



SIEMENS



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# Low-Voltage Power Distribution and Electrical Installation Technology

Monitoring Devices

Catalog  
Extract  
LV 10

Edition  
10/2021

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### Technical specifications

The technical specifications are for general information purposes only. Always heed the operating instructions and notices on individual products during assembly, operation and maintenance.

All illustrations are not binding.

# Low-Voltage Power Distribution and Electrical Installation Technology

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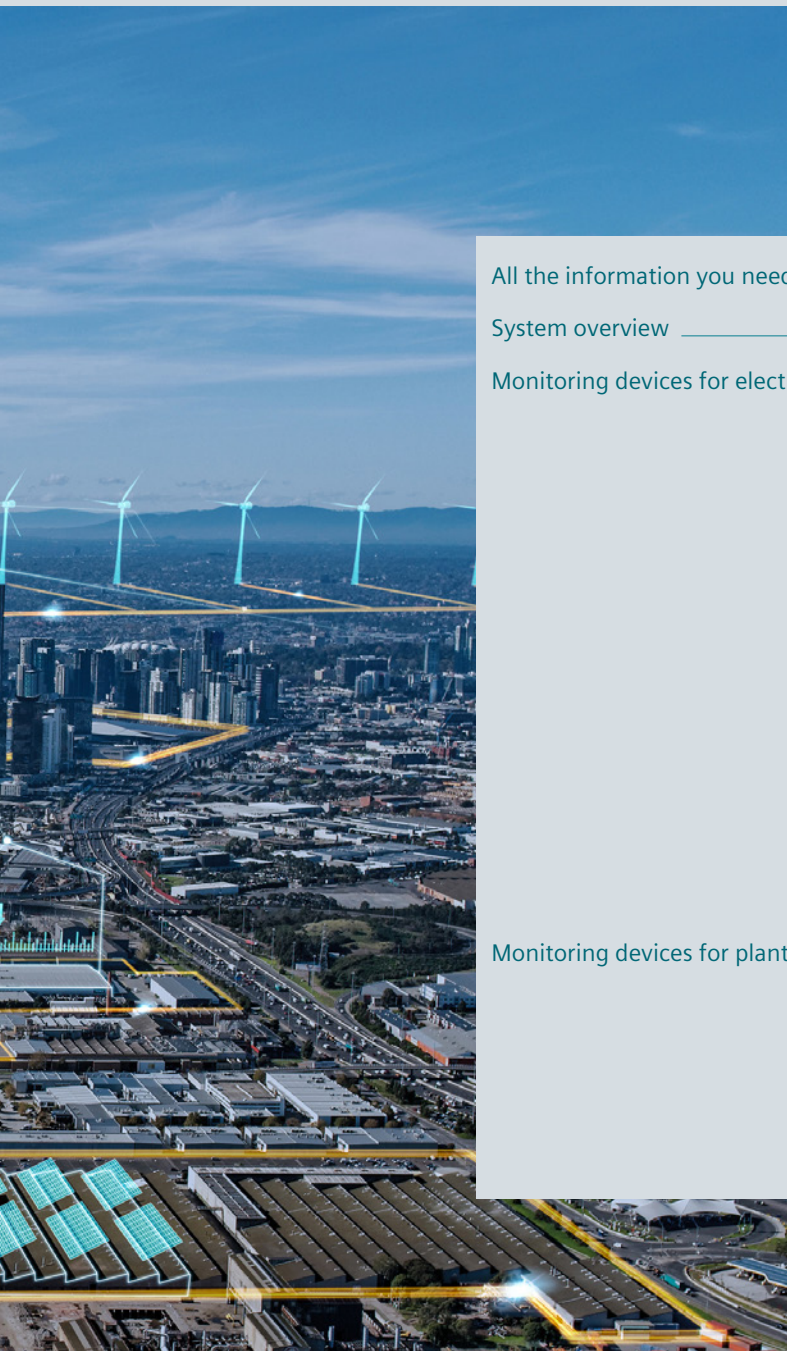
## Well-monitored – well-protected

Monitoring devices perform numerous functions to protect people and machinery: At dusk, they switch on automatically, control the temperature or signal the location where a fuse has tripped.

They also ensure reliable switchover to emergency power supply, monitor the emergency lighting, ensure overload-free operation of motors and neutral monitoring for breakage and overvoltages.

Monitoring devices can do even more, e.g., underload monitoring of asynchronous motors in no-load operation.

# Monitoring Devices



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# A multitude of additional information ...

## Information + ordering

### All the important things at a glance

For information about monitoring devices, please visit our website [www.siemens.com/lowvoltage](http://www.siemens.com/lowvoltage)

### Your product in detail

The relevant tender specifications can be found at [www.siemens.com/lowvoltage/tenderspecifications](http://www.siemens.com/lowvoltage/tenderspecifications)

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### Everything you need for your order

Refer to the Industry Mall for an overview of your products

- Monitoring devices [sie.ag/2m3no4A](http://sie.ag/2m3no4A)

Direct forwarding to the individual products in the Industry Mall by clicking on the article number in the catalog or by entering this web address incl. article number [www.siemens.com/product?Article No.](http://www.siemens.com/product?Article No.)

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# ... can be found in our online services

## Commissioning + operation

### Your product in detail

The Siemens Industry Online Support (SIOS) provides comprehensive information

[www.siemens.com/lowvoltage/product-support](http://www.siemens.com/lowvoltage/product-support)

- Operating instructions
- Characteristic curves
- Certificates

Comprehensive mobile support via the Siemens Industry Online Support app available for download from the [App Store](#) and [Play Store](#)

You will find further information under:

[www.siemens.com/support-app](http://www.siemens.com/support-app)

Provision of 3D data (step and u3d data formats)

- Siemens Industry Mall  
[www.siemens.com/lowvoltage/mall](http://www.siemens.com/lowvoltage/mall)
- Image database  
[www.siemens.com/lowvoltage/picturedb](http://www.siemens.com/lowvoltage/picturedb)

Engineering data for CAD or CAE systems are available in the CAX Download Manager at [www.siemens.com/cax](http://www.siemens.com/cax)

### Manuals

Manuals are available for downloading in Siemens Industry Online Support (SIOS) at

[www.siemens.com/lowvoltage/manuals](http://www.siemens.com/lowvoltage/manuals)

- Configuration manual – Monitoring devices  
(45316099)

### Technical overview – Monitoring devices



## The fast way to get you to our online services

This page provides you with comprehensive information and links on monitoring devices

[www.siemens.com/lowvoltage/product-support](http://www.siemens.com/lowvoltage/product-support) (109769086)

# System overview

## Monitoring devices for electrical values



5SV8 residual current monitor



5SV8 modular residual current device



5TT3 and 5TT6 relay



5TT3 monitors

## Accessories



Summation current transformer



Holders for standard mounting rails



Magnetic field centering sleeves

## Monitoring devices for plants and equipment



5TT5 EMERGENCY STOP modules



5TT3 relay



7LQ2 dimmer switches

## Accessories



Immersion electrodes

### Note:

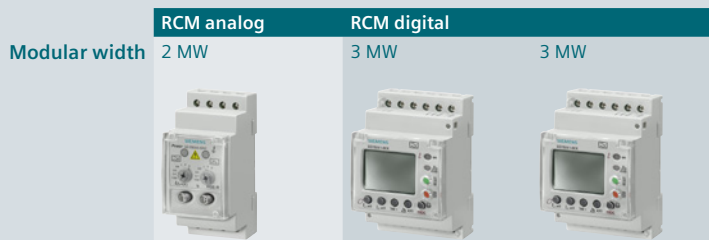
You will find a detailed range of accessories with the basic units.





