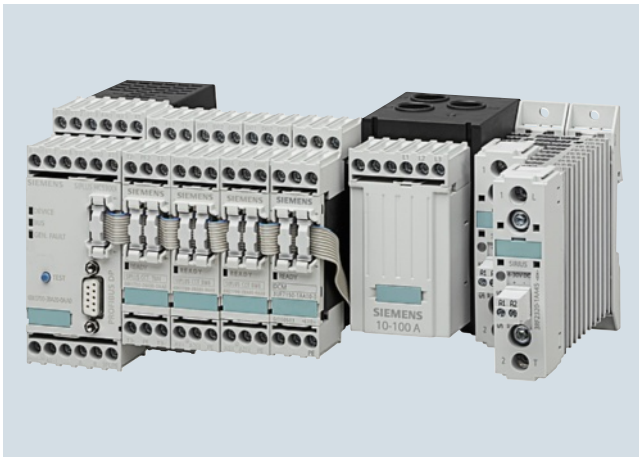
It is recommended that a 3 x 2-core cable is used with a cross-section of 0.75 mm² whose cores are twisted together in pairs. It is not necessary to use a shielded cable.

Overview

Variable output power by indirect control of electrical heating elements, e.g. via solid-state contactors. User-friendly control is possible by means of the TCP 3000 temperature control software.

SIPLUS HCS300I heating controller: General data

Overview



SIPLUS HCS300I heating controller

SIPLUS HCS300I is an industrial heating controller which uses solid-state relays (SSR) or contactors to control resistive loads. SIPLUS HCS300I was developed on the basis of the SIMOCODE system.

Benefits

- Easy control of SIRIUS solid-state relays (SSR) using preassembled cables
- Reduced wiring outlay thanks to distributed application
- User-friendly TCP 3000 control software available

Application

SIPLUS HCS300I is an industrial heating controller, e.g. for extruders and injection molding machines.

Design

SIPLUS HCS300I can be adapted to your special application by using various modules:

- The basic unit handles the central functions and communicates with the higher-level automation system.
- Digital modules expand the SIPLUS HCS300I heating control system with additional digital outputs via which solid-state relays (SSR) or contactors are switched.
- Temperature modules process analog temperature values supplied by the temperature sensors of your plant.
- The current measuring module measures the load currents, the current/voltage measuring module measures the load currents and the voltages of the heating or cooling devices, and delivers the measured values to the basic unit.

The SIPLUS HCS300I is designed for snap-on mounting onto TH 35 standard mounting rails according to IEC 60715 or for screw fixing using additional push-in lugs.

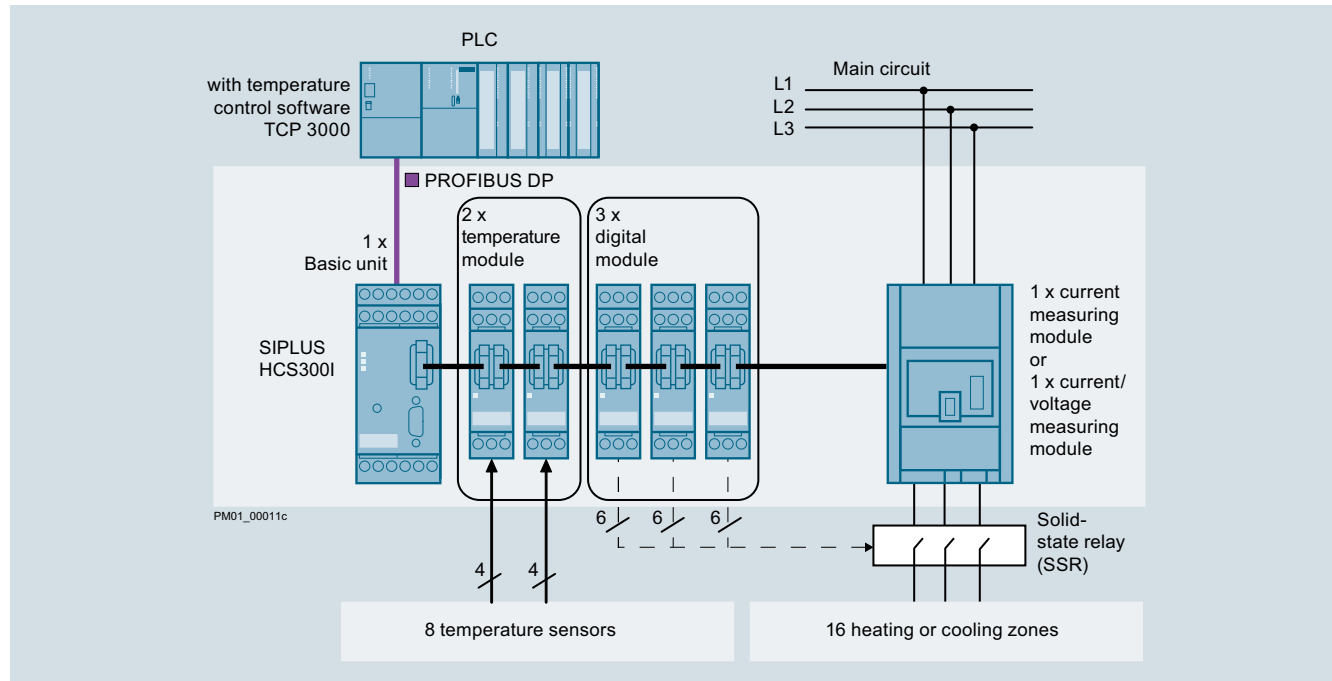
If your application requires more than 16 temperature measuring channels or 24 digital outputs, a second SIPLUS HCS300I basic unit can be connected to the higher-level automation system. Another 16 temperature measuring channels or 24 digital outputs are then available.

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: General data

Integration



Application example SIPLUS HCS300I

Technical specifications

Type		6BK1700-3BA20-0AA0	6BK1700-2BA80-0AA0	4BA50-0AA0	6BK1700-4BA60-0AA0	6BK1700-3BA30-0AA0	3BA40-0AA0	3BA50-0AA0	6BK1700-3BA60-0AA0	3BA70-0AA0	3BA80-0AA0	6BK1700-4BA40-0AA0
Product designation		Basic unit	Digital modules version 1 2		Tempera- ture module	Current measuring modules 2.4 ... 25 A 10 ... 100 A 20 ... 200 A			Current/voltage measuring modules 2.4 ... 25 A 10 ... 100 A 20 ... 200 A			Decou- pling module
General data												
Reference designations												
• According to DIN 40719 expanded according to IEC 204-2 according to IEC 750	F											
• According to IEC 61346-2	F											
• According to IEC 81346-2	F											
Pollution degree	2											
Approvals/Certificates												
Certificate of suitability	CE, c@us, c-tick											
Communications												
Interface version	PROFIBUS DP System interface											
Mechanical features												
Mounting position	Any											
Type of mounting	Snap-on mounting onto TH 35 standard mounting rail according to IEC 60715 or screw fixing with additional push-in lug											
Shock resistance according to IEC 60068-2-27	15g/11 ms											
Vibration resistance during operation according to IEC 60068-2-6	5 ... 500 Hz/3.5 mm amplitude, 1 g, 10 cycles, 1 octaves/min											
Dimensions												
• Width	mm	45	22.5		22.5	45	55	120	45	55	120	22.5
• Height	mm	106	92		102	84	94	95	85	94	95	92
• Depth	mm	115				45	72	145	71	97	145	115

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: General data

Type	6BK1700-3BA20-0AA0	6BK1700-2BA80-0AA0	4BA50-0AA0	6BK1700-4BA60-0AA0	6BK1700-3BA30-0AA0	3BA40-0AA0	3BA50-0AA0	6BK1700-3BA60-0AA0	3BA70-0AA0	3BA80-0AA0	6BK1700-4BA40-0AA0
Product designation	Basic unit	Digital modules version 12		Temperature module	Current measuring modules 2.4 ... 25 A10 ... 100 A20 ... 200 A			Current/voltage measuring modules 2.4 ... 25 A10 ... 100 A20 ... 200 A			Decoupling module
Electromagnetic compatibility											
Conducted interference injection BURST according to IEC 61000-4-4	2 kV power supply cables/1 kV signal cables										
Conducted interference injection SURGE according to IEC 61000-4-5	- On supply cables: - 1 kV symmetrical - 2 kV asymmetrical - On signal cables - > 30 m unshielded: 1 kV symmetrical, 2 kV asymmetrical - > 30 m shielded: 2 kV asymmetrical	- On supply cables - 1 kV symmetrical - 2 kV asymmetrical - On signal cables - > 30 m unshielded: 0.5 kV symmetrical, 1 kV asymmetrical			- On supply cables - 1 kV symmetrical - 2 kV asymmetrical - On signal cables: - > 30 m unshielded: 1 kV symmetrical, 2 kV asymmetrical - > 30 m shielded: 2 kV asymmetrical						
Conducted interference injection as high-frequency interference according to IEC 61000-4-6	10 V (0.15 ... 80 MHz)										
Electrostatic discharge according to IEC 61000-4-2	6 kV contact discharge/8 kV air discharge	4 kV contact discharge/8 kV air discharge			6 kV contact discharge/8 kV air discharge						
Field-related interference according to IEC 61000-4-3	10 V/m (80 ... 1 000 MHz), 3 V/m (1.4 ... 2.0 GHz), 1 V/m (2.0 ... 2.7 GHz)										
EMC emitted interference	IEC 61131: Class A; conducted and radiated interference: EN 55011/CISPR11 (corresponds to degree of severity A)										
Overvoltage category	--				III			--			
Climatic ambient conditions											
Ambient temperature											
- During operation - During storage - During transport	°C°C°C	-25 ... +60-40 ... +80-40 ... +80									
Air pressure											
- During operation - During storage	hPa hPa	795 ... 1 080660 ... 1 080									
Installation altitude at height above sea level maximum	m	2 000									

More information

For more product details see system manual "SIPLUS HCS300I heating controller", <http://support.automation.siemens.com/WW/view/en/54439691>.

For more information see Industry Mall or www.siemens.com/siplus-hcs.

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Basic unit

Overview



Basic unit

The basic unit handles the central functions of the SIPLUS HCS300I heating controller and communicates with the higher-level automation system.

Benefits

- Three digital relay outputs for switching ohmic loads
- Communication with the higher-level automation system over PROFIBUS DP
- Local control of the system
- Four digital inputs for detecting external signals

Technical specifications

Type	6BK1700-3BA20-0AA0	
General data		
Switchgears connectable	Max. • 4 digital modules and 4 temperature modules • 1 current measuring module or 1 current/voltage measuring module • 1 decoupling module	
Supply voltage		
Type of voltage of the supply voltage	DC	
Supply voltage 1 at DC, rated value	V	24
• Relative negative tolerance of the supply voltage	%	15
• Relative positive tolerance of the supply voltage	%	20
Active power input	W	7
Type of electrical connection for supply voltage	Screw terminals	
Type of connectable conductor cross-sections for supply voltage		
• Solid	mm ²	1 x (0.5 ... 4),
	mm ²	2 x (0.5 ... 2.5)
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5),
	mm ²	2 x (0.5 ... 1.5)
• Finely stranded for AWG cables	AWG	1 x (20 ... 14),
	AWG	2 x (20 ... 16)
Digital inputs		
Number of digital inputs	4	
Type of electrical connection on the digital inputs	Screw-type connection with removable terminal	
Type of connectable conductor cross-sections on the digital inputs		
• Solid	mm ²	1 x (0.5 ... 4),
	mm ²	2 x (0.5 ... 2.5)
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5),
	mm ²	2 x (0.5 ... 1.5)
• Finely stranded for AWG cables	AWG	1 x (20 ... 14),
	AWG	2 x (20 ... 16)

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Basic unit

Type	6BK1700-3BA20-0AA0	
Digital outputs		
Type of voltage for the output voltages	DC	
Supply voltage at DC		
• Rated value	V	24 ... 125
Type of electrical connection for supply voltage		
Screw-type connection with removable terminal		
Type of connectable conductor cross-sections for supply voltage		
• Solid	mm²	1 x (0.5 ... 4),
	mm²	2 x (0.5 ... 2.5)
• Finely stranded with end sleeve	mm²	1 x (0.5 ... 2.5),
	mm²	2 x (0.5 ... 1.5)
• Finely stranded for AWG cables	AWG	1 x (20 ... 14),
	AWG	2 x (20 ... 16)
Number of outputs as contacting switching element		
3		
Output voltage	V	24 ... 125
Output current at digital output when signal <1>	A	2
Switching performance		
Monostable		
Type of the switching output		
Monostable relays		
Electrical isolation between outputs and system interface		
Yes		
Property of the output short-circuit-proof		
No		
Type of electrical connection on the digital outputs		
Screw-type connection with removable terminal		
Type of connectable conductor cross-sections on the digital outputs		
• Solid	mm²	1 x (0.5 ... 4),
	mm²	2 x (0.5 ... 2.5)
• Finely stranded with end sleeve	mm²	1 x (0.5 ... 2.5),
	mm²	2 x (0.5 ... 1.5)
• Finely stranded for AWG cables	AWG	1 x (20 ... 14),
	AWG	2 x (20 ... 16)
Communications		
Protocol is supported PROFIBUS DP protocol		
Yes		
Transmission rate for PROFIBUS DP maximum	Mbit/s	12
Type of electrical connection of the PROFIBUS interface		
9-pin sub D socket		
Displays		
Number of status displays		
3		
Type of sstatus displays using LEDs		
• Device: 4 states		
• BUS: 2 states		
• GEN.FAULT: 2 states		
Dimensions		
• Width	mm	45
• Height	mm	106
• Depth	mm	115

Selection and ordering data

	Supply voltage 1 at DC, rated value	Switching devices connectable	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	V							
Basic unit								
 6BK1700-3BA20-0AA0	24	Max. • 4 digital modules and 4 temperature modules • 1 current measuring module or 1 current/voltage measuring module • 1 decoupling module	C	6BK1700-3BA20-0AA0		1	1 unit	477

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Digital modules

Overview



Digital modules

The digital modules expand the SIPLUS HCS300I heating controller with additional digital outputs via which solid-state relays (SSR) or contactors are switched.

Benefits

- Six digital 24 V DC outputs in the form of "high-side" switches
- Up to four digital modules can be connected to a basic unit
- Up to 24 digital output signals (with four digital modules) can be switched to loads of up to 500 mA
- Control of the digital outputs by means of a higher-level automation system that communicates with the SIPLUS HCS300I basic unit via PROFIBUS DP
- Easy control of solid-state relays (SSR) possible using preassembled cables

Technical specifications

Type		6BK1700-2BA80-0AA0 Version 1	6BK1700-4BA50-0AA0 Version 2
Digital outputs			
Supply voltage at DC, rated value	V	20.4 ... 28.8	
Type of electrical connection for supply voltage		Screw-type connection with removable terminal	
Type of connectable conductor cross-sections for supply voltage			
• Solid	mm ²	1 x (0.5 ... 4),	
	mm ²	2 x (0.5 ... 2.5)	
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5),	
	mm ²	2 x (0.5 ... 1.5)	
• Finely stranded for AWG cables	AWG	1 x (20 ... 14),	
	AWG	2 x (20 ... 16)	
Number of semiconductor outputs		6	
Type of the switching output		Semiconductor output (high side switch)	
Type of voltage for the output voltages		DC	
Output voltage for DC rated value	V	24	
Output voltage	V	19.4 ... 28.8	
Output current at digital output when signal <1> max.	mA	500	
Switching frequency of the outputs for resistive load max.	Hz	50	
• Note		For a digital module 50 Hz; for maximum configuration of at least 20 Hz	
Electrical isolation between outputs and system interface		No	
Switching performance		Monostable	
Property of the output short-circuit-proof		Yes	
Product function control for solid-state-relay via assembled connecting cable		Yes	
Type of electrical connection for auxiliary and control circuits		Screw terminals	
Type of electrical connection on the digital outputs		Screw terminal with removable terminal, cable assembly	Screw terminal with removable terminal
Type of connectable conductor cross-sections on the digital outputs			
• Solid	mm ²	1 x (0.5 ... 4),	
	mm ²	2 x (0.5 ... 2.5)	
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5),	
	mm ²	2 x (0.5 ... 1.5)	
• Finely stranded for AWG cables	AWG	1 x (20 ... 14),	
	AWG	2 x (20 ... 16)	

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Digital modules

Type	6BK1700-2BA80-0AA0 Version 1	6BK1700-4BA50-0AA0 Version 2
Displays		
Number of status displays	1	
Type of as status displays using LEDs	• Continuous light: Ready • Flashing light: No connection to the basic unit	
Auxiliary circuit		
Design of the power supply	Supply through basic unit	
Dimensions		
• Width	mm	22.5
• Height	mm	92
• Depth	mm	115

Selection and ordering data

Version	Type of electrical connection on the digital outputs	Output current at digital output when signal <1> max. mA	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Digital modules



6BK1700-BA.0-0AA0

Version 1	Screw terminal with removable terminal, cable assembly	500	C	6BK1700-2BA80-0AA0		1	1 unit	477
Version 2	Screw terminal with removable terminal	500	C	6BK1700-4BA50-0AA0		1	1 unit	477

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Temperature modules

Overview



Temperature module

Temperature modules process analog temperature values supplied by a plant's temperature sensors.

Benefits

- Up to four analog sensor measuring circuits in 2-wire technology or two analog sensor measuring circuits in 4-wire technology
- Up to four temperature modules per basic unit which can detect up to 16 analog temperature values
- The compensation method for measurements with thermocouples can be set to one of the following:
 - No compensation
 - Internal compensation
 - External compensation
 - Compensation via the higher-level automation system
- Resolution of temperature values to one decimal point
- Automatic calibration on powering up assures high measuring accuracy
- Different sensor types are supported for use in solid, liquid, or gaseous media: Pt100; Pt1000; TC type J, K, L

Technical specifications

Type	6BK1700-4BA60-0AA0	
Analog channels		
Product component input for analog temperature sensor	Yes	
Type of connection method	2- and 4-conductor technology	
Number of analog inputs	4	
- For 2-wire system - For 4-wire system	2	
Physical measurement principle	Sigma-Delta Modulation	
Measurement accuracy	Typical ± 1 K, Pt100 up to max. ± 1.3 K	
A/D conversion time at analog input	ms	600
Typical sensor circuit	µA	210
Electrical separation between the channels	No	
Impulse withstand voltage of the outputs, max.	V	15
Typical temperature drift per °C	%/°C	0.00115
Offset temperature per K, max.	K/K	0.1
Type of electrical connection for temperature sensors	Screw-type connection with removable terminal	
Type of connectable conductor cross-sections for temperature sensors		
Solid	mm²	1 x (0.5 ... 4), 2 x (0.5 ... 2.5)
Finely stranded with end sleeve	mm²	1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5)
Finely stranded for AWG cables	AWG	1 x (20 ... 14), 2 x (20 ... 16)
Sensors that can be connected		
Temperature measuring range		
According to IEC 60751		
- At pt100	°C	0 ... 400
- At pt1000	°C	0 ... 400
With thermoelement		
- Type J	°C	0 ... 400
- Type K	°C	0 ... 400
- Type L	°C	0 ... 400
Digital outputs		
Electrical isolation between outputs and system interface	Yes	

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Temperature modules

Type	6BK1700-4BA60-0AA0		
Displays			
Number of status displays	3		
Type of status displays using LEDs	• Continuous light: Ready • Flashing light: No connection to the basic unit		
Auxiliary circuit			
Design of the power supply	Supply through basic unit		
Monitoring functions			
Diagnostics function open circuit	Yes		
Dimensions			
• Width	mm	22.5	
• Height	mm	102	
• Depth	mm	115	

Selection and ordering data

Number of analog inputs		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
For 2-wire system	For 4-wire system						
Temperature modules							
	4	2	C	6BK1700-4BA60-0AA0	1	1 unit	477



6BK1700-4BA60-0AA0

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Current measuring modules

Overview



Current measuring module

The current measuring module measures the load currents of the heating or cooling devices, and delivers the values to the basic unit.

The module must be selected according to the expected maximum current of all connected loads.

There are three different versions:

- Current measuring modules 2.4 A to 25 A
- Current measuring modules 10 A to 100 A
- Current measuring modules 20 A to 200 A

Benefits

- Current measurement on a feeder
- Current ranges between 2.4 A and 200 A

Technical specifications

Type		6BK1700-3BA30-0AA0	6BK1700-3BA40-0AA0	6BK1700-3BA50-0AA0
Product designation		Current measuring modules		
		2.4 ... 25 A	10 ... 100 A	20 ... 200 A
General data				
Can be connected to		• Basic unit • Expansion modules (digital module or temperature module) • Decoupling module		
Measuring inputs for current				
Product function current measurement		Yes		
Current measuring range	A	2.4 ... 25	10 ... 100	20 ... 200
• Relative measuring accuracy relative to the measured current value	%	3		
Adjustable current response value	A	2.4 ... 25	10 ... 100	20 ... 200
Operating frequency				
• Rated value 1	Hz	50		
• Rated value 2	Hz	60		
Design of the power supply		Supply through basic unit		
Type of electrical connection for the main circuit		Straight-through transformers		
Auxiliary circuit				
Diameter of the feed-through opening	mm	7.5	14	25
Dimensions				
• Width	mm	45	55	120
• Height	mm	84	94	95
• Depth	mm	45	72	145

Selection and ordering data

	Current measuring range	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	A						
Current measuring modules							
	2.4 ... 25	C	6BK1700-3BA30-0AA0		1	1 unit	477
	10 ... 100	C	6BK1700-3BA40-0AA0		1	1 unit	477
	20 ... 200	C	6BK1700-3BA50-0AA0		1	1 unit	477



6BK1700-3BA0-0AA0

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Current/voltage measuring modules

Overview



Current/voltage measuring modules

In addition to measuring the load currents, the current/voltage measuring module can also be used to measure phase voltages in a single or three-phase system.

There are three different versions:

- Current/voltage measuring modules 2.4 A to 25 A
- Current/voltage measuring modules 10 A to 100 A
- Current/voltage measuring modules 20 A to 200 A

Benefits

- Current measurement on a feeder
- Current ranges between 2.4 A and 200 A
- Measurement of phase voltages up to 400 V (e.g. UL1) or phase-to-phase voltages up to 690 V (e.g. UL1-UL2)
- Measurement in three-phase current systems or single-phase AC systems

Technical specifications

Type		6BK1700-3BA60-0AA0	6BK1700-3BA70-0AA0	6BK1700-3BA80-0AA0
Product designation		Current/voltage measuring modules		
		2.4 ... 25 A	10 ... 100 A	20 ... 200 A
General data				
Can be connected to		• Basic unit • Expansion modules (digital module or temperature module) • Decoupling module		
Measuring inputs for current				
Product function current measurement		Yes		
Current measuring range	A	2.4 ... 25	10 ... 100	20 ... 200
• Relative measuring accuracy relative to the measured current value	%	3		
Operating frequency				
• Rated value 1	Hz	50		
• Rated value 2	Hz	60		
Type of electrical connection for the main circuit		Straight-through transformers		
Diameter of the feed-through opening	mm	7.5	14	25
Measuring inputs for voltage				
Product function voltage measuring		Yes		
Operational voltage				
• at 50 Hz at AC	V	110 ... 690		
• at 60 Hz at AC	V	110 ... 690		
Relative measuring accuracy relative to the measured voltage value	%	3		
Operating frequency	Hz	50 ... 60		
Type of electrical connection on the measuring inputs for voltage		Screw-type connection with removable terminal		
Type of connectable conductor cross-sections on the measuring inputs for voltage				
• Solid	mm²	1 x (0.5 ... 4),		
	mm²	2 x (0.5 ... 2.5)		
• Finely stranded with end sleeve	mm²	1 x (0.5 ... 2.5),		
	mm²	2 x (0.5 ... 1.5)		
• Finely stranded for AWG cables	AWG	1 x (20 ... 14),		
	AWG	2 x (20 ... 16)		

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Current/voltage measuring modules

Type	6BK1700-3BA60-0AA0		6BK1700-3BA70-0AA0	6BK1700-3BA80-0AA0
Product designation	Current/voltage measuring modules			
	2.4 ... 25 A		10 ... 100 A	20 ... 200 A
Auxiliary circuit				
Design of the power supply	Supply through basic unit			
Dimensions				
• Width	mm	45	55	120
• Height	mm	85	94	95
• Depth	mm	71	97	145

Selection and ordering data

Current measuring range	Operating frequency	Operational voltage		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		At 50 Hz At AC	At 60 Hz At AC						
A	Hz	V	V						
Current/voltage measuring modules									
2.4 ... 25	50 ... 60	110 ... 690	110 ... 690	C	6BK1700-3BA60-0AA0		1	1 unit	477
10 ... 100	50 ... 60	110 ... 690	110 ... 690	C	6BK1700-3BA70-0AA0		1	1 unit	477
20 ... 200	50 ... 60	110 ... 690	110 ... 690	C	6BK1700-3BA80-0AA0		1	1 unit	477



6BK1700-3BA60-0AA0

Heating Control Systems

Without Integrated Power Outputs

SIPLUS HCS300I heating controller: Decoupling module

Overview



Decoupling module

A decoupling module must be used:

- When using a current/voltage measuring module, if the supply system is not grounded.
- When using a current measuring module or a current/voltage measuring module when the system bus has reached its maximum current consumption.

