For further technical product information:

Configuration Manual

Monitoring Devices
Article No.: 3ZW1012-5SV80-0AC1

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NEW

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Introduction

Overview

Devices		Page	Application	Standards	Used in		
					Non-residential buildings	Residential buildings	Industry
Transfer control devices							
	**3KC ATC5300 transfer control devices**	12/7	The 3KC ATC5300 transfer control device, equipped with two motor-driven circuit breakers, serves as a transfer system that automatically or manually switches between two power supply systems in low-voltage power distribution applications. The 3KC ATC5300 transfer control device offers several programmable inputs and outputs, communication interfacing and displays. Settings are defined via user-friendly software.	IEC 60947-6-1; DIN VDE 0660-114; UL 508; CSA 22.2 No. 14	✓	✓	✓
	**3KC ATC3100** NEW **transfer control devices**	12/8	The 3KC ATC3100 transfer control device constitutes the transfer control system together with two circuit breakers with motorized operating mechanism. It is a simplified version of the 3KC ATC5300 and enables fast parameterization without software.	IEC 60947-6-1; GB 14048.11	✓	✓	✓
Monitoring Devices for Electrical Values							
	**5SV8 residual current monitors**	12/9	To increase system availability and operating safety through continuous monitoring of residual current in electrical systems and signaling if a defined threshold is exceeded.	IEC 62020; EN 62020	✓	--	✓
	**Modular residual current devices (MRCD)**	12/9	The MRCD is a modular residual current device for personal safety and fire protection.	EN 60947-2 (Annex M); IEC 60947-2 (Annex M)	✓	--	✓
	**5TT3 voltage relays**	12/15	Monitoring the voltage of emergency lighting in public buildings, short-time failures of 20 ms, for ensuring operational parameters for devices or system components or monitoring the neutral conductor for breaks.	IEC 60255; DIN VDE 0435-303; DIN VDE 0108; DIN VDE 0435; DIN VDE 0633	✓	--	✓
	**5TT3 voltage and frequency relays**	12/19	The voltage and frequency relay monitors the status of the grid in the case of in-plant generation systems. Violation of an upper or lower limit results in shutdown and disconnection of the generation system from the grid. This ensures a stable incoming supply system.	IEC/EN 60255-1; IEC/EN 61000; VDE-AR-N-4105	✓	✓	✓

Devices		Page	Application	Standards	Used in		
					Non-residential buildings	Residential buildings	Industry
	**5TT6 current relays**	12/21	Monitoring of emergency and signal lighting and motors. All current relays can be short-time overloaded and connected either with direct measurement or through transformers.	IEC 60255; DIN VDE 0435-303	✓	--	✓
	**5TT3 reverse power relays**	12/23	Reverse power relays are used in power supply systems, e.g. photovoltaic, wind power, water power and unit-type cogenerating stations, to control the reverse power. They prevent voltage being returned from the grid and causing damage if the infeed system itself fails or is damaged.	IEC 50255; DIN VDE 0435-303	✓	✓	✓
	**5TT3 fuse monitors**	12/25	Monitoring of all types of low-voltage fuses. Can be used in asymmetric systems afflicted with harmonics and regenerative feedback motors.	IEC 60255; DIN VDE 0435	✓	--	✓
	**5TT3 phase and phase sequence monitors**	12/26	For the visual signaling of phase failures or phase sequences in three-phase systems. The phase sequence is arbitrary. The device is also suitable for 1, 2 or 3-phase operation.	IEC 60255; DIN VDE 0435	--	--	✓
	**5TT3 insulation monitors for industrial applications**	12/27	To increase system availability and operating safety through continuous monitoring of the isolation resistance in non-grounded direct voltage or AC voltage systems.	IEC 60255; IEC 61557	--	--	✓
	**7LQ3 monitors for medical premises**	12/28	For the insulation monitoring of a medical IT system or the load current monitoring of an IT system transformer for a non-permissible temperature rise. Monitoring of the voltage supply with automatic switchover.	EN 61557-8; IEC 61557-8; DIN VDE 0100-710; IEC 60364-7-710	✓	--	--
	**5TT7 GSM alarm modules**	12/35	For mobile monitoring and controlling of electrical installations and system components. To this end, alarms or status messages and switching commands are sent quickly and reliably by SMS or e-mail.	EN 50178, EN 55011, EN 61326-1	✓	✓	✓

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* You can order this quantity or a multiple thereof.

Introduction

Devices	Page	Application	Standards	Used in		
				Non-residential buildings	Residential buildings	Industry
Monitoring devices for plants and equipment						
 **5TT3 fault signaling units**	12/37	Evaluation and display of fault alarms and alarm signals for monitoring industrial plants and control systems. With 4 inputs and connections for 39 expansion fault signaling units.	IEC 60255, DIN VDE 0435-303	✓	--	✓
 **5TT5 EMERGENCY STOP modules**	12/38	For EMERGENCY-OFF switching in accordance with the Directive 98/37/EC on Safety of Machines. Safe types of circuits for machines, plants or test stations in industrial, commercial and private enterprise applications.	According to the Machinery Directive 98/37/EC; EN 954-1	✓	--	✓
 **5TT3 level relays**	12/39	Control of liquid levels in containers with 3 electrode connections for 1-step and 2-step level control. High immunity to interference of the measuring circuit isolated from the system.	IEC 60255, DIN VDE 0435	✓	--	✓
 **5TT3 line circuit relays**	12/41	For disconnecting the voltage of unused lines when loads are disabled.	IEC 60255, DIN VDE 0435	--	✓	--
Charging infrastructure for electric vehicles						
 **WB140A charging units**	12/42	The WB140A charging unit can be used to charge electric vehicles in charging mode 3 acc. to IEC 61851. The charging cable type 2 is fixed to the charging unit and is equipped with residual current and line protection.	IEC/EN 61851-1; IEC/EN 61851-22; IEC/EN 62196-1; IEC 62196-2; IEC 60439-3; DIN 43880	✓	✓	✓
 **CC100A charging cables** NEW	12/44	The CC100A charging cable in charging mode 2 in compliance with IEC 61851-1 is a safe and convenient alternative to using charging units or posts. The mobile charging cable for home and travel can be connected easily to common household plug-and-socket devices. The range includes versions that cater for most common plug sockets in Europe. Type 1 or type 2 vehicle charging couplers are available at the vehicle end.	IEC/EN 61851-1; IEC/EN 62196; IEC 62335	✓	✓	--

Overview

3KC ATC5300 and 3KC ATC3100 transfer control devices

Automatic transfer with the 3KC ATC5300 or 3KC ATC3100 transfer control devices

The 3KC ATC5300 and ATC3100 transfer control devices, equipped with two circuit breakers with motorized operating mechanism, serve as an open transfer system that automatically or manually switches between two power supply systems in low-voltage power distribution applications.

In particular, the 3KC ATC5300 or 3KC ATC3100 transfer control device is deployed wherever a power failure is especially critical, e.g. distributed power supply systems with UPS supply (e.g. air-conditioning of control cabinets), in industrial processes and the emergency power supply of public buildings, such as hotels.

Mode of operation

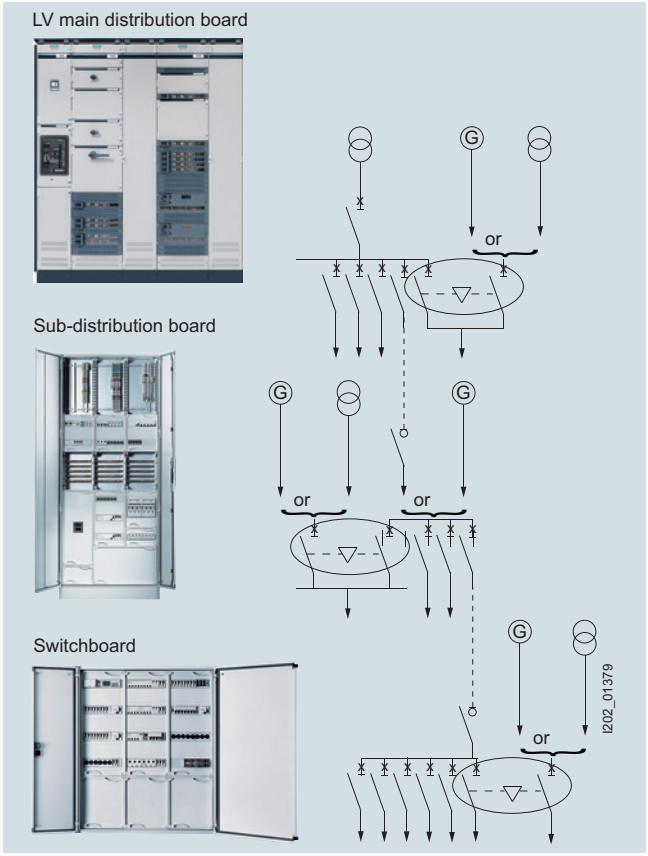
The 3KC ATC5300 and ATC3100 transfer control devices control the transfer between the main and standby power supplies fully automatically, while incorporating set limit values and delay times. It detects fluctuations occurring in the main power supply quickly and switches to the standby power supply. The control device only switches to the standby power supply after it has ensured that the standby supply is delivering the required power supply quality. The device switches back to the main power supply taking into consideration the set parameters once the required power supply quality is available again. If the standby power supply and/or the main power supply is fed by a generator, the control devices also offer a wide range of settings, such as a generator lead time, generator delay time, and generator start test at specified times.

The 3KC ATC transfer control devices can control air circuit breakers, molded case circuit breakers, switch disconnectors and contactors. The circuit breakers are controlled via the related motorized operating mechanisms.

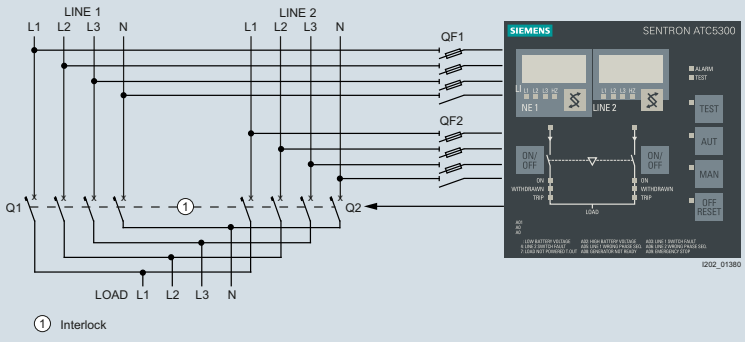
Q1 and Q2, configured with circuit breakers

All circuit breakers connected to the 3KC ATC5300 or ATC3100 transfer control devices must be equipped with the following accessories:

- 3VL/3VA molded case circuit breakers
  The following is also required for each molded case circuit breaker:
  - One motorized operating mechanism
  - One alarm switch
  - Two auxiliary switches 1 NO/1 NC
- 3WL air circuit breakers
  The following is also required for each 3WL air circuit breaker:
  - One motorized operating mechanism
  - One closing solenoid
  - One auxiliary release (shunt release)
  - One tripped signal switch
  - One auxiliary switch block 2 NO/2 NC (standard fittings)



Applications in low-voltage power distribution



Implementation of an automatic transfer control (according to IEC 60947-6-1); ① interlocking

Technical specifications

		ATC5300	ATC3100
Measuring inputs			
Max. rated voltage U_n			
• Phase-phase	V AC	690	400
• Phase-neutral	V AC	400	230
Phase-phase measuring range	V AC	80 ... 800	161 ... 264
Frequency ranges	Hz	45 ... 65	50 ... 60
Measuring method		RMS value (true RMS)	
Measuring input impedance			
• Phase-phase	MΩ	> 1.1	
• Phase-neutral	MΩ	> 0.5	> 1.1
Connection method		1, 2 or 3-phase system	4-phase system
Measuring errors		± 0.25 %, value range ± 5 %	
Auxiliary supply			
Operating range			
• AC	V AC	187 ... 264	161 ... 264
• DC	V DC	9 ... 70	18 ... 36
Rated voltage U_n			
• AC	V AC	220 ... 240	
• DC	V DC	12/24/48	24
Frequency	Hz	45 ... 65	50 ... 60
Max. power consumption at U_n = 240 V AC	VA	9	18 ... 36
Max. power loss			
• At 240 V AC	W	6.3	4
• At 48 V DC	W	4.1	4
Max. power consumption			
• At 12 V DC	mA	300	--
• At 24 V DC	mA	180	120
• At 48 V DC	mA	90	--
Safety in the event of short interruptions	ms	50	--
Digital inputs			
Number of inputs		8, 6 of which are programmable	5
Type of input		Negative	--
Input current	mA	≤ 10	--
Input signal			
• Logic state "0"	V	≤ 1.5 (typical 2.9)	--
• Logic state "1"	V	≥ 5.3 (typical 4.3)	--
Input signal delay	ms	≥ 50	--
Relay outputs			
Number of outputs		7, of which 5 are programmable	7
Contact configuration			
• 2 relays		1 NO, 12 A, 250 V AC (AC1)	
• 3 relays		1 NO, 8 A, 250 V AC (AC1)	
• 2 relays		1 CO, 8 A, 250 V AC (AC1)	
• 1 relay		1 NO, 12 A, 250 V AC	
• 4 relays		1 NO, 8 A, 250 V AC	
• 2 relays		2 CO, 8 A, 250 V AC	
Reversing time of control device	s	1	0.5
Communication cables			
RS 232 serial interface • Programmable transmission rate • Connection through RJ6/6 connector	bit/s	1200 ... 38400	--
RS 485 serial interface • Optically insulated • With programmable transmission rate • Connection through plug-in terminals	bit/s	1200 … 38400	--
Real-time clock			
Energy storage		Stored-energy capacitors	--
Operating time without supply voltage	Days	Approx. 12 ... 15	--

		ATC5300	ATC3100
Insulation voltage			
Rated insulation voltage U_i	V	690	400
Ambient conditions			
Operating temperature	°C	-20 … +60	-25 … +70
Storage temperature	°C	-30 … +80	-40 … +80
Relative humidity	%	< 90	95
Max. pollution degree		3	
Overvoltage category		3	
Measuring category		CAT III	CAT IV
Connections			
Terminal type		Removable/pluggable	
Cable cross-section	mm^2	0.2 ... 2.5 (24 ... 12 AWG)	
Max. tightening torque	Nm	0.5 (4.5 lbf·in)	0.4
Enclosure			
Enclosure material		Thermoplastic LEXAN 3412R	Thermoplast Bayblend FR3010
Version		Door installation	Door installation, standard rail mounting, floor mounting
Degree of protection		IP41 front, IP20 rear	
Weight	g	950	1050
Certificates and conformity			
Tested ATS/ATSE standards:		IEC60947-6-1	
		GB14048.11	
		UL 508	--
		CSA 22.2 No. 14	--
ATS/ATSE standard fulfilled in combination with:		3WL, 3VL, 3VA	3WL, 3VL
EMC		Acc. to IEC 60947-6-1	

For more information, see manual at: www.siemens.com/lowvoltage/manuals.