# 5SV8 residual current monitors

## Type A and type AC



Rated operational voltage $U_e$	Rated residual current $I_{\Delta n}$		Response time $\Delta t$	Modular width		
	Type A	Type AC		RCM analog	RCM digital	RCM digital
230 V AC	0.03 ... 5 A	>3 A	0.02 ... 5 s	2 MW	3 MW	3 MW
	0.03 ... 3 A	5 ... 30 A	0.02 ... 10 s, INS, SEL <sup>1)</sup>	5SV8000-6KK	5SV8001-6KK	5SV8200-6KK

### Further technical specifications

Further technical specifications	5SV8000-6KK	5SV8001-6KK	5SV8200-6KK
<b>Standards</b>			
Standards	EN 62020, IEC 62020		
Approvals	–	UL	
<b>Supply</b>			
Rated operational voltage $U_e$	230 V AC		
Frequency	50/60 Hz		
Rated residual current $I_{\Delta n}$	Type A	0.03 ... 3 A	
	Type AC	>3 A	5 ... 30 A
Response time $\Delta t$		0.02 ... 5 s	0.02 ... 10 s, INS, SEL <sup>1)</sup>
<b>Relay contacts</b>			
Relay contacts	1× alarm	1× pre-alarm, 1× alarm	1× pre-alarm, 4× alarm
Rated voltage	230 V AC		
Rated current	6 A		
<b>Summation current transformer</b>			
Diameter	20 ... 210 mm		
<b>Equipment</b>			
Maximum cable length RCM/CT	10 m (shielded cable)		
Conductor cross-section	1.5 mm <sup>2</sup>		
Test/reset	Yes/Yes		
External tripping operation/external reset	–/Yes	Yes/Yes	
<b>Safety</b>			
Degree of protection	Contacts	IP20	
	Front	IP41	
<b>Ambient conditions</b>			
Operating temperature	–10 ... +50 °C		

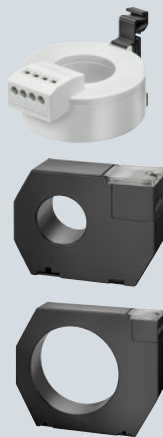
<sup>1)</sup> INS: Instantaneous,  
SEL: Selective

## Accessories

### Summation current transformers

- Including holder for standard mounting rail or wall mounting
- Standard @

Mounting options	Lowest measurable residual current $I_{\Delta n \min}$	Rated current $I_n$	Maximum current <sup>2)</sup> $I_{\max}$	Internal diameter	Article No.
Standard mounting rail	30 mA	≤40 A	240 A	20 mm	5SV8700-OKK
		≤63 A	380 A	30 mm	5SV8701-OKK
Wall mounting, standard mounting rail <sup>1)</sup>	30 mA	≤80 A	480 A	35 mm	5SV8702-OKK
		≤200 A	1200 A	70 mm	5SV8703-OKK
Wall mounting	100 mA	≤250 A	1500 A	105 mm	5SV8704-OKK
		≤500 A	3000 A	140 mm	5SV8705-OKK
		≤600 A	3600 A	210 mm	5SV8706-OKK



### Holders for standard mounting rails

- Suitable for summation current transformers with internal diameter of 20 mm, 30 mm, 35 mm, 70 mm
- Cannot be used together with magnetic field centering sleeves.



Article No.
5SV8900-1KK

### Magnetic field centering sleeves



Internal diameter	Article No.
35 mm	5SV8902-1KK
70 mm	5SV8903-1KK
105 mm	5SV8904-1KK
140 mm	5SV8905-1KK
210 mm	5SV8906-1KK

<sup>1)</sup> The holder for standard mounting rails is additionally required for mounting onto the standard mounting rail.

<sup>2)</sup> Short-time starting current, up to 2 s

# 5SV8 modular residual current device

## Type A

Modular width **3 MW**

**MRCD**



Rated operational voltage $U_e$	Rated residual current $I_{\Delta n}$ Type A	Response time $\Delta t$	
230 V AC	0.03 ... 3 A	0.02 ... 10 s, INS, SEL <sup>1)</sup>	5SV8101-6KK

## Further technical specifications

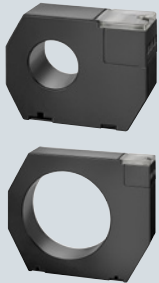
Standards		
Standards	EN 60947-2 (Annex M), IEC 60947-2 (Annex M)	
Approvals	–	
Supply		
Rated operational voltage $U_e$	230 V AC from a 1-phase auxiliary voltage source (also externally)	
Frequency	50/60 Hz	
Rated residual current $I_{\Delta n}$	Type A	0.03 ... 3 A (default setting: 30 mA)
	Type AC	–
Response time $\Delta t$	$I_{\Delta n} = 30 \text{ mA}$	INS instantaneous
	$I_{\Delta n} > 30 \text{ mA}$	INS – SEL – 0.06 ... 10 s <sup>1)</sup> (default setting INS)
Relay contacts		
Relay contacts	1× alarm, 1× tripping operation	
Rated voltage	230 V AC	
Rated current	6 A	
Summation current transformer		
Diameter	35 ... 210 mm	
Equipment		
Maximum cable length RCM/CT	10 m (shielded cable)	
Conductor cross-section	0.125 ... 2.08 mm <sup>2</sup>	
Test/reset	Yes/Yes	
External tripping operation/external reset	Yes/Yes	
Safety		
Degree of protection	Contacts	IP20
	Front	IP41
Ambient conditions		
Operating temperature	–10 ... +50 °C	