If a mixed configuration is planned with temperature module, digital module and current measuring module or current/voltage measuring module, it must be checked first whether a decoupling module is required.

If

$(\text{number (temperature module)} * 2 + \text{number (digital module)} * 1 + \text{number (current measuring module or current/voltage measuring module)} * 4) > 14$,

a decoupling module will be needed.

Example calculation [see system manual "SIPLUS HCS300I heating controller"](#), <http://support.automation.siemens.com/WW/view/en/54439691>.

Note:

For this equation, each module type is weighted with a specific current factor, [see table](#)

Module	Current factor
Temperature modules	2
Digital modules	1
Current measuring module, current/voltage measuring module	4

Benefits

- Electrical separation of the current/voltage measuring module from the previous expansion modules (digital module, temperature module) or a basic unit
- Power supply for a current measuring module or a current/voltage measuring module when the system bus has reached its maximum current consumption

Technical specifications

Type	6BK1700-3BA60-0AA0		
Supply voltage			
Type of electrical connection for supply voltage	Screw terminals		
Type of connectable conductor cross-sections for supply voltage			
• Solid	mm ²	1 x (0.5 ... 4),	
	mm ²	2 x (0.5 ... 2.5)	
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5),	
	mm ²	2 x (0.5 ... 1.5)	
• Finely stranded for AWG cables	AWG	1 x (20 ... 14),	
	AWG	2 x (20 ... 16)	

Type	6BK1700-3BA60-0AA0		
Displays			
Number of status displays	1		
Type of status displays using LEDs	Continuous light: Ready		
Auxiliary circuit			
Design of the power supply	Supply through basic unit		
Dimensions			
• Width	mm	22.5	
• Height	mm	92	
• Depth	mm	115	

Selection and ordering data

Interface version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Decoupling modules

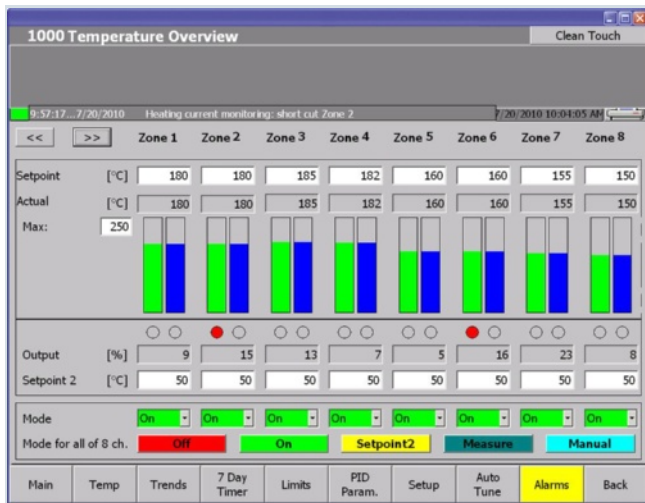
 6BK17004BA40-0AA0	System interface	C	6BK1700-4BA40-0AA0	1	1 unit	477

Heating Control Systems

Without Integrated Power Outputs

**SIPLUS HCS300I heating controller:
TCP 3000 temperature control software (optional)**

Overview



TCP 3000 temperature control software

In order to control SIPLUS HCS300I from the higher-level automation level, a suitable automation system such as a programmable logic controller (PLC) is required. Together with the TCP 3000 temperature control software the result is a powerful automation solution for controlling heating or cooling units.

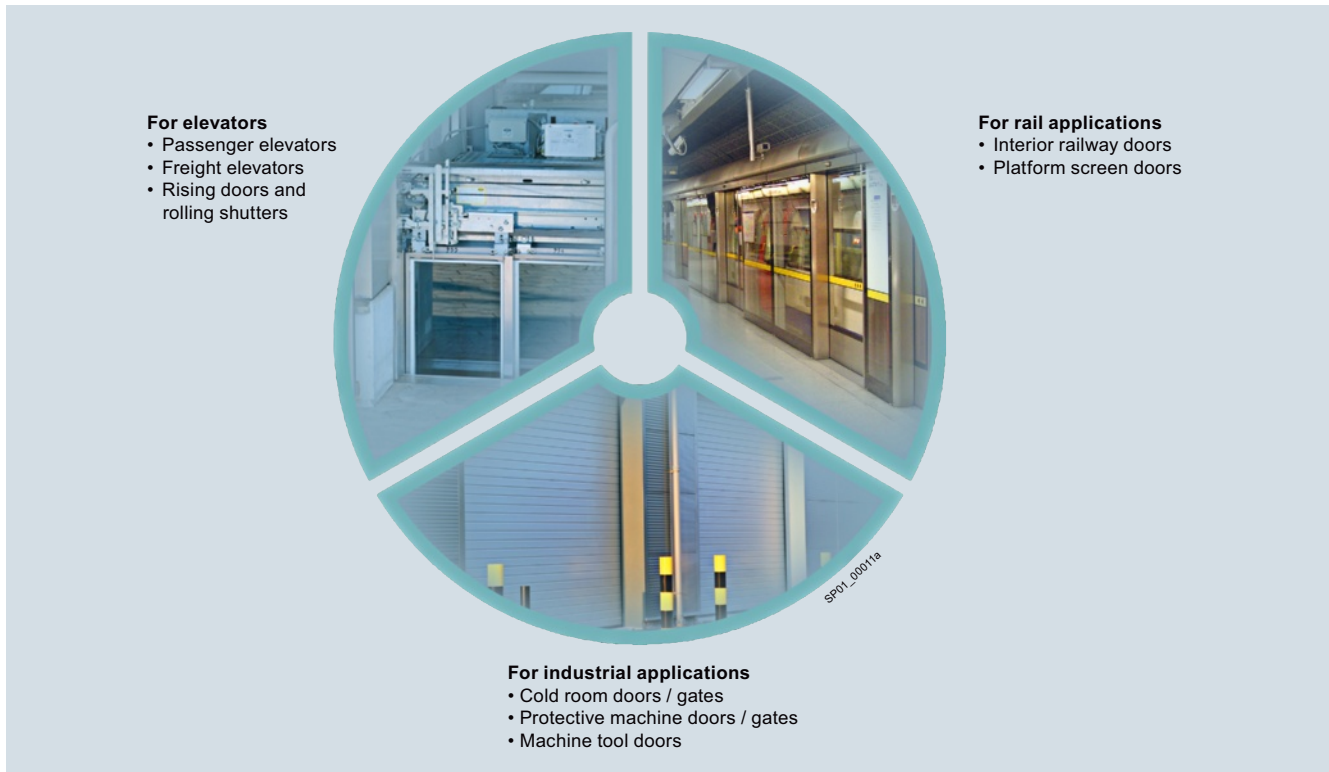
The following licenses can be purchased optionally for the TCP 3000 temperature control software:

- Initial license TCP 3000
Type A4027462-A0443
- Runtime license TCP 3000
Type A4027462-A0444

More information

For more information, please contact your Siemens sales office.

Overview



Automatic door controllers

Design



SIDOOR automatic door control systems

Door control system is the general term for a controller of access systems.

The SIDOOR product family is primarily intended for the operation of sliding doors, whereby these doors can be operated both horizontally and vertically.

Door control systems are characterized by the fact that there are always two defined states for the open and closed position of the door.

The door is always controlled, regulated and operated between these positions according to the guidelines of the respective application.

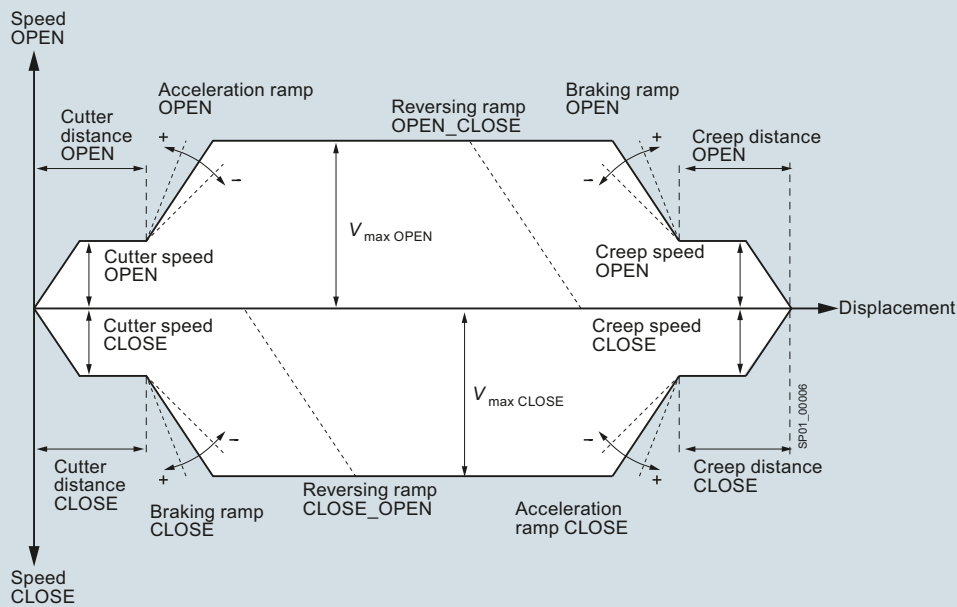
In a defined learn run via "1-button operation", the door system independently determines the values for the door width, the dynamic door weight and the drive direction of the geared motor and stores these data in a non-volatile memory.

The optimum travel behavior at the door is automatically calculated and consistently adhered to.

The travel curve transitions are rounded off so that the door movement is smooth and jerk-free.

Automatic Door Controls

General data



Creep speed	Reduced speed in the vicinity of the OPEN position of the elevator door (creep distance)
Cutter speed	Reduced speed in the vicinity of the CLOSED position of the elevator door (cutter distance)
Creep distance	Range of door travel in the vicinity of the OPEN position
Cutter distance	Range of door travel in the vicinity of the CLOSED position
V_{max}	Maximum permissible door speed

Reversing ramp OPEN_CLOSE	Travel reverses from the OPEN to the CLOSE direction
Reversing ramp CLOSE_OPEN	Travel reverses from the CLOSE to the OPEN direction

Note:

When reversing from the open to the close direction, the door is braked with the reversing ramp OPEN_CLOSE, and starts the closing movement with the acceleration ramp CLOSE.

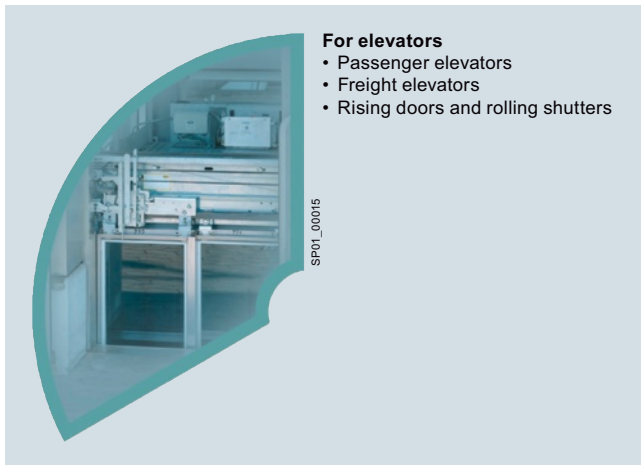
Travel curve

Automatic Door Controls

For Elevators

General data

Overview



For elevators

- Passenger elevators
- Freight elevators
- Rising doors and rolling shutters

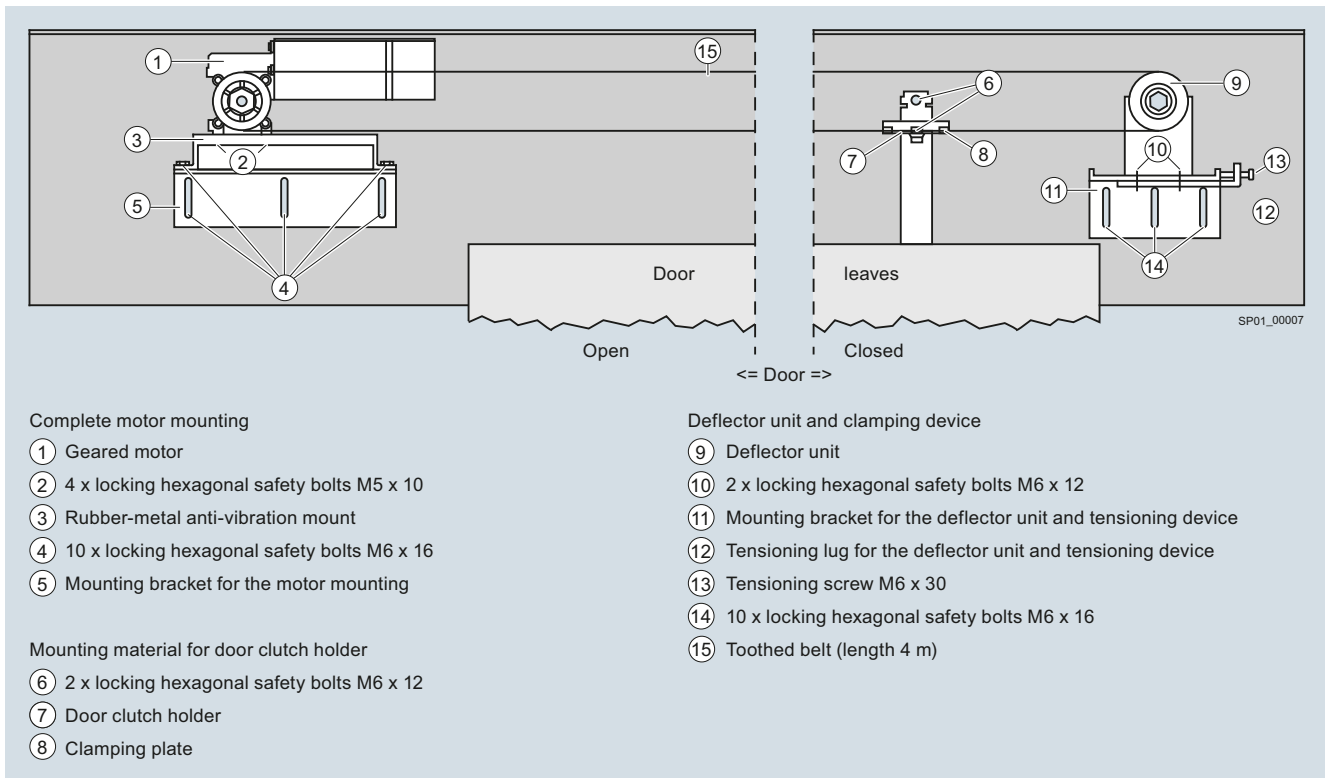
Automatic door controllers for elevators

Overview

The product-specific property of elevator door controllers is based on the fact that the closing weights/closing springs integrated in the shaft doors are also taken into account.

These weights/springs are integrated in the shaft doors so that open doors close automatically if the cabin is not at the relevant floor.

The elevator door drive also serves to move the doors in their opening direction and supports their closing movement.



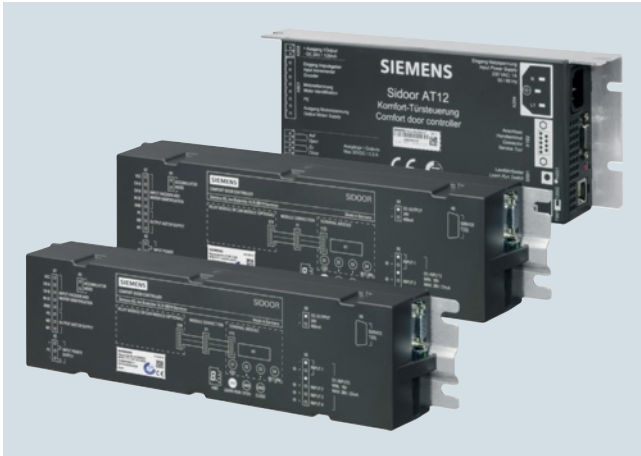
Mounting suggestion for door control systems

Automatic Door Controls

For Elevators

Control devices

Overview



Control devices SIDOOR AT12, SIDOOR AT40 and SIDOOR ATD400V

SIDOOR control devices are electronic controllers that are connected to the power supply via an internal or external power supply unit and can operate one or more application-specific motors. They are generally connected to the higher-level controller via digital or serial interfaces and can be configured via a user interface.

More information

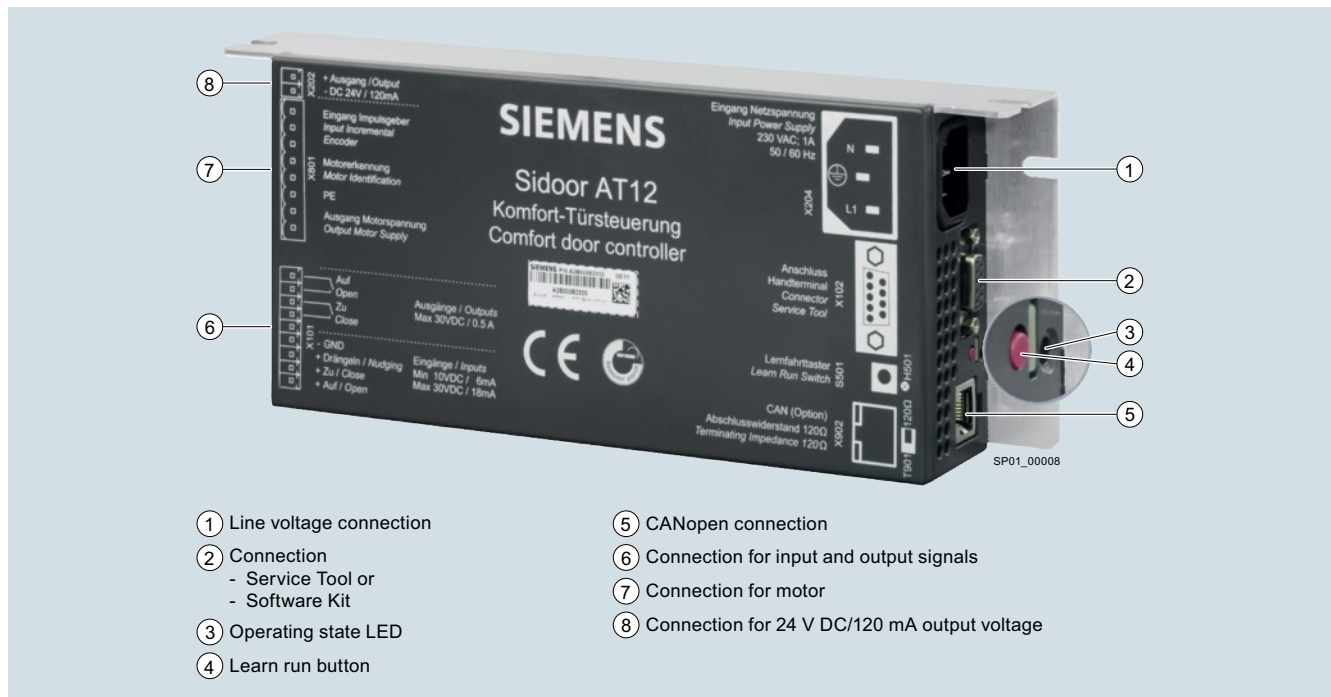
For an overview of elevator door control devices SIDOOR AT12, SIDOOR AT40 and SIDOOR ATD400V [see page 15/7](#).

Automatic Door Controls

For Elevators

Control devices:
SIDOOR AT12 elevator door drive

Overview



SIDOOR AT12 elevator door drive

SIDOOR AT12 – SIDOOR enables the quick, easy and flexible movement, installation and configuration of a wide range of elevator door systems.

- For dynamic door weights up to 120 kg
- 4 kg maximum counterweight
- Operating temperature 0 to +50 °C

- Opening width 0.3 to 2.4 m
- Integrated switch-mode power supply
- Auxiliary voltage output 24 V DC, 120 mA (short-circuit-proof)
- CANopen interface (integrated in the control device)
- Degree of protection IP20

Benefits

- 1-button operation for the entire commissioning process
- Optimum and stable drive characteristics
- Reduced service requirements and costs
- SIDOOR user software (part of the Software Kit, not included in the scope of supply, [see page 15/111](#)) enables user-friendly operation and detailed diagnostics.

- Small footprint thanks to compact design
- Automated functions for enhanced safety

Application

The SIDOOR AT12 comfort elevator door drive is an intelligent door control system which enables the opening and closing of cabin and shaft doors at adjustable speeds and accelerations.

The maintenance-free, variable speed drive unit comprises a DC motor with non-self-locking gearing. The SIDOOR M2 geared motor (24 V DC/1.8 A; motor for max. total door weight of 120 kg) must be ordered separately [see page 15/115](#).

Operation of the door drive does not require a limit switch. The door width and the "OPEN" / "CLOSED" positions are determined automatically.

The current operating states are indicated via an LED with a flashing code integrated in the SIDOOR AT12 elevator door drive or externally via the Service Tool, [see page 15/112](#).

Power transmission is via a toothed belt, which passes over a guide pulley and can be fitted with two door clutch holders. These accessories are not included in the scope of supply [see page 15/116 onward](#).

This enables it to drive both single-sided and centrally opening doors.

Automatic Door Controls

For Elevators

Control devices:
SIDOOR AT12 elevator door drive

Design

The SIDOOR AT12 elevator door drive system consists of several components:

Version	Type	Page
Control devices		
SIDOOR AT12 elevator door drive (with integrated switch-mode power supply)	6FB1111-1AT20-1AT1	15/101
The following individual components are ordered separately:		
Additional Units to enable the universal use and maintenance of the door drive system		
• Software Kit	6FB1105-0AT01-6SW0	15/111
• Service Tool	6FB1105-0AT01-6ST0	15/112
DC geared motors		
• SIDOOR M2 geared motor (max. door weight of 120 kg)	6FB1103-0AT1.-5MA0	15/115
Accessories for the complete system Also see overview diagram, page 15/97		
• Rubber-metal anti-vibration mount for low-noise operation of the door drive system - for the SIDOOR M2 geared motor	6FB1104-0AT02-0AD0	15/116
• Mounting bracket - for the SIDOOR M2 geared motor for flexible accommodation of the rubber-bonded metal - for the deflector unit for the toothed belt to be set to the required belt tension	6FB1104-0AT01-0AS0	15/117
	6FB1104-0AT02-0AS0	15/117
• Door clutch holder for connecting the respective door leaf by means of a toothed belt	6FB1104-0AT01-0CP0	15/117
• Deflector unit for the toothed belt STS for attaching to the door system	6FB1104-0AT03-0AS0	15/117
• Toothed belt STS as connection between the door system and the final positions of the door - 4 m long - 45 m long	6FB1104-0AT01-0AB0 6FB1104-0AT02-0AB0	15/117 15/117

Configuration

During initial commissioning, please note the following:

- For mechanical installation and configuration, see
 - "SIDOOR AT12 Elevator Door Drive" Manual, <http://support.automation.siemens.com/WW/view/en/58497029>
 - "SIDOOR AT12 Elevator Door Drive – Manufacturer-Specific CANopen Objects" Compact User Manual, <http://support.automation.siemens.com/WW/view/en/59004938>
- Electrical configuration and commissioning:
 - Push the door into the "CLOSED" position
 - Plug in the motor connector
 - Plug in the power plug
 - Press and hold the learn run button
 - Switch on line voltage
 - The learn run starts automatically; the learn run button can be released when the door starts moving.
 - On completion of the learn run, the door is in the "CLOSED" position and the LED shows a steady green light.
 - Briefly press the learn run button to open the door fully.
 - Press the button again when the door is in its "OPEN" end position to fully close the door.

Programming

The Software Kit is available as an additional unit (see page 15/111) and allows quick and easy updating of the firmware using the Siemens HCS12 Firmware Loader.

User-friendly parameter setting and oscilloscope function is carried out via the SIDOOR User Software (part of the Software Kit).

