

Switching Devices



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For further technical product information:

Service&Support Portal:

www.siemens.com/lowvoltage/technical-support

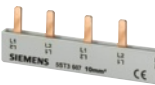
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Switching Devices

Introduction

Overview

Devices	Page	Application	Standards	Used in		
				Non-residential buildings	Residential buildings	Industry
	8/5	For the switching of lighting and other electrical devices up to 20 A. For use in control cabinets for the logical linking of functions.	IEC/EN 60947-3; IEC/EN 60669-1; GB14048.3-2002 CCC	✓	✓	✓
	8/8	To be used as pushbuttons in control systems, e.g. to switch on seal-in circuits or as pushbuttons with maintained-contact function for manual use, as control switches or for the switching of loads up to 20 A.	IEC/EN 60947-3; IEC/EN 60669-1; GB14048.3-2002 CCC	✓	--	✓
	8/11	Light indicators for signaling switching states or faults in systems.	DIN VDE 0710-1	✓	--	✓
	8/13	For the switching of lighting, motors and other electrical devices from 20 to 125 A.	16 A ... 25 A and 40 A ... 100 A: IEC/EN 60947-3; IEC/EN 60669-1, 32 A and 125 A: IEC/EN 60947-3; GB14048.3-2002 CCC	✓	✓	✓
	8/20	The DC isolator is a switch disconnecter specially designed for activating solar modules in photovoltaic systems according to DIN VDE 0100-712.	IEC/EN 60947-3, IEC/EN 60669-1	✓	✓	✓
	8/22	For fast and safe connection	IEC/EN 60439-1	✓	--	✓

Devices	Page	Application	Standards	Used in		
				Non-residential buildings	Residential buildings	Industry
	8/24	For the switching of lighting up to 16 A in rooms using several push-buttons and central ON/OFF switches.	IEC 60669-1 IEC 60669-2 IEC 60669-3 EN 60669 EN 60669-2-2 and EN 60669-2-2/A1	✓	✓	✓
	8/28	For the switching of small loads up to 16 A or as coupling devices in control systems.	EN 60947-5-1	✓	--	✓
5TT5 Insta contactors						
	8/30	Insta contactors 20 A, 25 A, 40 A and 63 A for the switching of heating, lighting, such as fluorescent lamps, incandescent lamps, ohmic or inductive loads.	IEC 60947-4-1 IEC 60947-5-1 IEC 61095 EN 60947-4-1 EN 60947-5-1 EN 61095 UL 508	✓	✓	✓
	8/33	Insta contactors 20 A, 25 A, 40 A and 63 A for the switching of heating, lighting, such as fluorescent lamps, incandescent lamps, ohmic or inductive loads.	IEC 60947-4-1 IEC 60947-5-1, IEC 61095, EN 60947-4-1 EN 60947-5-1 EN 61095 NF C 61-480 (NF EN 61095)	✓	✓	✓
	8/37	Protection of machines with transmission, belt or chain drives, conveyor belts, fans, pumps, compressors, packing machines or door operating mechanisms	EN 60947-4-2	--	--	✓

Switching Devices

Introduction

Devices	Page	Application	Standards	Used in			
				Non-residential buildings	Residential buildings	Industry	
7LF, 5TT3 timers							
	7LF4 digital time switches	8/38	Minute-precise switching of devices and system components in day, week and year programs. Unique due to the wide variety of functions offered by the Mini and Top versions; for PC programming Astro, Profi and Expert	IEC 60730-1 and IEC 60730-2-7 EN 60730-1 and EN 60730-2-7	✓	✓	✓
	7LF5 mechanical time switches	8/42	Accurate and 15-minute switching accuracy. With automatic time setting during commissioning and automatic switching to daylight savings.	IEC 60730-1 and IEC 60730-2-7 EN 60730-1 and EN 60730-2-7 UL 60730	✓	✓	✓
	7LF6 timers for buildings	8/45	Lighting controls with stairwell lighting timers ensure the safe use of stairwells and save energy. Expanded applications for common rooms and garages, as well as the time switching of ventilators and fluorescent lamps.	IEC 60699 EN 60669, DIN 18015	✓	✓	
	5TT3 timers for industry	8/50	Multifunctional, delay, wiper, flashing and OFF-delay timers in control circuits expand the use of distribution boards in both small and large plants.	IEC 60255 EN 60255			✓

Overview

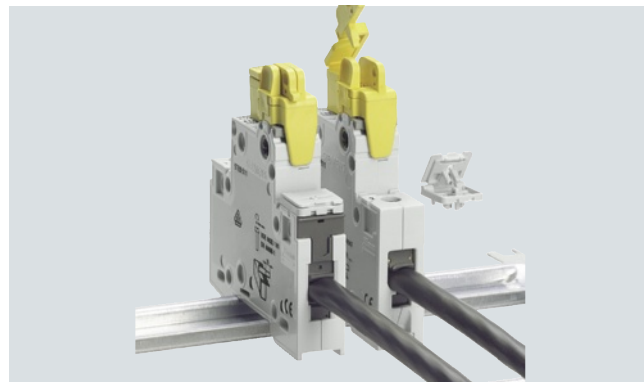
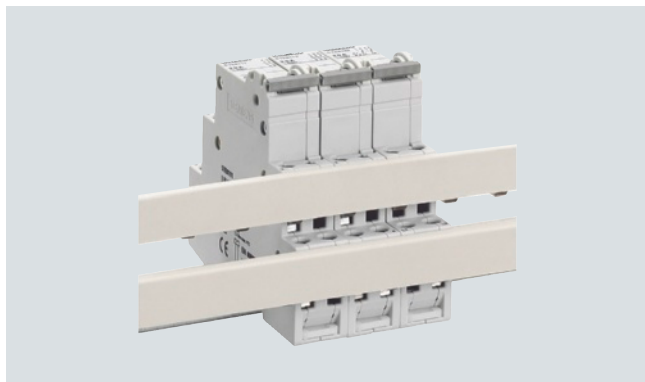
Two-way switches are used in control cabinets and distribution boards for switching small loads on/off or over.