<sup>1)</sup> INS: Instantaneous,  
SEL: Selective

## Accessories

### Summation current transformers

- Including holder for wall mounting
- Standard ②



Mounting options	Lowest measurable residual current $I_{\Delta n \text{ min}}$	Rated current $I_n$	Maximum current <sup>2)</sup> $I_{\text{max}}$	Internal diameter	Article No.
Wall mounting, standard mounting rail <sup>1)</sup>	30 mA	≤80 A	480 A	35 mm	5SV8702-OKK
	30 mA	≤200 A	1200 A	70 mm	5SV8703-OKK
Wall mounting	100 mA	≤250 A	1500 A	105 mm	5SV8704-OKK
	300 mA	≤500 A	3000 A	140 mm	5SV8705-OKK
		≤600 A	3600 A	210 mm	5SV8706-OKK

### Holders for standard mounting rails



- Suitable for summation current transformers with internal diameter of 20 mm, 30 mm, 35 mm, 70 mm
- Cannot be used together with magnetic field centering sleeves

Article No.  
5SV8900-1KK

### Magnetic field centering sleeves

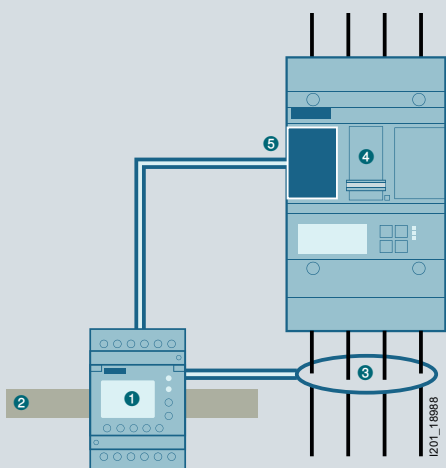


Internal diameter	Article No.
35 mm	5SV8902-1KK
70 mm	5SV8903-1KK
105 mm	5SV8904-1KK
140 mm	5SV8905-1KK
210 mm	5SV8906-1KK

<sup>1)</sup> The holder for standard mounting rails is additionally required for mounting onto the standard mounting rail.

<sup>2)</sup> Short-time starting current, up to 2 s

## Tested combination options



### 5SV8101-6KK/- (tested combinations)

#### ① Modular residual current device

5SV8101-6KK

#### ② Standard mounting rail

EN 60715 – TH35 – 7.5 35 – 15

#### ③ Summation current transformers

#### Magnetic field centering sleeves

Ø 35 mm 5SV8702-OKK 5SV8902-1KK

Ø 70 mm 5SV8703-OKK 5SV8903-1KK

Ø 105 mm 5SV8704-OKK 5SV8904-1KK

Ø 140 mm 5SV8705-OKK 5SV8905-1KK

Ø 210 mm 5SV8706-OKK 5SV8906-1KK

#### ④ Molded case circuit breakers

#### ⑤ Trip element

3VL17...

3VL9400-1UP00

3VL27...

3VL37...

3VL47...

3VA10...

3VA9908-0BB11

3VA11...

3VA9908-0BB20

3VA20...

3VA9908-0BB24

3VA21...

3VA9908-0BB25

3VA22...

3VA12...

3VA9908-0BB11

3VA23...

3VA9908-0BB20

3VA24...

3VA9908-0BB24

# 5SV8 modular residual current device

## Type B

Modular width **MRCD digital**  
2 MW



Rated operational voltage $U_e$	Rated residual current $I_{\Delta n}$ Type B	Response time $\Delta t$	
230 V AC	0.03 ... 1 A	0 ... 10 s	5SV8101-4KK
24 V DC	0.03 ... 1 A	0 ... 10 s	5SV8111-4KK

### Further technical specifications

		5SV8101-4KK	5SV8111-4KK
<b>Standards</b>			
Standards		EN 60947-2 (Annex M), IEC 60947-2 (Annex M)	
<b>Supply</b>			
Supply voltage $U_s$		230 V AC (70 ... 300 V AC)	24 V DC (9.6 ... 94 V DC)
Frequency		50/60 Hz	–
Power consumption		<6.5 VA	
<b>Relay contacts</b>			
Relay contacts		1× alarm, 1× tripping operation	
Rated voltage		250 V AC	
Rated current		5 A	
<b>External summation current transformer</b>			
Internal diameter		35 ... 210 mm (5SV8701-2KK, 5SV8701-2KP, 5SV8702-2KK, 5SV8702-2KP, 5SV8703-2KK, 5SV8704-2KK)	
Rated voltage (Summation current transformers)		690 V	
Response characteristic		Acc. to IEC 60947-2 (M)	
Rated frequency		0 ... 2 kHz	
Response residual current		$I_{\Delta n1}$ (AL1 alarm) 50 ... 100% of $I_{\Delta n2}$ (factory setting: 50%) $I_{\Delta n2}$ (TP2 tripping) 30 mA ... 1 A (factory setting: 30 mA)	
Response delay		$t_{on1}$ (alarm) 0 ... 10 s (factory setting: 1 s) $t_{on2}$ (tripping) 0 ... 10 s (factory setting: 0 s)	
<b>Equipment</b>			
Maximum cable length MRCD/converter		10 m (6 × 0.75 mm <sup>2</sup> )	
Password		Off/0 ... 999 (factory setting: 0)	
<b>Safety</b>			
Degree of protection		Components (IEC 60529) IP30 Terminals (IEC 60529) IP20	
EMC		IEC 60947-2 (M)	
Overvoltage category		III	
Pollution degree		3	
<b>Mechanical data</b>			
Width		36 mm (2 MW)	
Depth		64 mm	
Height		85 mm	
Weight		150 g	
Fixing		Standard mounting rail	
Enclosure material		Polycarbonate	
Electrical connection		Screw terminals	
Conductor cross-section		Rigid 0.2 ... 4 mm <sup>2</sup> Flexible, with end sleeve 0.2 ... 2.5 mm <sup>2</sup> (AWG 24 ... 12)	
Stripped length		8 ... 9 mm	
Tightening torque		0.5 ... 0.6 Nm	
<b>Ambient conditions</b>			
Operating temperature		–25 ... +55 °C	

## Accessories

### Summation current transformers



Lowest measurable residual current $I_{\Delta n \min}$	Rated current $I_n$	Maximum current <sup>1)</sup> $I_{max}$	Internal diameter	Version	Article No.
10 mA	≤80 A	500 A	35 mm	Standard	5SV8701-2KK
				With shield	5SV8701-2KP
	≤160 A	1000 A	60 mm	Standard	5SV8702-2KK
				With shield	5SV8702-2KP
100 mA	≤330 A	2000 A	120 mm	Standard	5SV8703-2KK
				Standard	5SV8704-2KK
300 mA	≤630 A	3800 A	210 mm	Standard	5SV8704-2KK