Automatic Door Controls

For Elevators

Control devices:
SIDOOR AT12 elevator door drive

Technical specifications

Type	6FB1111-1AT20-1AT1	
General data		
Supply voltage at AC	V	230
Relative symmetrical tolerance of the supply voltage	%	15
Supply voltage frequency		
• At AC	Hz	50 ... 60
Input voltage		
• Per DC input	V	10 ... 28
Input current		
• Per DC input	mA	6 ... 18
Product feature		
• Control inputs isolated		Yes
• Control inputs p-switching		Yes
Output current at 24 V DC output, maximum	mA	120
Property of the 24 V DC output		
• Note		CAUTION: Do not supply with external voltage!
• Short-circuit-proof		Yes
• Overload-proof		Yes
Switching capacity current of the output relay at 30 V		
• At DC	mA	10 ... 500
Opening width of door	m	0.3 ... 2.4

Type	6FB1111-1AT20-1AT1	
Counterweight for M2 motor, max.	kg	4
Ambient temperature		
• During operation	°C	0 ... 50
• During storage	°C	-20 ... +85
IP degree of protection		IP20
Relative humidity		
• No condensation	%	--
Dimensions		
• Width	mm	260
• Height	mm	45
• Depth	mm	105
Standards		
Type of inspection TUV prototype tested	Yes	
Certificate of suitability		
• According to EN 81	Yes	
• CE marking	Yes	
Standard		
• For EMC	EN 12015/EN 12016	
• For safety	IEC 60950-1:2006	
Standard for communication interfaces CANopen, CiA standard 301, profile 417	Yes	

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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SIDOOR AT12 elevator door drive



6FB1111-1AT20-1AT1

SIDOOR AT12 control device
with integrated switch-mode power supply

C 6FB1111-1AT20-1AT1 1 1 unit 478

More information

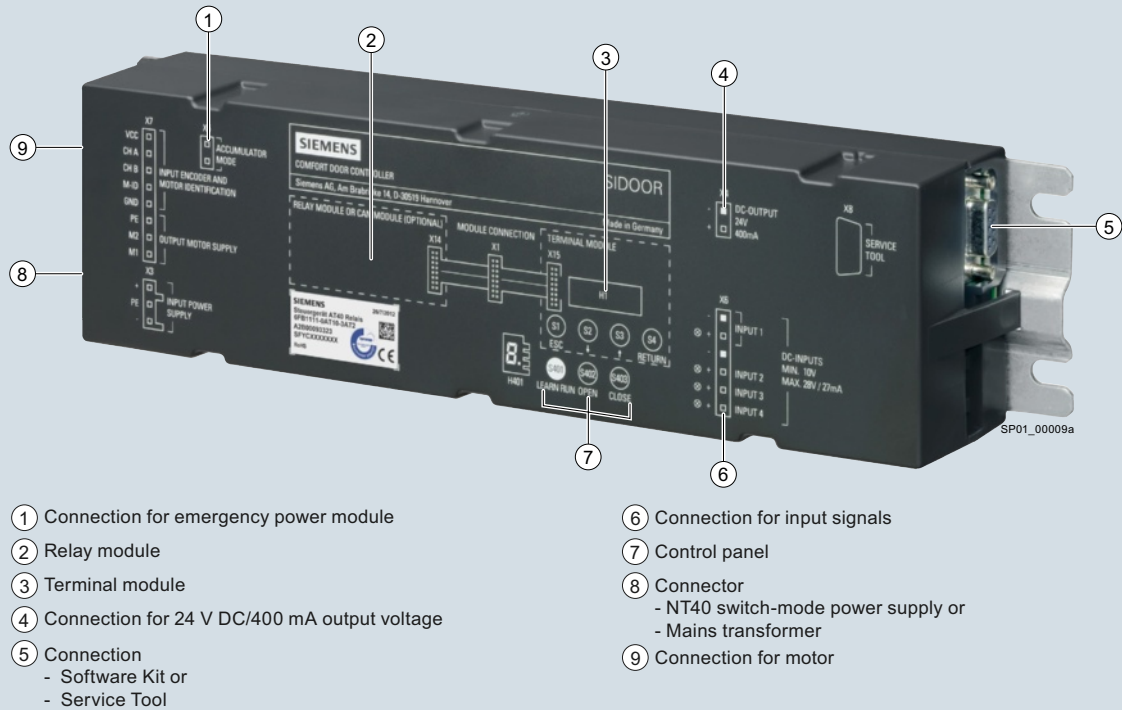
For further product details, see

- "SIDOOR AT12 Elevator Door Drive" Manual,
<http://support.automation.siemens.com/WW/view/en/58497029>
- "SIDOOR AT12 Elevator Door Drive – Manufacturer-specific CANopen Objects" Compact User Manual,
<http://support.automation.siemens.com/WW/view/en/59004938>
- "SIDOOR Software Kit" Installation Instructions,
<http://support.automation.siemens.com/WW/view/en/58572351>

For Elevators

Control devices: SIDOOR AT40 elevator door drive

Overview



SIDoor AT40 elevator door drive (relay module version)

SIDoor AT40 – SIDoor enables the quick, easy and flexible movement, installation and configuration of a wide range of elevator door systems.

- Version:
 - Relay module
 - CAN module
- For dynamic door weights up to 400 kg
- Automatic door weight detection
- 4 to 8 kg maximum counterweight (depending on motor version)
- Operating temperature -20 to +50 °C
- Flexible motor management (three different motor types), automatic detection

- Opening width 0.3 to 4 m
- Emergency power input via special emergency power module
24 V DC $\pm$ 15 %
- Auxiliary voltage output 24 V DC $\pm$ 15 %; 0.4 A
(short-circuit-proof)
- Output stage short-circuit-proof
- Supports power-optimized operation in the elevator cabin
- Vandal-proof
- Degree of protection IP54 for 180 to 400 kg motor versions,
gear unit IP40

Benefits

- 1-button operation for the entire commissioning process
- Optimum and stable drive characteristics
- Reduced service requirements and costs
- SIDAOR User Software (part of the Software Kit, not included in the scope of supply, [see page 15/111](#)) enables user-friendly operation and detailed diagnostics.
- Integrated terminal module enables simple setup and diagnostics via an event and statistics memory
- Small footprint thanks to compact design
- Automated functions for enhanced safety

Automatic Door Controls

For Elevators

Control devices:
SIDOOR AT40 elevator door drive

Application

The SIDOOR AT40 comfort elevator door drive is an intelligent door control system which enables the opening and closing of cabin and shaft doors at adjustable speeds and accelerations.

The maintenance-free, variable speed drive unit comprises a DC motor with non-self-locking gearing.

Three different motors are available:

- SIDOOR M2 geared motor (24 V DC/1.8 A; motor for max. overall door leaf weight of 120 kg)
- SIDOOR M3 geared motor (30 V DC/4.0 A; motor for max. overall door leaf weight of 180 kg)
- SIDOOR M4 geared motor (30 V DC/4.0 A; motor for max. overall door leaf weight of 400 kg)

These must be ordered separately, [see page 15/115](#).

Operation of the door drive does not require a limit switch. The door width and the "OPEN/CLOSED" positions are determined automatically.

The current operating states are indicated by a 7-segment display directly in the SIDOOR AT40 elevator door drive. They can also be displayed externally with the aid of the Software Kit or Service Tool, [see page 15/111 onward](#).

Power transmission is via a toothed belt, which passes over a deflector unit and can be fitted with two door clutch holders. These accessories are not included in the scope of supply, [see page 15/116 onward](#).

This enables it to drive both single-sided and centrally opening doors.

Design

The SIDOOR AT40 elevator door drive system consists of several components:

Version	Type	Page
Control devices		
SIDOOR AT40 elevator door drive (incl. terminal module and relay or CAN module)		
• Relay module	6FB1111-0AT10-3AT2	15/105
• CAN module	6FB1111-1AT10-3AT3	15/105
The following individual components must be ordered separately:		
Power supplies		
• Mains transformer	6FB1112-0AT20-2TR0	15/109
• NT40 switch-mode power supply	6FB1112-0AT20-3PS0	15/110
Additional units to enable the universal use and maintenance of the door drive system		
• Software Kit	6FB1105-0AT01-6SW0	15/111
• Service Tool	6FB1105-0AT01-6ST0	15/112
• Emergency power module	6FB1115-0AT10-4CP0	15/113
DC geared motors		
• SIDOOR M2 geared motor (max. door weight of 120 kg)	6FB1103-0AT1.-5MA0	15/115
• SIDOOR M3 geared motor (max. door weight of 180 kg)	6FB1103-0AT1.-4MB0	15/115
• SIDOOR M4 geared motor (max. door weight of 400 kg)	6FB1103-0AT1.-3MC0	15/115
Accessories for the complete system Also see overview diagram, page 15/97		
• Rubber-metal anti-vibration mount for low-noise operation of the door drive system - For the SIDOOR M2 and SIDOOR M3 geared motors - For the SIDOOR M4 geared motor	6FB1104-0AT02-0AD0 6FB1104-0AT01-0AD0	15/116 15/116
• Mounting bracket - For the SIDOOR M2 to SIDOOR M4 geared motors for flexible accommodation of the rubber-bonded metal - For the deflector unit for the toothed belt to be set to the required belt tension	6FB1104-0AT01-0AS0 6FB1104-0AT02-0AS0	15/117 15/117
• Door clutch holder for connecting the respective door leaf by means of a toothed belt	6FB1104-0AT01-0CP0	15/117
• Deflector unit for the toothed belt STS for attaching on the door system	6FB1104-0AT03-0AS0	15/117
• Toothed belt STS as connection between the door system and the final positions of the door - 4 m long - 45 m long	6FB1104-0AT01-0AB0 6FB1104-0AT02-0AB0	15/117 15/117

Automatic Door Controls

For Elevators

Control devices: SIDOOR AT40 elevator door drive

Configuration

During initial commissioning, please note the following:

- For mechanical installation and configuration, see
 - "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>
 - "SIDOOR Elevator Door Drive AT40 – Manufacturer-specific CANopen Objects" Compact User Manual, <http://support.automation.siemens.com/WW/view/en/58992020>
- Electrical configuration and commissioning:
 - Push the door into the "CLOSED" position
 - Open the device cover
 - Plug in the motor connector
- Connect NT40 switch-mode power supply to 230 V AC mains supply
- Press and hold the learn run button
- Connect NT40 switch-mode power supply output to input of the SIDOOR AT40 elevator door drive
- The learn run starts automatically and the learn run button can be released
- On completion of the learn run, the door is in the "CLOSED" position and the 7-segment display indicates "u"
- The door can now be moved via the "OPEN" and "CLOSED" buttons with the default profile

Programming

The Software Kit is available as an additional unit (see page 15/111) and allows quick and easy updating of the firmware using the Siemens HCS12 Firmware Loader.

User-friendly parameter setting and oscilloscope function is carried out via the SIDOOR user software (part of the Software Kit).

Technical specifications

Type		6FB1111-0AT10-3AT2	6FB1111-1AT10-3AT3
General data			
Supply voltage at DC	V	36	
Relative positive tolerance of the supply voltage	%	3	
Input voltage			
• Per DC input	V	10 ... 28	
Input current			
• Per DC input	mA	9 ... 27	
Product feature			
• Control inputs isolated		Yes	
• Control inputs p-switching		Yes	
Output current at 24 V DC output, maximum	mA	400	
Property of the 24 V DC output			
• Note		CAUTION: Do not supply with external voltage!	
• Short-circuit-proof		Yes	
Product expansion, optional		Emergency power module	
Switching capacity current of output relay			
• At 230 V			
- At AC	mA	10 ... 1 000	
• At 50 V			
- At DC	mA	10 ... 1 000	
Opening width of door	m	0.3 ... 4	
Counterweight			
• For M2 motor max.	kg	4	
• For M3 motor max.	kg	6	
• For M4 motor max.	kg	8	
Ambient temperature			
• During operation	°C	-20 ... +50	
• During storage	°C	-40 ... +50	
IP degree of protection		IP20	
Relative humidity			
• No condensation	%	10 ... 93	
Dimensions			
• Width	mm	320	
• Height	mm	60	
• Depth	mm	80	
Standards			
Type of inspection TÜV prototype tested		Yes	
Certificate of suitability			
• According to EN 81		Yes	
• CE marking		Yes	
Standard			
• For EMC		EN 12015/EN 12016	
• For safety		IEC 60950-1:2006	
Standard for communication interfaces CANopen, CiA standard 301, profile 417		No	Yes

Automatic Door Controls

For Elevators

Control devices:
SIDOOR AT40 elevator door drive

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIDOOR AT40 elevator door drive						
 6FB1111-0AT10-3AT2	C	6FB1111-0AT10-3AT2		1	1 unit	478
 6FB1111-1AT10-3AT3	C	6FB1111-1AT10-3AT3		1	1 unit	478

More information

For further product details, see

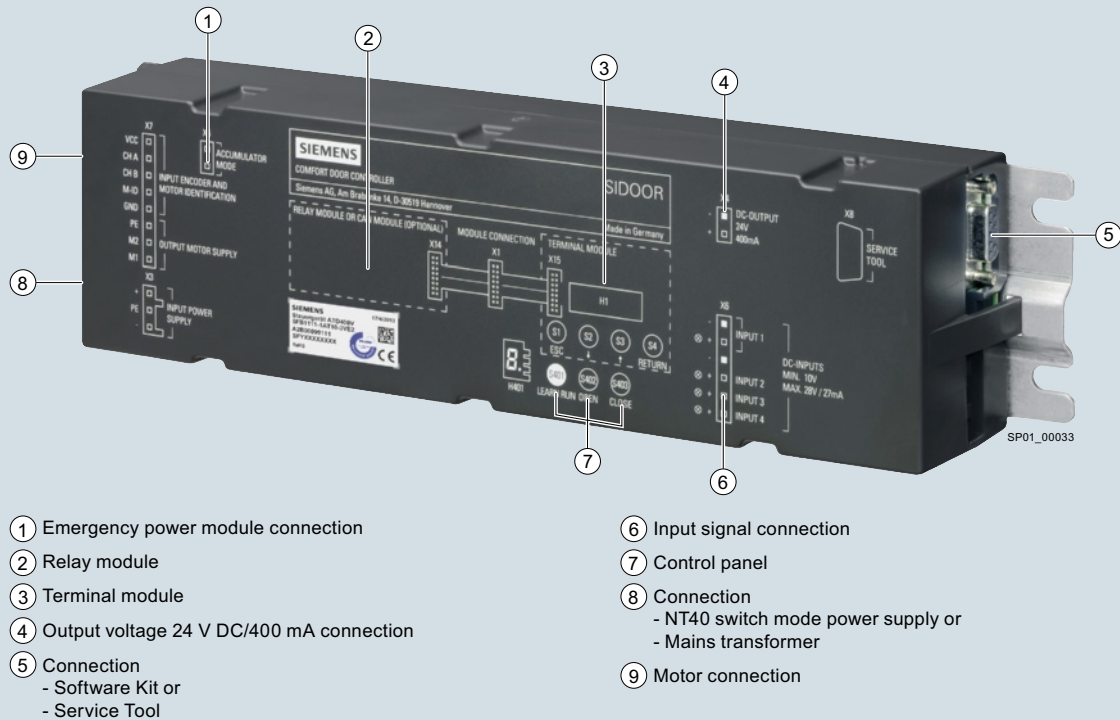
- "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>
- "SIDOOR Elevator Door Drive AT40 – Manufacturer-specific CANopen Objects" Compact User Manual, <http://support.automation.siemens.com/WW/view/en/58992020>
- "SIDOOR Software Kit" Installation Instructions, <http://support.automation.siemens.com/WW/view/en/58572351>

Automatic Door Controls

For Elevators

Control devices:
SIDOOR ATD400V elevator door drive

Overview



SIDOOR ATD400V elevator door drive

SIDOOR ATD400V – the SIDOOR ATD400V elevator door drive enables the quick, easy and versatile installation, configuration and operation of vertical elevator door systems, such as rising doors and roller shutters.

- Relay module design
- For dynamic door weights up to 400 kg
- Automatic door weight detection
- Operating temperature -20 to +50 °C
- Opening width 0.3 to 4 m

- Emergency power input via special emergency power module 24 V DC $\pm$ 15 %
- Auxiliary voltage output 24 V DC $\pm$ 15 %; 0.4 A (short-circuit-proof)
- Output stage short-circuit-proof
- Vandal-proof
- Degree of protection:
 - Motor IP54
 - Gear unit, IP40

Benefits

- 1-button operation for the entire commissioning process
- Optimum and stable drive characteristics
- Reduced service requirements and costs
- SIDOOR User Software (part of the Software Kit, not included in the scope of supply, [see page 15/111](#)) enables user-friendly operation and detailed diagnostics.

- Integrated terminal module enables simple setup and diagnostics via an event and statistics memory
- Integrated relay module for the "OPEN" position, "CLOSED" position and "Reversing" functions
- Small footprint thanks to compact design
- Automated functions for enhanced safety

Application

The SIDOOR ATD400V elevator door drive for rising doors and rolling shutters is an intelligent door control system that enables the operation of vertical door systems on elevators at adjustable speeds and accelerations.

The maintenance-free, variable speed drive unit comprises a DC motor with non-self-locking gearing. The SIDOOR M4 geared motor (30 V DC/4.0 A; motor for max. dynamic door weight of 400 kg) must be ordered separately, [see page 15/115](#).

Operation of the door drive does not require a limit switch. The door width and the "OPEN/CLOSED" positions are determined automatically.

The current operating states are indicated by a 7-segment display directly in the SIDOOR ATD400V elevator door drive. They can also be displayed externally with the aid of the Software Kit or Service Tool, [see page 15/111 onward](#).

Power transmission is via a toothed belt, which passes over a deflector unit and can be fitted with two door clutch holders. These accessories are not included in the scope of supply, [see page 15/116 onward](#).

Automatic Door Controls

For Elevators

Control devices:
SIDOOR ATD400V elevator door drive

Design

The SIDOOR ATD400V elevator door drive system consists of several components:

Version	Type	Page
Control devices		
SIDOOR ATD400V elevator door drive (incl. terminal module and relay module)	6FB1111-1AT10-3VE2	15/108
The following individual components must be ordered separately:		
Power supplies		
• Mains transformer	6FB1112-0AT20-2TR0	15/109
• NT40 switch-mode power supply	6FB1112-0AT20-3PS0	15/110
Additional units to enable the universal use and maintenance of the door drive system		
• Software Kit	6FB1105-0AT01-6SW0	15/111
• Service Tool	6FB1105-0AT01-6ST0	15/112
• Emergency power module	6FB1115-0AT10-4CP0	15/113
DC geared motors		
• SIDOOR M4 geared motor (max. door weight of 400 kg)	6FB1103-0AT1.-3MC0	15/115
Accessories for the complete system <i>Also see overview diagram, page 15/97</i>		
• Rubber-metal anti-vibration mount for low-noise operation of the door drive system - For the SIDOOR M4 geared motor	6FB1104-0AT01-0AD0	15/116
• Mounting bracket - for the SIDOOR M4 geared motor for flexible accommodation of the rubber-bonded metal - For the deflector unit for the toothed belt to be set to the required belt tension	6FB1104-0AT01-0AS0	15/117
• Door clutch holder for connecting the respective door leaf by means of a toothed belt	6FB1104-0AT02-0AS0	15/117
• Deflector unit for the toothed belt STS for attaching on the door system	6FB1104-0AT01-0CP0	15/117
• Toothed belt STS as connection between the door system and the final positions of the door - 4 m long - 45 m long	6FB1104-0AT03-0AS0	15/117
	6FB1104-0AT01-0AB0 6FB1104-0AT02-0AB0	15/117 15/117

Configuration

During initial commissioning, please note the following:

- Mechanical installation and configuration [see "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>](#)
- Electrical configuration and commissioning:
 - Push the door into the "CLOSED" position
 - Open the device cover
 - Plug in the motor connector
 - Connect NT40 switch-mode power supply to 230 V AC mains supply
 - Press and hold the learn run button
 - Connect NT40 switch-mode power supply output to input of the SIDOOR ATD400V elevator door drive
 - The learn run starts automatically and the learn run button can be released.
 - On completion of the learn run, the door is in the "CLOSED" position and the 7-segment display indicates "u".
 - The door can now be moved via the "OPEN" and "CLOSED" buttons with the default profile.

Programming

The Software Kit is available as an additional unit ([see page 15/111](#)) and allows quick and easy updating of the firmware using the Siemens HCS12 Firmware Loader.

User-friendly parameter setting and oscilloscope function is carried out via the SIDOOR user software (part of the Software Kit).

Automatic Door Controls

For Elevators

Control devices:
SIDOOR ATD400V elevator door drive

Technical specifications

Type	6FB1111-1AT10-3VE2	
General data		
Supply voltage at DC	V	36
Relative positive tolerance of the supply voltage	%	3
Input voltage		
• Per DC input	V	10 ... 28
Input current		
• Per DC input	mA	9 ... 27
Product feature		
• Control inputs isolated		Yes
• Control inputs p-switching		Yes
Output current at 24 V DC output, maximal	mA	400
Property of the 24 V DC output		
• Note		CAUTION: Do not supply with external voltage!
• Short-circuit-proof		Yes
Product expansion optional		Emergency power module
Switching capacity current of output relay		
• At 230 V		
- At AC	mA	10 ... 1 000
• At 50 V		
- At DC	mA	10 ... 1 000

Type	6FB1111-1AT10-3VE2	
Opening width of door	m	0.3 ... 4
Ambient temperature		
• During operation	°C	-20 ... +50
• During storage	°C	-40 ... +50
IP degree of protection		IP20
Relative humidity		
• No condensation	%	10 ... 93
Dimensions		
• Width	mm	320
• Height	mm	60
• Depth	mm	80
Standards		
Type of inspection		Yes
TÜV prototype tested		
Certificate of suitability		
• According to EN 81		Yes
• CE marking		Yes
Standard		
• For EMC		EN 12015/EN 12016
• For safety		IEC 60950-1:2006
Standard for communication interfaces CANopen, CiA standard 301, profile 417		No

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIDOOR ATD400V elevator door drive						
 6FB1111-1AT10-3VE2	SIDOOR ATD400V controller relay, vertical rising door/rolling shutter					
	C	6FB1111-1AT10-3VE2		1	1 unit	478

More information

For further product details, see

- "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>
- "SIDOOR Software Kit" Installation Instructions, <http://support.automation.siemens.com/WW/view/en/58572351>

Automatic Door Controls

For Elevators

Power supplies

Overview

SIDOOR power supplies connect the control devices to the respective country-specific power supply.

These power supplies can be used for the various SIDOOR control devices:

Mains transformer

- SIDOOR AT40 and SIDOOR ATD400V elevator door drives
- SIDOOR ATD400K cold room gate drives and SIDOOR ATD400W machine tool door drive
- SIDOOR ATD400S platform screen door drive

NT40 switch-mode power supply

- SIDOOR AT40 and SIDOOR ATD400V elevator door drives
- SIDOOR ATD400W machine tool door drive
- SIDOOR ATD400S platform screen door drive

Power supplies: Mains transformer

Overview



Mains transformer 6FB1112-0AT20-2TR0

The mains transformer is a standard power supply unit operated with 230 V AC ($\pm 15\%$) 50/60 Hz from the SIDOOR product range and can be used for all control devices that do not have an integrated power supply unit. The SIDOOR AT12 elevator door drive, for example, has an integrated power supply unit.

Technical specifications

Type	6FB1112-0AT20-2TR0	
General data		
Supply voltage at AC	V	230
Relative symmetrical tolerance of the supply voltage	%	15
Supply voltage frequency		
• At AC	Hz	50 ... 60
Operational current of protection at input during installation, max.	A	10
IP degree of protection		IP54
Output current maximum rated value	A	15.9
Dimensions		
• Height	mm	65
Standards		
Standard		
• For EMC		EMC directive 2004/108/EC, EN 12015, EN 12016

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Mains transformer						
 SIDOOR mains transformer	C	6FB1112-0AT20-2TR0		1	1 unit	478

6FB1112-0AT20-2TR0

More information

For further product details, see

- "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>

Automatic Door Controls

For Elevators

Power supplies: NT40 switch-mode power supply

Overview

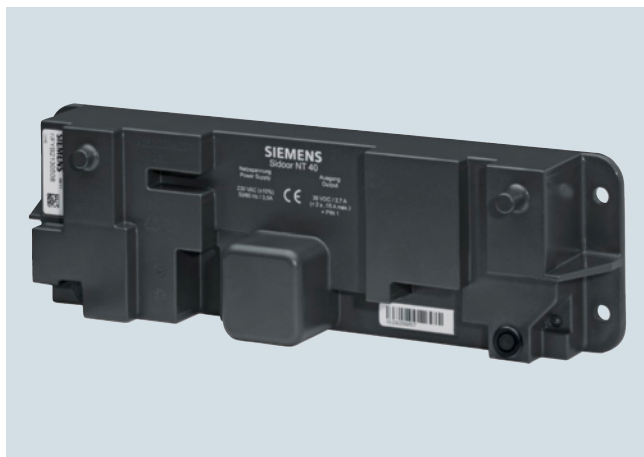
The SIDOOR NT40 switch-mode power supply is operated at 50/60 Hz, 230 V AC (± 15 %) to power the following SIDOOR door controllers:

- SIDOOR AT40 and SIDOOR ATD400V elevator door drives
- SIDOOR ATD400W machine tool door drive
- SIDOOR ATD400S platform screen door drive

It is particularly suited for door systems with high door weights.

