

SIEMENS

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Low-Voltage Power Distribution and Electrical Installation Technology

Monitoring Devices

Catalog
Extract
LV 10

Edition
10/2019

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Making sure power makes its way

Consistent, safe and intelligent low-voltage power distribution and electrical installation technology

Whether industries, infrastructures or buildings: Each environment depends on a reliable power supply.

Which is why products and systems featuring maximum safety and optimum efficiency are in demand. This comprehensive portfolio for low-voltage power distribution and electrical installation technology covers every requirement – from the switchboard to the socket outlet.

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Catalog LV 10 · 10/2019

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The products and systems listed in this catalog are developed and manufactured using a certified quality management system in accordance with DIN EN ISO 9001:2008.

Technical data

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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A



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

Information to get you started

For information about monitoring devices, please visit our website

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- Monitoring devices sie.ag/2m3no4A

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- Characteristic curves
- Certificates

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- Configuration manual Monitoring devices (45316099)

Technical overview of 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 (109769086)

System overview

Monitoring devices for electrical values



Residual current monitor



Modular RCCB device



Relay



Monitors

Accessories



Summation current transformer



Holders for standard mounting rails



Magnetic field centering sleeves

Monitoring devices for plants and equipment



EMERGENCY STOP modules



Relay

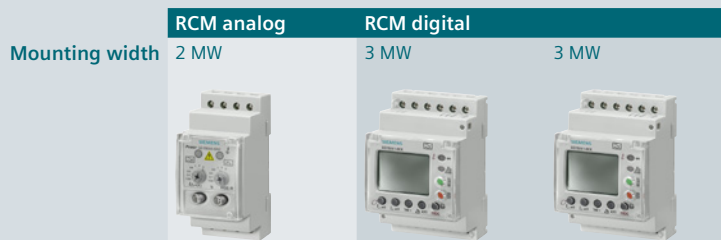
Accessories



Immersion electrodes

5SV8 residual current monitors

Type A and type AC



Rated operational voltage U_e	Rated residual current $I_{\Delta n}$		Response time Δt	Mounting width		
	Type A	Type AC		2 MW	3 MW	3 MW
230 V AC	0.03 ... 5 A	>3 A	0.02 ... 5 s	5SV8000-6KK	–	–
	0.03 ... 3 A	5 ... 30 A	0.02 ... 10 s, INS, SEL ¹⁾	–	5SV8001-6KK	5SV8200-6KK

Further technical specifications

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

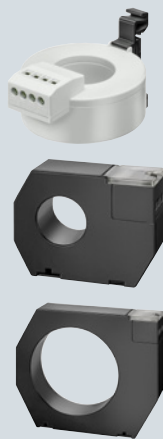
¹⁾ INS: Instantaneous,
SEL: Selective

Accessories

Summation current transformers

- Including holder for standard mounting rail or wall mounting
- Standard ②

Mounting options	Lowest measurable residual current $I_{\Delta n, min}$	Rated current I_n	Maximum current ²⁾ I_{max}	Internal diameter	Article No.
Standard mounting rail	30 mA	≤ 40 A	240 A	20 mm	5SV8700-0KK
		≤ 63 A	380 A	30 mm	5SV8701-0KK
Wall mounting, standard mounting rail ¹⁾	30 mA	≤ 80 A	480 A	35 mm	5SV8702-0KK
		≤ 200 A	1200 A	70 mm	5SV8703-0KK
Wall mounting	100 mA 300 mA	≤ 250 A	1500 A	105 mm	5SV8704-0KK
		≤ 500 A	3000 A	140 mm	5SV8705-0KK
		≤ 600 A	3600 A	210 mm	5SV8706-0KK



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

¹⁾ The holder for standard mounting rails is additionally required for mounting onto the standard mounting rail.

²⁾ Short-time starting current, up to 2 s

5SV8 modular RCCB device

Type A



Rated operational voltage U_e	Rated residual current $I_{\Delta n}$ Type A	Response time Δt	
230 V AC	0.03 ... 3 A	0.02 ... 10 s, INS, SEL ¹⁾	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 Δt	$I_{\Delta n} = 30 \text{ mA}$	INS instantaneous
	$I_{\Delta n} > 30 \text{ mA}$	INS – SEL – 0.06 ... 10 s ¹⁾ (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 ²
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

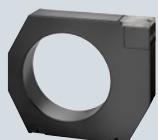
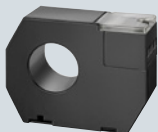
¹⁾ INS: Instantaneous,
SEL: Selective

Accessories

Summation current transformers

- Including holder for wall mounting
- Standard ②

Mounting options	Lowest measurable residual current $I_{\Delta n, min}$	Rated current I_n	Maximum current ²⁾ I_{max}	Internal diameter	Article No.
Wall mounting, standard mounting rail ¹⁾	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