### Holders for standard mounting rails



#### Suitable for summation current transformers

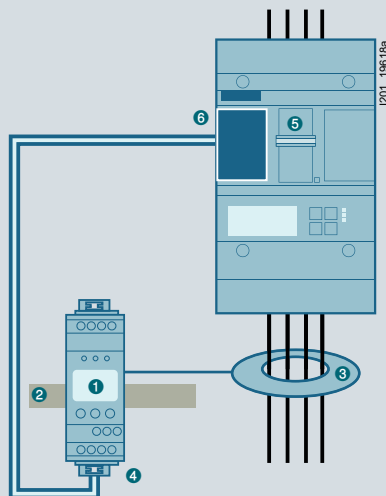
5SV8701-2KK,  
5SV8701-2KP  
5SV8702-2KK,  
5SV8702-2KP

#### Article No.

5SV8900-2KK  
5SV8900-3KK

<sup>1)</sup> Short-time starting current, up to 2 s

## Tested combination options



### 5SV8101-4KK/5SV8111-4KK (tested combinations)

#### 1 Modular residual current device

5SV8101-4KK/5SV8111-4KK

#### 2 Standard mounting rail

EN 60715 – TH35 – 7,5 35 – 15

#### 3 Summation current transformers

∅ 35 mm 5SV8701-2KK/5SV8701-2KP

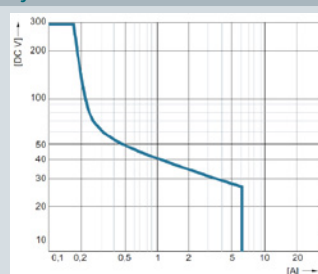
∅ 60 mm 5SV8702-2KK/5SV8702-2KP

∅ 120 mm 5SV8703-2KK

∅ 210 mm 5SV8704-2KK

#### 4 Relay contacts

DC:



AC: max. 230 V, 5A

#### 5 Molded case circuit breakers

3VA1...  
3VA20...  
3VA21...  
3VA22...  
3VA23...  
3VA24...


#### 6 Trip element

3VA9908-0BB11  
3VA9908-0BB24  
3VA9908-0BB25  
3VA9908-0BB11  
3VA9908-0BB25

# 5TT3 undervoltage relays

Without response delay

Contacts	For the monitoring of		
	1, 2 or 3 phases against N	2 CO	3 phases against N
1 CO	2 CO	2 CO	2 CO
1 MW	2 MW	2 MW	2 MW



Rated operational voltage $U_e$	Rated operational current $I_e$	Switching thresholds	Hysteresis			
<b>Not adjustable</b>						
230 V AC	4 A	0.7 and 0.9 × $U_c$	–	5TT3400	5TT3402	5TT3404
		0.85 and 0.95 × $U_c$	–	5TT3401	–	5TT3405
<b>Adjustable</b>						
230 V AC	4 A	0.7 ... 0.95 × $U_c$	5%	–	–	5TT3406
		0.9 ... 0.95 × $U_c$	–	–	5TT3403	–

5TT3400		
5TT3401		
5TT3402	5TT3404	
5TT3403	5TT3405	5TT3406



## Further technical specifications

Standards		Standards	
Standards		IEC 60255, DIN VDE 0435-110, DIN VDE 0435-303	
Supply			
Rated control circuit voltage $U_c$		230/400 V AC	
Operating range (overload capability)		1.1 × $U_c$	
Rated frequency		50/60 Hz	
Contacts			
$\mu$ contact		AC-11	4 A
Response values		ON-switching	0.9/0.95 × $U_c$
		OFF-switching	0.7/0.85 × $U_c$
Minimum contact load		10 V/100 mA	
Safety			
Rated insulation voltage $U_i$		Between coil/contact	4 kV
Electrical isolation, creepage distances and clearances		Actuator/contact	3 mm      5.5 mm
Rated impulse withstand voltage $U_{imp}$		Actuator/contact	>2.5 kV      >4 kV
Functions			
Phase asymmetry		Setting accuracy	–      Approx. 5 ... 10%
		Repeat accuracy	–      1
Phase failure detection		At L1 or L2 or L3	100 ms
Functions		Monitoring of 1/2 phases against N	Yes      –
		Monitoring of 3 phases against N	Yes
		Asymmetry (failure) detection	–      Yes
		Reverse (failure) detection	–      Yes
		Phase failure detection	Yes
N-conductor monitoring		–	Yes
Connection			
Terminals		± Screw (Pozidriv)	PZ 1
Conductor cross-sections		Rigid	Max. 2x 2.5 mm <sup>2</sup>
		Flexible, with end sleeve	Max. 1x 0.5 mm <sup>2</sup>
Ambient conditions			
Permissible ambient temperature		–20 ... +60 °C	
Resistance to climate		Acc. to EN 60068-1	20/60/4



# 5TT3 undervoltage relays

With response delay

	For the monitoring of 1, 2 or 3 phases against N	
Contacts	1 CO	2 CO
Modular width	1 MW	1 MW
		

Rated operational voltage $U_e$	Rated operational current $I_e$	Switching thresholds	Hysteresis	Standard	With TEST pushbutton
Not adjustable					
230 V AC	4 A	$0.85 \times U_c$	5%	5TT3414	5TT3415

## Further technical specifications

	5TT3414	5TT3415
<b>Supply</b>		
Rated control circuit voltage $U_c$	230/400 V AC	
Operating range (overload capability)	$1.15 \times U_c$	
Rated frequency	50/60 Hz	
<b>Contacts</b>		
Contacts	AC-15	1 CO
Response values	ON-switching	2 CO
	OFF-switching	5% hysteresis
Response delay		$0.85 \times U_c$
Return transfer delay		0.5 s
Minimum contact load		60 s
Electrical service life in operating cycles	AC-15 (1 A, 230 V AC)	10 V/100 mA
		$1 \times 10^5$
<b>Safety</b>		
Rated insulation voltage $U_i$	Between coil/contact	–
Rated impulse withstand voltage	Acc. to IEC 60664-1	6 kV
Pollution degree		2
<b>Functions</b>		
Phase failure detection	At L1 or L2 or L3	500 ms
Functions	Monitoring of 1 or 2 phases against N	Yes
	Monitoring of 3 phases against N	Yes
	Phase failure detection	Yes
<b>Connection</b>		
Terminals	– Screw (slot)	3.5 mm
Conductor cross-sections	Rigid	$1 \times 4 \text{ mm}^2$
	Flexible, with end sleeve	$1 \times 2.5 \text{ mm}^2$
<b>Ambient conditions</b>		
Permissible ambient temperature		–25 ... +60 °C
Resistance to climate	Acc. to EN 60068-1	20/060/04