On the output side, the power supply unit delivers a voltage of 36 V DC (± 3 %) SELV at a rated output power of < 100 W.

In order to enable fast acceleration/deceleration of the doors by the controller, the device can briefly (< 2 s) deliver a current of 15 A (corresponds to a short-time power output of 540 W).



6FB1112-0AT20-3PS0 NT40 switch-mode power supply

Technical specifications

Type	6FB1112-0AT20-3PS0	
General data		
Supply voltage at AC	V	230
Relative symmetrical tolerance of the supply voltage	%	15
Supply voltage frequency		
• At AC	Hz	47 ... 63
Input current at rated value of input voltage 230 V, rated value	A	0.7
Operational current of protection at input during installation, max.	A	10
Current consumption for 2 s, maximum	A	3.5
Absorbed apparent power, maximum	V·A	650
Efficiency at 100 W emitted active power at 230 V AC	%	90
Equipment protection class	I	
Overvoltage category	2	
IP degree of protection	IP54	
Output voltage for DC rated value	V	36
• Note	SELV	
Output current	A	2.5
Active power input, maximum Rated value	W	100
Temporary overload current for a maximum of 2 s	A	15
Ambient temperature		
• During operation	°C	-20 ... +55
- Note	No direct exposure to the sun	
• During storage	°C	-20 ... +50
• During transport	°C	-40 ... +70
Relative air humidity		
• No condensation	%	10 ... 93
Installation altitude at height above sea level, maximum	m	2 000
Dimensions		
• Width	mm	270
• Height	mm	55
• Depth	mm	80
Standards		
Standard		
• For EMC	EMC directive 2004/108/EC, EN 12015, EN 12016	
• For safety	IEC 60950-1:2006	

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
NT40 switch-mode power supply						
 SIDOOR NT40 switch-mode power supply	C	6FB1112-0AT20-3PS0		1	1 unit	478

6FB1112-0AT20-3PS0

More information

For further product details, see

- "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>

Automatic Door Controls

For Elevators

Additional units

Overview

The additional units from SIDOOR meet a range of customer requirements in order to ensure the universal implementation and maintenance of the system.

These additional units are simple to connect to the de-energized controller via the interfaces provided – and are available for use as soon as the power supply is connected.

Up to three additional units are available for the SIDOOR control devices:

- SIDOOR AT12 elevator door drive
 - Service Tool
 - Software Kit
- SIDOOR AT40 and SIDOOR ATD400V elevator door drives, SIDOOR ATD400K cold room gate drives and SIDOOR ATD400W machine tool door drive, SIDOOR ATD400S platform screen door drive
 - Service Tool
 - Software Kit
 - Emergency power module

Additional units: Software Kit

Overview



SIDOOR Software Kit

The SIDOOR Software Kit enables two functionalities:

- The Siemens HCS Firmware Loader lets you update the operating software of the following control devices, i.e. install new firmware:
 - SIDOOR AT12, SIDOOR AT40 and SIDOOR ATD400V elevator door drives
 - SIDOOR ATD400K cold room gate drives and SIDOOR ATD400W machine tool door drive
 - SIDOOR ATD400S platform screen door drive
- The SIDOOR User Software lets you configure, parameterize and analyze the door control system.

The Software Kit contains a USB adapter for connecting the SIDOOR controller to another device, such as a PC.

Design

The Software Kit consists of:

- SIDOOR User Software: User-friendly parameter adjustment and oscilloscope function
- Siemens HCS12 Firmware Loader: Updating the firmware
- USB adapters: The hardware interface for the control device
- Accessories: Connection cable and manual

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Software Kit						
 SIDOOR Software Kit with USB adapter	C	6FB1105-0AT01-6SW0		1	1 unit	478
6FB1105-0AT01-6SW0						

More information

For further product details, see

- "SIDOOR Software Kit" Installation Instructions, <http://support.automation.siemens.com/WW/view/en/58572351>
- "SIDOOR User Software" Operating Instructions, <http://support.automation.siemens.com/WW/view/en/58572375>

Automatic Door Controls

For Elevators

Additional units: Service Tool

Overview



SIDOOR Service Tool

The Service Tool can be used to input run commands, change run parameters and read out learned parameters, door states, input/output signals and service data.

The Service Tool is connected to the various control devices by the respective cable:

- SDOOR AT12, SDOOR AT40 and SDOOR ATD400V elevator door drives
- SDOOR ATD400K cold room gate drives and SDOOR ATD400W machine tool door drive
- SDOOR ATD400S platform screen door drive

You do not need to open the cover of the control device to do this.

Note:

If the Service Tool is in the "Quick adjustment" or "Total adjustment" menu, the run commands of the control device are blocked via the command inputs.

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Service Tool						
 SDOOR Service Tool 6FB1105-0AT01-6ST0	C	6FB1105-0AT01-6ST0		1	1 unit	478

More information

Further product details, see
 "SIDOOR Service Tool" Compact User Manual,
<http://support.automation.siemens.com/WW/view/en/60136636>.

Automatic Door Controls

For Elevators

Additional units:
Emergency power module

Overview



SIDOOR emergency power module

The emergency power module is connected between the power supply unit and the voltage input of the control devices:

- SDOOR AT40 and SDOOR ATD400V elevator door drives
- SDOOR ATD400K cold room gate drives and SDOOR ATD400W machine tool door drive
- SDOOR ATD400S platform screen door drive

In the event of a power failure, this module switches the power supply from the switch mode power supply to the 24 V DC emergency power supply (battery).

During the switchover, the controller receives the command to reduce the travel speed of the door to initial speed in order to prevent excessive discharging of the connected batteries.

Technical specifications

Type	6FB1115-0AT10-4CP0	
Supply voltage from emergency power supply at DC	V	24
Relative symmetrical tolerance of the supply voltage from emergency power supply	%	15
Current of emergency power supply, rated value	A	1.6
Energy demand for one opening and closing cycle, max.	W·h	2.4
Battery capacity		
• Recommended	A·h	2
• For one opening and closing cycle at 24 V	A·h	0.1
Operating current of fuse protection at input of battery during installation slow-blow	A	6
Ambient temperature		
• During operation	°C	-20 ... +50
• During storage	°C	-40 ... +50
Dimensions		
• Width	mm	105
• Height	mm	35
• Depth	mm	71

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Emergency power module						
SIDOOR emergency power module	C	6FB1115-0AT10-4CP0		1	1 unit	478



6FB1115-0AT10-4CP0

More information

For further product details see "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>.

Automatic Door Controls

For Elevators

Geared motors

Overview

SIDOOR geared motors are a combination of gear unit, motor, and sensor. They are easy to connect to the controller via the interface provided and are automatically detected during commissioning.

The maintenance-free, variable speed drive unit comprises a DC motor with non-self-locking gearing.

The geared motors must be selected according to the dynamic door weight. There are two different versions each of the SIDOOR M2 to M4 geared motors respectively:

- SIDOOR M2 geared motors (max. door weight of 120 kg)
 - Pinion left 6FB1103-0AT10-5MA0
 - Pinion right 6FB1103-0AT11-5MA0
- SIDOOR M3 geared motors (max. door weight of 180 kg)
 - Pinion left 6FB1103-0AT10-4MB0
 - Pinion right 6FB1103-0AT11-4MB0
- SIDOOR M4 geared motors (max. door weight of 400 kg)
 - Pinion left 6FB1103-0AT10-3MC0
 - Pinion right 6FB1103-0AT11-3MC0

The gear outlet direction is defined as left or right when viewing the gear unit from the front.



Picture below:
SIDOOR M2 geared motor 6FB1103-0AT10-5MA0 (pinion left)

Picture center:
SIDOOR M3 geared motor 6FB1103-0AT10-4MB0 (pinion left)

Picture above:
SIDOOR M4 geared motor 6FB1103-0AT10-3MC0 (pinion left)

Technical specifications

Type		6FB1103-0AT10-5MA0, 6FB1103-0AT11-5MA0	6FB1103-0AT10-4MB0, 6FB1103-0AT11-4MB0	6FB1103-0AT10-3MC0, 6FB1103-0AT11-3MC0
Product designation		SIDOOR geared motors M2	M3	M4
Supply voltage at DC	V	24	30	30
Velocity maximum	m/s	0.5	0.65	0.75
IP degree of protection				
• Of gear unit		IP20	IP40	IP40
• Of motor		IP20	IP54	IP54
Gear ratio		15	15	15
Number of pulses per revolution, maximum		100	100	100
Operational current rated value	A	1.8	4	4
Weight of door, max.	kg	120	180	400
Ambient temperature				
• During operation	°C	-20 ... +50	-20 ... +50	-20 ... +50
• During storage	°C	-40 ... +85	-40 ... +85	-40 ... +85
Dimensions				
• Length of the motor	mm	206.5	236	275
• Height of motor	mm	90	98	115
• Diameter of motor	mm	48	63	63
• Width of gear unit including drive pinion	mm	90	85	105

Automatic Door Controls

For Elevators

Geared motors

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIDOOR M2 geared motors						
 SIDOOR M2 geared motor for max. door weight of 120 kg • With pinion left • With pinion right	C	6FB1103-0AT10-5MA0		1	1 unit	478
	C	6FB1103-0AT11-5MA0		1	1 unit	478
6FB1103-0AT10-5MA0 (version pinion left)						
SIDOOR M3 geared motors						
 SIDOOR M3 geared motor for max. door weight of 180 kg • With pinion left • With pinion right	C	6FB1103-0AT10-4MB0		1	1 unit	478
	C	6FB1103-0AT11-4MB0		1	1 unit	478
6FB1103-0AT10-4MB0 (version pinion left)						
SIDOOR M4 geared motors						
 SIDOOR M4 geared motor for max. door weight of 400 kg • With pinion left • With pinion right	C	6FB1103-0AT10-3MC0		1	1 unit	478
	C	6FB1103-0AT11-3MC0		1	1 unit	478
6FB1103-0AT10-3MC0 (version pinion left)						

Accessories

The following accessories are available for the SIDOOR M2 to SIDOOR M4 geared motors:

- Rubber-metal anti-vibration mount for low-noise door operation
 - 6FB1104-0AT02-0AD0 for SIDOOR M2 and SIDOOR M3 geared motors (door weights up to 180 kg)
 - 6FB1104-0AT01-0AD0 for SIDOOR M4 geared motor (door weights up to 400 kg)
- Mounting bracket 6FB1104-0AT01-0AS0 for the geared motor mount for flexible accommodation of the rubber-bonded metal

Accessories see page 15/116 onwards.

More information

For further product details, see Manuals

- "SIDOOR AT12 Elevator Door Drive",
<http://support.automation.siemens.com/WW/view/en/58497029>
- "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W",
<http://support.automation.siemens.com/WW/view/en/58531074>

Automatic Door Controls

For Elevators

Accessories

Overview

A comprehensive range of accessories is available for the SIDOOR elevator door systems.

This is necessary to ensure low-noise operation of the door by the controller. The geared motors can be optimally integrated into the respective door drive system.

Rubber-metal anti-vibration mounts for geared motors

To ensure low-noise door operation, the SIDOOR geared motors are integrated in the door system using rubber-metal anti-vibration mounts.

- Rubber-metal anti-vibration mount 6FB1104-0AT02-0AD0 for SIDOOR M2 and SIDOOR M3 geared motors (door weights up to 180 kg)
- Rubber-metal anti-vibration mount 6FB1104-0AT01-0AD0 for SIDOOR M4 geared motors (door weights up to 400 kg)

Mounting bracket

Two different mounting brackets are available with elongated holes:

- Mounting bracket 6FB1104-0AT01-0AS0 for the SIDOOR M2 to SIDOOR M4 geared motors for flexible accommodation of the rubber-bonded metal
- Mounting bracket 6FB1104-0AT02-0AS0 for the deflector unit. This enables the toothed belt to be set to the required belt tension.

Door clutch holder

The door clutch holder 6FB1104-0AT01-0CP0 serves to connect the respective door leaf by means of a toothed belt while also functioning as a toothed-belt lock. One door clutch holder per door leaf is required.

The toothed-belt lock can accommodate both open ends of the toothed belt.

Deflector unit

The deflector unit 6FB1104-0AT03-0AS0 contains an embedded belt pulley and can be mounted on the door system.

The toothed belt STS is redirected via this deflector unit.

Toothed belt STS

The door system is moved between the final positions of the door using the toothed belt STS 6FB1104-0AT0.-0AB0. Two different toothed belt lengths are available.

Technical specifications

Rubber-metal anti-vibration mounts for geared motors

Type	6FB1104-0AT02-0AD0	6FB1104-0AT01-0AD0
Product designation	SIDOOR rubber-metal anti-vibration mount For M2, M3 geared motor for door weights up to 180 kg	For M4 geared motor for door weights up to 400 kg
Dimensions		
• Length of the rubber-bonded metal	mm 230	230
• Width of the rubber-bonded metal	mm 78	78
• Height of the rubber-bonded metal	mm 35	78

Mounting bracket

Type	6FB1104-0AT01-0AS0	6FB1104-0AT02-0AS0
Product designation	SIDOOR mounting bracket For geared motor	With tensioning device for deflector pulley
Dimensions		
• Length	mm 230	135
• Width	mm 90	100
• Height	mm 60	60

Door clutch holder

Type	6FB1104-0AT01-0CP0
Dimensions	
• Length	mm 68
• Width	mm 40
• Height	mm 43

Deflector unit

Type	6FB1104-0AT03-0AS0
Dimensions	
• Diameter of belt pulley incl. shoulder ring	mm 61
• Width of belt pulley incl. shoulder ring	mm 25
• Height of holder incl. belt pulley	mm 100
• Width of holder incl. belt pulley	mm 55
• Length of holder	mm 70

Toothed belt STS

Type	6FB1104-0AT01-0AB0	6FB1104-0AT02-0AB0
	STS-S8M	
Length	m 4	45

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Rubber-metal anti-vibration mounts for geared motors

SIDOOR rubber-metal anti-vibration mount
For low-noise operation of the door drive system



6FB1104-0AT02-0AD0

- For M2, M3 geared motor
door weights up to 180 kg

C

6FB1104-0AT02-0AD0

1

1 unit

478



6FB1104-0AT01-0AD0

- For M4 geared motor for
door weights up to 400 kg

C

6FB1104-0AT01-0AD0

1

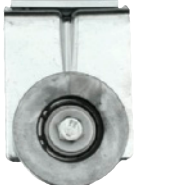
1 unit

478

Automatic Door Controls

For Elevators

Accessories

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Mounting bracket						
 6FB1104-0AT01-0AS0	For geared motors for flexible accommodation of the rubber-bonded metal	C	6FB1104-0AT01-0AS0	1	1 unit	478
 6FB1104-0AT02-0AS0	With take-up for guide pulley for the deflector unit for the toothed belt to be set to the required belt tension	C	6FB1104-0AT02-0AS0	1	1 unit	478
Door clutch holder						
 6FB1104-0AT01-0CP0	SIDOOR door clutch holder For connecting the respective door leaf with the toothed belt	C	6FB1104-0AT01-0CP0	1	1 unit	478
Deflector unit						
 6FB1104-0AT03-0AS0	SIDOOR deflector unit For the toothed belt STS for attaching to the door system	C	6FB1104-0AT03-0AS0	1	1 unit	478
Toothed belt STS						
 6FB1104-0AT01-0AB0	SIDOOR toothed belt STS As connection between the door system and the final positions of the door 4 m long	C	6FB1104-0AT01-0AB0	1	1 unit	478
 6FB1104-0AT02-0AB0	45 m long	C	6FB1104-0AT02-0AB0	1	1 unit	478

More information

Further product details:

- For the rubber-metal anti-vibration mount 6FB1104-0AT02-0AD0 (for SIDOOR M2 and SIDOOR M3 geared motors) see Manuals
 - "SIDOOR AT12 Elevator Door Drive", <http://support.automation.siemens.com/WW/view/en/58497029>
 - "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W", <http://support.automation.siemens.com/WW/view/en/58531074>

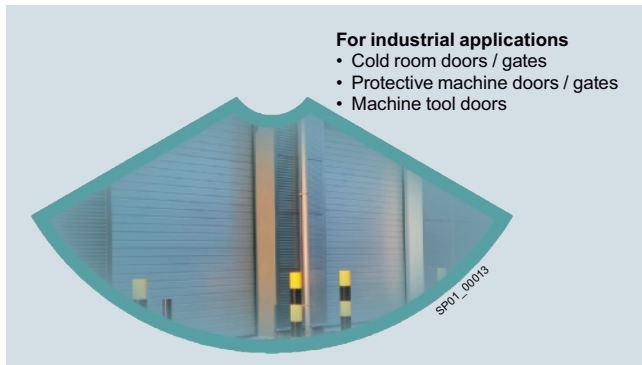
- For the rubber-metal anti-vibration mount 6FB1104-0AT01-0AD0 (for SIDOOR M4 geared motor) see Manual
 - "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W", <http://support.automation.siemens.com/WW/view/en/58531074>
- For mounting bracket, door clutch holder, deflector unit and toothed belt, see Manuals
 - "SIDOOR AT12 Elevator Door Drive", <http://support.automation.siemens.com/WW/view/en/58497029>
 - "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W", <http://support.automation.siemens.com/WW/view/en/58531074>

Automatic Door Controls

For Industrial Applications

General data

Overview



Automatic door controllers for industrial applications

The product-specific application/requirement lies in complying with the special industrial requirements regarding functional safety and the door closing mechanisms. Protective machine doors and power-actuated doors and gates comply with the safety standard ISO 13849-1 (Safety of Machinery and Machinery Directive).

Control devices

Overview

SIDOOR control devices are electronic controllers that are connected to the power supply via an external power supply unit and can operate one or more application-specific motors.

They are generally connected to the higher-level application via digital or serial interfaces and can be configured via a user interface.

More information

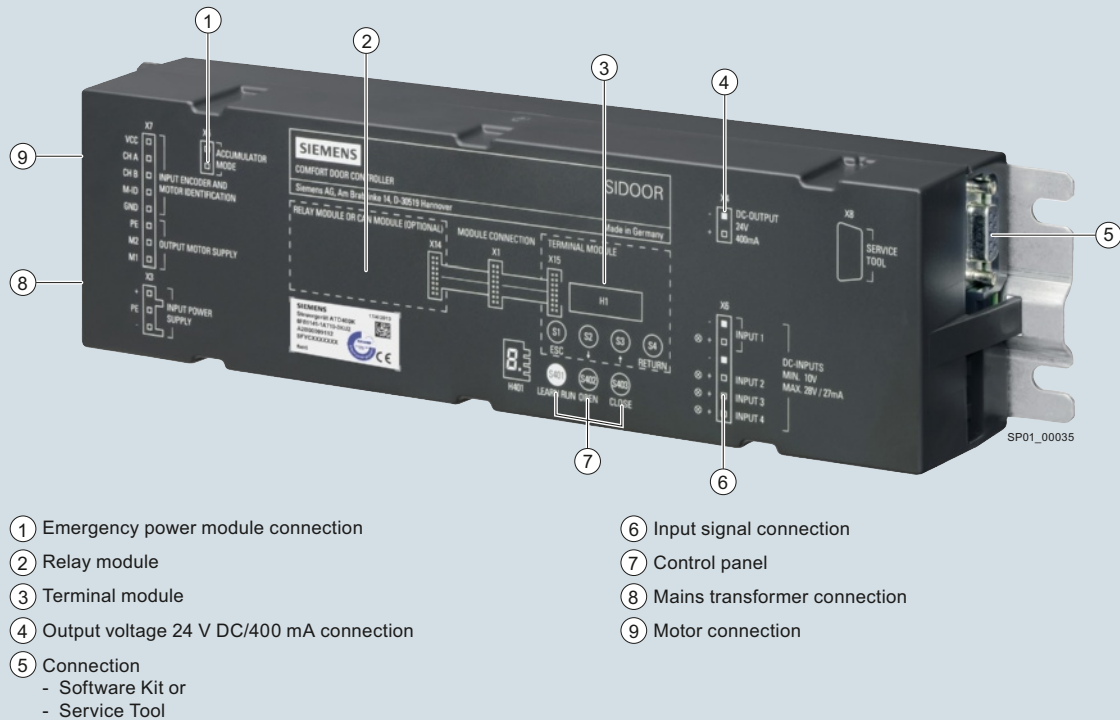
Overview of SIDOOR ATD400K cold room gate drives and SIDOOR ATD400W machine tool door drives, [see page 15/7](#).

Automatic Door Controls

For Industrial Applications

Control devices:
SIDOOR ATD400K cold room gate drive

Overview



SIDOOR ATD400K cold room gate drive (type Basic)

The SIDOOR ATD400K cold room gate drive enables the quick, easy and flexible movement, installation and configuration of a wide range of cold room gate systems.

Two different actuator versions are available, in which digital input 1 is assigned a different functionality.

- Relay module version
 - Type Basic for connection of a light barrier
 - Type 1 for connection of a gate interlock
- For dynamic door weights up to 400 kg
- Automatic door weight detection
- Operating temperature -20 to +50 °C
- Flexible motor management (two different motor types), automatic detection
- Opening width 0.3 to 4 m

- Emergency power input via special emergency power module 24 V DC $\pm$ 15 %
- Auxiliary voltage output 24 V DC $\pm$ 15 %; 0.4 A (short-circuit-proof)
- Output stage short-circuit-proof
- Vandal-proof
- Degree of protection IP54 for 180 to 400 kg motor versions, gear unit IP40
- The "cable-operated switch" function is supported. Pulling the cable opens the door to an adjustable opening width.
- Pulse mode: The function remains active until a new command arrives.
- Hold-open time can be parameterized
- A higher force can be set for the first 10 cm of the opening movement (lifting the gate)

Benefits

- 1-button operation for the entire commissioning process
- Optimum and stable drive characteristics
- Reduced service requirements and costs
- SIDOOR User Software (Part of the Software Kit, not included in the scope of supply, [see page 15/111](#)) enables user-friendly operation and detailed diagnostics
- Integrated terminal module enables simple setup and diagnostics via an event and statistics memory
- Small footprint thanks to compact design
- Automated functions for enhanced safety

Automatic Door Controls

For Industrial Applications

Control devices:
SIDOOR ATD400K cold room gate drive

Application

The SIDOOR ATD400K cold room gate drive is an intelligent door control system which enables cold room gates to be opened and closed at adjustable speeds and accelerations.

The maintenance-free, variable speed drive unit comprises a DC motor with non-self-locking gearing.

Two different motors are available:

- SIDOOR M3 geared motor (30 V DC/4.0 A; motor for max. overall door leaf weight of 180 kg)
- SIDOOR M4 geared motor (30 V DC/4.0 A; motor for max. overall door leaf weight of 400 kg)

These must be ordered separately, [see page 15/115](#).

Operation of the door drive does not require a limit switch. The door width and the "OPEN/CLOSED" positions are determined automatically.

The current operating states are indicated by a 7-segment display directly in the SIDOOR ATD400K cold room gate drive. They can also be displayed externally with the aid of the Software Kit or Service Tool, [see page 15/111 onward](#).

Power transmission is via a toothed belt, which passes over a deflector unit and can be fitted with two door clutch holders. These accessories are not included in the scope of supply, [see page 15/116 onward](#).

This enables it to drive both single-sided and centrally opening doors.

Design

The SIDOOR ATD400K cold room gate drive system is made up of several components:

Version	Type	Page
Control devices		
SIDOOR ATD400K cold room gate drives (including terminal module and relay module)		
• Type Basic supports the light barrier function	6FB1141-1AT10-3KU2	15/122
• Type 1 supports the gate interlock function	6FB1141-1AT11-3KU2	15/122
The following individual components must be ordered separately:		
Power supplies		
• Mains transformer	6FB1112-0AT20-2TR0	15/109
Additional units to enable the universal use and maintenance of the door drive system		
• Software Kit	6FB1105-0AT01-6SW0	15/111
• Service Tool	6FB1105-0AT01-6ST0	15/112
• Emergency power module	6FB1115-0AT10-4CP0	15/113
DC geared motors		
• SIDOOR M3 geared motor (max. door weight of 180 kg)	6FB1103-0AT1.-4MB0	15/115
• SIDOOR M4 geared motor (max. door weight of 400 kg)	6FB1103-0AT1.-3MC0	15/115
Accessories for the complete system Also see overview diagram, page 15/97		
• Rubber-metal anti-vibration mount for low-noise operation of the door drive system	6FB1104-0AT02-0AD0 6FB1104-0AT01-0AD0	15/116
- For the SIDOOR M3 geared motor		15/116
- For the SIDOOR M4 geared motor	6FB1104-0AT01-0AS0	15/117
• Mounting bracket for flexible accommodation of the rubber-bonded metal		15/117
- For the deflector unit	6FB1104-0AT02-0AS0	15/117
- for the toothed belt to be set to the required belt tension		15/117
• Door clutch holder for connecting the respective door leaf by means of a toothed belt	6FB1104-0AT01-0CP0 6FB1104-0AT03-0AS0	15/117
• Deflector unit for the toothed belt STS for attaching to the door system		15/117
• Toothed belt STS as connection between the door system and the final positions of the door	6FB1104-0AT01-0AB0 6FB1104-0AT02-0AB0	15/117
- 4 m long		15/117
- 45 m long		

Configuration

During initial commissioning, please note the following:

- Mechanical installation and configuration [see](#) "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>

- Electrical configuration and commissioning:
 - Push the door into the "CLOSED" position
 - Open the device cover
 - Plug in the motor connector
 - Press and hold the learn run button
 - The learn run starts automatically and the learn run button can be released
 - On completion of the learn run, the door is in the "CLOSED" position and the 7-segment display indicates "u"
 - The gate can now be moved via the "OPEN" and "CLOSED" buttons with the default profile

Automatic Door Controls

For Industrial Applications

Control devices:
SIDOOR ATD400K cold room gate drive

Programming

The Software Kit is available as an additional unit (see page 15/111) and allows quick and easy updating of the firmware using the Siemens HCS12 Firmware Loader.