Group switches with center position permit the positions open/stop/closed, for example to control counter-clockwise rotation - Off - clockwise rotation.

Control switches in a range of contact versions have an integral control lamp for the ON setting.

The auxiliary switch (AS) signals the contact position of the switch. It has the same design as the auxiliary switch used for the miniature circuit breakers (see chapter "Miniature Circuit Breakers").

Benefits



- The control switches can be bus-mounted with each other or with 5TE4 8 pushbuttons, 5TE5 8 light indicators or 5TT4 1 remote control switches and 5TT4 2 switching relays
- For busbars, see page 8/22 ff.

- The handle locking device prevents undesired/inadvertent mechanical on/off switching
- The handle locking device is a universal accessory for all switches and miniature circuit breakers

Technical specifications

				5TE8 1
Standards				IEC/EN 60947-3; IEC/EN 60669-1 EN 60669
Approvals				
Rated operational current I_e	Per conducting path	A		20
Rated operational voltage U_e	1-pole	V AC		230
	Multi-pole	V AC		400
Rated power dissipation P_v	Contact per pole	VA		0.7
Conventional enclosed thermal current I_{the}		A		20
Rated breaking capacity	At p.f. = 0.65	A		60
Rated making capacity	At p.f. = 0.65	A		60
Short-circuit withstand current In conjunction with fuse of the same rated operational current	EN 60269 gL/gG	kA		10
Rated impulse withstand voltage U_{imp}		kV		> 5
Clearances	Open contacts	mm		2 × > 2
	Between the poles	mm		> 7
Creepage distances		mm		> 7
Mechanical service life	Switching cycles			25000
Electrical service life	Switching cycles			10000
Minimum contact load		V; mA		10; 300
Rated short-time currents Per conducting path at p.f. = 0.7 (The respective rated surge current can be calculated by multiplying by a factor of 1.5).	up to 0.2 s	A		650
	up to 0.5 s	A		400
	up to 1 s	A		290
	up to 3 s	A		170
Terminals Max. tightening torque	±screw (Pozidriv)	Nm		1 1.2
Conductor cross-sections	Rigid	mm ²		1.5 ... 6
	Flexible, with end sleeve	mm ²		1 ... 6
Permissible ambient temperature		°C		-5 ... +40
Resistance to climate At 95 % relative humidity	Acc. to DIN 50015	°C		45

Switching Devices

5TE8 control switches

Selection and ordering data

	Version	I_e	U_e	Conductor cross-sections	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	A	V AC	up to mm ²	MW								kg
	Two-way switches (20 A)											
	With sealable switch position, separate handle locking device can be retrofitted											
	Retrofittable auxiliary switch											
	1 NO + 1 NC	20	400	6	1	►	5TE8 151		1	1 unit	029	0.075
	Auxiliary switch cannot be retrofitted											
	2 NO + 2 NC	20	400	6	1		5TE8 152		1	1 unit	029	0.095
	3 NO + 1 NC	20	400	6	1		5TE8 153		1	1 unit	029	0.094
	1 CO	20	230	6	1	►	5TE8 161		1	1 unit	029	0.072
	2 CO	20	400	6	1	►	5TE8 162		1	1 unit	029	0.090
	Group switches with center position (20 A)											
	With sealable switch position, separate handle locking device can be retrofitted											
	Auxiliary switch cannot be retrofitted											
	1 CO	20	230	6	1	►	5TE8 141		1	1 unit	029	0.060
	2 CO	20	400	6	1	►	5TE8 142		1	1 unit	029	0.091
	Control switches (20 A)											
	With fixed mounted glow lamp 230 V or diode 48 V, with replaceable, white transparent luminescent cap, with sealable switch position, separate handle locking device can be retrofitted											
	Auxiliary switch cannot be retrofitted											
	1 NO	20	230	6	1	►	5TE8 101		1	1 unit	029	0.070
		20	48	6	1		5TE8 101-3		1	1 unit	029	0.056
	1 NO, for max. 150 m cable length	20	230	6	1		5TE8 105		1	1 unit	029	0.066
	2 NO	20	400	6	1		5TE8 102		1	1 unit	029	0.078
	3 NO	20	400	6	1		5TE8 103		1	1 unit	029	0.091
	With mounted auxiliary switch (1 NO, 1 NC)											
	3 NO	20	400	6	1.5		5TE8 108		1	1 unit	029	0.137

5TE8 control switches

Version	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	MW							kg
	Auxiliary switches (AS)							
	For right-hand-side retrofitting with factory-fitted brackets, for further technical specifications, see also chapter "Miniature Circuit Breakers"							
	1 NO + 1 NC	0.5	▶ 5ST3 010		1	1 unit	020	0.066
	2 NO	0.5	5ST3 011		1	1 unit	020	0.055
	2 NC	0.5	5ST3 012		1	1 unit	020	0.055
	Handle locking devices							
	For all 5TE8 switches, can be sealed against undesired/inadvertent mechanical ON/OFF switching, for padlock with max. 3 mm shackle		5ST3 801		1	1 unit	020	0.012
	Spacers							
	Contour for modular devices with a mounting depth 0.5 of 70 mm; can be snapped onto either side of the busbar, so that two spacers allow for convenient cable routing		5TG8 240		1	2 units	026	0.010
	Cap sets							
	For manual changing of the luminous plates for 5TE8 10 control switches		5TG8 068		1	1 set	029	0.006
	Cap set comprising 1 red, green, yellow, white and blue plate each							

For busbars for control switches, [see page 8/22](#).