Overview

3KC ATC5300 transfer control devices

Communication with Modbus protocol

For communication, the 3KC ATC5300 supports the Modbus RTU and Modbus ASCII protocols through the RS 232 and RS 485 interfaces. The 3KC ATC5300 provides all available data of the transfer control system and the networks through these interfaces. Additionally, the ATC5300 can be controlled through these interfaces. These functions make it possible to integrate the ATC5300 into additional monitoring software (e.g. SCADA) or other intelligent devices that support Modbus (e.g. Siemens PLCs) and to control it.

Compatibility with 3VA

The 3KC ATC5300 fulfils the IEC 60947-6-1(ATS/ATSE) standard in combination with the 3VA molded case circuit breakers. You will find further information on the 3VA molded case circuit breakers in the manual: www.siemens.com/lowvoltage/manuals.

Parameterizing and monitoring using 3KC ATC5300 software or Siemens powerconfig

In addition to operation and parameterization on-site, you can also monitor and set the parameters of the controllers using the 3KC ATC5300 and Siemens powerconfig software. Both offer a high level of convenience and quick access to all device settings, e.g. complex settings that arise when connecting generators.

Benefits

The advantages of the 3KC ATC5300 transfer control devices at a glance:

- Two measuring inputs for single-phase and multi-phase power supply systems
- Costs of installing the transformer are dispensed with
- Has two voltage supply units to cover all standard AC/DC voltage supplies, alternative supply via main and standby system possible
- Two displays for monitoring the normal/standby system and displaying the phase and interlinked cable voltages
- Calendar clock
- 8 digital inputs, 6 of which are programmable and 7 relay outputs, 5 of which are programmable
- Data, parameter and logged events (e.g. power failure, faults) remain accessible and unaltered even after a power failure or restarting a device
- Logging and statistical processing of occurring events possible
- The illuminated LED display makes reading measured values and parameters easy, even in unfavorable lighting conditions
- The 3KC ATC5300 programming or powerconfig software saves considerable time when setting parameters and setting up the 3KC ATC5300 transfer control device
- Generator test run function for mandatory testing intervals

Selection and ordering data

	Version	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
			Screw connection ⊕					
	**3KC ATC5300 transfer control devices** Control panel instrument 144 x 144 x 94 mm with the following features: • Screw terminal connection • AC/DC power supply unit • 220 … 240 V AC, 45 ... 65 Hz • 9 ... 70 V DC • Rated setting range: 100 AC…690 V		3KC9000-8TL30		1	1 unit	1CL	1.005
	**3KC ATC5300 software** Software for setting parameters and remote control operations, incl. connection cable from control device to PC, cable length 1.8 m • CD incl. software and manuals • Minimum hardware and software requirements: - Pentium, 64 MB RAM - COM interface (serial RS 232) - CD drive - Windows 95/98/2000/XP/Vista		3KC9000-8TL70		1	1 unit	1CL	0.187

*** You can order this quantity or a multiple thereof.**

3KC ATC3100 transfer control devices NEW

Overview

3KC ATC3100 transfer control devices

Convient handling

The 3KC ATC3100 transfer control device offers customers flexible and fast commissioning for implementing simple applications. The 3KC ATC3100 can be mounted in a control cabinet door, on a standard rail or on a rear panel without additional accessories. By default, the transfer control device is supplied with a lockable safety cover (IP41). The connecting cable is pre-assembled to assist fast cabling.
The 3KC ATC3100 can be configured without software. Thanks to the well-thought-out concept, automatic changeover applications can be implemented with ease.

3KC ATC3100 connecting cable for MCCB/ACB

To connect 3VL or 3WL molded case circuit breakers you need the pre-assembled connecting cable (3KC9000-8EL62).

With this cable, connection of the molded case circuit breakers is fast and easy.

Benefits

The advantages of the 3KC ATC3100 transfer control device at a glance:

- Costs of installing the transformer are dispensed with
- Integrated DPS (double power supply) powers the motorized operating mechanisms of the connected circuit breakers for reliable switching
- Good readability of the system status by means of 10 LEDs
- 3 mounting options without additional accessories: door installation, standard rail mounting and floor mounting
- Pre-assembled cable set for fast wiring to 3VL and 3WL molded case circuit breakers
- Terminal available for external 24 V DC power supply unit

Integration

Implementation of an automatic transfer system

The 3KC ATC3100 transfer control device is used to automatically and manually switch from a main power supply to a standby power supply and vice versa. In the event that system faults occur, the 3KC ATC3100 transfer control device controls the switching operations fully automatically. This ensures a very high level of operational continuity.

The 3KC ATC3100 transfer control device allows implementation of an automatic transfer control in conjunction with molded case circuit breakers, air circuit breakers, switch disconnectors or contactors.

The following devices are ideally matched to the 3KC ATC3100 transfer control systems:

- 3VL molded case circuit breakers
- 3WL air circuit breakers

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Selection and ordering data

	Version	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
			Screw connection					
	**3KC ATC3100 transfer control devices** [1] Control panel instrument 171 x 131 x 99 mm with the following features: • Screw terminal connection • Rated setting range: 280 – 460 V AC • Aux. 24 V DC voltage • English labeling (Chinese labeling on request)		3KC9000-8EL10		1	1 unit	1CL	1.359
	3KC ATC3100 connecting cables Necessary measurement and control cable for connection of 3KC ATC3100 to 3VL or 3WL • Cable 1.8 m long		3KC9000-8EL62		1	1 unit	1CL	0.578

[1] For the 3KC ATC3100 transfer control devices you additionally need the 3KC ATC3100 connecting cable (3KC9000-8EL62).

* You can order this quantity or a multiple thereof.

Overview

Plant safety and operating safety are becoming increasingly important alongside the protection of personnel. Shutdowns due to the unexpected tripping of protective devices cause high costs. However, it is possible to detect residual currents in the electrical installation before the protective device responds.

Residual current devices (RCD)

Residual current monitors (RCM) monitor residual current in electrical installations and issue a signal when the residual current exceeds a set value.

RCMs are used primarily in plants where a fault should result in a signal, but not in disconnection. This enables plant operators to detect faults and eliminate their causes before the protective devices disconnect the installation, which increases plant and operating safety and cuts costs.

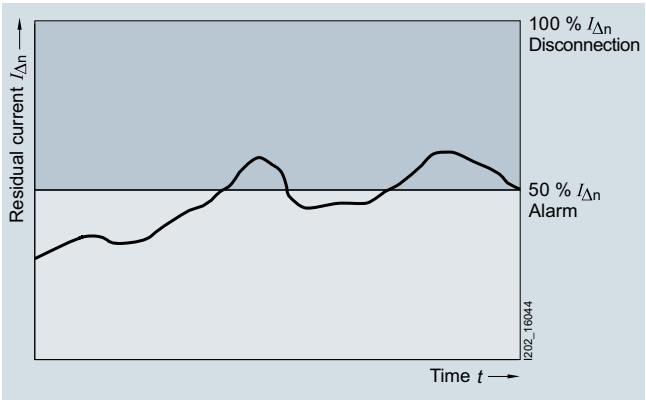
Modular residual current devices (MRCD)

Modular residual current devices (MRCD) monitor residual currents in electrical systems and trip the molded case circuit breaker via a shunt trip or an undervoltage release after an adjustable advance warning if the residual current exceeds a defined value. See accessories for molded case circuit breakers (MCCBs) in chapter "Molded-case circuit breakers".

This makes it possible for you to offer molded case circuit breakers (MCCBs) with personal and fire protection in compliance with EN 60947-2 (Annex M) (also as a retrofit).

Summation current transformer

The summation current transformer detects all conductors required to conduct the current, i.e. including the neutral conductor where applicable. In a fault-free system, the magnetizing effects of the conductors through which current is flowing cancel each other out for the summation current transformer, i.e. the sum of all currents is zero. If a residual current is flowing due to an insulation fault, a residual magnetic field is left in the core of the transformer and produces a voltage. This voltage is evaluated using the electronics of the RCM/MRCD. The switched contact can be used to operate an acoustic/optical signaling device, a higher-level control system or a circuit breaker for example.



Time characteristic of the rated residual current $I_{\Delta n}$

Benefits

- Higher plant availability and operating safety through permanent monitoring of residual currents
- Adjustable limit values for residual current and response time enable timely detection and signaling – plant shutdowns are often avoidable
- Devices for every application:
  The summation current transformers are available in various sizes, the RCMs can be used optionally for signaling and/or switching
- Additional fire protection can be implemented using the monitoring system

Technical specifications

		5SV8000-6KK	5SV8001-6KK	5SV8200-6KK	5SV8101-6KK
Standards		EN 62020, IEC 62020			EN 60947-2 (Annex M), IEC 60947-2 (Annex M)
Approvals		--	UL		--
Rated operational voltage U_e	V AC	230			230 From a 1-phase auxiliary voltage source (also externally)
• Frequency	Hz	50/60			
Rated residual current $I_{\Delta n}$					
• Type A	A	0.03 ... 3	0.03 ... 3	0.03 ... 3	0.03 ... 3 (default setting: 30 mA)
• Type AC	A	>3	5 ... 30	5 ... 30	--
Response time Δt	s	0.02 ... 5	0.02 ... 10, INS, SEL[1]	0.02 ... 10, INS, SEL[1]	$I_{\Delta n}$ = 30 mA: INS instantaneous $I_{\Delta n}$ > 30 mA: INS - SEL - 0.06 ... 10[1] (default INS)
Relay contacts		1 × alarm	1 × pre-alarm, 1 × alarm	1 × pre-alarm, 4 × alarm	1 × alarm, 1 × tripping operation
• Rated voltage	V AC	230	230	230	230
• Rated current	A	6	6	6	6
Summation current transformer	mm ∅	20 ... 210			35 ... 210
Maximum cable length RCM/CT (shielded cable)	m	10			
Conductor cross-section	mm^2	1.5			0.125 ... 2.08
Test/Reset		Yes/Yes			
External tripping operation/ external reset		--/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Mounting width	MW	2	3	3	3
Degree of protection					
• Contacts		IP20			
• Front		IP41			
Operating temperature	°C	-10 ... +50			

[1] INS: Instantaneous, SEL: Selective.

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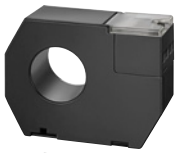
Selection and ordering data

	Rated operational voltage U_e	Rated residual current $I_{\Delta n}$	Response time Δt	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	V AC	A	s	MW							kg
Residual current monitors											
	**RCM analog**										
	230, 50/60 Hz	0.03 ... 5 (Type A) > 3 (Type AC)	0.02 ... 5	2		**5SV8000-6KK**		1	1 unit	1BE	0.196
	**RCM digital**										
	230, 50/60 Hz	0.03 ... 3 (Type A) 5 ... 30 (Type AC)	0.02 ... 10, INS, SEL[1]	3		**5SV8001-6KK**		1	1 unit	1BE	0.269
	**RCM digital, 4 channels**										
	230, 50/60 Hz	0.03 ... 3 (Type A) 5 ... 30 (Type AC)	0.02 ... 10, INS, SEL[1]	3		**5SV8200-6KK**		1	1 unit	1BE	0.322
Modular residual current devices											
	**MRCD**										
	230, 50/60 Hz	0.03 ... 3 (Type A)	0.02 ... 10, INS, SEL[1]	3		**5SV8101-6KK**		1	1 unit	1BE	0.275

[1] INS: Instantaneous, SEL: Selective.