User-friendly parameter setting and oscilloscope function is carried out via the SIDOOR User Software (part of the Software Kit).

Technical specifications

Type	6FB1141-1AT10-3KU2, 6FB1141-1AT11-3KU2	
General data		
Supply voltage at DC	V	36
Relative positive tolerance of the supply voltage	%	3
Input voltage		
• Per DC input	V	10 ... 28
Input current		
• Per DC input	mA	9 ... 27
Product feature		
• Control inputs isolated		Yes
• Control inputs p-switching		Yes
Output current at 24 V DC output, maximum	mA	400
Property of the 24 V DC output		
• Note		CAUTION: Do not supply with external voltage!
• Short-circuit-proof		Yes
Product expansion, optional		Emergency power module
Switching capacity current of output relay		
• At 230 V		
- At AC	mA	10 ... 1 000
• At 50 V		
- At DC	mA	10 ... 1 000
Opening width of door	m	0.3 ... 4
Ambient temperature		
• During operation	°C	-20 ... +50
• During storage	°C	-40 ... +50
IP degree of protection		IP20
Relative humidity		
• No condensation	%	10 ... 93
Dimensions		
• Width	mm	320
• Height	mm	60
• Depth	mm	80
Standards		
Type of inspection TÜV prototype tested		Yes
Certificate of suitability CE marking		Yes
Standard		
• For EMC		IEC 61000-6-2/IEC 61000-6-3
• For safety		IEC 60335-1:2010
Performance level (PL) according to ISO 13849-1		d
Category according to ISO 13849-1		2

Automatic Door Controls

For Industrial Applications

Control devices:
SIDOOR ATD400K cold room gate drive

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIDOOR ATD400K cold room gate drive						
 6FB1141-1AT10-3KU2  6FB1141-1AT11-3KU2	SIDOOR ATD400K control device for cold room gate					
	• Type Basic with relay module					
	C	6FB1141-1AT10-3KU2		1	1 unit	478
	C	6FB1141-1AT11-3KU2		1	1 unit	478

More information

For further product details, [see](#)

- "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>
- "SIDOOR Software Kit" Installation Instructions, <http://support.automation.siemens.com/WW/view/en/58572351>

Additional components for the SIDOOR ATD400K cold room gate drive:

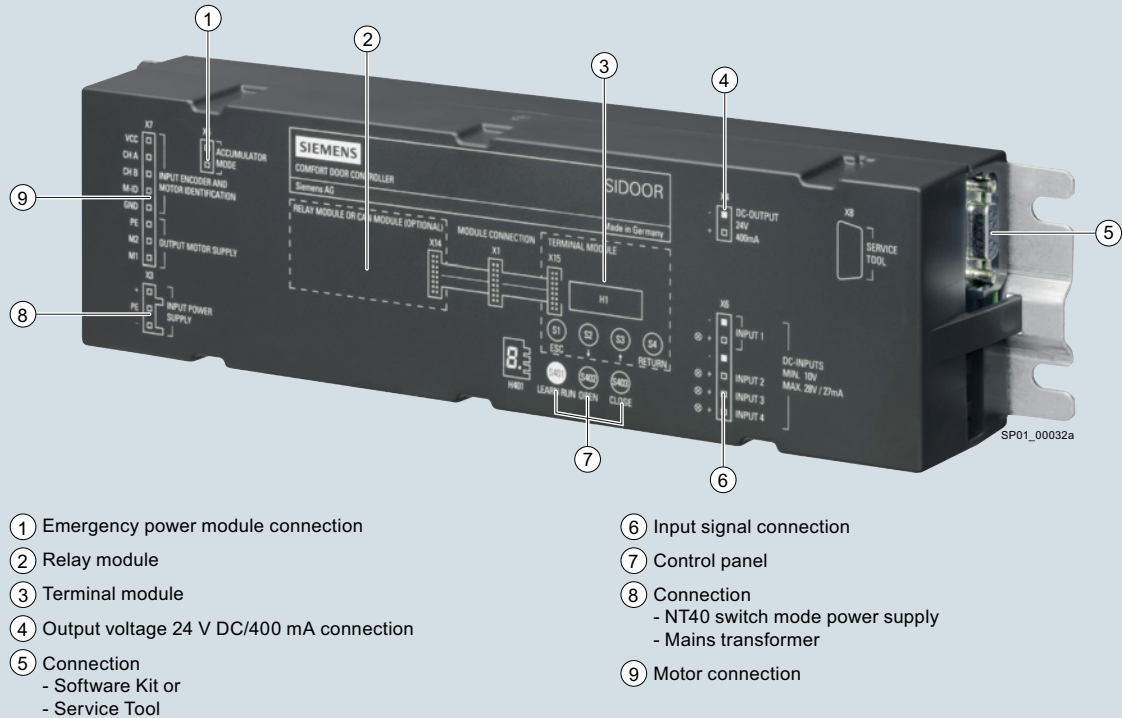
- Power supplies [see page 15/109 onwards](#).
- Additional units [see page 15/111 onwards](#).
- Geared motors [see page 15/115](#).
- Accessories [see page 15/116 onwards](#).

Automatic Door Controls

For Industrial Applications

Control devices:
SIDOOR ATD400W machine tool door drive

Overview



SIDOOR ATD400W machine tool door drive

The SIDOOR ATD400W machine tool door drive enables the quick, easy and flexible movement, installation and configuration of a wide range of industrial door drive systems.

- Relay module version
- For dynamic door weights up to 400 kg
- Automatic door weight detection
- Operating temperature -20 to +50 °C
- Flexible motor management (three different motor types), automatic detection
- Opening width 0.3 to 4 m
- Emergency power input via special emergency power module 24 V DC $\pm$ 15 %
- Auxiliary voltage output 24 V DC $\pm$ 15 %; 0.4 A (short-circuit-proof)
- Output stage short-circuit-proof
- Vandal-proof
- Degree of protection IP54 for 180 to 400 kg motor versions, gear unit IP40

Benefits

- 1-button operation for the entire commissioning process
- Optimum and stable drive characteristics
- Reduced service requirements and costs
- SIDOOR User Software (Part of the Software Kit, not included in the scope of supply, [see page 15/111](#)) enables user-friendly operation and detailed diagnostics
- Integrated terminal module enables simple setup and diagnostics via an event and statistics memory
- Small footprint thanks to compact design
- Automated functions for enhanced safety

Automatic Door Controls

For Industrial Applications

Control devices:
SIDOOR ATD400W machine tool door drive

Application

The SIDOOR ATD400W machine tool door drive is an intelligent door control system which enables protective doors for machine tools to be opened and closed at adjustable speeds and accelerations.

The maintenance-free, variable speed drive unit comprises a DC motor with non-self-locking gearing.

Three different motors are available:

- SIDOOR M2 geared motor (24 V DC/1.8 A; motor for max. overall door leaf weight of 120 kg)
- SIDOOR M3 geared motor (30 V DC/4.0 A; motor for max. overall door leaf weight of 180 kg)
- SIDOOR M4 geared motor (30 V DC/4.0 A; motor for max. overall door leaf weight of 400 kg)

These must be ordered separately, [see page 15/115](#).

Operation of the door drive does not require a limit switch. The door width and the "OPEN/CLOSED" positions are determined automatically.

The current operating states are indicated by a 7-segment display directly in the SIDOOR ATD400W machine tool door drive. They can also be displayed externally with the aid of the Software Kit or Service Tool, [see page 15/111 onward](#).

Power transmission is via a toothed belt, which passes over a deflector unit and can be fitted with two door clutch holders. These accessories are not included in the scope of supply, [see page 15/116 onward](#).

This enables it to drive both single-sided and centrally opening doors.

Design

The SIDOOR ATD400W machine tool door control drive system is made up of several components:

Version	Type	Page
Control devices		
SIDOOR ATD400W machine tool door drive (incl. terminal module and relay module)	6FB1141-1AT10-3WE2	15/126
The following individual components must be ordered separately:		
Power supplies		
• Mains transformer	6FB1112-0AT20-2TR0	15/109
• NT40 switch-mode power supply	6FB1112-0AT20-3PS0	15/110
Additional units		
to enable the universal use and maintenance of the door drive system		
• Software Kit	6FB1105-0AT01-6SW0	15/111
• Service Tool	6FB1105-0AT01-6ST0	15/112
• Emergency power module	6FB1115-0AT10-4CP0	15/113
DC geared motors		
• SIDOOR M2 geared motor (max. door weight of 120 kg)	6FB1103-0AT1.-5MA0	15/115
• SIDOOR M3 geared motor (max. door weight of 180 kg)	6FB1103-0AT1.-4MB0	15/115
• SIDOOR M4 geared motor (max. door weight of 400 kg)	6FB1103-0AT1.-3MC0	15/115
Accessories for the complete system		
Also see overview diagram, page 15/97		
• Rubber-metal anti-vibration mount for low-noise operation of the door drive system	6FB1104-0AT02-0AD0	15/116
- For the SIDOOR M3 geared motor	6FB1104-0AT01-0AD0	15/116
- For the SIDOOR M4 geared motor		
• Mounting bracket	6FB1104-0AT01-0AS0	15/117
- For the SIDOOR M4 geared motor for flexible accommodation of the rubber-bonded metal		
- For the deflector unit	6FB1104-0AT02-0AS0	15/117
for the toothed belt to be set to the required belt tension		
• Door clutch holder	6FB1104-0AT01-0CP0	15/117
for connecting the respective door leaf by means of a toothed belt		
• Deflector unit	6FB1104-0AT03-0AS0	15/117
for the toothed belt STS for attaching on the door system		
• Toothed belt STS		
as connection between the door system and the final positions of the door		
- 4 m long	6FB1104-0AT01-0AB0	15/117
- 45 m long	6FB1104-0AT02-0AB0	15/117

Configuration

During initial commissioning, please note the following:

- Mechanical installation and configuration [see Manual "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W"](#), <http://support.automation.siemens.com/WW/view/de/58531074>
- Electrical configuration and commissioning:
 - Push the door into the "CLOSED" position
 - Open the device cover
 - Plug in the motor connector

- Connect NT40 switch-mode power supply unit to 230 V AC mains supply
- Press and hold the learn run button
- Connect NT40 switch-mode power supply output to input of the SIDOOR ATD400W machine tool door drive
- The learn run starts automatically and the learn run button can be released
- On completion of the learn run, the door is in the "CLOSED" position and the 7-segment display indicates "u"
- The door can now be moved via the "OPEN" and "CLOSED" buttons with the default profile

Automatic Door Controls

For Industrial Applications

Control devices:
SIDoor ATD400W machine tool door drive

Programming

The Software Kit is available as an additional unit (see page 15/111) and allows quick and easy updating of the firmware using the Siemens HCS12 Firmware Loader.

User-friendly parameter setting and oscilloscope function is carried out via the SIDoor User Software (part of the Software Kit).

Technical specifications

Type	6FB1141-1AT10-3WE2	
General data		
Supply voltage at DC	V	36
Relative positive tolerance of the supply voltage	%	3
Input voltage		
• Per DC input	V	10 ... 28
Input current		
• Per DC input	mA	9 ... 27
Product feature		
• Control inputs isolated		Yes
• Control inputs p-switching		Yes
Output current at 24 V DC output, maximum	mA	400
Property of the 24 V DC output		
• Note		CAUTION: Do not supply with external voltage!
• Short-circuit-proof		Yes
Product expansion optional		Emergency power module
Switching capacity current of output relay		
• At 230 V		
- At AC	mA	10 ... 1 000
• At 50 V		
- At DC	mA	10 ... 1 000
Opening width of door	m	0.3 ... 4
Ambient temperature		
• During operation	°C	-20 ... +50
• During storage	°C	-40 ... +50
IP degree of protection		IP20
Relative humidity		
• No condensation	%	10 ... 93
Dimensions		
• Width	mm	320
• Height	mm	60
• Depth	mm	80
Standards		
Type of inspection TÜV prototype tested		Yes
Certificate of suitability CE marking		Yes
Standard		
• For EMC		IEC 61000-6-2/IEC 61000-6-4
• For safety		IEC 60950-1:2006
Performance level (PL) according to ISO 13849-1		d
Category according to ISO 13849-1		2

Automatic Door Controls

For Industrial Applications

Control devices:
SIDOOR ATD400W machine tool door drive

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIDOOR ATD400W machine tool door drives						
 6FB1141-1AT10-3WE2	C	6FB1141-1AT10-3WE2		1	1 unit	478

More information

For further product details, [see](#)

- "SIDOOR Door Control Systems AT40, ATD400K, ATD400S, ATD400V, ATD400W" Manual, <http://support.automation.siemens.com/WW/view/en/58531074>
- "SIDOOR Software Kit" Installation Instructions, <http://support.automation.siemens.com/WW/view/en/58572351>

Additional components for the SIDOOR ATD400W machine tool door control drive system:

- Power supplies [see page 15/109 onwards](#).
- Additional units [see page 15/111 onwards](#).
- Geared motors [see page 15/115](#).
- Accessories [see page 15/116 onwards](#).

Overview



Condition Monitoring Systems

With the Condition Monitoring System from Siemens you can constantly monitor your machines and plants. Maintenance procedures can be planned better and only performed when they are actually necessary – predictive maintenance.

For an overview of Condition Monitoring Systems [see page 15/8](#).

Condition Monitoring Systems

SIPLUS CMS1000 Condition Monitoring System

General data

Overview



Bearing guard and sensor with connecting cable

Requiring absolutely no expert knowledge, SIPLUS CMS1000 offers an easy introduction to condition monitoring. In monitoring, the SIPLUS CMS1000 condition monitoring system works on the basis of characteristic values.

Additional advantages at a glance:

- Permanent monitoring for protection of machines
- Effective monitoring of important processes and systems
- Energy efficiency support
- Early detection of damage
- Planned maintenance instead of spontaneous repairs
- Reduction in maintenance costs
- Increased plant availability
- Optimum utilization of the service life of the units

Application

SIPLUS CMS1000 is the entry-level system for condition monitoring of roller bearings in an industrial environment.

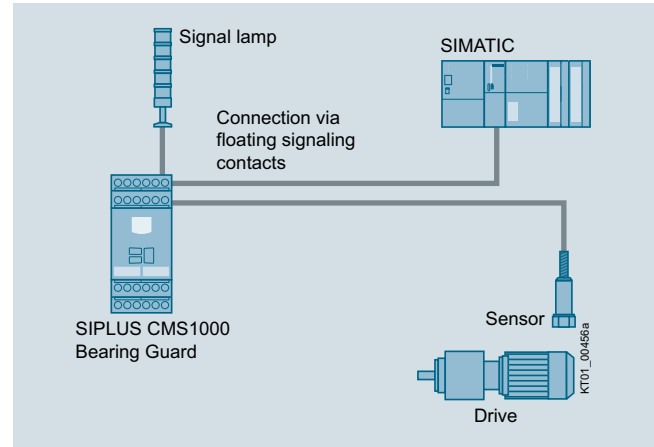
With the SIPLUS CMS1000 condition monitoring system, mechanical components such as motors, generators, fans or pumps can be monitored on the basis of characteristic values. Mechanical wear and other damage-related causes can thus be detected in time before a total failure of the mechanical component in the plant occurs.

SIPLUS CMS1000 can be integrated into the Totally Integrated Automation (TIA) architecture.

Design

SIPLUS CMS1000 consists of two components:

- SIPLUS CMS1000 Bearing Guard
- SIPLUS CMS1000 Sensor



System configuration with SIPLUS CMS1000

Mode of operation

The bearing guard analyzes the measured values according to VDI 3832 procedures (DKW) and DIN ISO 10816-3 (RMS) and signals a limit violation on the display and via floating contacts.

The sensor detects vibration acceleration of the monitored roller bearing as well as general component and machine vibrations.

More information

For further product details, see

- "SIPLUS CMS1000" Operating Instructions, <http://support.automation.siemens.com/WW/view/en/42469516>
- www.siemens.com/siplus-cms

Condition Monitoring Systems

SIPLUS CMS1000 Condition Monitoring System

Bearing Guard

Overview



Bearing Guard 6AT8001-1AA00

The compact design of the SIPLUS CMS1000 Bearing Guard is the core component of the complete system.

It analyses the measured signals from the sensor:

- For analysis of the condition of rolling-contact bearings according to VDI 3832 (DKW)
- Machine monitoring RMS according to DIN ISO 10816-3
- Signaling of limit violations via floating contacts

Design

The bearing guard consists of four terminal blocks A, B, C and D, a display and corresponding control elements. The terminal blocks are coded and therefore constitute non-interchangeable connection elements.

Function

The bearing guard reliably analyzes the status condition of machines and roller bearings and signals limit violations via floating contacts.

Functions:

- A cost-efficient solution for monitoring roller bearings
- Diagnostics procedure according to VDI 3832 and DIN ISO 10816-3
- Monitoring motors with fixed speed
- Teach mode for easy commissioning (learning mode) via LCD
- Adjustable limit values for warning and alarm
- Limit signaling via two floating contacts

Condition Monitoring Systems

SIPLUS CMS1000 Condition Monitoring System

Bearing Guard

Technical specifications

Type	6AT8001-1AA00	
Product designation	SIPLUS CMS1000 Bearing Guard	
Product description	Device for monitoring mechanical vibrations based on characteristic values	
General data		
IP degree of protection	IP20	
Ambient temperature		
• During operation	°C	-25 ... +60
• During storage	°C	-25 ... +60
• During transport	°C	-25 ... +60
Relative humidity without condensation during operation	%	5 ... 95
Current typically consumed at 24 V with DC	A	0.21
Total active power loss, typical	W	3.5
Reference designations		
• According to DIN 40719 expanded according to IEC 204-2 according to IEC 750	P	
• According to IEC 61346-2	P	
Supply voltage		
Type of voltage of the supply voltage	AC/DC	
Supply voltage 1		
• At DC	V	24
• At 50 Hz		
- At AC	V	115 ... 240
• At 60 Hz		
- At AC	V	115 ... 240
Installation/fixing/dimensions		
Mounting position	Vertical	
• Recommended	Vertical	
Type of mounting	Standard mounting rails	
Dimensions		
• Width	mm	45
• Height	mm	106
• Depth	mm	86
Inputs/outputs		
Number of sensor inputs		
• For IEPE sensors	--	
• For MEMS sensors	1	
Number of disable inputs	1	
Number of speed inputs	1	
Number of signaling outputs	2	
Design of switching input of the disable inputs 24 V DC	Yes	
Input voltage at speed input 24 V DC digital	Yes	
Range of input voltage at speed input -10 V ... +10 V	Yes	
Range of input current at speed input		
• 0 mA ... 20 mA	No	
• 4 mA ... 20 mA	Yes	
Type of switching output of the signaling outputs	Relay outputs	

Type	6AT8001-1AA00		
Connections			
Type of electrical connection			
• Of the inputs and outputs		Screw terminals	
• For auxiliary and control circuit		Screw terminals	
Terminals			
Product function			
• Removable terminal for main circuit		Yes	
• Removable terminal for auxiliary and control circuit		Yes	
Connectable conductor cross-section for auxiliary contacts			
• Solid	mm²	0.5 ... 4	
• Finely stranded			
- With end sleeves	mm²	0.5 ... 2.5	
- Without end sleeves	mm²	0.5 ... 2.5	
Communications			
Product function bus communication		No	
Structural design			
Distance to be maintained with side-by-side mounting			
• At the top	mm	25	
• At the front	mm	80	
• At the side	mm	0	
• At the bottom	mm	25	
Material of the enclosure		Plastic	
Design of thread of connection screw		M3	
Size of screwdriver bit		Size 2 and Pozidriv 2	
Tightening torque for screw terminals		Nm	0.8 ... 1.2
Standards and approvals			
Standard			
• For interference immunity		IEC 61326-1, IEC 61326-2-3	
• For safety		IEC 61010-1	
Certificate of suitability		CE	

Condition Monitoring Systems

SIPLUS CMS1000 Condition Monitoring System

Bearing Guard

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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SIPLUS CMS1000 Bearing Guard



6AT8001-1AA00

For analysis of the state of roller bearings in accordance with VDI 3832 and signaling of limit violations

C

6AT8001-1AA00

1

1 unit

477

More information

For more product details refer to the "SIPLUS CMS1000" Operating Instructions,
<http://support.automation.siemens.com/WW/view/en/42469516>.

Condition Monitoring Systems

SIPLUS CMS1000 Condition Monitoring System

Accessories

Overview

The following accessories, to be ordered separately, are available for the SIPLUS CMS1000 condition monitoring system:

- Sensor for detection of vibration acceleration of roller bearings
- Cable for connection of bearing guards and sensors
 - 4 m long
 - 10 m long
 - 30 m long

- Adapters for connection of the sensor to various motors
 - M6/M6, M6/M8
 - M6/SPM

Design

Sensor



Sensor 6AT8001-1AA00-1XA0

SIPLUS CMS1000 Sensor is designed with ground insulation. It consists of one M12 sensor cable connector and an M6 thread for adaptation to the machine chassis.

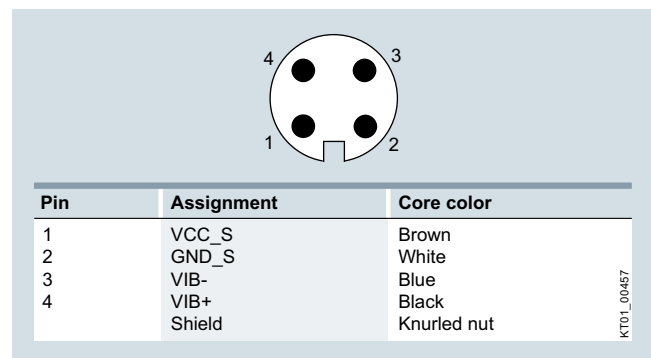
Technical features:

- Industry-standard design
- Sensor on the basis of MEMS technology (Micro Electro Mechanical Systems)
- Quick and easy installation (e.g. on fans, pumps and motors)
- High degree of protection IP67

The sensor reliably records the vibration acceleration of rolling-contact bearings and converts this into an analog, differential voltage signal.

Cable

The SIPLUS CMS1000 Bearing Guard and Sensor are connected via the sensor cable. For connection of the sensor, the cable is configured with an M12 connector socket that matches the sensor.



Terminal assignment M12 connector socket

Adapters

Two different adapters are available for installing the SIPLUS CMS1000 Sensor in the correct measuring position:

- M6/M6 or M6/M8 adapters for motors with a condition monitoring for bearings connection with M6 or M8 threads
- M6/SPM adapters for IEC squirrel-cage motors with the option of bearing monitoring Q01/G50. A measuring nipple is mounted here for SPM shock pulse measurement to check bearing vibration.