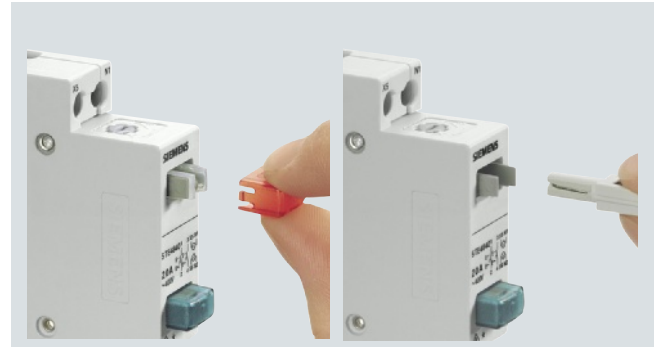
5TE4 pushbuttons

Overview

The pushbuttons are used in control systems, e.g. to switch on seal-in circuits or as pushbuttons with maintained-contact

function for manual use, as control switches or for the switching of loads up to 20 A.

Benefits



- Pushbuttons with setting function for momentary-contact or maintained-contact operation can be changed over after installation and connection
- Pushbuttons and light indicators with separate infeed in one device. This means they can also be used for voltages other than the switching voltage.
- In the case of devices with two pushbuttons and two lamps, each pushbutton must be set separately
- Pilot lights and caps can also be safely replaced during operation without the use of tools. Functionality is quickly restored.
- A range of different-colored, transparent caps enable the signaling of plant states in compliance with IEC 60073. Three indications are possible for each device - this saves space

Technical specifications

				5TE4 8
Standards				IEC/EN 60947-3; IEC/EN 60669-1 EN 60669-1
Approvals				
Rated operational current I_e	Per conducting path	A		20
Rated operational voltage U_e	1-pole	V AC		230
	Multi-pole	V AC		400
Rated power dissipation P_v	Per pole	VA		0.6
Conventional enclosed thermal current I_{the}		A		20
Rated breaking capacity	At p.f. = 0.65	A		60
Rated making capacity	At p.f. = 0.65	A		60
Rated impulse withstand voltage U_{imp}		kV		> 5
Clearances	Open contacts	mm		2 x > 2
	Between the poles	mm		> 7
Creepage distances		mm		> 7
Mechanical service life	Switching cycles			25000
Minimum contact load		V; mA		10; 300
Rated short-time currents				
Per conducting path at p.f. = 0.7				
up to 0.2 s				A 650
up to 0.5 s				A 400
up to 1 s				A 290
up to 3 s				A 170
(The respective rated surge current can be calculated by multiplying by a factor of 1.5).				
Terminals				
±screw (Pozidriv)				1
Max. tightening torque				Nm 1.2
Conductor cross-sections	Rigid	mm ²		1.5 ... 6
	Flexible, with end sleeve	mm ²		1 ... 6
Permissible ambient temperature		°C		-5 ... +40
Resistance to climate				
At 95 % relative humidity				
Acc. to DIN 50015				°C 45

Power loss of 5TG8 05.-. LEDs

5TG8 05.-.
Rated power dissipation P_v
• LED

VA

0.4

Color	Color coding according to IEC 60073		
	Safety of people or environment	Process state	System state
Red	Danger	Emergency	Faulty
Yellow	Warning/Caution	Abnormal	
Green	Safety	Normal	
Blue	Stipulation		
White, Gray Black	No special significance assigned		

Selection and ordering data

Version	I _e	U _e	Conductor cross-sections	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
A	V AC	up to mm ²	MW								kg
	Pushbuttons without maintained-contact function										
	1 NO + 1 NC										
	1 gray pushbutton	20	400	6	1	▶ 5TE4 800		1	1 unit	029	0.073
	1 red pushbutton	20	400	6	1	5TE4 805		1	1 unit	029	0.074
	1 green pushbutton	20	400	6	1	5TE4 806		1	1 unit	029	0.067
	1 yellow pushbutton	20	400	6	1	5TE4 807		1	1 unit	029	0.074
	1 blue pushbutton	20	400	6	1	5TE4 808		1	1 unit	029	0.071
	1 NO, 1 NO										
	1 green pushbutton, 1 blue pushbutton	20	400	6	1	5TE4 804		1	1 unit	029	0.093
	Pushbuttons with maintained-contact function										
	1 NO + 1 NC										
	1 gray pushbutton	20	400	6	1	5TE4 810		1	1 unit	029	0.074
	2 NO										
	1 gray pushbutton	20	400	6	1	5TE4 811		1	1 unit	029	0.074
	3 NO + N										
	1 gray pushbutton	20	400	6	1	5TE4 812		1	1 unit	029	0.093
	4 NC										
	1 gray pushbutton	20	400	6	1	5TE4 813		1	1 unit	029	0.092
	2 CO										
	1 gray pushbutton	20	400	6	1	5TE4 814		1	1 unit	029	0.089
	Control pushbuttons with maintained-contact function and/or momentary-contact function and lamp, 230 V for max. 5 m cable length										
	1 NO + 1 NC										
	1 red pushbutton	20	400	6	1	▶ 5TE4 820		1	1 unit	029	0.083
	1 NO										
	1 red pushbutton	20	230	6	1	▶ 5TE4 821		1	1 unit	029	0.073
	2 NO										
	1 red pushbutton	20	400	6	1	5TE4 823		1	1 unit	029	0.084
	2 NC										
	1 red pushbutton	20	400	6	1	5TE4 824		1	1 unit	029	0.083
	Control pushbuttons with maintained-contact function and/or momentary-contact function and lamp, 230 V for max. 150 m cable length										
	1 NO										
	1 red pushbutton	20	230	6	1	5TE4 822		1	1 unit	029	0.074
	Double pushbuttons with maintained-contact function and/or momentary-contact function										
	1 NO and 1 NC, 1 green pushbutton, 1 red pushbutton	20	400	6	1	5TE4 830		1	1 unit	029	0.078
	1 NO, 1 NC and 1 NO, 1 NC, 1 green pushbutton, 1 red pushbutton	20	400	6	1	5TE4 831		1	1 unit	029	0.095
	Double pushbutton with maintained-contact function and/or momentary-contact function and two lamps, 230 V for max. 5 m cable length										
	1 NO and 1 NO, 1 green pushbutton, 1 red pushbutton	20	400	6	1	5TE4 840		1	1 unit	029	0.094
	1 NO and 1 NC, 1 green pushbutton, 1 red pushbutton	20	400	6	1	5TE4 841		1	1 unit	029	0.094