5SV8 residual current monitors

		Internal diameter	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		mm							kg
Summation current transformers									
	Summation current transformers								
	Including holder for standard mounting rail[1] (UL)	20		5SV8700-0KK		1	1 unit	1BE	0.073
		30		5SV8701-0KK		1	1 unit	1BE	0.090
	Including holder for wall mounting[2] (UL)	35		5SV8702-0KK		1	1 unit	1BE	0.167
		70		5SV8703-0KK		1	1 unit	1BE	0.294
		105		5SV8704-0KK		1	1 unit	1BE	0.520
	Including holder for wall mounting (UL)	140		5SV8705-0KK		1	1 unit	1BE	1.065
		210		5SV8706-0KK		1	1 unit	1BE	1.753
	**Holders for standard mounting rail** [3]			5SV8900-1KK		1	2 units	1BE	0.005
	Suitable for summation current transformer with internal diameter of 20 mm, 30 mm, 35 mm, 70 mm								
Accessories for summation current transformers									
	Magnetic field centering sleeves								
	35 mm			5SV8902-1KK		1	1 unit	1BE	0.342
	70 mm			5SV8903-1KK		1	1 unit	1BE	0.866
	105 mm			5SV8904-1KK		1	1 unit	1BE	1.796
	140 mm			5SV8905-1KK		1	1 unit	1BE	2.551
	210 mm			5SV8906-1KK		1	1 unit	1BE	4.300

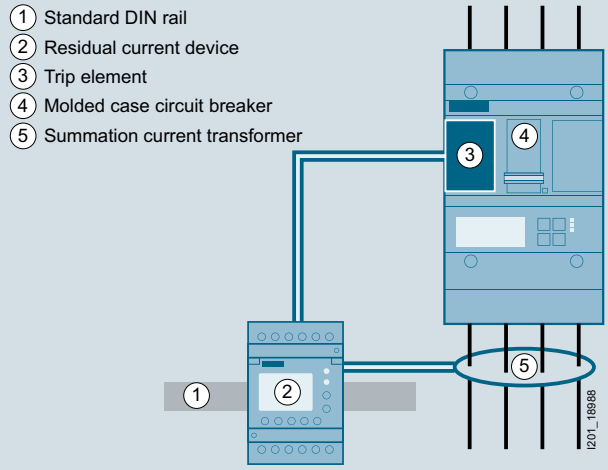
1) Not for MRCD.

2) Mounting on standard mounting rail with optional holder for standard mounting rail also possible.

3) Cannot be used together with magnetic field centering sleeves.

*** You can order this quantity or a multiple thereof.**

Combination possibilities for residual current protection device

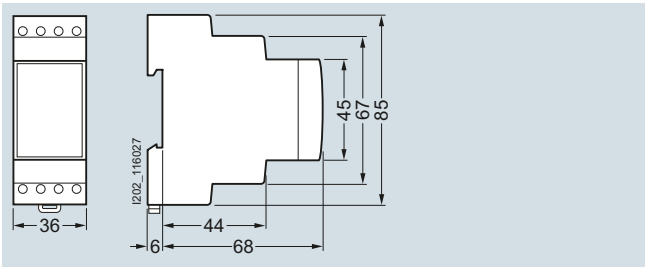


5SV8101-6KK (tested combinations)

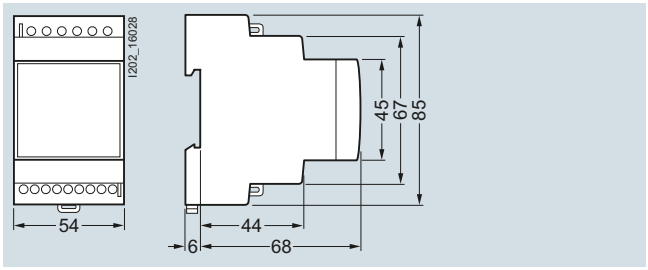
2	5SV8101-6KK			
1	EN 60715 - TH35 - 7.5 35 - 15			
5	5SV8702-0KK 5SV8703-0KK 5SV8704-0KK 5SV8705-0KK 5SV8706-0KK	35 mm 70 mm 105 mm 140 mm 210 mm		5SV8902-1KK 5SV8903-1KK 5SV8904-1KK 5SV8905-1KK 5SV8906-1KK
4			3	3
3VL17...			3VL9400-1ST00	3VL9400-1UP00
3VL27...			3VL9400-1ST00	3VL9400-1UP00
3VL37...			3VL9400-1ST00	3VL9400-1UP00
3VL47...			3VL9400-1ST00	3VL9400-1UP00
3VA20... 3VA21... 3VA22...			3VA9988-0BL30 3VA9988-0BL32 3VA9988-0BL33	3VA9908-0BB11 3VA9908-0BB20 3VA9908-0BB24 3VA9908-0BB25
3VA10... 3VA11...			3VA9988-0BL30 3VA9988-0BL32 3VA9988-0BL33	3VA9908-0BB11 3VA9908-0BB20 3VA9908-0BB24 3VA9908-0BB25

Dimensional drawings

Residual current monitors

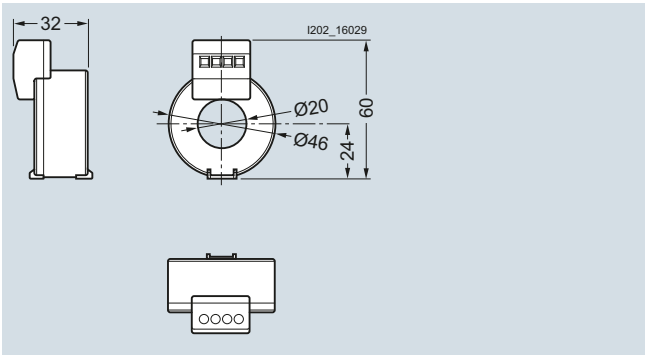


RCM analog, 5SV8000-6KK

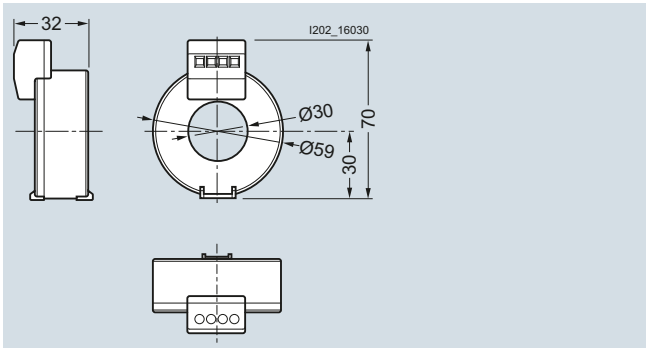


RCM digital, 5SV8001-6KK, 5SV8200-6KK, MRCD, 5SV8101-6KK

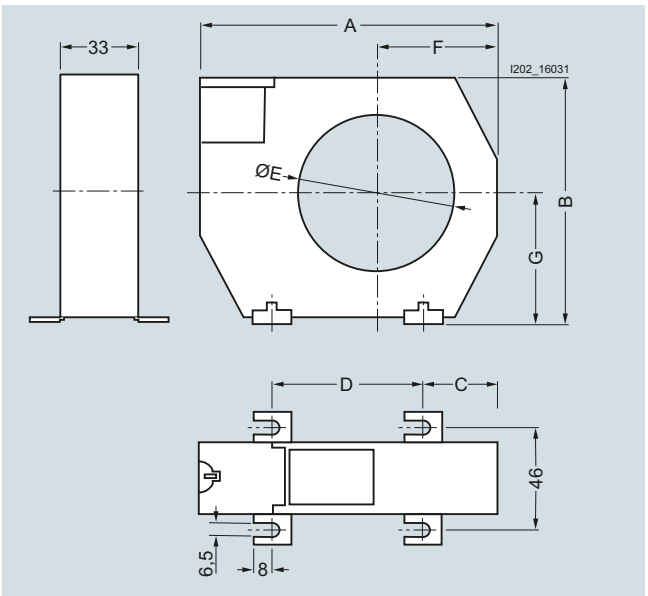
Summation current transformers



Summation current transformers, 5SV8700-0KK



Summation current transformers, 5SV8701-0KK



Summation current transformers, 5SV8702-0KK, 5SV8703-0KK, 5SV8704-0KK, 5SV8705-0KK, 5SV8706-0KK

Type	Dimensions	A	B	C	D	E	F	G
5SV8702-0KK		100	79	26	49	35	35	43
5SV8703-0KK		130	110	32	66	70	52	57
5SV8704-0KK		170	146	38	94	105	72	73
5SV8705-0KK		230	196	49	123	140	97	98
5SV8706-0KK		299	284	69	161	210	141	142

Type	Rated current	Maximum current[1)]
5SV8700-0KK	≤ 40 A	240 A
5SV8701-0KK	≤ 63 A	380 A
5SV8702-0KK	≤ 80 A	480 A
5SV8703-0KK	≤ 200 A	1200 A
5SV8704-0KK	≤ 250 A	1500 A
5SV8705-0KK	≤ 500 A	3000 A
5SV8706-0KK	≤ 600 A	3600 A

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

Overview

Voltage relays are used for device and plant protection, supplying safety light devices and the detection of N-conductor breaks and short-time voltage interruptions.

They are available as undervoltage, overvoltage and under/overvoltage relays. The devices are equipped with different functions, depending on their intended use, and comply with the pertinent regulations.

Benefits

- Complete voltage protection in a compact design for overvoltage and undervoltage monitoring in a single device
- Plants and devices are reliably and easily protected by phase-failure relays
- Overvoltages and consequential damage due to high voltages are prevented through N-conductor monitoring
- Asymmetry monitoring in the voltage relay also protects three-phase AC motors against operation with voltage skew

Technical specifications

			5TT3400 5TT3401 5TT3402 5TT3403	**5TT3404 5TT3405**	**5TT3406**	**5TT3195**
Standards			IEC 60255; DIN VDE 0435-110, -303			
Rated control voltage U_c		V AC	230/400			400
Operating range (overload capability)		$\times U_c$	1.1			1.35
Rated frequency		Hz	50/60			
Response values	ON-switching OFF-switching	$\times U_c$	0.9/0.95 0.7/0.85		4 % hysteresis 0.7 ... 0.95	 0.9 ... 1.3
Minimum contact load		V; mA	10; 100			
Phase asymmetry	Setting accuracy Repeat accuracy	% %	-- --	Approx. 5 ... 10 1		Approx. 5 ... 10 1
Phase failure detection	At L1 or L2 or L3	ms	100			--
N-conductor monitoring			--	Yes		--
Rated insulation voltage U_i	Between coil/contact	kV	4			
Contacts	μ contact (AC-11)	A	4			
Electrical isolation	Creepage distances and clearances Actuator/contact	 mm	 3	 5.5		
Rated impulse withstand voltage U_{imp}	Actuator/contact	kV	> 2.5	> 4		
Terminals	± screw (Pozidriv)		1			
Conductor cross-sections • Rigid, max. • Flexible, with end sleeve, min.		 mm^2 mm^2	 2 × 2.5 0.5			
Permissible ambient temperature		°C	-20 ... +60			
Resistance to climate	Acc. to EN 60068-1		20/60/4			

5TT3 voltage relays

			5TT3407	5TT3408	5TT3410
Standards			IEC 60255; DIN VDE 0435-303		
Rated control voltage U_c		V AC	230/400		
Operating range (overload capability)		$\times U_c$	1.1	1.35	1.2
Rated frequency		Hz	50/60		
Back-up fuse	Terminals L1/L2/L3	A	2		
Response values	Overvoltage:				
	OFF-switching	$\times U_c$	--	0.9 ... 1.3	--
	ON-switching		--	4 % hysteresis	--
	Undervoltage:				
	OFF-switching	$\times U_c$	0.8	0.7 ... 1.1	--
	ON-switching		0.85	4 % hysteresis	--
Minimum contact load		V; mA	10; 100		
Phase asymmetry	Setting accuracy	%	Approx. 5 ... 10		
	Repeat accuracy	%	1		
Phase failure detection	At L1, L2 or L3	ms	≥ 20	100	--
OFF delay		s	--	0.1 ... 20	0.1 ... 20
Automatic reclosing delay		s	0.2 ... 2	--	--
Rated insulation voltage U_i	Between coil/contact	kV	4		
Contacts	μ contact (AC-11)	A	3	1	4
Electrical isolation	Creepage distances and clearances				
	Contact/contact	mm	--	4	--
	Actuator/contact	mm	4		5.5
Rated impulse withstand voltage U_{imp}	Actuator/contact	kV	> 4		
Rated operational power P_s	AC operation:				
	230 V and p.f. = 1	VA	2000	--	--
	230 V and p.f. = 0.4	VA	1250	--	--
	DC operation:				
	U_e = 24 V and I_e = 6 A	W	max. 100	--	--
	U_e = 60 V and I_e = 1 A	W	max. 100	--	--
	U_e = 110 V and I_e = 0.6 A	W	max. 100	--	--
	U_e = 220 V and I_e = 0.5 A	W	max. 100	--	--
Terminals	± screw (Pozidriv)		1		
Conductor cross-sections					
• Rigid, max.		mm^2	2 × 2.5		
• Flexible, with end sleeve, min.		mm^2	0.5		
Permissible ambient temperature		°C	-20 ... +60		
Humidity class	Acc. to IEC 60068-2-30		F		