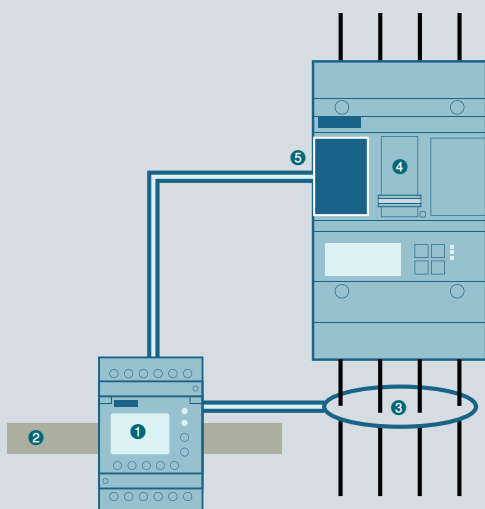


Internal diameter	Article No.
35 mm	5SV8902-1KK
70 mm	5SV8903-1KK
105 mm	5SV8904-1KK
140 mm	5SV8905-1KK
210 mm	5SV8906-1KK

¹⁾ The holder for standard mounting rails is additionally required for mounting onto the standard mounting rail.

²⁾ Short-time starting current, up to 2 s

Tested combination options



5SV8101-6KK / - (tested combinations)

① Modular RCCB 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

⑥ Trip element

3VL17...	3VL9400-1ST00	3VL9400-1UP00
3VL27...		
3VL37...		
3VL47...		
3VA10...	3VA9988-OBL30	3VA9908-0BB11
3VA11...	3VA9988-OBL32	3VA9908-0BB20
3VA20...	3VA9988-OBL33	3VA9908-0BB24
3VA21...		3VA9908-0BB25
3VA22...		
3VA12...	3VA9988-OBL30	3VA9908-0BB11
3VA23...	3VA9988-OBL32	3VA9908-0BB20
3VA24...	3VA9988-OBL33	3VA9908-0BB24

5SV8 modular RCCB device

Type B

Mounting width **MRCD digital**
2 MW



Rated operational voltage U_e	Rated residual current $I_{\Delta n}$	Response time Δt	
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
Standards		
Standards	EN 60947-2 (Annex M), IEC 60947-2 (Annex M)	
Supply		
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	<6.5 VA
Relay contacts		
Relay contacts	1× alarm, 1× tripping operation	
Rated voltage	250 V AC	
Rated current	5 A	
External summation current transformer		
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)	Type B
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)
Equipment		
Maximum cable length MRCD/converter	10 m (6 × 0.75 mm ²)	
Password	off / 0 ... 999 (factory setting: 0)	
Safety		
Degree of protection	Components (IEC 60529)	IP30
	Terminals (IEC 60529)	IP20
EMC	IEC 60947-2 (M)	
Overvoltage category	III	
Pollution degree	3	
Mechanical data		
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 ²
	Flexible, with end sleeve	0.2 ... 2.5 mm ² (AWG 24 ... 12)
Stripped length	8 ... 9 mm	
Tightening torque	0.5 ... 0.6 Nm	
Ambient conditions		
Operating temperature	–25 ... +55 °C	

Accessories

Summation current transformers



Lowest measurable residual current $I_{\Delta n \text{ min}}$	Rated current I_n	Maximum current ¹⁾ 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
300 mA	≤ 630 A	3800 A	210 mm	Standard	5SV8704-2KK

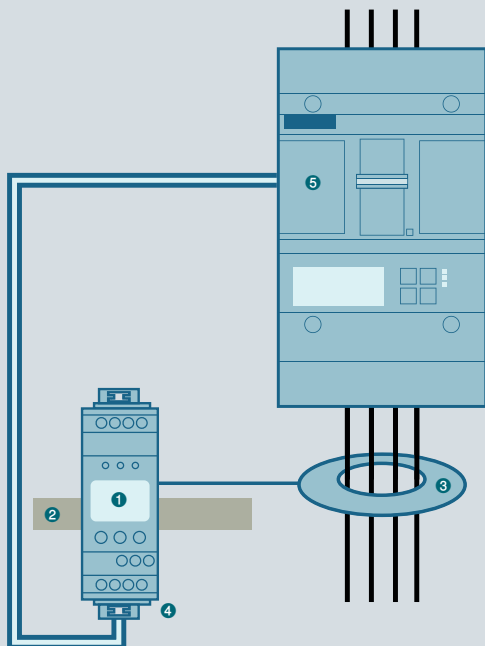
Holders for standard mounting rails



Suitable for summation current transformers	Article No.
5SV8701-2KK, 5SV8701-2KP	5SV8900-2KK
5SV8702-2KK, 5SV8702-2KP	5SV8900-3KK