Switching Devices

5TE4 pushbuttons

	Version	I_e	U_n	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		mA	V							kg
	LEDs for manual replacement									
	White	0.4	12 ... 60 AC/DC		5TG8 056-0		1	5 units	029	0.005
	Red				5TG8 056-1		1	5 units	029	0.005
	Yellow				5TG8 056-2		1	5 units	029	0.005
	Green				5TG8 056-3		1	5 units	029	0.005
	Blue				5TG8 056-4		1	5 units	029	0.005
	White	0.4	115 AC/DC		5TG8 057-0		1	5 units	029	0.005
	Red				5TG8 057-1		1	5 units	029	0.005
	Yellow				5TG8 057-2		1	5 units	029	0.005
	Green				5TG8 057-3		1	5 units	029	0.005
	Blue				5TG8 057-4		1	5 units	029	0.005
	White	0.4	230 AC		5TG8 058-0		1	5 units	029	0.005
	Red				5TG8 058-1		1	5 units	029	0.005
	Yellow				5TG8 058-2		1	5 units	029	0.005
	Green				5TG8 058-3		1	5 units	029	0.005
Blue				5TG8 058-4		1	5 units	029	0.005	
Cap sets, manually replaceable with colored caps with or without lamps										
	Gray, non-transparent (1 set = 5 units)				5TG8 060		1	1/10 sets	029	0.004
	Red, transparent (1 set = 5 units)				5TG8 061		1	1/10 sets	029	0.004
	Green, transparent (1 set = 5 units)				5TG8 062		1	1/10 sets	029	0.004
	Yellow, transparent (1 set = 5 units)				5TG8 063		1	1/10 sets	029	0.004
	Blue, transparent (1 set = 5 units)				5TG8 064		1	1/10 sets	029	0.004
	Black, non-transparent (1 set = 5 units)				5TG8 065		1	1/10 sets	029	0.004
	White, transparent (1 set = 5 units)				5TG8 066		1	1/10 sets	029	0.004
	Red and green (1 set contains 10 lamps per color), yellow, blue and white (1 set contains 5 lamps per color)				5TG8 067		1	1 set	029	0.011
	Red, green, yellow (1 set = 3 units)				5TG8 070		1	1 set	029	0.007

8

Overview

Light indicators are used to signal switching states or faults in systems.

They are available as single, double or triple light indicators.

Benefits



- Pilot lights and caps can also be safely replaced during operation without the use of tools
- A range of different-colored, transparent caps enable the signaling of plant states in compliance with IEC 60073. Three indications are possible for each device
- The lamps are mounted in a slotted base, which protects against polarity reversal. This ensures the correct polarization for all DC applications.
- The devices have preferred positions for the N terminals, so that it is possible to bus-mount several devices. This ensures fast and simple installation
- A light indicator with three lamps enables three-phase signaling and "traffic-light signaling" in a single modular width

Technical specifications

5TE5 8			
Standards			DIN VDE 0710-1
Rated operational voltage U_e	Max.	V AC	230 (for different voltages see 5TG8 lamps)
Rated power dissipation P_v		VA	See 5TG8 lamps
Clearances	Between the terminals	mm	> 7
Terminals	±screw (Pozidriv)		1
Max. tightening torque		Nm	1.2
Conductor cross-sections	Rigid	mm ²	1.5 ... 6
	Flexible, with end sleeve	mm ²	1 ... 6
Permissible ambient temperature		°C	-5 ... +40
Resistance to climate			
At 95 % relative humidity	Acc. to DIN 50015	°C	45

5TG8 05.		
Rated power dissipation P_v		
• LED	VA	0.4

Color coding according to IEC 60073

Color	Meaning		
	Safety of people and environment	Process state	System state
Red	Danger	Emergency	Faulty
Yellow	Warning/Caution	Abnormal	
Green	Safety	Normal	
Blue	Stipulation		
White	No special significance assigned		