			5TT3411	5TT3414	5TT3415
Rated control voltage U_c		V AC	230	230/400	
Overload capability		$\times U_c$	1.15		
Rated frequency		Hz	50/60		
Response values	ON-switching		2 % hysteresis	5 %	
	OFF-switching	$\times U_c$	0.9	0.85	
Minimum contact load		V/mA	10/100		
Phase failure detection	At L1, L2 or L3	ms	--	500	
N-conductor monitoring			--		
Rated insulation voltage U_i	Between coil/contact	kV	4	--	
Contacts	AC-15 NO contacts		3	--	
	AC-15 NC contacts		2	--	
	AC-15 CO contacts		--	1	2
Electrical service life in switching cycles	AC-15, 1 A, 230 V AC		5×10^5	1×10^5	
Rated impulse withstand voltage	Acc. to IEC 60664-1	kV	4	6	
Pollution degree			2		
Terminals	± Screw (Pozidriv)		2	--	
	– Screw (slot)		--	3.5	
Conductor cross-sections					
• Rigid		mm^2	2 × 2.5	1 x 4	
• Flexible, with end sleeve		mm^2	2 × 1.5	1 x 2.5	
Permissible ambient temperature		°C	-20 … +60	-25 … +60	
Resistance to climate	Acc. to EN 60068-1		20/060/04		

Selection and ordering data

	Contacts	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	A	V	MW							kg
	Overvoltage relays											
 5TT3194	For the monitoring of 3 phases against N, with N-conductor monitoring, switching thresholds: 0.9 ... 1.3 × U_c, 4 % hysteresis, adjustable											
	2 CO	230	4	230/400 AC	2		5TT3195		1	1 unit	1BK	0.127
	Undervoltage relays											
 5TT3400	For the monitoring of 1, 2 or 3 phases against N, with phase failure detection											
	• Switching thresholds: 0.7 and 0.9 x U_c, not adjustable											
	1 CO	230	4	230/400 AC	1	▶	5TT3400		1	1 unit	1BK	0.077
	2 CO	230	4	230/400 AC	2	▶	5TT3402		1	1 unit	1BK	0.124
	• Switching thresholds: 0.9 ... 0.95 × U_c											
	2 CO	230	4	230/400 AC	2		5TT3403		1	1 unit	1BK	0.124
 5TT3402	For the monitoring of 1, 2 or 3 phases against N, with phase failure detection, switching thresholds: 0.85 and 0.95 x U_c, not adjustable											
	1 CO	230	4	230/400 AC	1	▶	5TT3401		1	1 unit	1BK	0.076
	For the monitoring of 3 phases against N, with asymmetry, reverse voltage and phase failure detection, with N-conductor monitoring											
	• Switching thresholds: 0.7 and 0.9 x U_c, not adjustable											
	2 CO	230	4	230/400 AC	2		5TT3404		1	1 unit	1BK	0.124
	• Switching thresholds: 0.7 ... 0.95 × U_c, 5 % hysteresis, adjustable											
	2 CO	230	4	230/400 AC	2		5TT3406		1	1 unit	1BK	0.128
 5TT4404	For the monitoring of 3 phases against N, with asymmetry, reverse voltage and phase failure detection, with N-conductor monitoring, switching thresholds: 0.85 and 0.95 x U_c, not adjustable											
	2 CO	230	4	230/400 AC	2		5TT3405		1	1 unit	1BK	0.128
	For the monitoring of 1, 2 or 3 phases against N, switching thresholds: 0.85 x U_c, not adjustable response delay 0.5 s off-delay 60 s											
	1 CO	230	4	230/400 AC	1		5TT3414		1	1 unit	1BK	0.070
 5TT3415	• With TEST pushbutton											
	2 CO	230	4	230/400 AC	1		5TT3415		1	1 unit	1BK	0.080

*** You can order this quantity or a multiple thereof.**

5TT3 voltage relays

	Contacts	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	A	V AC	MW							kg
 5TT3407	**Short-time relays** For the monitoring of short-time failure detection ≥ 20 ms of 1, 2 or 3 phases against N, with phase failure detection and N-conductor monitoring, switching thresholds: 0.8 ... 0.85 × U_c, not adjustable											
	2 CO	230	4	230/400	2		**5TT3407**		1	1 unit	1BK	0.131
 5TT3408	**Undervoltage and overvoltage relays** For the monitoring of 3 phases against N, with asymmetry, reverse voltage and phase failure detection, with N-conductor monitoring and adjustable time delay of 0.1 ... 20 s, switching thresholds: Undervoltage: 0.7 ... 1.1 × U_c, 4 % hysteresis, adjustable overvoltage: 0.9 ... 1.3 × U_c, 4 % hysteresis, adjustable											
	2 CO	230	4	230/400	2		**5TT3408**		1	1 unit	1BK	0.132
 5TT3410	**N-conductor monitors** With asymmetry detection and N-conductor monitoring											
	2 CO	230	4	230/400	2		**5TT3410**		1	1 unit	1BK	0.122
 5TT3411	**Voltage relays for undervoltage monitoring of medical premises** Single-phase against N with test button, switching thresholds: 0.9 × U_n, 2 % hysteresis											
	2 NO, 2 NC	230	4	230	4		**5TT3411**		1	1 unit	1BK	0.226
	Single, two or three-phase against N, with asymmetry, reverse voltage and phase failure detection, with N-conductor monitoring, and one test button each for the phases, switching thresholds: 0.9 × U_n, 4 % hysteresis											
	1 CO, 1 NO, 1 NC	230	4	230/400	4		**5TT3412**		1	1 unit	1BK	0.231

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* You can order this quantity or a multiple thereof.

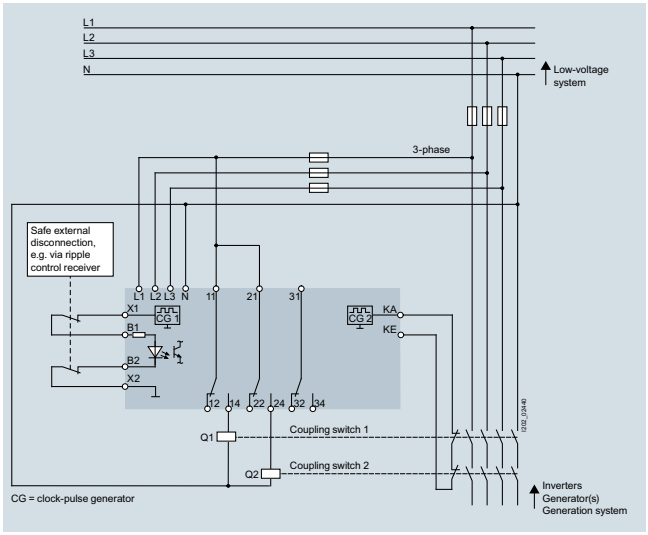
Overview

The voltage and frequency relay monitors the status of the grid in the case of in-plant generation systems. Violation of an upper or lower limit results in shutdown and disconnection of the generation system from the grid. Connection or automatic re-connection of the generation system to the grid only takes place when the grid frequency and the grid voltage have remained within their respective tolerance ranges without interruption for the duration of an adjustable time delay t_W. Following shutdown due to a brief interruption, re-connection takes place when the grid frequency and grid voltage have remained within the tolerance range for 5 s without interruption.

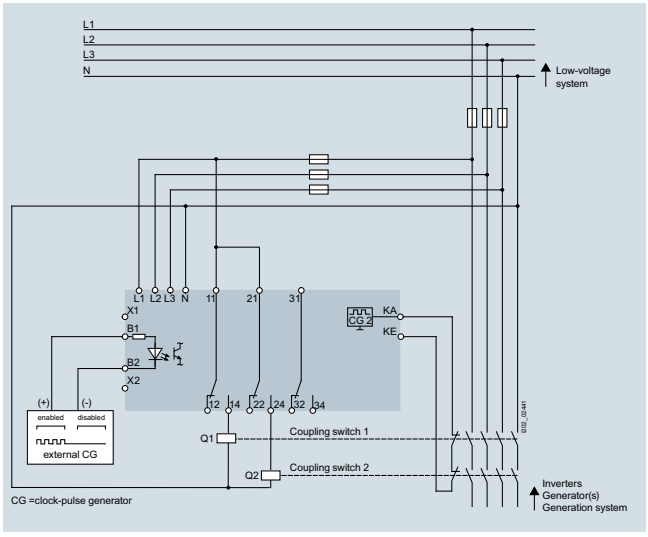
Benefits

- Clearance certification of the German Employer's Liability Association (Energy, Textile, Electrical and Media Products)
- Default settings in accordance with VDE-AR-N-4105
- The voltage and frequency relay meets the high requirements of VDE AR-N 4105
- It can be used both for centralized and integrated grid and plant protection
- The latching rotary switches enable fast and easy setting of the required values
- An illuminated LCD display provides plant status information
- The voltage and frequency relay ensures single-fault tolerance as stipulated in the VDE-AR-N 4105 application guide
- Passive procedure for detecting islanding

Application



Enable via external contact



Enable using external voltage 24 V AC, 40 ... 400 Hz

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Technical specifications

			Voltage and frequency relays	
			5TT3426	5TT3427
Standards			IEC/EN 60255-1; IEC/EN 61000; VDE-AR-N-4105	
Power supply U_v		V AC	3 x 85 ... 288	
Supply voltage B1/B2		V AC	24 (at 40 ... 400 Hz)	
Rated control voltage U_c		V AC	230/400	
Rated impulse withstand voltage	Acc. to IEC 60664-1			
• Contact 31, 32, 34		kV	6	
• KA, KE and measuring circuit		kV	4	
• Pollution degree			2	
Recommended fuse Measurement inputs	gG/gL	A	6	
Temperature range		°C	-20 ... +60 (in the range 0 °C ... -20 °C, there may be restrictions to the functionality of the LCD display)	
Conductor cross-sections				
• Rigid, flexible		mm^2	0.5 ... 4	
• Flexible with end sleeve		mm^2	0.5 ... 2.5	
• Multi-conductor connection 2 conductors of same cross-section		mm^2	0.5 ... 1.5	
Output relay				
Mode of operation			Quiescent current	
Contacts				
• NO contacts	AC15	A AC/V AC	3/230	
• NC contacts	AC15	A AC/V AC	1/230	
Thermal current		A AC	5	
Electrical service life				
• NO contacts	AC15, 1A, AC230	Switching cycles	300000	
Rise in frequency		Hz	50.2 ... 51.2	
Drop in frequency		Hz	47.0 ... 49.8	
Rise in voltage				
• Phase/neutral		V AC	253 ... 288	
• Phase/phase		V AC	--	438 ... 498
Drop in voltage				
• Phase/neutral		V AC	184	
• Phase/phase		V AC	--	319
Mean rise in voltage over 10 minutes				
• Phase/neutral		V AC	253 ... 267	
• Phase/phase		V AC	--	438 ... 462
Re-connection time t_w		s	0 ... 600	
Disconnection response time		ms	< 100	
Connection condition				
• Frequency		%	5	
• Voltage		Hz	47.5 ... 50.05	
Accuracy				
• Frequency		% (± 1 digit)	≤ ±1	
• Voltage		% (± 1 digit)	≤ ±0.02	
Dimensions		W x H x D	70 x 90 x 71 mm	

Selection and ordering data

	Contacts	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V	A	V AC	MW							kg
	**Voltage and frequency relays**											
	For monitoring of grid infeeds ≤ 30 kVA											
	3 CO	230	5	230/400	4		5TT3426		1	1 unit	1BK	0.248
	For monitoring of grid infeeds > 30 kVA											
	3 CO	230	5	230/400	4		5TT3427		1	1 unit	1BK	0.257

* You can order this quantity or a multiple thereof.

Overview

Current relays monitor single and three-phase systems for the flow of current, e.g. in emergency lighting installations, and the loading of motors. They are available as undercurrent, overcurrent and under/overcurrent relays.