¹⁾ Short-time starting current, up to 2 s

Tested combination options



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

1 Modular RCCB device

5SV8101-4KK / 5SV8111-4KK

2 Standard mounting rail

EN 60715 – TH35 – 7,5 35 – 15

3 Summation current transformers

Ø 35 mm 5SV8701-2KK / 5SV8701-2KP

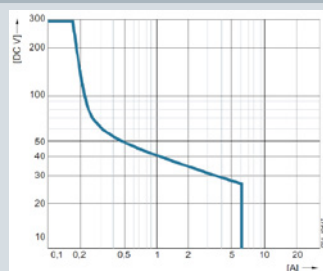
Ø 60 mm 5SV8702-2KK / 5SV8702-2KP

Ø 120 mm 5SV8703-2KK

Ø 210 mm 5SV8704-2KK

4 Relay contacts

DC:



AC: max. 230 V, 5A




5 Molded case circuit breakers

Trip element

3VA1...	3VA9988-OBL30	3VA9908-0BB11
3VA20...	3VA9988-OBL32	3VA9908-0BB24
3VA21...	3VA9988-OBL33	3VA9908-0BB25
3VA22...		
3VA23...	3VA9988-OBL30	3VA9908-0BB11
3VA24...	3VA9988-OBL32	3VA9908-0BB25
	3VA9988-OBL33	

5TT3 undervoltage relays

Without response delay

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

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



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

Further technical specifications

Standards		IEC 60255, DIN VDE 0435-110, DIN VDE 0435-303		
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)		$1.1 \times U_c$		
Rated frequency		50/60 Hz		
Contacts				
μ contact	AC-11	4 A	4 A	4 A
Response values	ON-switching	$0.9 / 0.95 \times U_c$	$0.9 / 0.95 \times U_c$	4% hysteresis
	OFF-switching	$0.7 / 0.85 \times U_c$	$0.7 / 0.85 \times U_c$	$0.7 \dots 0.95 \times U_c$
Minimum contact load		10 V / 100 mA	10 V / 100 mA	10 V / 100 mA
Safety				
Rated insulation voltage U_i		Between coil/contact	4 kV	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%	Approx. 5 ... 10%
	Repeat accuracy	–	1	1
Phase failure detection	At L1 or L2 or L3	100 ms	100 ms	100 ms
Functions	Monitoring of 1/2 phases against N	Yes	–	–
	Monitoring of 3 phases against N	Yes	Yes	Yes
	Asymmetry (failure) detection	–	Yes	Yes
	Reverse (failure) detection	–	Yes	Yes
	Phase failure detection	Yes	Yes	Yes
	N-conductor monitoring	–	Yes	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		
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
Mounting 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
Supply			
Rated control circuit voltage U_c		230 / 400 V AC	
Operating range (overload capability)		$1.15 \times U_c$	
Rated frequency		50/60 Hz	
Contacts			
Contacts	AC-15	1 CO	2 CO
Response values	ON-switching	5% hysteresis	5% hysteresis
	OFF-switching	$0.85 \times U_c$	$0.85 \times U_c$
Response delay		0.5 s	0.5 s
Return transfer delay		60 s	60 s
Minimum contact load		10 V / 100 mA	10 V / 100 mA
Electrical service life in switching cycles	AC-15 (1 A, 230 V AC)	1×10^5	1×10^5
Safety			
Rated insulation voltage U_i	Between coil/contact	–	
Rated impulse withstand voltage	Acc. to IEC 60664-1	6 kV	
Pollution degree		2	
Functions			
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	
Connection			
Terminals	– screw (slot)	3.5 mm	
Conductor cross-sections	Rigid	$1 \times 4 \text{ mm}^2$	
	Flexible, with end sleeve	$1 \times 2.5 \text{ mm}^2$	
Ambient conditions			
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
Mounting 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			
μ 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
Mounting 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			
μ 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	$0.7 \dots 1.1 \times \text{voltage}_c$
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			$-20 \dots +60 \text{ }^\circ\text{C}$
Humidity class	Acc. to IEC 60068-2-30		F

5TT6 current relays

For single-phase loads up to 230 V AC

Rated operational voltage U_e	Rated operational current I_e	Contacts	Rated control current I_c	Auxiliary voltage and load voltage				
				not isolated		galvanically isolated		
Mounting width				1 MW	1 MW	2 MW	2 MW	2 MW
								