Switching Devices

5TE5 light indicators

Selection and ordering data

Version	U_e V AC	Conductor cross- sections up to mm ²	Mounting width MW	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	Light indicators for a max. cable length of up to 5 m									
	With 1 red lamp	230	6	1	▶ 5TE5 800		1	1/12 units	029	0.051
	With 2 lamps, green and red				▶ 5TE5 801		1	1 unit	029	0.068
	With 3 green lamps				▶ 5TE5 802		1	1 unit	029	0.076
	With 3 lamps, red, yellow and green				▶ 5TE5 803		1	1 unit	029	0.076
	Light indicators for a max. cable length of up to 250 m									
	With 1 red lamp	230	6	1	5TE5 804		1	1 unit	029	0.063

I_e mA	U_e V	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg	
LEDs for manual replacement									
	White	0.4	12 ... 60	5TG8 056-0		1	5 units	029	0.005
	Red			5TG8 056-1		1	5 units	029	0.005
	Yellow			5TG8 056-2		1	5 units	029	0.005
	Green			5TG8 056-3		1	5 units	029	0.005
	Blue			5TG8 056-4		1	5 units	029	0.005
	White	0.4	115 AC/DC	5TG8 057-0		1	5 units	029	0.005
	Red			5TG8 057-1		1	5 units	029	0.005
	Yellow			5TG8 057-2		1	5 units	029	0.005
	Green			5TG8 057-3		1	5 units	029	0.005
	Blue			5TG8 057-4		1	5 units	029	0.005
	White	0.4	230 AC	5TG8 058-0		1	5 units	029	0.005
	Red			5TG8 058-1		1	5 units	029	0.005
	Yellow			5TG8 058-2		1	5 units	029	0.005
	Green			5TG8 058-3		1	5 units	029	0.005
	Blue			5TG8 058-4		1	5 units	029	0.005
Cap sets for manual changing of colored caps									
	Red, transparent (1 set = 5 units)			5TG8 061		1	1/10 sets	029	0.004
	Green, transparent (1 set = 5 units)			5TG8 062		1	1/10 sets	029	0.004
	Yellow, transparent (1 set = 5 units)			5TG8 063		1	1/10 sets	029	0.004
	Blue, transparent (1 set = 5 units)			5TG8 064		1	1/10 sets	029	0.004
	White, transparent (1 set = 5 units)			5TG8 066		1	1/10 sets	029	0.004
	Red and green (1 set = 10 lamps per color), yellow, blue and white (1 set = 5 lamps per color)			5TG8 067		1	1 set	029	0.011
	Red, green, yellow (1 set = 3 units)			5TG8 070		1	1 set	029	0.007

Overview

The devices are used for the switching of lighting, motors and other electrical devices.

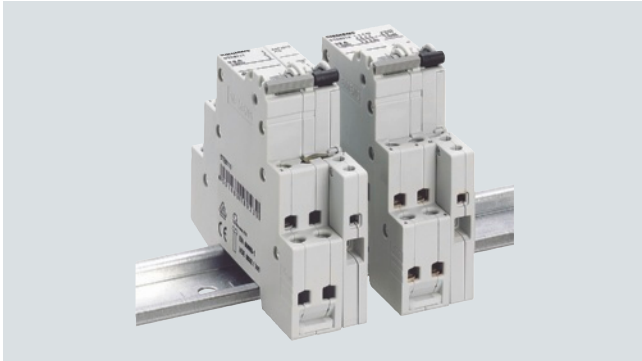
The rated currents of the range are 20 A to 125 A. There is a compact series of space-saving devices with up to 4 NO contacts in a single MW available for rated currents 20 A and 32 A.

The ON/OFF switches in the rated currents 32 A to 125 A can be used as switch disconnectors according to IEC/EN 60947-3.

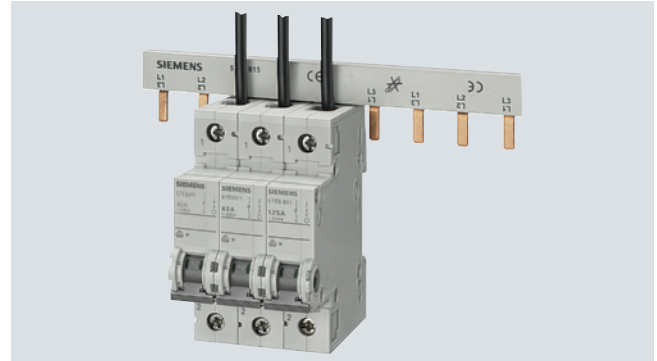
A special version of the ON/OFF switch with rated current 63 A is available for use in meter cabinets. This version can be locked in the "OFF" position using a special key. The clamping screws are mechanically covered so that they are no longer accessible.

In addition, the 5TE2 device versions can be used as switch disconnectors according to EN 60947-1 and serve as main control switches for the disconnection or isolation of plants according to EN 60204-1.