Benefits

- Devices with an extremely broad range of applications of minimum 0.1 A to maximum 15 A without transformer
- Permanent overload capability up to 20 A or 30 A max. for up to 3 seconds, protect the function against uncontrolled plant states and increase plant availability
- Range changing enables the precise setting of current values through a high resolution
- Ultra compact current relays require only the smallest of space and save costs

Technical specifications

			5TT6111	5TT6112
Standards			IEC 60255; DIN VDE 0435-303	
Rated control current I_c		A	1 ... 10	
Rated control voltage U_c		V AC	230	
Primary operating range **Overload capability, continuous** **Overload capability, short-time**	 at 50 °C ambient temperature max. 3 s	$\times U_c$ A A	0.9 ... 1.1 15 20	
Rated frequency		Hz	50/60	
Response values	ON-switching OFF-switching		Infinitely variable Permanent, 4 % hysteresis	
Switching delay t_v	Infinitely adjustable	s	0.1 ... 20	
Response time	Non-adjustable	ms	Current corresponds to the rated operational power of the continuous-flow heater	
Minimum contact load		V; mA	10; 100	
Rated insulation voltage U_i	Between coil/contact	kV	2.5	
Contacts μ contact (AC-15)	 NO contacts NC contacts	 A A	 3 1	
Electrical isolation	Creepage distances and Actuator/contact	mm	3	
Rated impulse withstand voltage U_{imp}	Actuator/contact	kV	> 4	
Terminals	± screw (Pozidriv)		1	
Conductor cross-sections	Rigid Flexible, with end sleeve	max. mm^2 min. mm^2	2 × 2.5 1 × 0.5	
Permissible ambient temperature		°C	-20 ... +60	
Resistance to climate	Acc. to EN 60068-1		20/60/4	

			5TT6113	5TT6114	5TT6115
Standards			IEC 60255; DIN VDE 0435-303		
Rated control current I_c		 A A A A	4 ranges 0.1 ... 1 0.5 ... 5 1 ... 10 1.5 ... 15		
Rated control voltage U_c		V AC	230		
Primary operating range **Overload capability, continuous** **Overload capability independent of measuring range**	 max. 3 s	$\times U_c$ A A	0.9 ... 1.1 20 30		
Rated frequency		Hz	50/60		
Response values	ON-switching OFF-switching		Infinitely variable Permanent, 4 % hysteresis		
Switching delay t_v	Infinitely adjustable	s	0.1 ... 20		
Response time	Non-adjustable	ms	See: www.siemens.com/lowvoltage/manuals		
Minimum contact load		V; mA	10; 100		
Rated insulation voltage U_i	Between coil/contact	kV	2.5		
Contacts μ contact (AC-15)	 NO contacts NC contacts	 A A	 5 1		
Electrical isolation	Creepage distances and Actuator/contact	mm	3		
Rated impulse withstand voltage U_{imp}	Actuator/contact	kV	> 4		
Terminals	± screw (Pozidriv)		1		
Conductor cross-sections	Rigid Flexible, with end sleeve	max. mm^2 min. mm^2	2 × 2.5 1 × 0.5		
Permissible ambient temperature		°C	-20 ... +60		
Resistance to climate	Acc. to EN 60068-1		20/60/4		

Selection and ordering data

	Contacts	U_e	I_e	Measuring range	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	A	A AC	MW							kg
	**Current relays for single-phase loads up to 230 V AC, auxiliary voltage and measuring circuit, not isolated**											
	Undervoltage monitoring, single-phase											
	1 CO	230	5	1 ... 10	1		5TT6111		1	1 unit	1BK	0.082
	Overcurrent monitoring, single-phase											
	1 CO	230	5	1 ... 10	1		5TT6112		1	1 unit	1BK	0.081
	**Current relays for single-phase loads up to 230 V AC, auxiliary voltage and measuring circuit electrically isolated**											
	Undervoltage monitoring, single-phase											
	2 CO	230	5	4 ranges 0.1 ... 1 0.5 ... 5 1 ... 10 1.5 ... 15	2		5TT6113		1	1 unit	1BK	0.144
	Overcurrent monitoring, single-phase											
	2 CO	230	5	4 ranges 0.1 ... 1 0.5 ... 5 1 ... 10 1.5 ... 15	2		5TT6114		1	1 unit	1BK	0.149
	Over/undervoltage monitoring, single-phase											
	2 CO	230	5	4 ranges 0.1 ... 1 0.5 ... 5 1 ... 10 1.5 ... 15	2		5TT6115		1	1 unit	1BK	0.146

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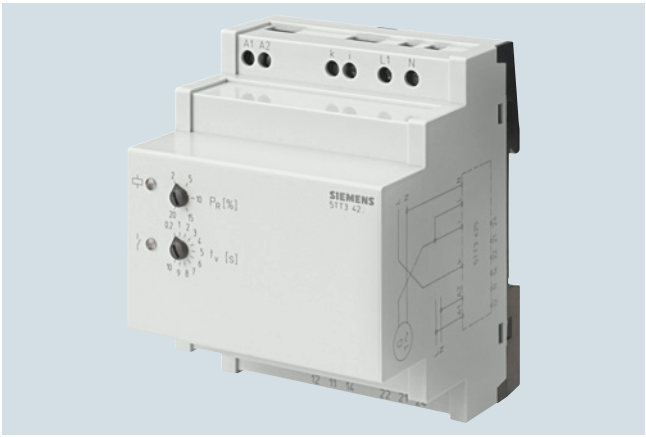
* You can order this quantity or a multiple thereof.

Overview



The 5TT3424 and 5TT3425 reverse power relays monitor the direction of the energy transport in an electric grid. This may be necessary where public grids and industrial grids intersect, e.g. when using emergency generators, motor-driven generators, etc.

Benefits

If, for example, the motor fails (due to lack of fuel or a defect in the injection system, for example) while operating emergency power equipment in parallel with another power generator, the function mode of the generator changes seamlessly to "motor-driven". The equipment draws active/reactive/apparent power from the system and the generator drives the diesel that could be damaged by this. The emergency power equipment must then be switched off immediately.

Function

The response value of the reverse power can be set from 2 % to 20 % with the potentiometer PR. Whether for devices with or without neutral connection, the reverse power per phase is calculated as follows:
U_{star} x I_u x cos φ x response value (%). With a response value of 20 % and cos φ = 1, this equals 230 V x 5 A x 0.2 = 230 W. If the current exceeds the rated current of the device, an external current transformer with a minimum rating of 2.5 VA can be connected upstream. The direction of current flow must be noted here.

Technical specifications

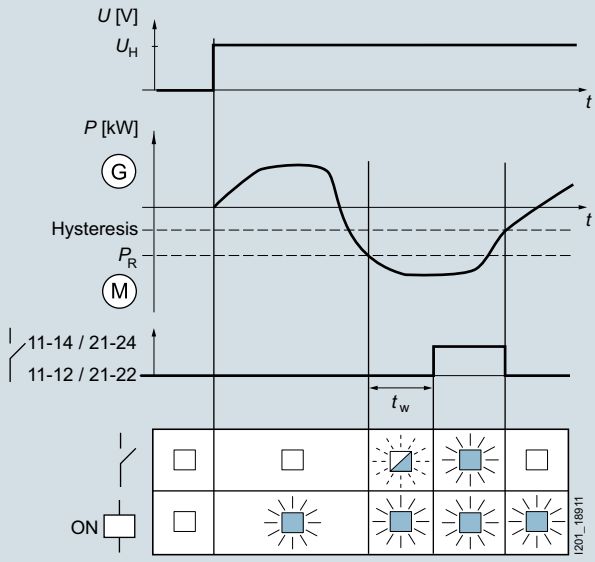
			Reverse power relays	
			5TT3424	**5TT3425**
Standards			IEC 60255; DIN VDE 0435-303	
Rated voltage U_n		V AC	230, 3-phase systems without N	400, 1- or 3-phase systems with N
Rated current I_n		A	5	
Response value	Reverse power	%	2 ... 20	
Hysteresis		%	12.5 of the set reponse value	
Rated frequency		Hz	45 ... 65	
Response delay t_{an}		s	0.2 ... 10, adjustable	
Contact arrangement			2 CO	
Output				
Contact arrangement			2 CO	
Breaking capacity	IEC 60947-5-1			
• NO contacts	AC15	A AC/V AC	3/230	
• NC contacts	AC15	A AC/V AC	1/230	
• Acc. to DC 13		A DC/V DC	1/24	
Thermal current		A	2 x 5	
Electrical service life	IEC 60947-5-1			
• NO contacts	15 AC, 3A, 230 AC	Switching cycles	2 x 10^5	
Reliable switching frequency		Switching cycles/h	1800	
Short-circuit strength max. melting fuse	IEC 60947-5-1		4 A gL	
Mechanical service life		Switching cycles	30 x 10^6	
General data				
Permissible ambient/storage temperature		°C	-20 ... +60	
Clearance and creepage distances				
• Rated impulse withstand voltage		kV	4	
• Pollution degree	IEC 60664-1		II	
Degree of protection				
• Enclosure			IP40	
• Terminals			IP20	
Wire connections				
• Fixed screw terminal (S)			0.2 ... 4 mm^2 solid or 0.2 ... 1.5 mm^2 strand with sleeve	
Dimensions		W x H x D	70 x 90 x 71 mm	

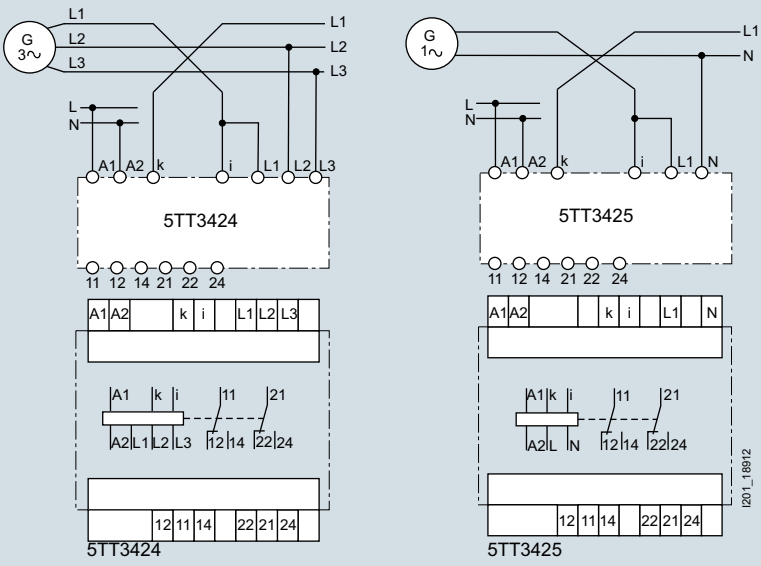
5TT3 reverse power relays

Selection and ordering data

	Rated voltage U_n	Rated current I_n	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	V AC	A							kg
	**Reverse power relays**								
	230, 3-phase systems without N	5		5TT3424		1	1 unit	1BK	0.297
	400, 1- or 3-phase systems with N	5		5TT3425		1	1 unit	1BK	0.284

Application





* You can order this quantity or a multiple thereof.

Overview

Fuse monitors serve to monitor all types and versions of melting fuses that cannot be equipped with a fault signal contact. This enables integration in fault signaling circuits or a central alarm in order to improve plant availability.

Benefits

- Increase in plant availability, because fuse failures – which could cause considerable damage to the plant – are detected in plenty of time
- A fuse failure is detected even if the load is switched off. This ensures the highest level of plant availability

Technical specifications

			5TT3170
Standards			IEC 60255; DIN VDE 0435-110
Rated control voltage U_c		V	380 ... 415 3 AC
Primary operating range		× U_c	0.8 ... 1.1
Rated frequency		Hz	50 ... 400
Internal resistance of measuring paths		Ω/V	> 1000
Max. permissible rear feed		%	90
Response/release time		ms	< 50
Rated impulse withstand voltage U_{imp} Input/output		kV	> 4
Rated operational voltage U_e		V AC	250
Rated operational current I_e	AC-1	A	4
Electrical service life	AC-11	In switching cycles at 1 A	1.5×10^5
Terminals	± screw (Pozidriv)		1
Conductor cross-sections	Rigid, max. Flexible, with end sleeve, min.	mm^2 mm^2	2 × 2.5 1 × 0.5
Permissible ambient temperature		°C	-20 ... +45
Resistance to climate	Acc. to EN 60068-1		20/45/4

Selection and ordering data

	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	V AC	A	3 V AC	MW							kg
	**Fuse monitors** For all low-voltage fuse systems. Can be used in asymmetric systems afflicted with harmonics and regenerative feedback motors. Signal also for disconnected loads.										
	230	4	380 ... 415	2	►	**5TT3170**		1	1 unit	1BK	0.153

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* You can order this quantity or a multiple thereof.

5TT3 phase and phase sequence monitors

Overview

Phase monitors monitor the voltages in three-phase system and signal the power failure of one or more phases over a floating contact. Phase sequence monitors monitor the phase sequence in three-phase systems and signal any changes in the phase sequence – change of rotating field – over a floating changeover contact.

Benefits

- The three-phase LED display in the phase monitor and the LED display in the phase sequence monitors provide constant information on the switching state of the plant
- The compact design in 1 MW saves space

Technical specifications

			5TT3421	5TT3423
Standards			IEC 60255; DIN VDE 0435	
Rated control voltage U_c		V AC	230/400	400
Primary operating range		$\times U_c$	0.8 ... 1.1	
Rated frequency		Hz	50/60	
Rated power dissipation P_v	Electronics Contacts	VA VA	9 0.2	
Rated operational voltage U_e		V AC	250	
Rated operational current I_e		A	4	
Minimum contact load		V; mA	10; 100	
Rated insulation voltage U_i	Between coil/contact	kV	4	
Contacts	µ contact (AC-11)	A	3	
Electrical isolation	Creepage distances and clearances Actuator/contact	 mm	 4	
Rated impulse withstand voltage U_{imp}	Actuator/contact	kV	> 2.5	
Terminals	± screw (Pozidriv)		1	
Conductor cross-sections	Rigid, max. Flexible, with end sleeve, min.	mm^2 mm^2	2 × 2.5 --	
Degree of protection	Acc. to EN 60529		IP20, with connected conductors	
Safety class	Acc. to EN 61140/VDE 0140-1		II	
Permissible ambient temperature		°C	-20 ... +60	
Resistance to climate	Acc. to EN 60068-1		20/60/4	

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Selection and ordering data

	Contacts	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	A	V AC	MW							kg
	**Phase monitors** With 3 green LEDs for 3 phases											
	1 CO	250	4	230/400	1	►	**5TT3421**		1	1 unit	1BK	0.077
	**Phase sequence monitors** With one green LED, which lights up for right-rotating field											
	1 CO	250	4	400	1	►	**5TT3423**		1	1 unit	1BK	0.078

* You can order this quantity or a multiple thereof.