				Monitoring Undercurrent	Overcurrent	Monitoring Undercurrent	Overcurrent	Overcurrent/undercurrent
230 V AC	5 A	1 CO	1 ... 10 A	5TT6111	5TT6112	–	–	–
		2 CO	0.1 - 1 A, 0.5 ... 5 A, 1 ... 10 A, 1.5 ... 15 A	–	–	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		230 V AC	
Primary operating range			0.9 ... 1.1 × U_c		0.9 ... 1.1 × U_c	
Overload capability		Continuous	15 A		20 A	
		At 50 °C ambient temperature max. 3 s	20 A		–	
		Independent of measuring range, max. 3 s	–		30 A	
Rated frequency			50/60 Hz		50/60 Hz	
Contacts						
μ contact (AC-15)		NO contacts	3 A		5 A	
		NC contacts	1 A		1 A	
Response values		ON-switching	Infinitely variable		Infinitely variable	
		OFF-switching	Permanent, 4% hysteresis		Permanent, 4% hysteresis	
Switching delay t_v			0.1 ... 20 s, continuously adjustable		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		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	Max. 2 × 2.5 mm ²			
		Flexible, with end sleeve	Max. 1 × 0.5 mm ²			
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

Mounting 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 ⁵
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 (Pozidriv)	PZ 1
Conductor cross-sections	Rigid	Max. 2 × 2.5 mm ²
	Flexible, with end sleeve	Max. 1 × 0.5 mm ²
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 three-phase system

Mounting 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		
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. 2 × 2.5 mm ²
	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 three-phase system

Phase sequence monitors				
Mounting 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	$0.8 \dots 1.1 \times U_c$		
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	\pm screw (Pozidriv)	PZ 1	
Conductor cross-sections	Rigid	Max. $2 \times 2.5 \text{ mm}^2$	
	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)

Mounting width 2 MW



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

Further technical specifications

		5TT3470	5TT3471
Supply			
Rated operational voltage U_e		230 V AC	12 ... 280 V DC
Rated operational current I_s	Thermal current I_{th}	4 A	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 contacts	5 A	–
	AC-15 NC contacts	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
Contacts			
μ contact		2 W	2 W
Switching hysteresis	At R_{meas} 50 k Ω	15%	10 ... 15%
Measuring circuit			
Measuring circuit		For three-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 $\times U_{\text{meas}}$	0.9 ... 1.1 $\times U_{\text{meas}}$
Frequency range for U_{meas}		10 ... 10000 Hz	–
Alarm values	Measuring shunt R_{AL}	5 ... 100 k Ω	5 ... 200 k Ω
Setting of alarm value	On absolute scale	Infinitely variable	Infinitely variable
Alternating current internal resistance	Internal testing resistance	>250 k Ω	–
Direct current internal resistance	Internal testing resistance	>250 k Ω	–
	L+ and L- to PE	–	75 k Ω 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	∞ to 0.9 $\times R_{\text{meas}}$	<1.3 s	0.8 s
at R_{AL} 50 k Ω and 1 μ F	R_{meas} from ∞ to 0 Ω	<0.7 s	0.4 s
Safety			
Rated impulse withstand voltage U_{imp}	Terminals A1 to A2	<4 kV	<4 kV
	Terminals L to PE	<4 kV	<4 kV
	Terminals A1, A2 to L, PE	<4 kV	<3 kV
	Terminals against contacts	<6 kV	<6 kV
Degree of protection	Terminals (according to EN 60529)	IP20	IP20
	Enclosure (according to EN 60529)	IP40	IP40
Connection			
Terminals	\pm screw (Pozidriv)	PZ 2	
Conductor cross-sections	Rigid	Max. 2 \times 2.5 mm ²	
	Flexible, with end sleeve	Min. 1 \times 0.50 mm ²	
Ambient conditions			
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

Mounting width 4 MW



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

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 contacts AC-15	3 A
	NC contacts AC-15	2 A
	NO contact/NC contact 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	\pm 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

Mounting width 2 MW



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

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	<2%
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. 2 × 2.5 mm ²
	Flexible, with end sleeve	Min. 1 × 0.50 mm ²
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

Mounting width 1 MW



Rated operational voltage U_e	Rated operational current I_e	Contacts	Rated control circuit voltage U_c	Article No.
250 V AC	16 A	1 NC contact	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 × 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 × 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 × 2.5 mm ²
	Flexible, with end sleeve		Min. 1 × 0.50 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	
<ul style="list-style-type: none"> With 15 cm connection wires, end sleeves and shrink sleeving 	Article No. 5TG8222

11

7LQ2 dimmer switches

For lighting system monitoring and control

Mounting 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 contact	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 μ 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. Max. 2 x 1.5 mm ²	
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"> Included in the 7LQ2300 package IP65 Degree of protection 	Temperature range	Mounting
	-20 ... +70 °C	Surface mounting
		Article No.
		7LQ2920

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Smart Infrastructure
Low Voltage Products
Siemensstraße 10
93055 Regensburg, Germany

100 Technology Drive
Alpharetta, GA 30005
United States

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In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the Internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

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Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

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