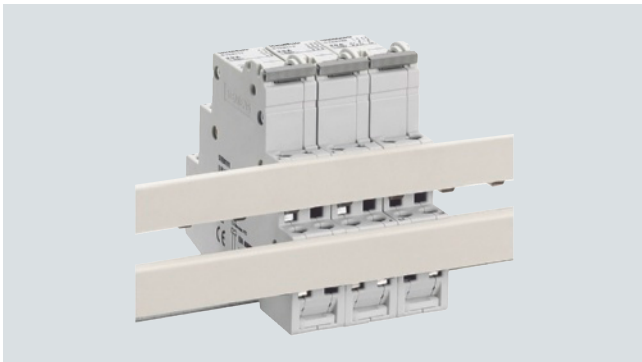
Benefits



- The switches can be retrofitted with auxiliary switches without the need for tools
- Uniform auxiliary switches for miniature circuit breakers and switches



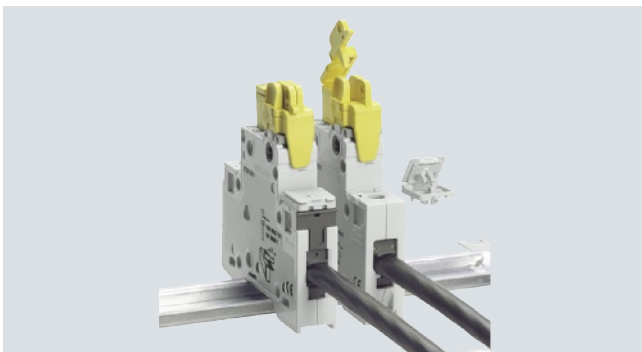
- Clear and visible conductor connection in front of the busbar for safe and easy mounting.
- Optional top or bottom infeed as the terminals are identical



- The 20 A and 32 A switches can be bus-mounted with each other or with 5TE4 8 pushbuttons, 5TE5 8 light indicators or 5TT4 1 remote control switches and 5TT4 2 switching relays
- For busbars, [see page 8/22](#)



- Spacers can be used as compensating elements and have a width of 0.5 MW. They come with an integrated wiring duct for the insertion of conductors.
- Two spacers installed on opposing side therefore offer space for large conductor cross-sections up to 15 mm in diameter



- The handle locking device prevents undesired/inadvertent mechanical on/off switching

5TE ON/OFF switches

Technical specifications

				5TE8 1	5TE8 2
Standards				IEC/EN 60947-3, (VDE 0660-107); IEC/EN 60669-1	IEC/EN 60947-3, (VDE 0660-107)
Approvals				EN 60669-1	
Rated operational current I_e	Per conducting path	A		20	32
Rated operational voltage U_e	1-pole	V AC		230	
	Multi-pole	V AC		400	
Rated power dissipation P_v	Per pole, max.	VA		0.7	
Conventional free-air thermal rated current I_{th}		A		20	32
Rated breaking capacity	At p.f. = 0.65	A		60	96
Rated making capacity	At p.f. = 0.65	A		60	96
Rated short-circuit making capacity I_{cm}	EN 60269 gL/gG	kA		10	
In conjunction with fuse of the same rated operational current					
Rated impulse withstand voltage U_{imp}		kV		> 5	
Clearances	Open contacts	mm		2 × > 2	
	Between the poles	mm		> 7	
Creepage distances		mm		> 7	
Mechanical service life		Switching cycles		25000	
Electrical service life		Switching cycles		10000	
Minimum contact load		V; mA		10; 300	
Rated short-time withstand current I_{cw} Per conducting path at p.f. = 0.7 (The corresponding rated surge current can be established by multiplying by factor 1.5.)	up to 0.2 s	A		650	1000
	up to 0.5 s	A		400	630
	up to 1 s	A		290	450
	up to 3 s	A		170	250
Terminals	±screw (Pozidriv)			1	
Max. tightening torque		Nm		1.2	
Conductor cross-sections	Rigid	mm ²		1.5 ... 6	
	Flexible, with end sleeve	mm ²		1 ... 6	
Permissible ambient temperature		°C		-5 ... +40	
Resistance to climate					
At 95 % relative humidity	Acc. to DIN 50015	°C		45	

5TE ON/OFF switches

			5TE8 3	5TE8 4	5TE8 5	5TE8 6	5TE8 7	5TE8 8
Standards			IEC/EN 60947-3 (VDE 0660-107)					
Approvals			-- IEC/EN 60669-1 (VDE 0632-1)					
			EN 60669-1					
Rated operational current I_e	Per conducting path	A	32	40	63	80	100	125
Rated operational voltage U_e	1-pole Multi-pole	V AC V AC	230 400					
Rated power dissipation P_v	Per pole, max.	VA	0.7	0.9	2.2	3.5	5.5	8.6
Conventional free-air thermal rated current I_{th}		A	32	40	63	80	100	125
Rated breaking capacity	At p.f. = 0.65	A	96	120	196	240	300	375
Rated making capacity	At p.f. = 0.65	A	96	120	196	240	300	375
Rated short-circuit making capacity I_{cm} In conjunction with fuse of the same rated operational current	EN 60269 gL/gG	kA	10					
Rated impulse withstand voltage U_{imp}		kV	> 5					
Clearances	Open contacts Between the poles	mm mm	> 7 > 7					
Creepage distances		mm	> 7					
Mechanical service life		Switching cycles	20000					
Electrical service life		Switching cycles	10000		5000	1000		
Minimum contact load		V; mA	24; 300					
Rated power	1-pole	kW	5	6.5	10	13	16	16
Switching of resistive loads	2-pole	kW	9	11	18	22	28	28
including moderate overload AC-21	3-/4-pole	kW	15	15	30	39	48	48
Rated short-time withstand current I_{cw} Per conducting path at p.f. = 0.7	up to 0.2 s	A	760	950	1500	2700	3400	3400
	up to 0.5 s	A	500	630	1000	1650	2100	2100
	up to 1 s	A	400	500	800	1350	1700	1700
	up to 3 s	A	280	350	560	800	1000	1000
(The corresponding rated surge current can be established by multiplying by factor 1.5.)								
Terminals	±screw (Pozidriv)	Nm	2 3.5					
Max. tightening torque								
Conductor cross-sections	Rigid	mm ²	1 ... 35			2.5 ... 50		
	Flexible, with end sleeve	mm ²	1 ... 35			2.5 ... 50		
Permissible ambient temperature		°C	-5 ... +40					
Resistance to climate At 95 % relative humidity	Acc. to DIN 50015	°C	45					