# 5TT3 short-time voltage relay

Without response delay

For the monitoring of  
1, 2 or 3 phases against N

Contacts 2 CO  
Modular width 2 MW



Rated operational voltage $U_e$	Rated operational current $I_e$	Switching thresholds	
Not adjustable			
230 V AC	4 A	$0.8 \dots 0.85 \times U_c$	5TT3407


## Further technical specifications

Standards			
Standards		IEC 60255, DIN VDE 0435-303	
Supply			
Rated control circuit voltage $U_c$		230/400 V AC	
Operating range (overload capability)		$1.1 \times U_c$	
Rated frequency		50/60 Hz	
Rated operational power $P_s$		AC operation:	230 V and p.f. = 1 230 V and p.f. = 0.4
		DC operation:	$U_e = 24 \text{ V}$ and $I_e = 6 \text{ A}$ $U_e = 60 \text{ V}$ and $I_e = 1 \text{ A}$ $U_e = 110 \text{ V}$ and $I_e = 0.6 \text{ A}$ $U_e = 220 \text{ V}$ and $I_e = 0.5 \text{ A}$
Back-up fuse		Terminals L1/L2/L3	2 A
Contacts			
$\mu$ contact		AC-11	3 A
Response values		ON-switching	$0.85 \times U_c$
		OFF-switching	$0.8 \times U_c$
Automatic reclosing delay (return transfer delay)		0.2 ... 2 s	
Minimum contact load		10 V/100 mA	
Safety			
Rated insulation voltage $U_i$		Between coil/contact	4 kV
Electrical isolation, creepage distances and clearances		Actuator/contact	4 mm
Rated impulse withstand voltage $U_{imp}$		Actuator/contact	>4 kV
Functions			
Phase failure detection		At L1 or L2 or L3	$\geq 20 \text{ ms}$
Phase asymmetry		Setting accuracy	Approx. 5 ... 10%
		Repeat accuracy	1
Functions		Monitoring of 1 or 2 phases against N	Yes
		Monitoring of 3 phases against N	Yes
		Phase failure detection	Yes
		N-conductor monitoring	Yes
Connection			
Terminals		$\pm$ Screw (Pozidriv)	PZ 1
Conductor cross-sections		Rigid	Max. $2 \times 2.5 \text{ mm}^2$
		Flexible, with end sleeve	Max. $1 \times 0.5 \text{ mm}^2$
Ambient conditions			
Permissible ambient temperature		$-20 \dots +60 \text{ }^\circ\text{C}$	
Humidity class		Acc. to IEC 60068-2-30	F

# 5TT3 undervoltage and overvoltage relays

With adjustable response delay

For the monitoring of 3 phases against N	
Contacts	2 CO
Modular width	2 MW








Rated operational voltage $U_e$	Rated operational current $I_e$	Switching thresholds	Hysteresis	
Adjustable				
230 V AC	4 A	0.7 and $1.1 \times U_c$ 0.9 and $1.3 \times U_c$	4% 4%	5TT3408

## Further technical specifications

Standards			
Standards	IEC 60255, DIN VDE 0435-303		
Supply			
Rated control circuit voltage $U_c$	230/400 V AC		
Operating range (overload capability)	$1.35 \times U_c$		
Rated frequency	50/60 Hz		
Back-up fuse	Terminals L1/L2/L3	2 A	
Contacts			
$\mu$ contact	AC-11	1 A	
Response values	Overvoltage:	ON-switching	4% hysteresis
		OFF-switching	$0.9 \dots 1.3 \times U_c$
	Undervoltage:	ON-switching	4% hysteresis
		OFF-switching	$0.7 \dots 1.1 \times U_c$
On/off-delay (response delay)	0.1 ... 20 s		
Automatic reclosing delay (return transfer delay)	–		
Minimum contact load	10 V/100 mA		
Safety			
Rated insulation voltage $U_i$	Between coil/contact	4 kV	
Electrical isolation, creepage distances and clearances	Contact/contact	4 mm	
	Actuator/contact	4 mm	
Rated impulse withstand voltage $U_{imp}$	Actuator/contact	>4 kV	
Functions			
Phase failure detection	At L1 or L2 or L3	100 ms	
Phase asymmetry	Setting accuracy	Approx. 5 ... 10%	
	Repeat accuracy	1	
Functions	Monitoring of 1 or 2 phases against N	–	
	Monitoring of 3 phases against N	Yes	
	Asymmetry detection	Yes	
	Reverse voltage detection	Yes	
	Phase failure detection	Yes	
	N-conductor monitoring	Yes	
Connection			
Terminals	$\pm$ Screw (Pozidriv)	PZ 1	
Conductor cross-sections	Rigid	Max. $2 \times 2.5 \text{ mm}^2$	
	Flexible, with end sleeve	Max. $1 \times 0.5 \text{ mm}^2$	
Ambient conditions			
Permissible ambient temperature	–20 ... +60 °C		
Humidity class	Acc. to IEC 60068-2-30	F	

# 5TT6 current relays

For 1-phase loads up to 230 V AC

	Modular width	Auxiliary voltage and load voltage						
		Not isolated		Galvanically isolated				
		1 MW	1 MW	2 MW	2 MW	2 MW		
								
Rated operational voltage $U_e$	Rated operational current $I_e$	Contacts	Rated control current $I_c$	Monitoring Undercurrent	Monitoring Overcurrent	Monitoring Undercurrent	Monitoring Overcurrent	Monitoring Overcurrent/undercurrent
230 V AC	5 A	1 CO 2 CO	1 ... 10 A 0.1 ... 1 A, 0.5 ... 5 A, 1 ... 10 A, 1.5 ... 15 A	5TT6111 –	5TT6112 –	– 5TT6113	– 5TT6114	– 5TT6115

## Further technical specifications

Standards		5TT6111 5TT6112	5TT6113 5TT6114 5TT6115
Standards		IEC 60255	IEC 60255 DIN VDE 0435-303
Supply			
Rated control current $I_c$		1 ... 10 A	0.1 ... 1 A, 0.5 ... 5 A, 1 ... 10 A, 1.5 ... 15 A
Rated control circuit voltage $U_c$		230 V AC	
Primary operating range		0.9 ... 1.1 × $U_c$	
Overload capability		Continuous At 50 °C ambient temperature max. 3 s Independent of measuring range, max. 3 s	15 A 20 A – 30 A
Rated frequency		50/60 Hz	
Contacts			
μ contact (AC-15)		NO NC	3 A 1 A 5 A
Response values		ON-switching OFF-switching	Infinitely variable Permanent, 4% hysteresis
Switching delay $t_v$		0.1 ... 20 s, continuously adjustable	
Response time		Non-adjustable	Current corresponds to the rated operational power of the continuous-flow heater See Siemens Service and Support Portal, search term "Article No.", e.g. 5TT6113
Minimum contact load		10 V/100 mA	
Safety			
Rated insulation voltage $U_i$		Between coil/contact	2.5 kV
Electrical isolation, creepage distances and clearances		Actuator/contact	3 mm
Rated impulse withstand voltage $U_{imp}$		Actuator/contact	>4 kV
Connection			
Terminals		± Screw (Pozidriv)	PZ 1
Conductor cross-sections		Rigid Flexible, with end sleeve	Max. 2x 2.5 mm <sup>2</sup> Max. 1x 0.5 mm <sup>2</sup>
Ambient conditions			
Permissible ambient temperature		–20 ... +60 °C	
Resistance to climate		Acc. to EN 60068-1	20/60/4