Condition Monitoring Systems

SIPLUS CMS1000 Condition Monitoring System

Accessories

Technical specifications

Sensor

Type	6AT8001-1AA00-1XA0	
Product designation	SIPLUS CMS1000 SENSOR	
Product description	Vibration acceleration sensor for the SIPLUS CMS1000 Bearing Guard	
General data		
Material of the enclosure	Stainless steel	
IP degree of protection	IP67	
Ambient temperature		
• During operation	°C	-40 ... +120
• During storage	°C	-40 ... +120
• During transport	°C	-40 ... +120
Relative humidity with condensation		
• During operation	%	5 ... 95
Measuring range vibration acceleration	g	-5 ... +5
Measuring range vibration frequency	Hz	0 ... 6 500
Sensitivity of the vibration acceleration sensor typical	mV/g	312
Total active power loss, typical	W	0.02
Reference designations		
• According to IEC 61346-2	B	
• According to DIN 40719 expanded according to IEC 204-2 according to IEC 750	B	
Type of power supply	Through basic unit	
Installation/fixing/dimensions		
Installation and mounting instructions	In the load zone of the bearing, radial to the drive axis	
Type of mounting	Screw via M6 thread	
Dimensions		
• Length	mm	64
• Diameter	mm	22
Connections		
Type of the switching output	Electronics	
Type of the electric connection of the inputs and outputs	4-pole socket M12	
Communications		
Product function bus communication	No	
Standards/approvals/certificates		
Standard		
• For safety	IEC 61010-1	
• For interference immunity	IEC 61326-1	
Certificate of suitability	CE	

Cable

Type	6AT8001-1AA00-1AA4			6AT8001-1AA00-1AB1			6AT8001-1AA00-1AB3			
Product designation	SIPLUS CMS1000 CABLE-MEMS-44-0004			SIPLUS CMS1000 CABLE-MEMS-44-0010			SIPLUS CMS1000 CABLE-MEMS-44-0030			
Product description	4 x 0.34 mm² PUR cable shielded, M12, open end									
General data										
Cable length	m	4			10			30		

Adapters

Type	6AT8001-2AA10-1AM0	6AT8001-2AA10-1SA0
Product designation	SIPLUS CMS1000 Adapter M6/M6, M6/M8	SIPLUS CMS1000 Adapter M6/SPM
Product description	Thread adapter for mounting the SIPLUS CMS1000 Sensor	SPM adapter for IEC squirrel-cage motors with the option of bearing monitoring Q01, G50
General data		
Design of thread	M6/M6, M6/M8	M6/SPM

Condition Monitoring Systems

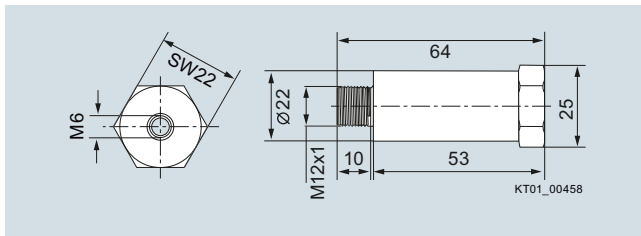
SIPLUS CMS1000 Condition Monitoring System

Accessories

Selection and ordering data

Product designation	Cable length	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Sensor							
 SIPLUS CMS1000 SENSOR Vibration acceleration sensor for the SIPLUS CMS1000 Bearing Guard	--	C	6AT8001-1AA00-1XA0		1	1 unit	477
Cable							
SIPLUS CMS1000 CABLE-MEMS-44-0004 4 x 0.34 mm ² PUR cable shielded, M12, open end	4	X	6AT8001-1AA00-1AA4		1	1 unit	477
SIPLUS CMS1000 CABLE-MEMS-44-0010 4 x 0.34 mm ² PUR cable shielded, M12, open end	10	X	6AT8001-1AA00-1AB1		1	1 unit	477
SIPLUS CMS1000 CABLE-MEMS-44-0030 4 x 0.34 mm ² PUR cable shielded, M12, open end	30	D	6AT8001-1AA00-1AB3		1	1 unit	477
Adapter							
SIPLUS CMS1000 Adapter M6/M6, M6/M8 Thread adapter for mounting the SIPLUS CMS1000 Sensor	--	D	6AT8001-2AA10-1AM0		1	1 unit	477
SIPLUS CMS1000 Adapter M6/SPM SPM adapter for IEC squirrel-cage motors with the option of bearing monitoring Q01, G50	--	D	6AT8001-2AA10-1SA0		1	1 unit	477

Dimensional drawings



Sensor 6AT8001-1AA00-1XA0

More information

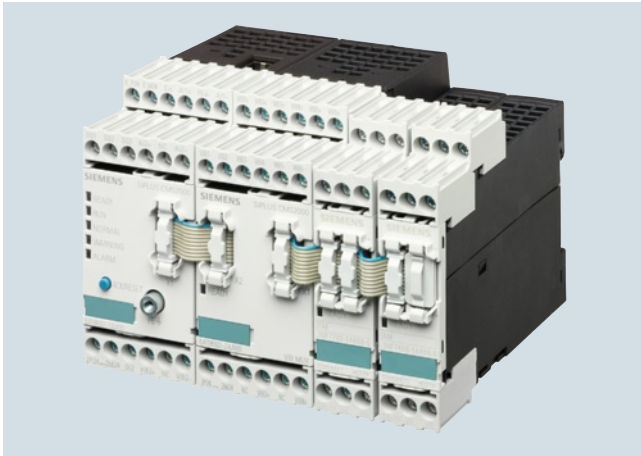
For more product details refer to the "SIPLUS CMS1000" Operating Instructions,
<http://support.automation.siemens.com/WW/view/en/42469516>.

Condition Monitoring Systems

SIPLUS CMS2000 Condition Monitoring System

General data

Overview



SIPLUS CMS2000 condition monitoring system

The modular and configurable SIPLUS CMS2000 condition monitoring system is a web-based system which can be easily parameterized.

It provides the following benefits:

- Analysis of the condition of roller bearings according to VDI 3832 (DKW)

- Machine monitoring RMS according to DIN ISO 10816-3
- Detailed identification of damage with frequency-selective diagnostics
- Raw data recording and export to SIPLUS CMS X-Tools
- Trend recording and analysis
- Monitoring of process variables
- Reporting of upper limit violations
- Permanent monitoring for protection of machines
- Effective monitoring of important processes and systems
- Energy efficiency support
- Early detection of damage
- Planned maintenance instead of spontaneous repairs
- Reduction in maintenance costs
- Increased plant availability
- Optimum utilization of the service life of the units

The SIPLUS CMS2000 condition monitoring system can be expanded on a modular basis, e.g. with the

- SIPLUS CMS2000 VIB-MUX expansion module for expanding the IEPE vibration channels
- Temperature module for direct connection of temperature sensors (Pt100, Pt1000, ...)

Benefits

Visualization and parameterization of the SIPLUS CMS2000 are easily performed using a web browser, without the need for additional software. Handling has therefore been considerably simplified for the service personnel.

Additional advantages:

- Monitoring of everything from individual machines to complex drive trains

- No additional software is required for parameterization and visualization
- Proactive maintenance through detailed and early localization of damage
- Fast full diagnostics at a glance
- Event-triggered notification to the service center
- Expert analysis based on raw data

Application

In addition to the productivity of a plant, lifecycle costs are increasingly becoming the focus of attention. Increasing plant availability is an important topic in all areas where machines are used.

Continuous plant monitoring and thus the early detection of impending failures are a suitable measure to minimize downtimes. Status-oriented maintenance permits an increase in availability with a simultaneous reduction of lifecycle costs.

Visualization and parameterization of the SIPLUS CMS2000 are easily performed using a web browser, without the need for additional software. Handling has therefore been considerably simplified for the service personnel – both locally as well as in remote operation.

SIPLUS CMS2000 is modularly expandable, e.g. with the SIPLUS CMS2000 VIB-MUX expansion module and with the temperature module from the SIMOCODE range.

Design

The SIPLUS CMS2000 is a compact condition monitoring system that can be operated as a stand-alone or in combination with a remote service center (LAN interface).

The SIPLUS CMS2000 condition monitoring system comprises:

- SIPLUS CMS2000 Basic Unit VIB
- A maximum of two SIPLUS CMS2000 VIB-MUX expansion modules and/or additionally a maximum of two temperature modules

The diagram illustrates a vibration monitoring system architecture for a drive train. At the top, a computer monitor displays a graph, labeled "SIPLUS CMS X-Tools for further analysis". Below it, a SIMATIC IPC (Industrial Personal Computer) is connected to the system via an Ethernet network. A SCADA (Supervisory Control and Data Acquisition) system, such as WinCC, PCS7, or a Maintenance Station, is also connected to the Ethernet network. A globe icon indicates "Remote access e. g. via cRSP/ePS". The Ethernet network (green line) connects the SIMATIC IPC, the SIMATIC controller, and the SIPLUS CMS2000. The SIMATIC controller is connected to the SIPLUS CMS2000 via "Binary signals" and "LAN". The SIPLUS CMS2000 is configured with: 1 Basic Unit VIB, 1 VIB-MUX, and 2 temperature modules. It is connected to a drive train consisting of a Drive, Gear, Bearing, and Pump. The SIPLUS CMS2000 monitors the drive train via "Up to 16 IEPE vibration sensors for modular connection". Additional monitoring includes: Speed, Temperature measurement (Pt100, Pt1000, ...), and e. g. pressure sensors via analog inputs. The diagram is labeled "SP01_00026" in the bottom right corner.

SIPLUS CMS X-Tools for further analysis

Remote access
e. g. via cRSP/ePS

SCADA
e. g. via WinCC, PCS7,
Maintenance Station

Ethernet

SP01_00026

SIMATIC IPC

SIPLUS CMS2000

Configuration:
1 Basic Unit VIB
1 VIB-MUX
2 temperature modules

Binary signals

LAN

SIMATIC controller

Up to 16 IEPE vibration sensors
for modular connection

Additional monitoring:
• Speed
• Temperature measurement (Pt100, Pt1000, ...)
• e. g. pressure sensors via analog inputs

Drive train: Drive Gear Bearing Pump

Mode of operation

More information

For further product details, [see](#)

- "SIPLUS CMS2000 Condition Monitoring Systems"
Operating Instructions ,
<http://support.automation.siemens.com/WW/view/en/56901901>
- www.siemens.com/siplus-cms

Condition Monitoring Systems

SIPLUS CMS2000 Condition Monitoring System

Basic units:
SIPLUS CMS2000 Basic Unit VIB

Overview



SIPLUS CMS2000 Basic Unit VIB

The SIPLUS CMS2000 Basic Unit VIB is used for:

- Monitoring of motors, generators, pumps, fans or other mechanical components
- Recording and analysis of vibrations, speed and temperature

It is modularly expandable via the system interface, e.g. using SIPLUS CMS2000 VIB-MUX expansion modules and temperature modules.

Design

The SIPLUS CMS2000 Basic Unit VIB comprises:

- Integrated diagnostics software
- Two IEPE interfaces for vibration sensors
- Two analog inputs, one of which can be parameterized as a speed input
- One speed input
- Two digital inputs, three digital outputs

The following accessories can also be ordered:

- Shield support for grounding the cable ends
- VIB-SENSOR vibration sensor for recording vibrations
- SIMOCODE connection cable and CABLE-MIL connecting cable in different lengths

Accessories [see page 15/145](#).

Function

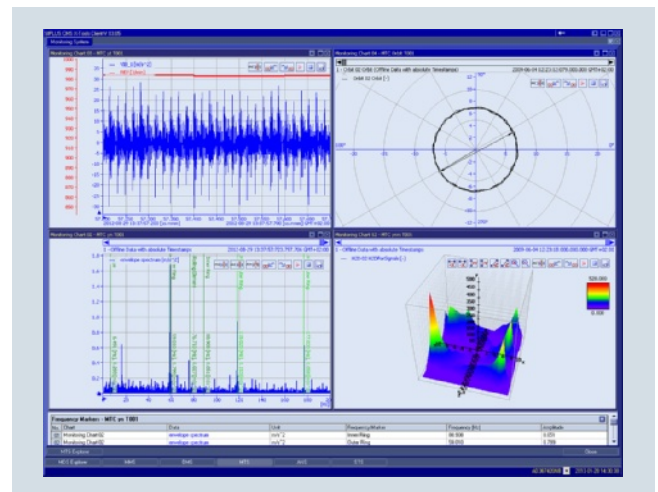
The following range of functions is available by default in the SIPLUS CMS2000 Basic Unit VIB:

- Characteristic values (bearing monitoring, vibration monitoring)
- Frequency-selective analysis using FFT, H-FFT
- Trend analysis
- Limit monitoring of frequency bands, process variables, temperature
- Recording with time stamp of trend values, raw data, frequency spectra, alarm log
- Easy damage localization based on fingerprint comparison
- Output of system and status messages
- Extraction of raw data for further diagnostics
- Web server and e-mail notification
- Time synchronization via LAN
- Diagnostics suppression via inhibit input

SIPLUS CMS X-Tools – the powerful analysis software

The raw data recorded on the SIPLUS CMS2000 Basic Unit VIB can be forwarded to the SIPLUS CMS X-Tools analysis software for detailed diagnostics (not included in the scope of supply, [see http://support.automation.siemens.com/WWW/view/en/46617980/133200](http://support.automation.siemens.com/WWW/view/en/46617980/133200) or www.siemens.com/siplus-cms).

SIPLUS CMS X-Tools can be used to logically combine the various parameters and signals – as the basis for expert diagnostics. The interface to management systems can be structured flexibly.



Representation via SIPLUS CMS X-Tools with raw signal, envelope curves spectrum, orbit representation and 2D histogram

Condition Monitoring Systems

SIPLUS CMS2000 Condition Monitoring System

Basic units: SIPLUS CMS2000 Basic Unit VIB

Technical specifications

Type	6AT8002-1AA00	
Product designation	SIPLUS CMS2000 Basic Unit VIB	
Product description	Basic unit for monitoring vibrations in mechanical components based on characteristic values and frequency-selective analysis functions	
General data		
IP degree of protection	IP20	
Ambient temperature		
• During operation	°C	-20 ... +65
• During storage	°C	-20 ... +85
• During transport	°C	-20 ... +85
Relative humidity without condensation during operation	%	5 ... 95
Total active power loss, typical	W	2.6
Physical measurement principle	Vibration acceleration	
Measuring range vibration frequency	kHz	0.002 ... 10
Scanning frequency maximum	kHz	46.875
Reference designations		
• According to DIN 40719 expanded according to IEC 204-2 according to IEC 750	P	
• According to IEC 61346-2	P	
Supply voltage		
Type of voltage of the supply voltage	DC	
Supply voltage 1		
• At DC	24	
Installation/fixing/dimensions		
Mounting position	Vertical	
• Recommended	Vertical	
Type of mounting	Standard mounting rails	
Dimensions		
• Width	mm	45
• Height	mm	106
• Depth	mm	124
Inputs/outputs		
Number of analog inputs	2	
Number of disable inputs	1	
Number of speed inputs	1	
Number of signaling outputs	3	
Number of sensor inputs		
• For IEPE sensors	2	
• For MEMS sensors	0	
Number of trigger inputs	1	
Product function monitoring of sensor inputs	Yes	
Input voltage		
• At disable input with 24 V DC	Yes	
• At speed input 24 V DC digital	Yes	
• At trigger input with 24 V DC	Yes	
Range of input voltage		
• At analog input -10 V ... +10 V	Yes	
• At speed input -10 V ... +10 V	No	
Range of input current		
• At analog input		
- 0 mA ... 20 mA	No	
- 4 mA ... 20 mA	Yes	
• At speed input		
- 0 mA ... 20 mA	No	
- 4 mA ... 20 mA	No	
Type of switching output of the signaling outputs	Electronic	
Connections		
Type of electrical connection		
• Of the inputs and outputs	Screw terminals	
• For auxiliary and control circuit	Screw terminals	

Condition Monitoring Systems

SIPLUS CMS2000 Condition Monitoring System

Basic units:
SIPLUS CMS2000 Basic Unit VIB

Type	6AT8002-1AA00		
Product designation	SIPLUS CMS2000 Basic Unit VIB		
Product description	Basic unit for monitoring vibrations in mechanical components based on characteristic values and frequency-selective analysis functions		
Terminals			
Product function			
• Removable terminal for main circuit	mm²	Yes	
• Removable terminal for auxiliary and control circuit	mm²	Yes	
Connectable conductor cross-section for auxiliary contacts			
• Solid	mm²	0.5 ... 4	
• Finely stranded			
- With end sleeves	mm²	0.5 ... 2.5	
- Without end sleeves	mm²	0.5 ... 2.5	
Communications			
Product function bus communication	Yes		
Type of data transmission	Exporting of raw data as WAV file for further analyses (e.g. using SIPLUS CMS X-Tools) can be downloaded via browser		
Interface version			
• Ethernet interface	Yes		
• SIMOCODE interface	Yes		
Software/services			
Browser software required	Web browser		
Service			
• As web server HTTP	Yes		
• For open IE communication TCP/IP	Yes		
Product function diagnostics via email	Yes		
Structural design			
Type of hardware configuration	Modular construction, basic unit can be expanded by means of expansion modules		
Material of the enclosure	Plastic		
Memory capacity total	Giga-byte	1	
Approvals			
Certificate of suitability	CE, UL 508, CSA C22.2 No. 142, C-Tick		

Selection and ordering data

Product designation		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Basic units							
 6AT8002-1AA00	SIPLUS CMS2000 Basic Unit VIB	D	6AT8002-1AA00		1	1 unit	477
	Basic unit for monitoring mechanical plant components through recording and analysis of vibrations, speed and temperature						

More information

For more product details refer to the
 "SIPLUS CMS2000 Basic Unit VIB" Operating Instructions,
<http://support.automation.siemens.com/WW/view/en/56902401>.

Condition Monitoring Systems

SIPLUS CMS2000 Condition Monitoring System

**Expansion modules:
SIPLUS CMS2000 VIB-MUX, temperature modules**

Overview

SIPLUS CMS2000 VIB-MUX expansion modules and temperature modules can be connected to the SIPLUS CMS2000 Basic Unit VIB via the SIMOCODE system interface.

SIPLUS CMS2000 VIB-MUX expansion modules

Up to two SIPLUS CMS2000 VIB-MUX expansion modules can be connected to SIPLUS CMS2000 Basic Unit VIB to expand the vibration channels. In this way, the number of vibration channels can be expanded modularly from 2 to a maximum of 16 channels.

The following configuration options are possible:

- Basic unit without expansion:
2 time-synchronous, continuously sampled vibration channels
- Basic unit with one SIPLUS CMS2000 VIB-MUX:
8 + 1: 8 channels via the SIPLUS CMS2000 VIB-MUX in multiplex mode, 1 channel continuous and independent of the channels connected to the SIPLUS CMS2000 VIB-MUX
- Basic unit with two SIPLUS CMS2000 VIB-MUX:
16 vibration channels in multiplex mode

SIMOCODE connection cable for connecting the SIPLUS CMS2000 Basic Unit VIB to the SIPLUS CMS2000 VIB-MUX, [see page 15/145](#).



SIPLUS CMS2000 VIB-MUX expansion module 6AT8002-2AA00

Temperature modules

Up to two temperature modules can be connected to the SIPLUS CMS2000 Basic Unit VIB.

Each temperature module has three inputs for the connection of up to three analog temperature sensors (sensor types: Pt100/Pt1000, KTY83/KTY84 or NTC).

SIMOCODE connection cable for connecting the SIPLUS CMS2000 Basic Unit VIB to the temperature modules, [see page 15/145](#).



Temperature module 3UF7700-1AA00-0

Condition Monitoring Systems

SIPLUS CMS2000 Condition Monitoring System

Expansion modules:
SIPLUS CMS2000 VIB-MUX, temperature modules

Technical specifications

SIPLUS CMS2000 VIB-MUX expansion modules

Type	6AT8002-2AA00	
Product designation	SIPLUS CMS2000 VIB-MUX	
Product description	Circuit of 8 IEPE measurement inputs on one IEPE output in multiplex operation; channel control through the basic unit via the system interface	
General data		
IP degree of protection	IP20	
Ambient temperature		
• During operation	°C	-20 ... +65
• During storage	°C	-25 ... +85
• During transport	°C	-25 ... +85
Relative humidity without condensation		
• During operation	%	5 ... 95
Physical measurement principle		
Vibration acceleration		
Measuring range vibration frequency	kHz	0.002 ... 10
Reference designations		
• According to DIN 40719 expanded according to IEC 204-2 according to IEC 750	P	
• According to IEC 61346-2	P	
Supply voltage		
Type of voltage of the supply voltage	DC	
Supply voltage 1 at DC, rated value	V	24
Active power input, maximum	W	2.4
Installation/fixing/dimensions		
Mounting position	Vertical	
• Recommended	Vertical	
Type of mounting	Standard mounting rails	
Dimensions		
• Width	mm	45
• Height	mm	106
• Depth	mm	124
Inputs/outputs		
Number of sensor inputs		
• For IEPE sensors	8	
Number of outputs	1	
Connections		
Type of electrical connection		
• Of the inputs and outputs	Screw terminals	
• For auxiliary and control circuit	Screw terminals	
Terminals		
Product function		
• Removable terminal for auxiliary and control circuit	Yes	
• Removable terminal for main circuit	Yes	
Connectable conductor cross-section for auxiliary contacts		
• Solid	mm²	0.5 ... 4
• Finely stranded		
- With end sleeves	mm²	0.5 ... 2.5
- Without end sleeves	mm²	0.5 ... 2.5
Communications		
Type of interface SIMOCODE interface	Yes	
Structural design		
Material of the enclosure	Plastic	
Approvals		
Certificate of suitability	CE, UL 508, CSA C22.2 No. 142, C-Tick	

Temperature modules

Technical specifications see Chapter 10 "Monitoring and Control Devices" → "SIMOCODE 3UF Motor Management and Control Devices" → "SIMOCODE pro 3UF7 Motor Management and Control Devices".

Condition Monitoring Systems

SIPLUS CMS2000 Condition Monitoring System

Expansion modules:
SIPLUS CMS2000 VIB-MUX, temperature modules

Selection and ordering data

Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIPLUS CMS2000 VIB-MUX expansion modules						
 6AT8002-2AA00	Up to two SIPLUS CMS2000 VIB-MUX expansion modules D can be connected to SIPLUS CMS2000 Basic Unit VIB. Up to 8 IEPE vibration channels can be connected to each expansion module.	6AT8002-2AA00		1	1 unit	477
Temperature modules						
 3UF7700-1AA00-0	Up to two temperature modules can be connected to the SIPLUS CMS2000 Basic Unit VIB. ▶ Each temperature module has three inputs for the connection of up to three temperature sensors.	3UF7700-1AA00-0		1	1 unit	42J

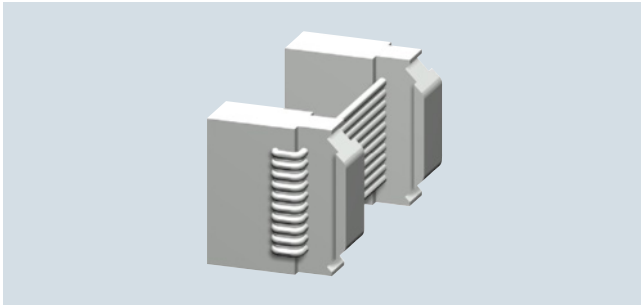
More information

For more product details see "SIPLUS CMS2000 Condition Monitoring Systems" Operating Instructions, <http://support.automation.siemens.com/WW/view/en/56901901>.

For more information about the 3UF7700-1AA00-0 temperature module see Chapter 10 "Monitoring and Control Devices" → "SIMOCODE 3UF Motor Management and Control Devices" → "SIMOCODE pro 3UF7 Motor Management and Control Devices".

Overview

SIMOCODE connection cable

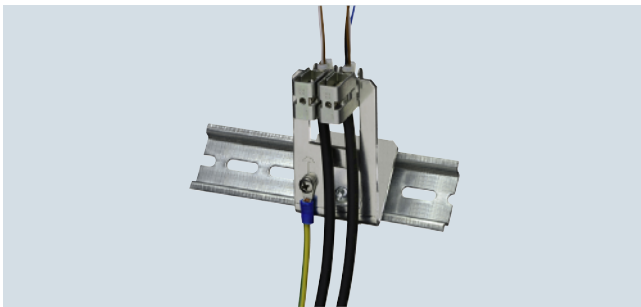


SIMOCODE connection cable 3UF7930-0AA00-0

The connection cable is used for connecting the SIPLUS CMS2000 Basic Unit VIB to the SIPLUS CMS2000 VIB-MUX expansion modules and the temperature modules via the SIMOCODE system bus interface.

The connection cable with a length of 0.025 m must be used for side-by-side mounting of the basic unit with SIPLUS CMS2000 VIB-MUX expansion modules or temperature modules on a TH 35-15 standard mounting rail according to IEC 60715.

Shield support



Shield support 6AT8002-4AA00

A separate shield support must be ordered for the EMC-compliant connection of signal and encoder cables to the SIPLUS CMS2000 Basic Unit VIB and the SIPLUS CMS2000 VIB-MUX expansion module.

The shield support comprises two shield clamps and five clamp terminals. One shield clamp is attached to the standard mounting rail above and below the basic unit. The sensor cable shields are connected to the sensor leads by means of the terminal clamps.

VIB-SENSOR S01 vibration sensor



VIB-SENSOR S01 vibration sensor 6AT8002-4AB00

The VIB-SENSOR S01 vibration sensor with IEPE (Integrated Electronics Piezo-Electric) interface can be connected directly to the SIPLUS CMS2000 Basic Unit VIB and the SIPLUS CMS2000 VIB-MUX expansion module.

The sensor detects vibration accelerations in the frequency range from 0.5 Hz to 15 kHz with a resolution of 100 mV/g.