Overview

Insulation monitors are used for protection of persons and against fire in non-grounded systems (IT systems). The insulation resistance of the system being monitored is measured against ground.

These types of measurements are specified according to DIN VDE 0100-410 – Power installations up to 1.000 V – Protection against electric shock.

Technical specifications

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

Selection and ordering data

	Contacts	U_c	U_e	Measuring range	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	V	kΩ	MW							kg
	**Insulation monitors**											
	For monitoring insulation resistance in non-grounded three-phase and AC systems from 10 ... 1000 Hz against ground											
	2 CO	230	0 ... 500 V AC	5 ... 100	2		5TT3470		1	1 unit	1BK	0.180
	For monitoring the insulation resistance in non-grounded DC systems against ground											
	2 CO	--	12 ... 280 V DC	5 ... 200	2		5TT3471		1	1 unit	1BK	0.146

* You can order this quantity or a multiple thereof.

7LQ3 monitors for medical premises

Overview

In areas that conform to Group 2 of DIN VDE 0100-710, any interruption to the examination and/or treatment of patients would place those patients at risk.

Limit monitoring

This is prevented through the use of changeover and monitoring units. These monitor the insulation resistance of the non-grounded IT system, the load current and the temperature of the transformer. If the limit value is exceeded, the insulation monitor gives out a warning signal.

Voltage monitoring

In addition, a special voltage relay monitors the voltage of the power supply and switches to a second power supply if it falls below the specified limit values.

Benefits

- TÜV-certified switchover device with increased functionality
- Plant state signal over contacts – No specific manufacturer's bus system
- Easy operation over potentiometers as the set limit value is always visible
- Easy in existing plants; can also be integrated from other manufacturers

Technical specifications

			Switchover devices 7LQ3361	7LQ3362
Standards			IEC 60364-7-710; DIN VDE 0100-710	
Power supply U_v		V AC	230	230/400
Primary operating range		× U_v	0.9 … 1.1	
Supply frequency f_v		Hz	50 … 60	
Insulation coordination			IEC 60664-1	
Rated impulse withstand voltage		kV	4	
Pollution degree			3	
Power loss max. P_v		W	10.7	
Power section				
Contactors			Mechanically latched; mechanically and electrically locked	
Rated operational current acc. to DIN VDE 0100-710		A	51	32
Rated operational current AC-3		A	113	71
Short-circuit protection acc. to DIN VDE 0100-710 • Max. backup protection	 gG	 A	 63	
Switchover time		s	0.1 ... 10	
Measuring circuit insulation monitoring				
Response value R_{resp}		kΩ	50	
Response deviation			EN 61557-8	
Response time t_{on} at R_{on} = 50 kΩ, C_e = 1 µF	R_F from ∞ to 0.5 × R_{to} R_F from ∞ to 0 kΩ	s s	< 1.3 < 0.7	
Hysteresis		%	15	
Measurement voltage U_m		V DC	Approx. 15	
Measurement current $I_{m\ max}$ (at R_F = 0 Ω)		µA	< 50	
Internal resistance DC R_i		kΩ	> 250	
Impedance Z_i at 50 Hz		kΩ	> 250	
Permissible direct interference voltage U_{fg}		V DC	< 300	
Test button			External/internal	
Measuring circuit load current monitoring				
Response value, adjustable with external transformer 50/5 A, Class 1		A	5 … 50	
Hysteresis		%	4	
Temperature influence		%/°C	≤ 0.05	
Time delay t_v, adjustable		s	0.1 … 20	
Measuring circuit temperature monitoring				
Response value		kΩ	3.2 … 3.8	
Release value		kΩ	1.5 … 1.8	
PTC thermistor	Acc. to DIN 44081/44082	Unit(s)	1 … 6 in series	
Measuring circuit voltage monitoring				
Response values	ON-switching OFF-switching	 × U_c	2 % hysteresis 0.9	4 % hysteresis 0.9
Phase failure detection	At L1, L2 or L3	ms	--	100
N-conductor monitoring			--	Yes

			Switchover devices 7LQ3361	7LQ3362
Connection				
Terminals				
• Load circuit	Feeder terminals Output terminals	mm^2	4 ... 16	
• Communication	Status signals Fault indications	mm^2	2.5	
Environmental conditions				
Permissible ambient temperature		°C	-20 ... 45	
Mounting position			Vertical	

			Insulation monitors 7LQ3354	7LQ3355
Standards			EN 61557-8	
Power supply U_v		V AC	230	
Primary operating range		× U_v	0.9 … 1.1	
Supply frequency f_v		Hz	50 … 60	
Power loss max. P_v		VA	Approx. 7	
Rated system voltage U_n (measuring circuit)		V AC	0 … 300	
Rated frequency f_n		Hz	10 … 1000	
EMC immunity to interference			IEC 61000-6-2	
EMC emitted interference			IEC 61000-6-3	
Insulation coordination			IEC 60664-1	
Rated impulse withstand voltage		kV	4	
Pollution degree			3	
Flammability class			UL 94V-0	
Measuring circuit insulation monitoring				
Response value R_{resp}		kΩ	50	50 ... 500
Response deviation			EN 61557-8	
Response time t_{on} at R_{on} = 50 kΩ, C_e = 1 µF	R_F from ∞ to 0.5 × R_{on} R_F from ∞ to 0 kΩ	s s	< 1.3 < 0.7	
Hysteresis		%	15	
Measurement voltage U_m		V DC	Approx. 15	
Measurement current $I_{m\ max}$ (at R_F = 0 Ω)		µA	< 50	
Internal resistance DC R_i		kΩ	> 250	
Impedance Z_i at 50 Hz		kΩ	> 250	
Permissible direct interference voltage U_{fg}		V DC	< 300	
Measuring circuit load current monitoring				
Response value, adjustable with external transformer 50/5 A, Class 1		A	5 … 50	
Hysteresis		%	4	
Temperature influence		%/°C	≤ 0.05	
Time delay t_v, adjustable		s	0.1 … 20	
Measuring circuit temperature monitoring				
Response value		kΩ	3.2 … 3.8	
Release value		kΩ	1.5 … 1.8	
PTC thermistor	Acc. to DIN 44081/44082	Unit(s)	1 … 6 in series	
Display and control elements				
Operating error	Acc. to IEC 61557-8			
LED display				
• Current and temperature monitoring			One red and one green LED	
• Ready-to-run			Green	
• Insulation fault			Red	
• Line breakage monitoring of the isolation measuring circuit			Red	
• Display of current insulation resistance			--	11-step LED chain
Pushbuttons			Test and Reset	

7LQ3 monitors for medical premises

			Insulation monitors 7LQ3354	7LQ3355
Output relay				
Contacts for	Overtemperature Overload Insulation fault		2 CO 2 CO 2 CO	
Mode of operation			Working current	
Contacts	AC-15 NO contacts AC-15 NC contacts	A AC/V AC A AC/V AC	3/230 1/230	
Electrical service life	AC-15, 1 A, 230 V AC	Switching cycles	30000	
Thermal current		A AC	5	
Connection				
Terminals	± screw (Pozidriv)		2	
• Conductor cross-sections • Insulation fault	Rigid Flexible, with end sleeve	mm^2 mm^2	2 × 2.5 1 × 2.5	
Environmental conditions				
Permissible ambient temperature		°C	-20 … +60	
Resistance to climate	Acc. to EN 60068-1		20/060/04	
Degree of protection	Acc. to EN 60529		IP20, with connected conductors	
Mounting position			Any	
Vibration stress • Amplitude • Frequency	Acc. to IEC 60068-2-6	 mm Hz	 0.35 10 … 55	

			Test and signaling panels 7LQ3356	7LQ3357
Standards			DIN VDE 0100-710; IEC 60364-7-710	
Rated voltage U_n		V AC/DC	24	
Rated impulse withstand voltage	Acc. to IEC 60664-1	kV	4	
Voltage range		AC DC	0.8 ... 1.1 x U_n 0.9 ... 1.2 x U_n	
Rated current per input		mA	0.25	
Rated consumption		VA	6	
Rated operating mode			Continuous operation	
Pollution degree	Acc. to IEC 60664-1		2	
Degree of protection • Enclosure • Terminals	 Acc. to IEC/EN 60529 Acc. to IEC/EN 60529		 IP40 IP20	
Flammability class			UL 94V-0	
Vibration strain • Amplitude • Frequency	Acc. to IEC/EN 60068-2-6	 mm Hz	 0.35 10 … 55	
Resistance to climate	Acc. to IEC/EN 60068-1		20/045/04	
Terminal marking			EN 50005	
Wire connections				
• Solid		mm^2 mm^2	1 × 1.5 2 × 0.5	
• Strand		mm^2 mm^2	1 × 1 2 × 0.2	
• Strand with sleeve		mm^2	1 × 0.5	
Conductor mounting			Box terminals with wire protection	
Device dimensions		mm	80 × 160 × 57	82 × 150 × 57
Temperature range		°C	-20 ... +45	

			Current transformers Class 1 7LQ3358
Standards			IEC/EN 60044-1, VDE 0414-44-1
Rated control voltage U_c		V AC	230
Rated frequency		Hz	50/60
Test voltage	50 Hz, 1 min	kV	3
Rated transmission ratio k_n		A	50/5
Primary rated current		A	50
Secondary rated current		A	5
Rated power		V/A	1.5
Class			1
Rated frequency		Hz	50 ... 60
Highest voltage at equipment / insulation level		kV	0.72/3
Overcurrent factor			FS5
• Thermal rated short-time current		× I_n	60
• Thermal rated continuous current		× I_n	1.2
Expanded current range		%	120
Permissible ambient temperature		°C	-20 … +60

			Test and signaling combination for insulation monitors 7LQ3360
Standards			DIN VDE 0100-710; IEC 60364-7-710
Rated voltage U_n		V AC	24
Voltage range		AC	0.8 ... 1.1 × U_n
Connected load		W	0.5
Rated operating mode			Continuous operation
EMC			
• Static discharge	Acc. to IEC/EN 61000-4-2	kV	8 (air discharge)
• RF irradiation	Acc. to IEC/EN 61000-4-3	V/m	10
• Rapid transients	Acc. to IEC/EN 61000-4-4	kV	2
• Surge voltage (surge)	Acc. to IEC/EN 61000-4-5	kV	1
Degree of protection			IP30
Amplitude		mm	0.35
Frequency		Hz	10 ... 55
Temperature range		°C	-5 ... +55
Resistance to climate	Acc. to IEC/EN 60068-1		05/055/04
Terminal marking			EN 50005
Wire connections			
• Solid		mm^2	1 × 4
• Strand with sleeve and plastic collar		mm^2	1 × 2.5
• Strand with sleeve and plastic collar	DIN 46228-1/-2/-3/-4	mm^2	2 × 1.5
• Strand with sleeve	DIN 46228-1/-2/-3	mm^2	2 × 2.5
Conductor mounting			Box terminals with wire protection
Device dimensions		mm	80 × 80 × 35

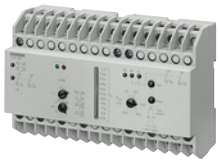
7LQ3 monitors for medical premises

			Voltage relays 5TT3411
Rated control voltage U_c		V AC	230
Overload capability		× U_c	1.15
Rated frequency		Hz	50/60
Response values	ON-switching OFF-switching	 × U_c	2 % hysteresis 0.9
Minimum contact load		V/mA	10/100
Phase failure detection	At L1, L2 or L3	ms	--
N-conductor monitoring			--
Rated insulation voltage U_i	Between coil/contact	kV	4
Contacts	AC-15 NO contacts AC-15 NC contacts		3 2
Electrical service life in switching cycles	AC-15, 1 A, 230 V AC		5×10^5
Rated impulse withstand voltage	Acc. to IEC 60664-1	kV	4
Pollution degree			2
Terminals	± screw (Pozidriv)		2
Conductor cross-sections • Rigid • Flexible, with end sleeve		 mm^2 mm^2	 2 × 2.5 2 × 1.5
Permissible ambient temperature		°C	-20 … +60
Resistance to climate	Acc. to EN 60068-1		20/060/04

			IT line transformers 4AT3/4AT4
In the case of isolating transformers used to set up medical IT systems, overcurrent protective devices are only permissible as protection against short circuits. To protect the isolating transformers against overload they are fitted with monitoring devices that signal an excessive rise in temperature (e.g. 7LQ3354 insulation monitors).			
Standards			EN 61558-2-15
Safety class			I
Static shield between primary and secondary winding			With insulated connection
Thermistor transformer protection			Warning in the event of thermal overload[1)]
Insulation monitoring			With center tap
Short-circuit voltage u_z		%	≤ 3
No-load supply current i_0 • Starting current (rush), max.		% x I_{1N}	≤ 3 8
Rated ambient temperature t_a / Thermal Class			55 °C/H

1) Tripping units must be ordered separately.