# 5TT3 fuse monitors

For all low-voltage fuse systems

Modular width 2 MW



Rated operational voltage $U_e$	Rated operational current $I_e$	Rated control circuit voltage $U_c$	
Adjustable			
250 V AC	4 A	380 ... 415 V AC	5TT3170

## Further technical specifications

Standards		
Standards		IEC 60255, DIN VDE 0435-110
Supply		
Rated operational voltage $U_e$		250 V AC
Rated operational current $I_e$	AC-1	4 A
Rated control circuit voltage $U_c$	3 AC	380 ... 415 V
Primary operating range		0.8 ... 1.1 × $U_c$
Rated frequency		50 ... 400 Hz
Contacts		
Internal resistance of measuring paths		>1000 Ω/V
Max. permissible rear feed		90%
Response/release time		<50 ms
Electrical endurance AC-11	In switching cycles at 1 A	1.5 × 10 <sup>5</sup>
Safety		
Rated impulse withstand voltage $U_{imp}$	Input/output	>4 kV
Application		
Area of application		Asymmetric, systems afflicted with harmonics, regenerative motors
Message		Also for disconnected loads
Connection		
Terminals	± Screw (Poqidriv)	PZ 1
Conductor cross-sections	Rigid	Max. 2x 2.5 mm <sup>2</sup>
	Flexible, with end sleeve	Max. 1x 0.5 mm <sup>2</sup>
Ambient conditions		
Permissible ambient temperature		-20 ... +45 °C
Resistance to climate	Acc. to EN 60068-1	20/45/4

# 5TT3 phase monitors

For monitoring of voltages in a 3-phase system

Modular width 1 MW




Rated operational voltage $U_e$	Rated operational current $I_e$	Contacts	Rated control circuit voltage $U_c$	With 3 green LEDs for 3 phases
250 V AC	4 A	1 CO	230/400 V	5TT3421

## Further technical specifications

Standards			
Standards		IEC 60255, DIN VDE 0435	
Supply			
Rated operational voltage $U_e$		250 V AC	
Rated operational current $I_e$		4 A	
Rated control circuit voltage $U_c$		230/400 V AC	
Primary operating range		0.8 ... 1.1 × $U_c$	
Rated frequency		50/60 Hz	
Rated power dissipation $P_v$		Electronics	9 VA
		Contacts	0.2 VA
Contacts			
$\mu$ contact		AC-11	3 A
Minimum contact load		10 V/100 mA	
Safety			
Rated insulation voltage $U_i$		Between coil/contact	4 kV
Electrical isolation, creepage distances and clearances		Actuator/contact	4 mm
Rated impulse withstand voltage $U_{imp}$		Actuator/contact	>2.5 kV
Degree of protection		Acc. to EN 60529	IP20, with connected conductors
Safety class		Acc. to EN 61140/VDE 0140-1	II
Connection			
Terminals		± Screw (Pozidriv)	PZ 1
Conductor cross-sections		Rigid	Max. 2x 2.5 mm <sup>2</sup>
		Flexible, with end sleeve	–
Ambient conditions			
Permissible ambient temperature		–20 ... +60 °C	
Resistance to climate		Acc. to EN 60068-1	20/60/4

# 5TT3 phase sequence monitors

For monitoring of phase sequence in a 3-phase system

Phase sequence monitors				
Modular width	1 MW			
				
Rated operational voltage $U_e$	Rated operational current $I_e$	Contacts	Rated control circuit voltage $U_c$	With one green LED, which lights up for right-rotating field
250 V AC	4 A	1 CO	400 V	5TT3423

## Further technical specifications

Standards			
Standards	IEC 60255, DIN VDE 0435		
Supply			
Rated operational voltage $U_e$	250 V AC		
Rated operational current $I_e$	4 A		
Rated control circuit voltage $U_c$	400 V AC		
Primary operating range	0.8 ... 1.1 × $U_c$		
Rated frequency	50/60 Hz		
Rated power dissipation $P_v$	Electronics	9 VA	
	Contacts	0.2 VA	
Contacts			
μ contact	AC-11	3 A	
Minimum contact load	10 V/100 mA		
Safety			
Rated insulation voltage $U_i$	Between coil/contact	4 kV	
Electrical isolation, creepage distances and clearances	Actuator/contact	4 mm	
Rated impulse withstand voltage $U_{imp}$	Actuator/contact	>2.5 kV	
Degree of protection	Acc. to EN 60529	IP20, with connected conductors	
Safety class	Acc. to EN 61140/VDE 0140-1	II	
Connection			
Terminals	± Screw (Pozidriv)	PZ 1	
Conductor cross-sections	Rigid	Max. 2x 2.5 mm <sup>2</sup>	
	Flexible, with end sleeve	–	
Ambient conditions			
Permissible ambient temperature	–20 ... +60 °C		
Resistance to climate	Acc. to EN 60068-1	20/60/4	

# 5TT3 insulation monitors for industrial applications

Are used for protection of persons and against fire in non-grounded systems (IT systems)

Modular width 2 MW



Measurement voltage range $U_{meas}$	Measuring range	Contacts	Rated control circuit voltage $U_c$	
0 ... 500 V AC	5 ... 100 k $\Omega$	2 CO	230 V AC	5TT3470
12 ... 280 V DC	5 ... 200 k $\Omega$	2 CO	–	5TT3471