A threaded screw with an M8 male thread for mounting at the measuring point is included in the scope of supply. The connection cable is connected to the vibration sensor via the MIL connector.

CABLE-MIL connection cable



CABLE-MIL connection cables 6AT8002-4AC03, 6AT8002-4AC10

The VIB-SENSOR S01 vibration sensor is connected to the SIPLUS CMS2000 Basic Unit VIB or the SIPLUS CMS2000 VIB-MUX expansion module by means of the CABLE-MIL connection cable.

This high-quality industrial cable is made of black polyurethane and is preassembled on one end with a MIL connector (MIL-C5015). The open cable end of the shielded two-wire cable is connected directly to the screw terminals of the basic unit.

The connection cable is available in lengths of 3 and 10 m.

Condition Monitoring Systems

SIPLUS CMS2000 Condition Monitoring System

Accessories

Technical specifications

SIMOCODE connection cable

Type	3UF7930-0AA00-0		
Product brand name	SIRIUS		
Product designation	Connection cable		
General data			
Ambient temperature			
• During operation	°C	-25 ... +60	
• During storage	°C	-40 ... +80	
• During transport	°C	-40 ... +80	
Relative humidity			
• During operation	%	5 ... 95	

Shield support

Type	6AT8002-4AA00
Product brand name	SIPLUS CMS
Product designation	SIPLUS CMS2000 shield support
General data	
Type of mounting	Standard mounting rails
Number of signal cables connectable to the shield support	3

VIB-SENSOR S01 vibration sensor

Type	6AT8002-4AB00	
Product brand name	SIPLUS CMS	
Product designation	VIB-SENSOR S01	
General data		
Physical measurement principle	Piezo-quartz sensor with integrated evaluation electronics	
Frequency of the sensor application		
• At ± 3 dB	Hz	0.5 ... 15 000
Sensitivity of the vibration acceleration sensor, typical	mV/g	100
Resolution of measured value of vibration acceleration of sensor, minimum	g	0.002
Measuring range vibration acceleration Full-scale value	g	50
Resonance frequency	kHz	23
Signal voltage		
• At DC	V	10 ... 14
Type of power supply	IEPE 2 to 10 mA	
Type of connection method	MIL-C5015	
Cable length maximum	m	80
Ambient conditions		
IP degree of protection	IP65	
Operating temperature	°C	-50 ... +120
Design		
Material of the enclosure	Stainless steel	
Mounting type other mounting Note	Including mounting bolts UNF1/4-28 on M8	

CABLE-MIL connection cable

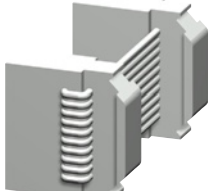
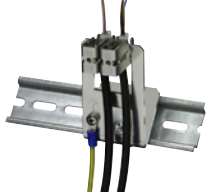
Type	6AT8002-4AC03		6AT8002-4AC10	
Product brand name	SIPLUS CMS			
Product designation	CABLE-MIL-300 connection cable		CABLE-MIL-1000 connection cable	
Product category	Industrial cables			
General data				
Type of connection method	MIL-C5015/open cable end			
Type of insulation	Black polyurethane			
Type of shield	Braided shielding with stranded drain wire			
Operating temperature	°C	-25 ... +122		
Cable length	m	3	10	

Condition Monitoring Systems

SIPLUS CMS2000 Condition Monitoring System

Accessories

Selection and ordering data

Product designation	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIMOCODE connection cable						
 Connection cable For side-by-side mounting of SIPLUS CMS2000 Basic Unit VIB and SIPLUS CMS2000 VIB-MUX expansion modules or 3UF7700-1AA00-0 temperature modules 3UF7930-0AA00-0	▶	3UF7930-0AA00-0		1	1 unit	42J
Shield support						
 SIPLUS CMS2000 shield support For the EMC-compliant connection of signal and encoder cables to the SIPLUS CMS2000 Basic Unit VIB or the SIPLUS CMS2000 VIB-MUX expansion module 6AT8002-4AA00	X	6AT8002-4AA00		1	1 unit	477
VIB-SENSOR S01 vibration sensor						
 VIB-SENSOR S01 Piezoelectric sensor for connection to the SIPLUS CMS2000 Basic Unit VIB or the SIPLUS CMS2000 VIB-MUX expansion module 6AT8002-4AB00	D	6AT8002-4AB00		1	1 unit	477
CABLE-MIL connection cable						
 For connection of VIB-SENSOR S01 vibration sensors to the SIPLUS CMS2000 Basic Unit VIB or the SIPLUS CMS2000 VIB-MUX expansion module • CABLE-MIL-300 connection cable Length 3 m • CABLE-MIL-1000 connection cable Length 10 m 6AT8002-4AC03	D	6AT8002-4AC03		1	1 unit	477
	D	6AT8002-4AC10		1	1 unit	477

More information

For more product details see "SIPLUS CMS2000 Condition Monitoring Systems" Operating Instructions, <http://support.automation.siemens.com/WW/view/en/56901901>.

Electrical Charging Components

Components for Electric Vehicle Charging Stations

General data

Overview

The SIPLUS Electrical Charging Components (ECC) range covers products for the charging of batteries for various applications, e.g. charging controllers for the installation of an electric vehicle charging infrastructure.



Charging controllers and function units for electric vehicle charging solutions

The success of electric vehicles (EVs) depends on the availability of a reliable charging infrastructure!

SIPLUS ECC offers specific components for EV charging solutions which supplement the tried-and-tested Siemens industrial automation and control portfolio. In addition SIPLUS ECC comprises prefabricated function units for the installation of reliable and standards-conform electric vehicle charging stations.

The SIPLUS ECC portfolio:

- Charging controllers (according to IEC 61851 charging mode type 3)
- Preassembled, tested and ready-to-fit function units

For an overview of Electrical Charging Components, [see page 15/8](#).

More information

For more information [see](#) www.siemens.com/siplus-ecc.

Electrical Charging Components

Components for Electric Vehicle Charging Stations

**SIPLUS ECC1000 and ECC2000
charging controllers**

Overview



SIPLUS ECC1000 and ECC2000 charging controllers

The charging controller is the central component in electric vehicle charging stations. SIPLUS ECC charging controllers comply with the charging standard IEC 61851 Mode 3.

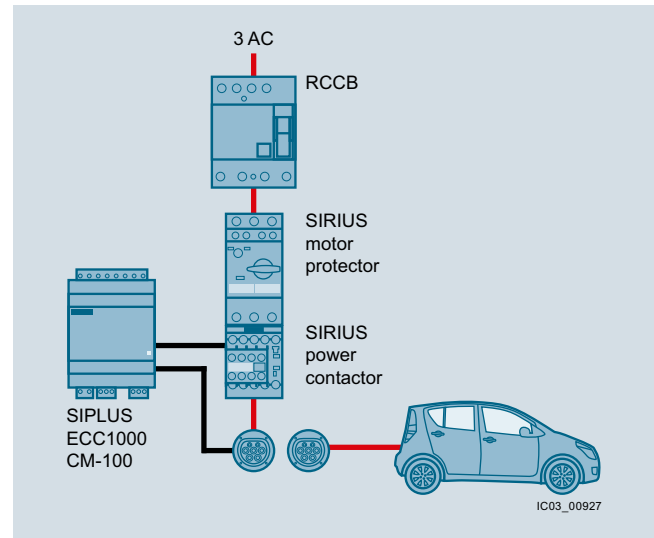
They perform the following functions:

- Transferring the maximum charging current from the charging station to the electric vehicle
- Detecting the charging cable and its reliable current carrying capacity
- Safety functions
- Evaluating the status signals from the electric vehicle
- Controlling the load tap-off
- Signaling the charging states by means of LEDs

SIPLUS ECC charging controllers are available in various versions:

CM-100

Compact, low-cost charging controller for home charging applications. The versions available cover all the charging currents defined in IEC/EN 61851.



Charging system with SIPLUS ECC1000

Electrical Charging Components

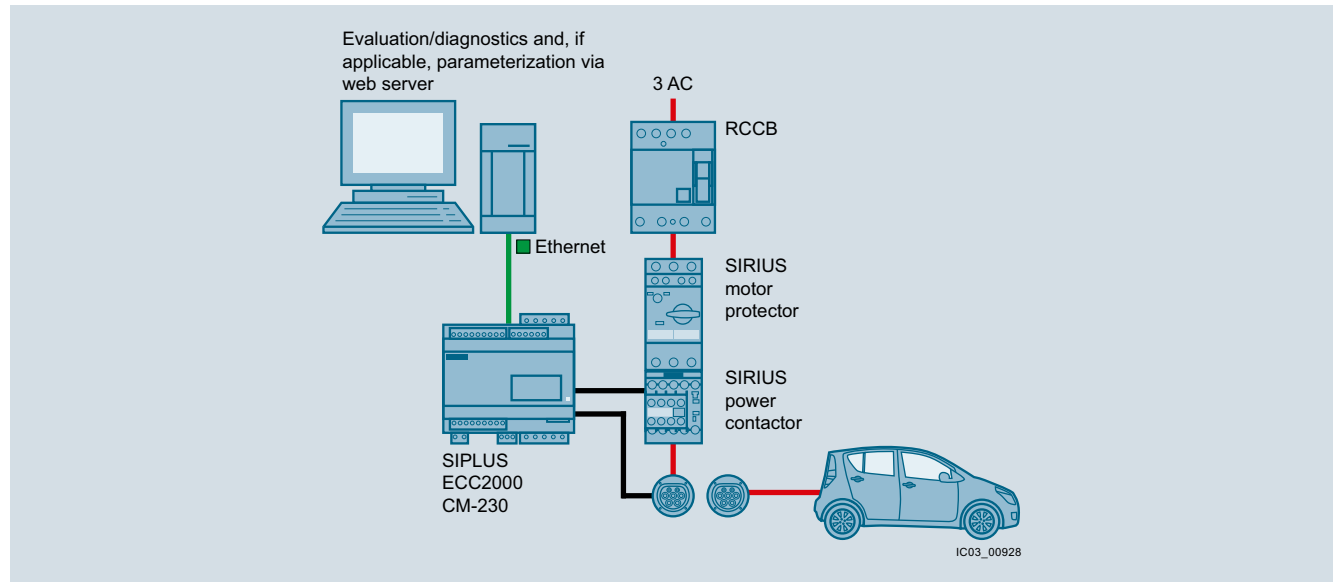
Components for Electric Vehicle Charging Stations

SIPLUS ECC1000 and ECC2000 charging controllers

CM-230/CM-230-C standalone version

This charging controller with Ethernet connection is used for home and public charging applications. The controllers' parameters can be changed and current information about the state of

the charging operation viewed through the web interface. The build-in sensor technology on the CM-230 standalone version enables the monitoring of humidity and temperature.



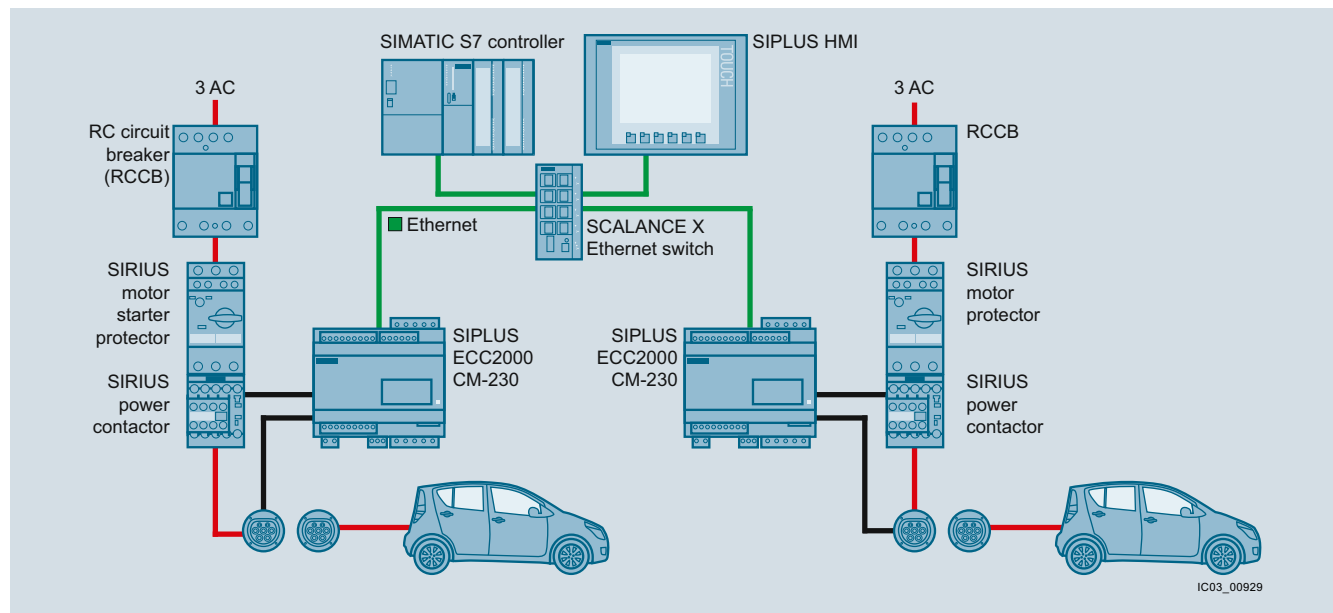
Charging system with SIPLUS ECC2000

CM-230 managed version

This charging controller with Ethernet connection is used for complex public charging applications. The controller is typically used as a separate I/O module in combination with other charging controllers which are integrated through Ethernet in a higher-level control system.

The managed version offers greater flexibility for the system integrator/operating company, e.g. individual controlling of free I/O modules.

A function block (FB) is available for linking to SIMATIC controllers.



Multiple charging system with SIPLUS ECC2000

Electrical Charging Components

Components for Electric Vehicle Charging Stations

**SIPLUS ECC1000 and ECC2000
charging controllers**

Technical specifications

Type		5TT3200-2KK30	1KK20, 2KK20, 3KK20, 4KK20, 6KK20	6FE1021-3CM10-1AA0	3CM10-2AA0	3CM10-3AA0
Product brand name		SIPLUS ECC1000		SIPLUS ECC2000		
Product designation		CM-100		CM-230		CM-230-C
		DC version	AC version	Managed version	Standalone version	Standalone version, DC version
General data						
Product description		Controlling and monitoring of the energy-related components in the charging station, used in communicating with the electric vehicle according to IEC 61851, Mode 3				
Suitability for use		Simple AC charging systems		Simple/complex AC charging systems		
Type of sensor		--		Humidity/temperature		--
Product function						
• Load management		No		Yes		
• Bus communication		No		Yes		
• Removable terminal for auxiliary and control circuit		Yes				
Ambient temperature						
• During operation	°C	-25 ... +60		-25 ... +55		
Installation altitude at height above sea level, maximum		2 000				
IP degree of protection at the front		IP20				
Pollution degree		3, according to IEC/EN 61010-1				
Type of mounting		Snap-on mounting onto TH 35 standard mounting rail according to IEC 60715				
Standard for safety		According to IEC 61010-1			According to IEC 61010-1/EN 61010-1 (2nd edition) or UL 61010-1 (2nd edition)	
Dimensions						
• Width	mm	72		108		
• Height	mm	91				
• Depth	mm	71		72		

Electrical Charging Components

Components for Electric Vehicle Charging Stations

SIPLUS ECC1000 and ECC2000 charging controllers

Accessories

SIRIUS switching and protection equipment is suitable in particular for three-phase charging stations, even under demanding ambient conditions. They enable perfect switching and protection in SIPLUS ECC1000 and SIPLUS ECC2000 charging systems.

Advantages:

- Modular system with coordinated components and a standardized range of accessories
- Switching and protection equipment in service-proven industry quality
- Uniform connection systems:
Screw terminals, spring-type terminals and ring terminal lug connections
- Environmentally-friendly production and materials, recycling capability, low power loss
- Ambient operating temperatures: -25 °C to +60 °C (+70 °C with derating)

SIRIUS switchgear

SIRIUS 3RT2 power contactors: Reliable startup and shutdown of the supply voltage for the charging process



3RT2 power contactor

SIRIUS protection equipment

SIRIUS 3RV2 motor starter protectors for plant protection: Safe protection against overload and short circuit



Motor starter protector for plant protection

More information

For more information on these and other components that are suitable in particular for the design of charging systems with SIPLUS ECC1000 and SIPLUS ECC2000 can be found under:

- SIRIUS switching and protection equipment:
 - Contactors for special applications, [see Chapter 4 "Switching Devices – Contactors and Contactor Assemblies – Special Applications"](#)
 - Power contactors for switching motors, [see Chapter 3 "Switching Devices – Contactors and Contactor Assemblies – for Switching Motors"](#)
 - Motor starter protectors / circuit breakers, [see Chapter 7, "Protection Equipment"](#)
- Protection, switching, measuring and monitoring devices, [see Catalog LV 10 "Low-Voltage Power Distribution and Electrical Installation Technology"](#):
 - 5SM3 RCCB circuit breakers
 - 7KT PAC and 7KM PAC measuring devices
 - 5SD7 surge arresters
- Power supplies:
 - 6EP1 LOGO!Power and SIPLUS extreme 7AG1 power supplies [see Catalog KT 10.1 "SITOP Power Supply"](#)

For operating instructions and other technical specifications [see http://support.automation.siemens.com/WW/view/en/46476435/133200](http://support.automation.siemens.com/WW/view/en/46476435/133200).

Electrical Charging Components

Components for Electric Vehicle Charging Stations

CM-100 charging controllers
according to IEC 61851

Technical specifications

Type		5TT3200-1KK20	2KK20	3KK20	4KK20	6KK20	2KK30
Product brand name		SIPLUS ECC1000					
Product designation		CM-100					
General data							
Version of the control element of the charging station		Charging mode 3 according to IEC 61851					
Product description		Controlling and monitoring of the energy-related components in the charging station, used in communicating with the electric vehicle according to IEC 61851					
Charging current maximum	A	13	16	20	32		16
IP degree of protection at the front		IP20					
Pollution degree		3, according to IEC/EN 61010-1					
Insulation voltage with pollution degree 3, rated value	V	230					
Supply voltage							
Type of voltage of the supply voltage		AC					DC
Supply voltage							
• At 50 Hz							
- Rated value	V	230					--
- Rated value for AC	V	184 ... 264					--
• At 60 Hz							
- Rated value	V	110					--
- Rated value for AC	V	88 ... 126					--
Supply voltage							
• At DC, rated value	V	--					24
• At DC	V	--					18 ... 28
Symmetrical tolerance of the mains frequency							
• At 50 Hz	Hz	47.5 ... 52.5					--
• At 60 Hz	Hz	57 ... 63					--
Consumed current at rated value of the supply voltage		mA	100				300
Communications							
Product function bus communication		No					
Protocol is supported							
• Vehicle communication according to IEC 61851		Yes					
• Ethernet protocol		No					
• EIB/KNX protocol		No					
Display							
Number of LEDs		1					
Display version							
• For normal operation		Green, blinking/permanently lit, waiting for EV/charging operation active					
• As status display of the inputs/outputs		Orange, blinking (1 Hz), unit waiting for enabling					
• For fault signal		Red, blinking/flashing, fault					
Inputs/outputs							
Number of interfaces according to IEC 61851		1					
Number of digital inputs		2					
Type of voltage for the input voltages		DC					
Input voltage	V	0 ... 5					
Number of digital outputs		0					
Auxiliary circuit							
Number of NO contacts for auxiliary contacts		4					
Operational current of the auxiliary contacts							
• At 230 V at AC	A	0.75					
• At 110 V at AC	A	0.75					
• At 24 V at DC	A	1					

Electrical Charging Components

Components for Electric Vehicle Charging Stations

CM-100 charging controllers according to IEC 61851

Type	5TT3200- 1KK20 2KK20 3KK20 4KK20 6KK20 2KK30					
Product brand name	SIPLUS ECC1000					
Product designation	CM-100					
Terminals						
Contact assignment						
• Of socket 1 at PIN 1	L: 110/230 V AC connection				I+24 V: 24 V DC connection (SELV)	
• Of socket 1 at PIN 2	N: 110/230 V AC connection				M: 24 V DC connection (SELV)	
Contact assignment						
• Of socket 2 at PIN 1	FE: Functional ground (part of the vehicle interface, plug connection according to IEC 61851) PX: Proximity (part of the vehicle interface, plug connection according to IEC 61851) CP: Control Pilot (part of the vehicle interface, plug connection according to IEC 61851)					
• Of socket 2 at PIN 2						
• Of socket 2 at PIN 3						
Contact assignment						
• Of socket 3 at PIN 1	AV: Auxiliary voltage (readout voltage for own digital inputs) EN: Enable (digital input for module release) HL: Hatch Lock (digital input for connector lock status)					
• Of socket 3 at PIN 2						
• Of socket 3 at PIN 3						
Contact assignment						
• Of socket 4 at PIN 1	P1: "Power" relay contact for switching load contactor		P1: "Power" relay contact for switching load contactor 13A branch		P1: "Power" relay contact for switching load contactor	
• Of socket 4 at PIN 2	P2: "Power" relay contact for switching load contactor		P2: "Power" relay contact for switching load contactor 13A branch		P2: "Power" relay contact for switching load contactor	
• Of socket 4 at PIN 3	V1: Ventilation relay contact for switching fan V2: Ventilation relay contact for switching fan H1: Hatch relay contact for switching interlock H2: Hatch relay contact for switching interlock S1: Signal relay contact for fault messages S2: Signal relay contact for fault messages					
• Of socket 4 at PIN 4						
• Of socket 4 at PIN 5						
• Of socket 4 at PIN 6						
• Of socket 4 at PIN 7						
• Of socket 4 at PIN 8						
Ambient conditions						
Installation altitude at height above sea level maximum	m	2 000				
Ambient temperature						
• During storage	°C	-25 ... +70				
• During operation	°C	-25 ... +60				
• During transport	°C	-25 ... +70				
Relative air humidity						
• During operation	%	0 ... 95				

Electrical Charging Components

Components for Electric Vehicle Charging Stations

**CM-100 charging controllers
according to IEC 61851**

Type		5TT3200-1KK20	2KK20	3KK20	4KK20	6KK20	2KK30
Product brand name		SIPLUS ECC1000					
Product designation		CM-100					
Electromagnetic compatibility							
EMC emitted interference according to IEC 61000-6-3		Suitable for operation in a residential, public and industrial environment					
EMC interference immunity according to IEC 61000-6-2		Suitable for use in industrial and residential areas					
Conducted interference injection BURST according to IEC 61000-4-4		4 kV/5 kHz AC supply cables and functional ground, 2 kV/5 kHz control cables and relay outputs				2 kV/5 kHz DC supply cables, 2 kV/5 kHz control cables and relay outputs	
Conducted interference injection SURGE according to IEC 61000-4-5		- Asymmetrical: AC supply cable 4 kV/12 Ω; Control cables and functional ground 2 kV/42 Ω; relay outputs 4 kV/12 Ω; assessment criterion B - Symmetrical: AC supply cables 2 kV/2 Ω; relay outputs 2 kV/2 Ω; assessment criterion B				- Asymmetrical: DC supply cable 0.5 kV/12 Ω, 1 kV/42 Ω; Control cables and functional ground 2 kV/42 Ω; relay outputs 4 kV/12 Ω; assessment criterion B - Symmetrical: DC supply cables 0.5 kV/2 Ω, 1 kV/42 Ω; relay outputs 2 kV/2 Ω; assessment criterion B	
Field-related interference according to IEC 61000-4-3		80 MHz ... 1 GHz 10 V/m, 1.4 ...2 GHz 3 V/m, 2 ... 2.7 GHz 1 V/m, assessment criterion A					
Electrostatic discharge according to IEC 61000-4-2		4 kV contact discharge/8 kV air discharge, assessment criterion B					
Shock resistance		- According to IEC 60068-2-27 - During transport according to IEC 60068-2-29					
		15 g/11 ms/3 shocks per axis 1 000 shocks/axis, 25 g, 6 ms half-sine					
Vibration resistance		- During transport according to IEC 60068-2-6 - During operation according to IEC 60068-2-6					
		5 ... 8.4 Hz/3.5 mm deflection, 8.4 ... 500 Hz/1 g 5 ... 8.4 Hz/3.5 mm deflection, 8.4 ... 150 Hz/1 g					
Impulse withstand voltage rated value		4 kV					
Conducted interference injection as high-frequency interference according to IEC 61000-4-6	V	3 V effective in the frequency range 0.15 ... 80.0 MHz, modulation 80 % AM with 1 kHz, assessment criterion A					
Interference immunity against magnetic fields with energy-related frequencies according to IEC 61000-4-8	A/m	100 at 50 Hz and 60 Hz, assessment criterion A					
Total active power loss, typical	W	6				4	
Touch protection against electric shock		Finger-safe					
Contact reliability	Operating cycles	80 000 at 1 A, inductive load					
Installation/fixing/dimensions							
Mounting position		Vertical, on horizontal standard mounting rail					
Material of the enclosure		Wellamid 6600-PA66-GV 30 HWV0CP					
Type of mounting		Snap-on mounting onto TH 35 standard mounting rail according to IEC 60715					
Dimensions							
Width	mm	72					
Height	mm	91					
Depth	mm	71					