Selection and ordering data

	Version	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	A	V AC	MW							kg
	**Switchover devices according to VDE 0100-710 for medical premises** 2-pole, for medical premises of Group 2, for switching over two redundant supply leads, monitoring of IT system and the IT line transformer, up to 8 kVA	230	51	230			7LQ3361		1	1 unit	1BK	17.500
	4-pole, for use with symmetric loads	230	32	230/400			7LQ3362		1	1 unit	1BK	17.500
	**Insulation monitors** With load current and temperature monitoring for medical premises			230	6		7LQ3354		1	1 unit	1BK	0.440
	With load current and temperature monitoring of medical premises with adjustable response value of 50 … 500 kΩ and output for 7LQ3360 test and signaling combination			230	8		7LQ3355		1	1 unit	1BK	0.607
	Test and signaling panels For switchover devices, 24 V AC/DC, 50/60 Hz											
	Surface mounting						7LQ3356		1	1 unit	1BK	0.335
	Flush mounting						7LQ3357		1	1 unit	1BK	0.222

*** You can order this quantity or a multiple thereof.**

7LQ3 monitors for medical premises

	Version	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	A	V AC	MW							kg
	**Test and signaling combination for insulation monitors** 24 V AC 50/60 Hz						7LQ3360		1	1 unit	1BK	0.136
	**Current transformers 50A/5A AC Class 1** With base angle	230					7LQ3358		1	1 unit	1BK	0.425
	**Voltage relays for undervoltage monitoring of medical premises** Single-phase against N with test button, switching thresholds: 0.9 × U_n, 2 % hysteresis 2 NO, 2 NC	230	4	230	4		5TT3411		1	1 unit	1BK	0.226

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* You can order this quantity or a multiple thereof.

Overview

The GSM alarm module is a compact, distributed control and signaling system. With the GSM alarm module, it is possible to monitor and control, for example, heating, air-conditioning and cooling systems, elevators and escalators, and all kinds of production equipment such as machinery, automated devices and conveyor belts in industrial and private building management. Additionally, the GSM alarm module is particularly suitable for remote plants, such as monitoring the heating of summer houses or the pumps of a water treatment plant. In combination with voltage relays, current relays, fuse monitors, miniature circuit breakers, residual current devices, or surge arresters fitted with auxiliary current switches or signaling contacts, there are virtually no limits to the type of monitoring tasks that can be carried out.

The GSM alarm module can be easily parameterized using the accompanying PC configuration software, which has a simple and clear structure. Parameters can also be assigned OTA (Over The Air) after the initial installation. The firmware can be updated either in this way or via a PC.

Note:

Because the availability of mobile networks cannot be guaranteed, GSM alarm modules should not be used for safety-relevant control functions.

Benefits

- Mobile monitoring and controlling of electrical installations and system components
- Quick and reliable alarm messages via SMS or e-mail
- Easy parameter assignment and operation by means of configuration software and SMS

Design

- 8 multifunctional analog / digital inputs: 0 ... 10 V AC, 24 V DC
- 4 relay outputs change-over contacts 250 V / 5 A
- LED status displays for all I/Os

Technical specifications

		5TT7210-0
Inputs		
8 multifunctional inputs (analog/digital)		
• Analog	V AC	0 ... 10
- Resolution/accuracy (0 ... 10 V)	mV	20 / ±(20 + 0.3 %)
• Digital	V DC	24 (4 ... 30)
- Threshold value for digital inputs, for Low	V	< 2
- Threshold value for digital inputs, for High	V	> 4
Outputs		
4 relay outputs		4 x CO universal contacts, 250 V AC
• Continuous/inrush current with ohmic load	A	5 / 5
• Max. switching capacity for 240 V AC, 5 A	VA	1200
GSM data		
Frequency	MHz	850/900/1800/1900
Antenna		
• Antenna impedance	Ω	50
• Antenna connector		SMA connector
General data		
Power supply	V DC	10 ... 30
Power consumption at 24 V DC	mA DC	275
Internal emergency power supply		Internal maintenance-free SuperCap capacitor
Operating/storage temperature	°C	-20 … +50 / -20 …+70
Max. relative humidity	%	80, non-condensing
Conductor cross-section	mm^2	0.2 ... 2.5 screw-type terminal
Stripped length	mm	6
Mounting/installation position		Standard mounting rail TS35 / any
Dimensions L x W x H (TS 35 / direct)	mm	88 x 95 x 70 (without antenna)
Material / combustion class		Enclosure: Noryl, connecting terminals: Polyamide 6.6 V0 / UL94-V0
Safety class (DIN 40050)		IP20

Selection and ordering data

		U_c	I_e	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V DC	mA DC	MW							kg
	**GSM alarm module** For GSM network operation with eight alarm inputs and four switching outputs with a backup battery for signaling in the event of a power failure	10 ... 30	275 (at 24 V DC)	5	►	**5TT7210-0**		1	1 unit	1BK	0.229
	**Electronic power supply unit** SELV, short-circuit-proof For supplying power to the GSM alarm module 5TT7210-0 in the line voltage range from 150 to 230 V AC For more information, see Chapter "Transformers, Power Supply Units and Socket Outlets"					**4AC2402**		1	1 unit	1BK	0.096

* You can order this quantity or a multiple thereof.

Overview

Fault signaling units are used in small plants where the installation of complex fault signaling systems would be too labor-intensive and too expensive. In the event of a fault, they enable fast fault localization of all monitoring devices and limit monitors installed in a plant from a central location. This increases plant availability. With the correct sensor configuration, they also provide the option of preventative maintenance.

- 4 fault signal inputs with LED
- 1 LED as centralized fault indicator
- Units for centralized fault indication and acoustic signaling
- With acknowledgment for acoustic indicators
- Open-/closed-circuit principle to the 4 inputs can be adjusted via jumpers X1 - X2
- A maximum of 39 5TT3461 expansion fault signaling units can be connected to the 5TT3460 centralized fault signaling unit
- The maximum possible cable length between 5TT3460 centralized fault signaling units and 5TT3461 expansion fault signaling units is approx. 100 m with a conductor cross-section of 1.5 mm^2

Benefits

- Ultra compact device designs that only require the smallest of spaces in distribution boards
- The modular design means that it is easy to add devices as your system expands.

Technical specifications

			5TT3460	5TT3461
Standards			IEC 60255; DIN VDE 0435-110, -303	
Rated control voltage U_c		V AC	230	
Primary operating range		× U_c	0.8 ... 1.1	
Rated frequency f_n		Hz	50/60	
Fault signaling inputs S1 ... S4		V AC	230	
Signal voltage		V	7 ... 10	
To terminals S and H				
Noise pulse duration		ms	≥ 100	
Acknowledgment pulse duration		ms	≥ 200	
Contacts				
• Rated operational voltage U_e		V AC	230	--
• Rated operational current I_e		A	5	--
• Minimum contact load		V; mA	10; 100	--
Connections				
• Terminals	± screw (Pozidriv)		PZ 1	
• Conductor cross-sections				
- Rigid, max.		mm^2	2 × 2.5	
- Flexible, with end sleeve, min.		mm^2	1 × 0.5	
Permissible ambient temperature		°C	-20 ... +60	
Humidity class	Acc. to IEC 60068-2-30		F	

Selection and ordering data

	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	V AC	A AC	V AC	MW							kg
	**Centralized fault signaling units with transparent cap**										
	230	5	230	2		**5TT3460**		1	1 unit	1BK	0.147
	**Expansion fault signaling units with transparent cap**										
	230	--	--	2		**5TT3461**		1	1 unit	1BK	0.119

*** You can order this quantity or a multiple thereof.**

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5TT5 EMERGENCY STOP modules

Overview

EMERGENCY STOP circuits are common safety measures in all laboratory equipment and industrial plants. The EMERGENCY STOP modules used here must meet the most rigorous demands with regard to functional reliability. Benchmark is the degree of self-monitoring.

Benefits

- The electrical isolation between electric circuit and control meets the requirements of the standard
- An LED for the operating and switching state provides constant information on the operating state

Technical specifications

				5TT5200
Standards				IEC 60204-1; EN 60204-1 (VDE 0113-1)
Supply				
• Rated control voltage U_c			V AC	230
- Primary operating range			× U_c	0.8 ... 1.1
• Rated frequency f_n			Hz	50
• Rated power dissipation P_v	Coil/drive			3.5
	Contact per pole		VA	0.8
Control voltage	Terminal Y1		V AC/DC	24
Control current	Terminal Y1		mA DC	45
Recovery time			ms	500
Safety				
• Electrical isolation, creepage distances and clearances, actuator/contact			mm	3
• Rated impulse withstand voltage U_{imp} drive/contact			kV	> 4
Contacts				
• Contacts	NO contacts	AC-15	A	3
	NC contacts	AC-15	A	2
	NO contact/NC contact	AC-1	A	5
• Contact gap			mm	> 1
• Electrical service life	AC-15, 2 A, 230 V AC		Switching cycles	10^5
• Reliable switching frequency			Switching cycles/h	600
Vibration resistance				
Amplitude	Acc. to EN 60068-2-610	Up to 55 Hz	mm	0.35
Connections				
• Terminals	± screw (Pozidriv)			PZ 1
• Conductor cross-sections of main current paths				
- Rigid	Max.		mm^2	2 × 2.5
- Flexible, with end sleeve	Min.		mm^2	1 × 0.5
Permissible ambient temperature			°C	0 ... +50
Resistance to climate	Acc. to EN 60068-1			0/55/04

Selection and ordering data

	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	V AC	A AC	V AC	MW							kg
	EMERGENCY STOP modules										
	400	5	230	4		5TT5200		1	1 unit	1BK	0.304

* You can order this quantity or a multiple thereof.

Overview

Level relays are used for the monitoring and control of conductive, non-combustible liquids and powders. They ensure overflow and dry run protection. Due to their sensor performance, the devices can also be used for general resistance monitoring.

LED displays:

- Green LED: Lights up when operational voltage is applied
- Yellow LED: Lights up if MIN output relay is activated
- Red LED: Lights up if MAX output relay is activated

Benefits

The measuring range up to 450 kΩ enables a differentiation between foam and liquid. It also increases the universal application for resistance measurements.

Due to its low-frequency, electrically isolated measuring circuit, the device has a high immunity to interference against system coupling, which enables cable lengths of up to 1500 m and suppresses the effects of electrolysis in the liquid.

- The two outputs for minimum and maximum control can also be used for the advance warning and tripping of limit values
- 3 electrode connections for 1-step and 2-step level control
- All standard products can be used as electrodes
- High immunity to interference of the measuring circuit isolated from the system
- Programmable for open-circuit principle (with bridge X2 COM) or closed-circuit principle (without jumper)
- Separately adjustable delay times for $t_{v\,min}$ and $t_{v\,max}$, 0.2 s to 2 s

Technical specifications

			5TT3435
Standards			IEC 60255; DIN VDE 0435-110
Supply			
• Rated control voltage U_c		V AC	230
- Primary operating range		$\times U_c$	0.8 ... 1.1
• Rated frequency f_n		Hz	50/60
Setting range of the liquid level		kΩ	2 ... 450
Switching point hysteresis of set value			
• At 450 kΩ		%	3
• At 2 kΩ		%	6
Voltage temperature influence	From set value	%	< 2
Max. cable length to the Electrodes at 100 µF/km	Set value kΩ		
	450	m	50
	100	m	200
	35	m	500
	10	m	1500
	5	m	3000
Electrode voltage	Max.	V AC	Approx. 10
Electrode current	Max.	mA AC	Approx. 1.5
Response delay	Adjustable	s	0.2 ... 20
OFF-delay	Adjustable	s	0.2 ... 20
Rated operational voltage U_e		V	250
Rated operational current I_e		A	5
Test voltage			
	Input/auxiliary circuit	kV	4
	Input/output circuit	kV	4
	Auxiliary/output circuit	kV	4
Connections			
• Terminals	± screw (Pozidriv)		PZ 2
• Conductor cross-sections			
- Rigid	Max.	mm^2	2 × 2.5
- Flexible, with end sleeve	Min.	mm^2	1 × 0.5
Permissible ambient temperature		°C	-20 ... +60
Resistance to climate	Acc. to EN 60068-1		20/60/4

Selection and ordering data

		U_e	I_e	U_c	Mount-ing width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	A AC	V AC	MW							kg
	**Level relays**	230	4	230	2		5TT3435		1	1 unit	1BK	0.182
	**Immersion electrodes** • Made of stainless steel, with PG13 sealing cap • Temperature range 0 ... 60 °C • Suitable for pure water in open containers With terminal connection						5TG8223		1	1/24 units	1BK	0.082

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* You can order this quantity or a multiple thereof.

Overview

Line circuit relays are used to interrupt circuits and prevent electromagnetic fields in circuits where there are currently no active loads.
If the loads are disconnected, and the line circuit relay measures a usage of only 2 to 20 VA – adjustable – it disconnects the cable to the supply voltage and switches over to extra-low voltage.
As soon as loads are reconnected, the line circuit relay detects the increase in usage and switches back to the supply voltage.
While the line circuit relay switches off any unnecessary system components, it is not a device for ensuring isolation in the sense of safe disconnection.

The line circuit relay is unable to detect consumers with electronic power supply units, e.g. electronically controlled vacuum cleaners. It is expedient to connect such devices to a base load resistor (PTC resistor) so that the line circuit relay is reset to supply voltage.