## Further technical specifications

		5TT3470	5TT3471
<b>Supply</b>			
Rated operational voltage $U_e$		230 V AC	12 ... 280 V DC
Rated operational current $I_s$	Thermal current $I_{th}$	4 A	
	DC-13 at 24 V DC	–	2 A
	DC-13 at 250 V DC	–	0.2 A
	AC-15	–	3 A
	AC-15 NO	5 A	–
	AC-15 NC	2 A	–
Supply voltage $U_c$	For AC supply	220 ... 240 V AC	–
Primary operating range	For AC supply	0.8 ... 1.1 $\times U_c$	–
Frequency range for $U_c$		45 ... 400 Hz	–
Rated power dissipation $P_v$	For AC supply	Approx. 2 VA	–
	For DC supply	–	Approx. 1 W
<b>Contacts</b>			
$\mu$ contact		2 CO	
Switching hysteresis	At $R_{meas}$ 50 k $\Omega$	15%	10 ... 15%
<b>Measuring circuit</b>			
Measuring circuit		For 3-phase and AC systems	For direct voltage systems
Measurement voltage range $U_{meas}$		0 ... 500 V AC	12 ... 280 V DC
Measurement voltage $U_{meas}$	Internal	Approx. 15 V DC	–
Primary operating range		0 ... 1.1 $\times U_{meas}$	0.9 ... 1.1 $\times U_{meas}$
Frequency range for $U_{meas}$		10 ... 10000 Hz	–
Alarm values	Measuring shunt $R_{AL}$	5 ... 100 k $\Omega$	5 ... 200 k $\Omega$
	Setting of alarm value	On absolute scale	Infinitely variable
Alternating current internal resistance	Internal testing resistance	>250 k $\Omega$	–
Direct current internal resistance	Internal testing resistance	>250 k $\Omega$	–
	L+ and L- to PE	–	75 k $\Omega$ each
Max. measurement current $I_{meas}$	Short circuit	<0.1 mA	0.2 ... 4 mA, depending on the voltage
Direct interference voltage	Max. permissible	500 V DC	–
	Response delay		
at $R_{AL}$ 50 k $\Omega$ and 1 $\mu$ F	$\infty$ to 0.9 $\times R_{meas}$	<1.3 s	0.8 s
	$R_{meas}$ from $\infty$ to 0 $\Omega$	<0.7 s	0.4 s
<b>Safety</b>			
Rated impulse withstand voltage $U_{imp}$	Terminals A1 to A2	<4 kV	
	Terminals L to PE	<4 kV	
	Terminals A1, A2 to L, PE	<4 kV	<3 kV
	Terminals against contacts	<6 kV	
Degree of protection	Terminals (according to EN 60529)	IP20	
	Enclosure (according to EN 60529)	IP40	
<b>Connection</b>			
Terminals	$\pm$ Screw (Pozidriv)	PZ 2	
Conductor cross-sections	Rigid	Max. 2x 2.5 mm <sup>2</sup>	
	Flexible, with end sleeve	Min. 1x 0.50 mm <sup>2</sup>	
<b>Ambient conditions</b>			
Permissible ambient temperature		–20 ... +60 °C	
Resistance to climate	Acc. to EN 60068-1	20/060/04	



# 5TT5 EMERGENCY STOP modules

Efficient personal and machine protection in small units

Modular width 4 MW



Rated operational voltage $U_e$	Rated operational current $I_e$	Rated control circuit voltage $U_c$	5TT5200
400 V AC	5 A	230 V AC	

## Further technical specifications

Standards		
Standards		ISO 13849-1: 2015; EN 62061: 2005 + AC: 2010 + A1: 2013 + A2: 2015; ISO 13850: 2015; EN 60204-1: 2006 + A1: 2009 + AC: 2010 (in extracts); EN 60947-5: 2004 + A1: 2009; EN 50178: 1997; EN 61508 Parts 1-7: 2010; EN 50156-1: 2005 (in extracts)
Certification		German Technical Inspectorate Rheinland
Supply		
Primary operating range		$0.8 \dots 1.1 \times U_c$
Rated frequency $f_n$		50 Hz
Rated power dissipation $P_v$	Coil/drive	3.5 VA
	Contact per pole	0.8 VA
Control voltage	Terminal Y1	24 V AC/DC
Control current	Terminal Y1	45 mA
Contacts		
Contacts	NO AC-15	3 A
	NC AC-15	2 A
	NO/NC AC-1	5 A
Contact gap		>1 mm
Electrical service life	AC-15 (2 A, 230 V AC)	$10^5$ operating cycles
Reliable switching frequency		600 operating cycles/h
Recovery time		500 ms
Safety		
Rated impulse withstand voltage $U_{imp}$	Actuator/contact	>4 kV
Electrical isolation, creepage distances and clearances	Actuator/contact	3 mm
Vibration resistance	Amplitude acc. to EN 60068-2-610 (up to 55 Hz)	0.35 mm
Connection		
Terminals	± Screw (Pozidriv)	PZ 1
Conductor cross-sections of main current paths	Rigid	Max. $2 \times 2.5 \text{ mm}^2$
	Flexible, with end sleeve	Min. $1 \times 0.50 \text{ mm}^2$
Ambient conditions		
Permissible ambient temperature		0 ... +50 °C
Resistance to climate	Acc. to EN 60068-1	0/55/04

# 5TT3 level relays

For level monitoring and control

Modular width 2 MW



Rated operational voltage $U_e$	Rated operational current $I_e$	Rated control circuit voltage $U_c$	
250 V AC	5 A	230 V AC	5TT3435

## Further technical specifications

Standards		
Standards		IEC 60255; DIN VDE 0435-110
Supply		
Rated operational voltage $U_e$		250 V AC
Rated operational current $I_e$		5 A
Rated control circuit voltage $U_c$		230 V AC
Primary operating range		0.8 ... 1.1 × $U_c$
Rated frequency $f_n$		50/60 Hz
Measuring circuit		
Setting range of the liquid level		2 ... 450 kΩ
Switching point hysteresis of set value	At 450 kΩ	3%
	At 2 kΩ	6%
Electrode voltage		Max. approx. 10 V AC
Electrode current		Max. approx. 1.5 mA AC
Response delay	Adjustable	0.2 ... 20 s
OFF-delay	Adjustable	0.2 ... 20 s
Test voltage	Input/auxiliary circuit	4 kV
	Input/output circuit	4 kV
	Auxiliary/output circuit	4 kV
Voltage temperature influence		From set value
Max. cable length to the electrodes at 100 μF/km	Set value 450 kΩ	50 m
	Set value 100 kΩ	200 m
	Set value 35 kΩ	500 m
	Set value 10 kΩ	1500 m
	Set value 5 kΩ	3000 m
Connection		
Terminals	± Screw (Pozidriv)	PZ 2
Conductor cross-sections	Rigid, max.	Max. 2x 2.5 mm <sup>2</sup>
	Flexible, with end sleeve	Min. 1x 0.50 mm <sup>2</sup>
Ambient conditions		
Permissible ambient temperature		-20 ... +60 °C
Resistance to climate	Acc. to EN 60068-1	20/60/4