Electrical Charging Components

Components for Electric Vehicle Charging Stations

CM-100 charging controllers according to IEC 61851

Type	5TT3200-1KK20						2KK20	3KK20	4KK20	6KK20	2KK30			
Product brand name	SIPLUS ECC1000													
Product designation	CM-100													
Connections														
Type of electrical connection														
• Of the inputs and outputs												Combicon connection GMSTB 2.5		
• For auxiliary and control circuit												Combicon connection MSTB 2.5		
Version of connector assignment														
• Of the outputs												Combicon connection MSTB 2.5		
• Of the inputs												Combicon connection MSTB 2.5		
Product function: removable terminal for the auxiliary and control circuit												Yes		
Connectable conductor cross-section														
• Solid												mm²	0.5 ... 2.5	
• Finely stranded												mm²	0.5 ... 2.5	
- Without end sleeves												mm²	0.5 ... 2.5	
- With end sleeves												mm²	0.5 ... 2.5	
AWG number														
• As coded connectable conductor cross-section												20 ... 14		

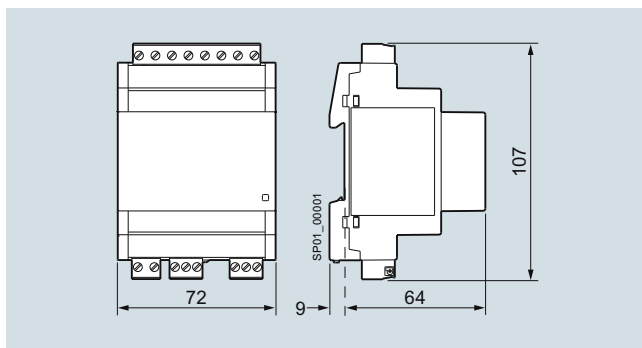
Selection and ordering data

Supply voltage	Charging current	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
V	A						
SIPLUS ECC1000 (CM-100) charging controller							
110 ... 230 AC	13	A	5TT3200-1KK20		1	1 unit	15A
	16	A	5TT3200-2KK20		1	1 unit	15A
	20	A	5TT3200-3KK20		1	1 unit	15A
	32	A	5TT3200-4KK20		1	1 unit	15A
	13/32	A	5TT3200-6KK20		1	1 unit	15A
24 DC	16	A	5TT3200-2KK30		1	1 unit	15A



5TT3200-.KK.0

Dimensional drawings



SIPLUS ECC1000 (CM-100) charging controllers

5TT3200-1KK20,
5TT3200-2KK20,
5TT3200-2KK30,
5TT3200-3KK20,
5TT3200-4KK20,
5TT3200-6KK20

Electrical Charging Components

Components for Electric Vehicle Charging Stations

CM-230 charging controllers acc. to IEC 61851
with Ethernet connection

Technical specifications

Type	6FE1021-3CM10-1AA0	6FE1021-3CM10-2AA0	6FE1021-3CM10-3AA0
Product brand name	SIPLUS ECC2000		
Product designation	CM-230 managed version	CM-230 stand-alone version	CM-230-C standalone version
General data			
Charging current			
• Typical	A	16	
Adjustable charging current	A	6 ... 80	
Product function load management	Yes		
Product description	Controlling and monitoring of the energy-related components in the charging station, used in communicating with the electric vehicle according to IEC 61851		
Suitability for use	Simple/complex AC charging systems		
Standard for charging mode electric vehicle	IEC/ISO 61851		
Standard for safety	According to IEC 61010-1/EN 61010-1 (2nd edition) or UL 61010-1 (2nd edition)		
IP degree of protection at the front	IP20		
Pollution degree	3, according to IEC/EN 61010-1		
Type of sensor		Humidity/temperature	--
Insulation voltage with pollution degree 3, rated value	V	230	
Supply voltage			
Type of voltage of the supply voltage	DC		
Supply voltage			
• At DC, rated value	V	24	
• At DC	V	18 ... 28	
Consumed current at rated value of the supply voltage	mA	300	
Communications			
Product function bus communication	Yes		
Type of data transmission to the I&C system	Ethernet		
Protocol is supported			
• Vehicle communication according to IEC 61851		Yes	
• Ethernet protocol		Yes	
• EIB/KNX protocol		No	
Display			
Number of LEDs	1		
Display version			
• For normal operation		Green, blinking/permanently lit, waiting for EV/charging operation active	
• As status display of the inputs/outputs		--	Orange, blinking (1 Hz/5 Hz), unit waiting for enabling/pre-heat charging post
• For fault signal		Red, blinking/flashing, fault	
		(see "SIPLUS ECC CM-230 Operating Instructions", http://support.automation.siemens.com/WW/view/en/48460217)	
Inputs/outputs			
Number of interfaces according to IEC 61851	1		
Number of digital inputs	8		
Type of voltage for the input voltages	DC		
Input voltage	V	0 ... 28	
Number of digital outputs		9	8
Type of voltage for the output voltages	DC		
Output voltage	V	18 ... 28	
Output current at digital output when signal <1> rated value	A	0.3	
Property of the output short-circuit-proof	Yes		
Product function control plug interlock	Yes		
• Note	V	24 (solenoid)	
Auxiliary circuit			
Number of NO contacts for auxiliary contacts	8		
Operational current of the auxiliary contacts			
• At 230 V at AC	A	0.75	
• At 110 V at AC	A	0.75	
• At 24 V at DC	A	1	

Electrical Charging Components

Components for Electric Vehicle Charging Stations

CM-230 charging controllers acc. to IEC 61851 with Ethernet connection

Type	6FE1021-3CM10-1AA0	6FE1021-3CM10-2AA0	6FE1021-3CM10-3AA0
Product brand name	SIPLUS ECC2000		
Product designation	CM-230 managed version	CM-230 stand-alone version	CM-230-C standalone version
Terminals			
Contact assignment • Of socket 1 at PIN 1 • Of socket 1 at PIN 2	L+24 V: 24 V DC connection (SELV) M: 24 V DC connection (SELV)		
Contact assignment • Of socket 2 at PIN 1 • Of socket 2 at PIN 2 • Of socket 2 at PIN 3	FE: Functional ground (part of the vehicle interface, plug connection according to IEC 61851) PX: Proximity (part of the vehicle interface, plug connection according to IEC 61851) CP: Control Pilot (part of the vehicle interface, plug connection according to IEC 61851)		
Contact assignment • Of socket 3 at PIN 1 • Of socket 3 at PIN 2 • Of socket 3 at PIN 3 • Of socket 3 at PIN 4 • Of socket 3 at PIN 5	1L: Root R1 ... R4 R1: Relay Output 1 R2: Relay Output 2 R3: Relay Output 3 R4: Relay Output 4	R1 (P): Power tap-off enabling relay R2 (V): Fan relay R3 (H): Interlock relay R4 (S): Signaling relay	
Contact assignment • Of socket 4 at PIN 1 • Of socket 4 at PIN 2 • Of socket 4 at PIN 3 • Of socket 4 at PIN 4 • Of socket 4 at PIN 5	2L: Root R5 ... R8 R5: Relay Output 5 R6: Relay Output 6 R7: Relay Output 7 R8: Relay Output 8	R5 (HT): Heating relay	R5 (P): Relay Output 5
Contact assignment • Of socket 5 at PIN 1 • Of socket 5 at PIN 2 • Of socket 5 at PIN 3 • Of socket 5 at PIN 4 • Of socket 5 at PIN 5 • Of socket 5 at PIN 6	24 V: Infeed for 24 V outputs TR, O1 ... O8 TR: Trip, 24 V output RX: Receive line (RS 232) TX: Send line (RS 232) 1M: 24 V DC negative (SELV/PELV) 24 V: 24 V DC Plus (SELV/PELV) connection	24 V: Infeed for 24 V outputs O1 ... O8 Not used	
Contact assignment • Of socket 6 at PIN 1 • Of socket 6 at PIN 2 • Of socket 6 at PIN 3 • Of socket 6 at PIN 4 • Of socket 6 at PIN 5 • Of socket 6 at PIN 6 • Of socket 6 at PIN 7 • Of socket 6 at PIN 8 • Of socket 6 at PIN 9	O1: 24 V switching output 1 O2: 24 V switching output 2 O3: 24 V switching output 3 O4: 24 V switching output 4 O5: 24 V switching output 5 O6: 24 V switching output 6 O7: 24 V switching output 7 O8: 24 V switching output 8 3M: Reference point 24 V outputs O1 ... O8	O1 (RC): 24 V-switching output status charging tap-off (ready to charge) O2 (E): 24 V-switching output error status (error) O3 (CS): 24 V switching output status cable connected (cable status) O4 (V): 24 V-switching output status vehicle connected (vehicle connected) O5 (VC): 24 V switching output charging status (vehicle charging)	
Contact assignment • Of socket 7 at PIN 1 • Of socket 7 at PIN 2 • Of socket 7 at PIN 3 • Of socket 7 at PIN 4 • Of socket 7 at PIN 5 • Of socket 7 at PIN 6 • Of socket 7 at PIN 7 • Of socket 7 at PIN 8 • Of socket 7 at PIN 9	I1: 24 V input 1 I2: 24 V input 2 I3: 24 V input 3 I4: 24 V input 4 I5: 24 V input 5 I6: 24 V input 6 I7: 24 V input 7 I8: 24 V input 8 2M: Reference point 24 V inputs I1 ... I8	I1 (EN): 24 V input module enabling I2 (HL): 24 V input status interlock I3 (CB): 24 V input circuit breaker status I3 (RCCB): 24 V input RCCB switch I4 (IO): 24 V input emergency release	
Contact assignment • Of socket 8 at PIN 1	RJ45: Ethernet 10/100		

Electrical Charging Components

Components for Electric Vehicle Charging Stations

**CM-230 charging controllers acc. to IEC 61851
with Ethernet connection**

Type	6FE1021-3CM10-1AA0		6FE1021-3CM10-2AA0	6FE1021-3CM10-3AA0
Product brand name	SIPLUS ECC2000			
Product designation	CM-230 managed version		CM-230 stand-alone version	CM-230-C standalone version
Ambient conditions				
Installation altitude at height above sea level maximum	m	2 000		
Ambient temperature				
• During storage	°C	-25 ... +70		
• During operation	°C	-25 ... +55		
• During transport	°C	-25 ... +70		
Relative humidity				
• During operation	%	0 ... 95		
Electromagnetic compatibility				
EMC emitted interference according to IEC 61000-6-3	Suitable for operation in a residential, public and industrial environment			
EMC interference immunity according to IEC 61000-6-2	Suitable for use in industrial and residential areas			
Conducted interference injection BURST according to IEC 61000-4-4	2 kV/5 kHz DC supply cables, 1 kV/5 kHz control cables, relay outputs, RS 232 and Ethernet, assessment criterion B			
Conducted interference injection SURGE according to IEC 61000-4-5	• Asymmetrical: DC supply cables 0.5 kV/12 Ω; Control cables, functional ground, RS 232 interface 1 kV/42 Ω; Relay outputs 2 kV/12 Ω; Ethernet-cable (shield) 1 kV direct; assessment criterion B • Symmetrical: DC supply cable 0.5 kV/2 Ω; assessment criterion B			
Field-related interference according to IEC 61000-4-3	• 80 MHz ... 1 GHz 10 V/m, modulation 80 % AM with 1 kHz, assessment criterion B • 80 MHz ... 1 GHz 3 V/m, 1.4 ... 2 GHz 3 V/m, 2.0 ... 2.7 GHz 1 V/m, modulation 80 % AM with 1 kHz, assessment criterion A			
Electrostatic discharge according to IEC 61000-4-2	4 kV contact discharge/8 kV air discharge, assessment criterion B			
Shock resistance				
• According to IEC 60068-2-27	15 g/11 ms/3 shocks/axis			
• During transport according to IEC 60068-2-29	1 000 shocks/axis, 25 g, 6 ms half-sine			
Vibration resistance				
• During transport according to IEC 60068-2-6	5 ... 8.4 Hz/3.5 mm deflection, 8.4 ... 500 Hz/1 g			
• During operation according to IEC 60068-2-6	5 ... 8.4 Hz/3.5 mm deflection, 8.4 ... 150 Hz/1 g			
Conducted interference injection as high-frequency interference according to IEC 61000-4-6	3 V effective in the frequency range 0.15 ... 80.0 MHz, modulation 80 % AM with 1 kHz, assessment criterion A			
Interference immunity against magnetic fields with energy-related frequencies according to IEC 61000-4-8	A/m	100 at 50 Hz and 60 Hz, assessment criterion A		
Total active power loss, typical	W	4		
Touch protection against electric shock	Finger-safe			
Contact reliability	Operating cycles	80 000 at 1 A, inductive load		
Installation/fixing/dimensions				
Mounting position	Vertical, on horizontal standard mounting rail			
Material of the enclosure	Wellamid 6600-PA66-GV 30 HWV0CP			Lexan 915R
Type of mounting	Snap-on mounting onto TH 35 standard mounting rail according to IEC 60715			
Dimensions				
• Width	mm	108		
• Height	mm	91		
• Depth	mm	72		
Connections				
Type of electrical connection				
• Of the inputs and outputs	Combicon connection GMSTB 2.5			
• For auxiliary and control circuit	Combicon connection MSTB 2.5			
Version of connector assignment				
• Of the outputs	Combicon connection MSTB 2.5			
• Of the inputs	Combicon connection MSTB 2.5			
Product function: removable terminal for the auxiliary and control circuit	Yes			
Connectable conductor cross-section				
• Solid	mm²	0.5 ... 2.5		
• Finely stranded				
- Without end sleeves	mm²	0.5 ... 2.5		
- With end sleeves	mm²	0.5 ... 2.5		
AWG number				
• As coded connectable conductor cross-section		20 ... 14		

Electrical Charging Components

Components for Electric Vehicle Charging Stations

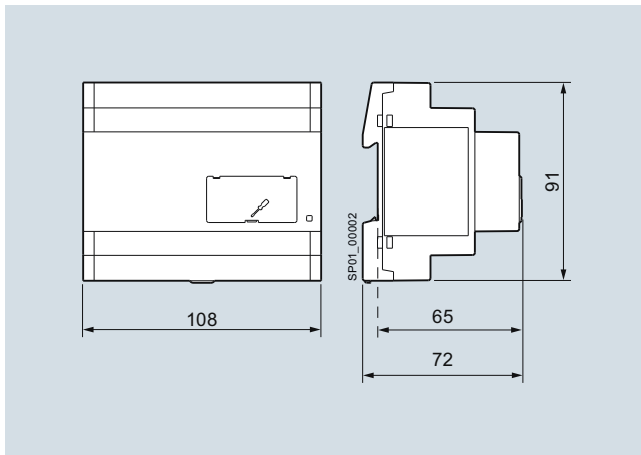
**CM-230 charging controllers acc. to IEC 61851
with Ethernet connection**

Selection and ordering data

Version	Supply voltage	Charging current	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	V	A						
SIPLUS ECC2000 charging controllers (CM-230/CM-230-C)								
 CM-230 • Managed • Standalone	24 DC	6 ... 80 (adjustable through web interface)	X	6FE1021-3CM10-1AA0		1	1 unit	477
			X	6FE1021-3CM10-2AA0		1	1 unit	477
CM-230-C • Standalone	24 DC	6 ... 80 (adjustable through web interface)	X	6FE1021-3CM10-3AA0		1	1 unit	477

6FE1021-3CM10-AA0

Dimensional drawings



SIPLUS ECC2000 charging controllers (CM-230/CM-230-C)
6FE1021-3CM10-1AA0,
6FE1021-3CM10-2AA0,
6FE1021-3CM10-3AA0

Electrical Charging Components

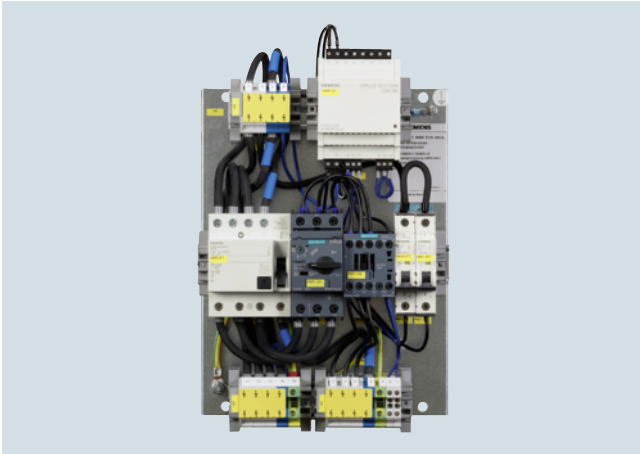
Components for Electric Vehicle Charging Stations

SIPLUS ECC8000 prefabricated function units

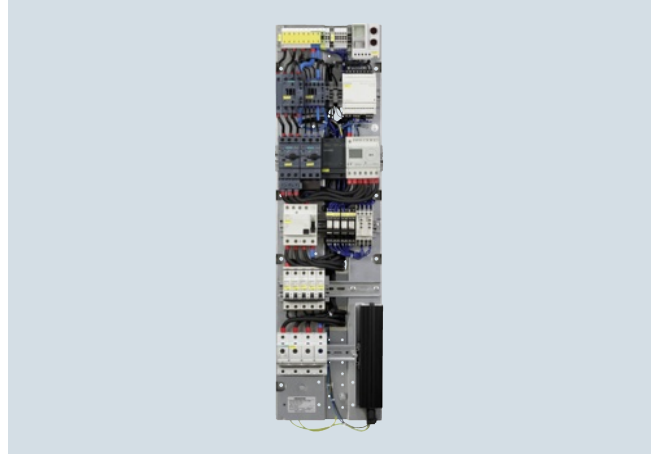
Overview

Function units are pre-wired, tested and ready-to-fit subsystems for electric vehicle charging stations. The function units comprise not only the charging controller but also the complete power tap-off with RCCB, circuit breaker and load contactor.

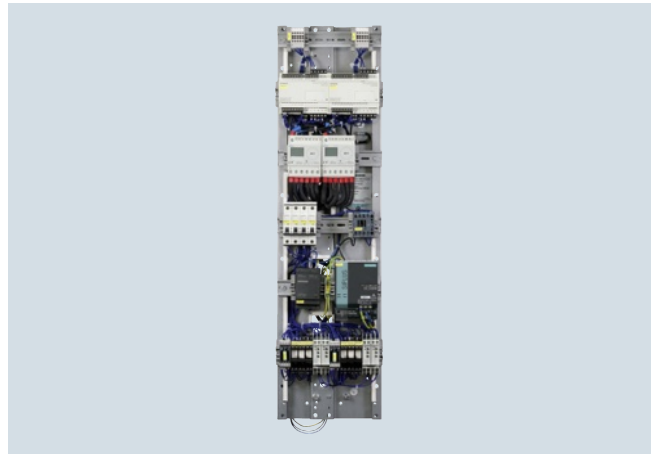
Other components are also included in the function units according to the intended application, e.g. electric heaters to extend the permissible temperature range, controllers for the charging plug interlock, and calibrated power meters. Switch disconnectors and terminal strip connections enable easy commissioning and reduce the amount of work during servicing calls.



SIPLUS ECC8000 SYS-101A function unit



SIPLUS ECC8000 SYS-102A function unit



SIPLUS ECC8000 SYS-202A function unit

Benefits

The prefabricated and certified function units enable the quick installation of standards-conform charging stations for system integrators.

Customer-specific adaptations are possible (on request).

Electrical Charging Components

Components for Electric Vehicle Charging Stations

SIPLUS ECC8000 prefabricated function units

Technical specifications

Type		6FE1086-0SY00-0AA0	6FE1086-0SY00-1AA0	6FE1086-3SY00-0AA0
Product brand name		SIPLUS ECC8000		
Product designation		SYS-101A	SYS-102A	SYS-202A
General data				
Product description		Prefabricated function unit for installation in wall box enclosures in a residential environment (e.g. garage)	Prefabricated function unit for installation in a simple charging post	Prefabricated function unit for installation in a public/semi-public charging posts
Suitability for use		Function unit for charging stations at home (home charging)	Function unit for wall boxes or simple charging posts	Function unit for professional charging posts in the public area
Product component charging tap-offs		Yes		
Number of charging tap-offs		1		2
Number of interfaces according to IEC 61851		1		2
Charging current	A	16	13 / 32 (automatic switchover)	32 each
Product function				
• Load management		No		Yes
• Control plug interlock		No		Yes
- Note		--		24 V/12 V (motor)
• Energy measurement		No	Yes	
Number of energy measuring stations		0	1	2
Standard for charging mode electric vehicle		IEC/ISO 61851		
Pollution degree		2 (cabinet requirement)		
Type of sensor		--		Humidity/temperature
IP degree of protection		IP00		
Overvoltage category		2		
RCCB type		Type A		
Installation altitude at height above sea level, maximum	m	1 000		
Ambient temperature				
• During storage	°C	-40 ... +75	-20 ... +60	
• During operation	°C	-20 ... +45	-5 ... +45	
• During transport	°C	-40 ... +75	-20 ... +60	
Relative humidity during operation, maximum	%	95		
Product component heating		No	Yes	
Product function overvoltage protection		No		
Inputs				
Type of voltage of the supply voltage		AC		
Operational voltage rated value for AC	V	400		
Input voltage	V	360 ... 440		
Mains frequency 1, rated value	Hz	50		
Insulation voltage, rated value	V	440		
Suitability of use for network form		TNS		
Current at AC, rated value	A	18	35	72
Outputs				
Phase number of outputs		3		

Electrical Charging Components

Components for Electric Vehicle Charging Stations

SIPLUS ECC8000 prefabricated function units

Type	6FE1086-0SY00-0AA0	6FE1086-0SY00-1AA0	6FE1086-3SY00-0AA0
Product brand name	SIPLUS ECC8000		
Product designation	SYS-101A	SYS-102A	SYS-202A
Communications			
Product function bus communication	No		Yes
Type of data transmission to the I&C system	--		Ethernet
Protocol is supported			
• Vehicle communication according to IEC 61851	Yes		
• Ethernet protocol	No		Yes
Conducted interference injection BURST according to IEC 61000-4-4	2 kV/5 kHz AC supply cables and functional ground, 1 kV/5 kHz control cables and input/output signals		
Conducted interference injection SURGE according to IEC 61000-4-5	• Asymmetrical: Supply cables 2 kV, signal cables > 30 m 1 kV, assessment criterion B • Symmetrical: Supply cables 1 kV, assessment criterion B		
Field-related interference according to IEC 61000-4-3	• 80 MHz ... 1 GHz 3 V/m, 1.4 ... 2 GHz 3 V/m, assessment criterion A • 80 MHz ... 1 GHz 10 V/m assessment criterion B • 2.0 ... 2.7 GHz 1 V/m		
Electrostatic discharge according to IEC 61000-4-2	4 kV contact discharge/8 kV air discharge, assessment criterion B		
Conducted interference injection as high-frequency interference according to IEC 61000-4-6	3 V effective in the frequency range 0.15 ... 80.0 MHz, assessment criterion A		
Interference immunity against magnetic fields with energy-related frequencies according to IEC 61000-4-8	A/m	100 at 50 Hz and 60 Hz, assessment criterion A	
EMC emitted interference according to IEC 61000-6-3	Suitable for operation in a residential, public and industrial environment		
Shock resistance			
• According to IEC 60068-2-27	15 g/11 ms/3 shocks/axis		
• During transport according to IEC 60068-2-29	1 000 shocks/axis, 25 g, 6 ms		
Vibration resistance			
• During transport according to IEC 60068-2-6	5 ... 500 Hz/1 g/10 cycles		
• During operation according to IEC 60068-2-6	5 ... 150 Hz/1 g/10 cycles		
Mechanical data			
Mounting position	Vertical		
Type of mounting	Screw mounting		
Dimensions			
• Height	mm	370	900
• Width	mm	230	240
• Depth	mm	150	200
			270

Selection and ordering data

	Product designation	Type of voltage of the supply voltage	Input voltage	Charging current		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
				1	2						
			V	A	A						
SIPLUS ECC8000											
	SYS-101A	AC	360 ... 440	16	--	X	6FE1086-0SY00-0AA0		1	1 unit	477
	SYS-102A	AC	360 ... 440	13	32	X	6FE1086-0SY00-1AA0		1	1 unit	477
	SYS-202A	AC	360 ... 440	32	--	X	6FE1086-3SY00-0AA0		1	1 unit	477

6FE1086-0SY00-0AA0

More information

For operating instructions and other technical specifications see <http://support.automation.siemens.com/WWW/view/en/46476547/133200>.

Electrical Charging Components

Components for Electric Vehicle Charging Stations

Notes