Switching Devices

5TE ON/OFF switches

			5TE2 4	5TE2 5	5TE2 8
Standards			IEC 60947-3, EN 60947-3 and IEC 60669-1, EN 60669-1		IEC 60947-3, EN 60947-3
Rated operational current I_e	Per conducting path	A	40	63	125
Rated operational voltage U_e	1-pole	V AC	230	230	--
	Multi-pole	V AC	400	400	400
Rated power dissipation P_V	Per pole, max.	W	3.4	4.4	10.9
Conventional free-air thermal rated current I_{th}		A	40	63	125
Rated breaking capacity	At p.f. = 0.65	A	120	196	375
Rated making capacity	At p.f. = 0.65	A	120	196	375
Short-circuit withstand current In conjunction with fuse of the same rated operational current		kA	10		
Rated impulse withstand voltage U_{imp}		kV	> 5		
Clearances	Open contacts	mm	> 7		
	Between the poles	mm	> 7		
Creepage distances		mm	> 7		
Mechanical service life	Switching cycles		20000		
Electrical service life	Switching cycles		10000	5000	5000
Minimum contact load		V; mA	24; 300		
Rated power Switching of resistive loads including moderate overload AC-21	1-pole	kW	6.5	10	16
	2-pole	kW	11	18	28
	3-/4-pole	kW	15	30	48
Rated short-time currents Per conducting path at p.f. = 0.7		A	950	1500	3400
		up to 0.2 s	630	1000	2100
		up to 0.5 s	500	800	1700
		up to 1 s	350	560	1000
		up to 3 s			
(The corresponding rated current can be estab- lished by multiplying by factor 1.5.)					
Terminals Max. tightening torque		±screw (Pozidriv)	2	2	2
		Nm	2.5 ... 3	2.5 ... 3	3 ... 3.5
Conductor cross-sections	Rigid	mm ²	0.75 ... 35	0.75 ... 35	0.75 ... 50
	Flexible, with sleeve, min.	mm ²	0.75 ... 25	0.75 ... 25	0.75 ... 35
Permissible ambient temperature		°C	-25 ... +45		
Resistance to climate At 95 % relative humidity		Acc. to DIN 50015	°C		
			45		

Selection and ordering data

Version	I_e	U_e	Conductor cross- sections	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
A	V AC	up to mm ²	MW								kg
ON/OFF switches (20 A and 32 A)											
With sealable switch position, separate handle locking device can be retrofitted											
Retrofittable auxiliary switch											
1 NO	20	230	6	1	▶	5TE8 111		1	1/12 units	029	0.068
	32					5TE8 211		1	1 unit	029	0.066
2 NO	20	400	6	1	▶	5TE8 112		1	1 unit	029	0.075
	32				▶	5TE8 212		1	1 unit	029	0.076
3 NO	20	400	6	1		5TE8 113		1	1 unit	029	0.086
	32					5TE8 213		1	1 unit	029	0.086
Auxiliary switch cannot be retrofitted											
3 NO + N	20	400	6	1	▶	5TE8 114		1	1 unit	029	0.094
	32					5TE8 214		1	1 unit	029	0.094
With mounted auxiliary switch											
3 NO + N	20	400	6	1.5		5TE8 118		1	1 unit	029	0.138
	32					5TE8 218		1	1 unit	029	0.143



5TE ON/OFF switches

Version	I_e	U_e	Conductor cross-sections	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	A	V AC	up to mm ²	MW							kg
	ON/OFF switches (32 A to 125 A) can be used as switch disconnectors according to EN 60947-1										
	With sealable switch position, separate handle locking device can be retrofitted, auxiliary switches can be retrofitted										
	1 NO, red handle	63	230	35	1	5TE8 521		1	1 unit	029	0.108
		100		50		5TE8 721		1	1 unit	029	0.110
	1 NO, gray handle	32		35		5TE8 311		1	1 unit	029	0.113
		40				5TE8 411		1	1 unit	029	0.113
		63				5TE8 511		1	1 unit	029	0.117
		80	50			5TE8 611		1	1 unit	029	0.124
		100				5TE8 711		1	1 unit	029	0.123
		125				5TE8 811		1	1 unit	029	0.124
	2 NO, red handle	63	400	35	2	5TE8 522		1	1 unit	029	0.195
		100		50		5TE8 722		1	1 unit	029	0.216
	2 NO, gray handle	32		35		5TE8 312		1	1 unit	029	0.215
		40				5TE8 412		1	1 unit	029	0.216
		63				5TE8 512		1	1 unit	029	0.215
		80	50			5TE8 612		1	1 unit	029	0.237
		100				5TE8 712		1	1 unit	029	0.240
		125				5TE8 812		1	1 unit	029	0.229
	3 NO, red handle	63	400	35	3	5TE8 523		1	1 unit	029	0.321
		100		50		5TE8 723		1	1 unit	029	0.355
	3 NO, gray handle	32		35		5TE8 313		1	1 unit	029	0.321
		40				5TE8 413		1	1 unit	029	0.320
		63				5TE8 513		1	1 unit	029	0.321
		80	50			5TE8 613		1	1 unit	029	0.337
		100				5TE8 713		1	1 unit	029	0.355
		125				5TE8 813		1	1 unit	029	0.357
	3 NO+ N, red handle	63	400	35	4	5TE8 524		1	1 unit	029	0.430
		100		50		5TE8 724		1	1 unit	029	0.476
	3 NO+ N, gray handle	32		35		5TE8 314		1	1 unit	029	0.428
		40				5TE8 414		1	1 unit	029	0.430
		63				5TE8 514		1	1 unit	029	0.426
		80	50			5TE8 614		1	1 unit	029	0.475
		100				5TE8 714		1	1 unit	029	0.476
		125				5TE8 814		1	1 unit	029	0.477
	4 NO, gray handle	32		35	4	5TE8 315		1	1 unit	029	0.424
		40				5TE8 415		1	1 unit	029	0.434
		63				5TE8 515		1	1 unit	029	0.436
		80	50			5TE8 615		1	1 unit	029	0.479
		100				5TE8 715		1	1 unit	029	0.481
		125				5TE8 815		1	1 unit	029	0.482
	ON/OFF switches 63 A can be used as switch disconnectors according to EN 60947-1										
	Terminal access from the bottom and off-position lockable with special key (exclusive power utility tool) Reduced lower terminal entry for conductors with approx. 7 mm diameter										
	3 NO	63	400	35	3	5TE8 533		1	1 unit	029	0.311
	Auxiliary switches (AS)										
	For all 5TE8 switches, for right-hand-side retrofitting with factory-fitted brackets, for further technical specifications, see chapter "Miniature Circuit Breakers"										
	1 NO + 1 NC			0.5		5ST3 010		1	1 unit	020	0.066
	2 NO			0.5		5ST3 011		1	1 unit	020	0.055
	2 NC			0.5		5ST3 012		1	1 unit	020	0.055
	Auxiliary switches for low power										
	1 NO + 1 NC			0.5		5ST3 013		1	1 unit	020	0.055
	2 NO			0.5		5ST3 014		1	1 unit	020	0.054
	2 NC			0.5		5ST3 015		1	1 unit	020	0.060