Benefits

- High availability to a wide range of loads, as all resistive, capacitive and inductive loads are detected
- Adjustable from 2 VA to 20 VA
- With status display for contact adjustment
- With switch continuously ON
- With safety information on stickers for socket outlets and distribution boards

Technical specifications

			5TT3171
Standards			IEC 60255; DIN VDE 0435-110
Rated control voltage U_c		V AC	230
Primary operating range		$\times U_c$	0.85 ... 1.15
Rated frequency		Hz	50/60
Rated power dissipation P_v	Electronics Contacts	VA VA	5 2.6
Monitoring voltage		V	3
Response value	Adjustable	VA	2 ... 20
Release value	% of the response value		70
Rated impulse withstand voltage U_{imp}	Input/output	kV	> 4
Rated operational voltage U_e		V AC	250
Rated operational current I_e	AC-1 AC-11	A A	16 3
Contacts			μ contact
Electrical service life	In switching cycles at 3 A	AC-11	5×10^5
Terminals	+/- Screw (Pozidriv)		PZ 1
Conductor cross-sections			
• Rigid • Flexible, with end sleeve	Max. Min.	mm^2 mm^2	2 × 2.5 1 × 0.5
Permissible ambient temperature		°C	-20 ... +45
Degree of protection	Acc. to IEC/EN 60529		IP20, with connected conductors
Safety class	Acc. to EN 61140/VDE 0140-1		II
Humidity class	Acc. to IEC 60068-2-30		F

Selection and ordering data

	Contacts	U_e	I_e	U_c	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	A AC	V AC	MW							kg
	**Line circuit relays**											
	For disconnecting the voltage of electrical systems even when loads are disabled											
	1 NC	250	16	230	1		5TT3171		1	1 unit	1BK	0.081
	Base load resistors for electronic devices											
	With 15 cm connection wires, end sleeves and shrink sleeving						5TG8222		1	1 unit	1BK	0.009

* You can order this quantity or a multiple thereof.

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Introduction

Overview

IEC/EN 61851 describes the safety requirements that must be met by conductive charging systems for electric vehicles. Standard-compliant AC charging in charging mode 3 requires a charging station with safety-relevant functions.

Application

Our charging units are system-tested, CE-compliant charging stations for charging electric vehicles in operational mode 3 according to IEC/EN 61851 und IEC/EN 62196 for indoor and outdoor use, such as carports, garages, workshops, underground parking garages or multistory parking garages.

Design

Charging unit for wall mounting

The modern functional design of the WB140A combines with its ease of handling to provide an optimal solution. It complies with the revised standard IEC 62196-2 and comes with the new charging coupler Type 2 Generation 2. This ensures compatibility with future generations of electric vehicles.

Installing electric vehicle chargers in older buildings can be a challenge. With the WB140A charging unit, the maximum value for the charging current can be adjusted by an electrical expert to match facility capability. The settings range from a maximum current of 32/20 A to 10 A. The charging unit cable can be connected optionally from the rear or from below. The delay function supports setting a charging delay in two-hour increments (2/4/6/8 hours) up to a max. of 8 hours. This allows charging with PV current or utilizing off-peak tariffs. The charging process starts automatically after the time delay has elapsed.

Large LEDs at top right and top left in the housing indicate the current operational status even from a distance. The following states are displayed:
"Ready-to-charge" / "Charging" / "Fault".

Charging cable for home and travel

Charge flexibly and safely

Charging with the new CC100A charging cable in charging mode 2 in compliance with IEC 61851-1 is a safe and convenient alternative to using charging stations or posts. The mobile charging station for home and travel can be simply connected to common household plug-and-socket devices. The intuitive control box enables fast and easy adaptation of the charging current to any building installation. The integrated type A RCCB circuit breaker meets the requirements for safe charging of electric vehicles in compliance with IEC 61851.

Functions for more safety

The clearly arranged LED indications on the control box indicate faults that cause automatic interruption of charging. Multiple-level temperature management interrupts charging if temperatures are too high or too low. Multiple-level temperature management therefore prevents a thermal overload. Charging is continued automatically once the temperature returns to a normal level. During the self-test before the start of every charging operation, wiring faults and welded contacts are also detected and are indicated to users by LEDs. The circuit is interrupted immediately in the event of a fault, thus providing comprehensive protection for users and electric vehicles.

Practical, robust enclosure

The CC100A charging cable's functional and ergonomic design permits easy operation and space-saving storage. The enclosure and the charging coupler are resistant to vehicles passing over them and also to soiling, moisture and temperature fluctuations. The control box even achieves the high IP67 degree of protection.

Universal in use

The range includes versions that cater for most common plug sockets in Europe. and e.g. the internationally used camping plug (CEE blue 6h) enables faster single-phase charging at 16 A (charging power 3.7 kW). The new CC100A charging cable is available with type-1 or type-2 vehicle charging couplers, enabling connection to virtually any commercially available vehicle.

Technical specifications

		WB140A		
		5TT3201-1KK25	**5TT3201-1KK27**	**5TT3201-1KK37**
Standards		IEC/EN 61851-1; IEC/EN 61851-22; IEC/EN 62196-1; IEC 62196-2		
Operational voltage	V AC	230	230/400	
Rated frequency	Hz	50/60		
Rated current	A	1 x 20	3 x 20	3 x 32
Degree of protection		IP44		
Safety class		I		
Touch protection according to EN 50274		Finger and back-of-hand safe		
Ambient conditions				
• Ambient temperature	°C	-25 ... +40		
• Storage temperature	°C	-30 ... +60		
• Relative humidity	%	≤ 95		
• Installation location		Suitable for interior and exterior use		
Mains connection		Bottom/rear		
Conductor cross-sections	mm^2	1.50 ... 6		2.5 ... 10
Enclosure				
• Material		Plastic		
• Color		RAL 7035 (light gray)		
• Dimensions (H x W x D)	mm	420 x 420 x 483		
• Weight	kg	5.5	5.8	6.6
• Door/hinged lid		Plastic		
• Lock		--		
Charging outlet				
• Charging mode according to IEC 61851-1		3		
• Connection type according to IEC 62192		C, charging cable with charging coupler Type 2 Gen 2		
Charging outlet contactor				
• Rated operating current	A	40	40	40
• Number of poles		2 NO	4 NO	4 NO
Residual current protective device				
• RCCBs		--		
• Version		--		
• Rated current	A	--		
• Rated residual current	mA	--		
Conductor protection				
• Miniature circuit breaker		--		
• Tripping characteristic		--		
• Rated current	A	--		
• Rated breaking capacity	kA	--		
Operator controls		PAUSE (STOP/START charging process) DELAY 2, 4, 6, 8 hours (charging process delay)		
Displays		LED, green, orange, red, blue		
Length of charging cable	m	4		

Selection and ordering data

	Rated current	Plug type	Rated operational voltage	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	A		V AC							kg
	**WB140A charging unit with charging cable and charging coupler**									
	20	2 Gen 2	230		**5TT3201-1KK25**		1	1 unit	1DA	7.180
	20	2 Gen 2	230/400		**5TT3201-1KK27**		1	1 unit	1DA	7.900
	32	2 Gen 2	230/400		**5TT3201-1KK37**		1	1 unit	1DA	9.000

*** You can order this quantity or a multiple thereof.**

CC100A charging cable

Overview

1 Adjustment of max. charging current
2 Display of selected charging current
3 Status display for electric vehicles
4 Status display for building infrastructure

CC100A charging cable

Benefits

User-friendliness

- Intuitive operation with self-explanatory symbols and unambiguous display elements.
- The large keys for setting the maximum load current are easy to operate, even when wearing gloves.
- Following a power failure, the charging process continues automatically. No action is necessary on the part of the user.
- The charging cable can be used in extreme environmental conditions without issue. Temperatures down to -32 °C, snow, salt or moisture are not a problem for the cable or control box - and they can also cope with water jets, such as from a garden hose (degree of protection IP65). The control box is even certified to withstand temporary immersion in up to 1 m of water (IP67).
- The durable, rugged housing is resistant to the considerable strains of everyday use on the move. The electronic circuitry is protected even if a vehicle inadvertently rolls over it, in accordance with the requirements of IEC 62335.
- The rounded design of the control box makes it easy to roll up the cable.

Automatic temperature control

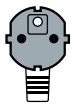
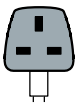
In the event of inadmissible heat development due to a defect in the building socket (e.g. worn plug contacts or loose screw connections) or during charging in a hot environment, the unit and the socket are protected against damage by a temperature sensor in the plug and in the control box:

- The charging current is reduced automatically if an excess temperature is detected in the control box or in the plug.
- During active current reduction, the charging process is continued with the minimum current (6 A) and users are informed by a flashing LED. The operation is continued with the set charging current as soon as the temperature is within the normal temperature range again.
- Camping plugs and camping sockets are designed for continuous operation with loads of 16 A, and as such, these cable versions do not require temperature monitoring in the camping plug. The temperature is nevertheless still monitored in the control box, even for these versions.

Safety features

- The maximum charging current can be adjusted to country-specific restrictions or older building installations in which only low charging currents are allowed. This avoids any dangerous overloading of the building's electrical installation.
- The control box contains an electronic RCCB to also ensure that persons are protected - regardless of the local electrical system. This ensures compliance with IEC 61851 for charging mode 2.
- When the integrated RCCB is triggered, the relay contacts of the L, N and PE cables open. The inclusion of the PE cable in residual-current protection ensures that persons are also protected in the event of certain hazardous wiring faults (e.g. protection against electrocution in the event that the L and PE contacts in the building socket have been inadvertently swapped during wiring and so PE is live).
- A fully automatic self-test of the cable, which checks all safety attributes - including the continuity of the PE conductor connection in the on-site infrastructure - is performed during commissioning and before the start of every charging operation.
- Users are warned immediately by a red LED fault indication if relay contacts are welded.
- If a fault occurs during charging, e.g. if the vehicle PE conductor is defective, charging is interrupted and the relay contacts are opened. Users are warned straight away by a red LED fault indication.

Technical specifications

CC100A charging cable		5TT3201-...						
		-1KK80	-1KK81	-1KK82	-1KK83	-1KK84	-1KK85	-1KK88
Line-side plug type								
• with SCHUKO R combination plug 90° (CEE 7/7)		✔	✔	--	--	--	--	--
• with camping plug (CEE blue 6 h)		--	--	✔	✔	--	--	--
• with type G / BS 1363 plug		--	--	--	--	✔	✔	--
• with type I plug (GB 1002)		--	--	--	--	--	--	✔
Charging coupler (on vehicle)								
• with type 1 charging coupler		--	✔	--	✔	--	✔	--
• with type 2 charging coupler		✔	--	✔	--	✔	--	--
• with GB/T 20234 charging coupler		--	--	--	--	--	--	✔
Length of cable								
• Total length of cable	m	4	8			4	8	4
• Cable length (building end)	m	1.4		0.3				
Charging mode in acc. with IEC 61851-1		Charging mode 2, keys for setting the charging current						
Standards		IEC/EN 61851-1; IEC/EN 62196; IEC 62335						GB/T 18487; GB 20044
Supply voltage	V AC	230						
Frequency	Hz	50 Hz						
Line system configuration		TN, TNC, TNS, TT						
Max. rated current	A	13		16		10		
Adjustable charging current	A	6, 8, 10, 13		6, 8, 10, 13, 16		6, 8, 10		
Max. charging power	kW	3		3.7		2.3		
Power loss	W	< 9						
Rated fault current	mA	30						
RCCB (electronic)	Type	A						
Degree of protection acc. to IEC/EN 60529								
• Control box		IP67						
• Charging coupler (on vehicle)		IP44						
• Plug (line-side)		IP44				IP20		
Safety class		II						
Overvoltage category		CAT II						
Touch protection in acc. with DIN EN 50274		Finger and back-of-hand safe						
Ambient conditions								
• Operating temperature	°C	-32 ... +40						
• Storage temperature	°C	-40 ... +75						
• Relative humidity	%	Max. 95						
• Installation location		Suitable for interior and exterior use						
Enclosure								
• Material		Plastic						
• Color		Light gray (RAL 7035) and black						
• Dimensions (H x W x D)	mm	52 x 240 x 100						
• Weight	kg	2.5	2.9	3.2	2.8	2.4	2.9	2.4
Display elements		LEDs, green and red						

CC100A charging cable

Selection and ordering data

Rated current (max. charging current)	Charging coupler Type	Rated operational voltage	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
A		V AC							kg
CC100A charging cable with SCHUKO combination plug									
13	2	230		5TT3201-1KK80		1	1 unit	1DA	2.472
13	1	230 NEW		5TT3201-1KK81		1	1 unit	1DA	2.937
CC100A charging cable with camping plug NEW									
16	2	230		5TT3201-1KK82		1	1 unit	1DA	3.171
16	1	230		5TT3201-1KK83		1	1 unit	1DA	3.038
CC100A charging cable with BS 1363 plug NEW									
10	2	230		5TT3201-1KK84		1	1 unit	1DA	2.421
10	1	230		5TT3201-1KK85		1	1 unit	1DA	2.923
CC100A charging cable with type I plug NEW									
10	GB/T 20234	230		5TT3201-1KK88		1	1 unit	1DA	2.385

* You can order this quantity or a multiple thereof.