## Accessories

### Immersion electrodes



- Made of stainless steel, with PG13 sealing cap
- Suitable for pure water in open containers

Temperature range	Connection	Article No.
0 ... 60 °C	Terminal connection	5TG8223

# 5TT3 line circuit relays

To interrupt circuits where there are no active loads

Modular width 1 MW



Rated operational voltage $U_e$	Rated operational current $I_e$	Contacts	Rated control circuit voltage $U_c$	
250 V AC	16 A	1 NC	230 V AC	5TT3171

## Further technical specifications

Standards			
Standards		IEC 60255; DIN VDE 0435-110	
Supply			
Rated operational voltage $U_e$		250 V AC	
Rated operational current $I_e$		AC-1	16 A
Rated control circuit voltage $U_c$		230 V AC	
Primary operating range		0.85 ... $1.15 \times U_c$	
Rated frequency		50/60 Hz	
Rated power dissipation $P_v$		Electronics	5 VA
		Contacts	2.6 VA
Contacts			
Response value		Adjustable	2 ... 20 VA
Release value		% of the response value	70%
Electrical service life		In switching cycles at 3 A (AC-11)	$5 \times 10^5$
Safety			
Rated impulse withstand voltage $U_{imp}$		Input/output	>4 V
Degree of protection		Acc. to IEC/EN 60529	IP20, with connected conductors
Safety class		Acc. to EN 61140/VDE 0140-1	II
Monitoring voltage		3 V	
Connection			
Terminals		± Screw (Pozidriv)	PZ 1
Conductor cross-sections		Rigid	Max. $2 \times 2.5 \text{ mm}^2$
		Flexible, with end sleeve	Min. $1 \times 0.50 \text{ mm}^2$
Ambient conditions			
Permissible ambient temperature		-20 ... +45 °C	
Humidity class		Acc. to IEC 60068-2-30	F

## Accessories

### Base load resistors for electronic devices

- With 15 cm connection wires, end sleeves and shrink sleeving

Article No.

5TG8222

# 7LQ2 dimmer switches

For lighting system monitoring and control

Modular width 1 MW




Rated operational voltage $U_e$	Rated operational current $I_e$	Contacts	Rated control circuit voltage $U_c$	
230 V AC	16 A	1 NO	250 V AC	7LQ2300

## Further technical specifications

Standards		
Standards		EN 60669-1
Supply		
Rated operational voltage $U_e$		230 V AC
Rated frequency $f_n$		50/60 Hz
Safety		
Degree of protection		IP30
Contacts		
Incandescent lamp/halogen lamp load		2000 W
Energy-saving lamp load		1000 W
Fluorescent lamp load	Series corrected	2000 W
	Parallel corrected (at max. 70 $\mu$ F)	1000 W
LV halogen lamp load ECG		2000 W
Luminosity setting		1 ... 100 000 Lux
Measuring circuit		
On/off-delay		Approx. 90 s
Connection		
Terminals	$\pm$ Screw (Pozidriv)	PZ1
Conductor cross-sections	Rigid	Max. 2x 1.5 mm <sup>2</sup>
Mechanical data		
Width		17.5 mm (1 MW)
Fixing		Standard mounting rail
Ambient conditions		
Permissible ambient temperature		-20 ... +55 °C

## Spare part

Light sensor			
 <ul style="list-style-type: none"> <li>Included in the 7LQ2300 package</li> <li>IP65 degree of protection</li> </ul>	<b>Temperature range</b>	<b>Mounting</b>	<b>Article No.</b>
	-20 ... +70 °C	Surface mounting	7LQ2920





# Appendix



Conditions of sale and delivery \_\_\_\_\_ A/2

Link directory \_\_\_\_\_ A/4

# Conditions of sale and delivery

## 1. General Provisions

By using this catalog you can purchase products (hardware, software and services) described therein from Siemens Aktiengesellschaft subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as „T&C“). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

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- for stand-alone software products and software products forming a part of a product or project, the „General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany“<sup>1)</sup> and/or
- for consulting services the „Allgemeine Geschäftsbedingungen für Beratungsleistungen der Division DF – Deutschland“ (available only in German) and/or
- for other services, the „Supplementary Terms and Conditions for Services (‘BL’)<sup>1)</sup> and/or
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In case such supplies should contain Open Source Software, the conditions of which shall prevail over the „General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry“<sup>1)</sup>, a notice will be contained in the scope of delivery in which the applicable conditions for Open Source Software are specified. This shall apply mutatis mutandis for notices referring to other third party software components.

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- for other services the „International Terms & Conditions for Services“<sup>1)</sup> supplemented by „Software Licensing Conditions“<sup>1)</sup> and/or
- for other supplies of hard- and software the „International Terms & Conditions for Products“<sup>1)</sup> supplemented by „Software Licensing Conditions“<sup>1)</sup>

### 1.3 For customers with master or framework agreement

To the extent our supplies and/or services offered are covered by an existing master or framework agreement, the terms and conditions of that agreement shall apply instead of T&C.

## 2. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog – especially with regard to data, dimensions and weights given – these are subject to change without prior notice.

<sup>1)</sup> The text of the Terms and Conditions of Siemens AG can be downloaded at [https://mall.industry.siemens.com/legal/ww/en/terms\\_of\\_trade\\_en.pdf](https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf)



### 3. Export Regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

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# Catalogs and further information



## LV 10 Low-Voltage Power Distribution and Electrical Installation Technology SENTRON • SIVACON • ALPHA

Protection, Switching, Measuring and  
Monitoring Devices, Switchboards and  
Distribution Systems

PDF (E86060-K8280-A101-B4-7600)



## LV 14 Power Monitoring Made Simple SENTRON

PDF (E86060-K1814-A101-A8-7600)



## LV 18 Air Circuit Breakers and Molded Case Circuit Breakers with UL Certification SENTRON

PDF (E86060-K8280-E347-A7-7600)



## ET D1 Switches and Socket Outlets DELTA

PDF



## IC 10 Industrial Controls SIRIUS

PDF (E86060-K1010-A101-B3-7600)



## Industry Mall Information and Ordering Platform on the Internet:

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## Siemens TIA Selection Tool for the selection, configuration and ordering of TIA products and devices

[www.siemens.com/tst](http://www.siemens.com/tst)



## SITRAIN Digital Industry Academy

[www.siemens.com/sitrain](http://www.siemens.com/sitrain)

The catalogs listed above and additional catalogs are available in PDF format at Siemens Industry Online Support [www.siemens.com/lowvoltage/catalogs](http://www.siemens.com/lowvoltage/catalogs)

Further information on low-voltage power distribution and electrical installation technology is available on the Internet at [www.siemens.com/lowvoltage](http://www.siemens.com/lowvoltage)

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