Switching Devices

5TE ON/OFF switches

	Version	I_e	U_e	Conductor cross-sections	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
		A	V AC	up to mm ²	MW							
	Handle locking devices For all 5TE8 switches, can be sealed against undesired/inadvertent mechanical ON/OFF switching, for padlock with max. 3 mm shackle						5ST3 801		1	1 unit	020	0.012
	Terminal covers For all 5TE8 5 to 5TE8 8 switches, in 1 MW per pole version, for covering screw openings, sealable					►	5ST3 800		1	10 units	020	0.002
	Spacers Contour for modular devices with a mounting depth of 70 mm; can be snapped onto either side of the busbar, so that two spacers allow for convenient cable routing				0.5		5TG8 240		1	2 units	026	0.010
	Phase connectors For easier wiring in various wiring versions and bus mountings or as a support terminal for conductors from 2.5 mm ² to 50 mm ²											
	1P	125	230	50	1		5TE9 112		1	1 unit	029	0.114
	N conductor connectors For easier wiring in various circuit versions and bus mountings or as a support terminal for N conductors from 2.5 mm ² to 50 mm ² with blue color marking											
	1P	125	230	50	1		5TE9 113		1	1 unit	029	0.114

5TE ON/OFF switches

Version	I_e	U_e	Conductor cross-sections	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	A	V AC	up to mm ²	MW							kg
ON/OFF switches (40 A to 125 A)											
Manual quick-assembly and disassembly systems, without the use of tools, separate switching position indication red/green, HS, FS, UR and ST can be retrofitted											
	1 NO	40	230	1		5TE2 411-0		1	1 unit	029	0.123
		63				5TE2 511-0		1	1 unit	029	0.138
	2 NO	40	400	2		5TE2 412-0		1	1 unit	029	0.260
		63				5TE2 512-0		1	1 unit	029	0.249
		125		3		5TE2 812-0		1	1 unit	029	0.482
	3 NO	40	400	3		5TE2 413-0		1	1 unit	029	0.382
		63				5TE2 513-0		1	1 unit	029	0.373
		125		4.5		5TE2 813-0		1	1 unit	029	0.721
	3 NO + N	40	400	4		5TE2 414-0		1	1 unit	029	0.499
		63				5TE2 514-0		1	1 unit	029	0.504
		125		6		5TE2 814-0		1	1 unit	029	0.967

Switching Devices

5TE DC isolators

Benefits

- Switch disconnectors for isolating solar modules in photovoltaic systems acc. to DIN VDE 0100-712 (IEC 60364-7-712)
- Compact DIN rail device for applications up to 1000 V DC
- Separate switching position indication for unambiguous indication of the switching state
- Compatible with all miniature circuit breaker accessories - reduced stock-keeping
- The effective touch protection when grasping the device considerably exceeds the requirements of BGV A3.
- Manual snap-on fixing and release systems that require no tools enable fast assembly and disassembly of switch disconnectors
- Clear and visible conductor connection in front of the rear bus-bar facilitates controls

Technical specifications

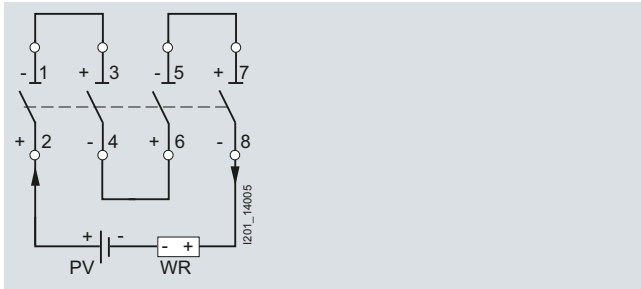
					5TE2 515-1
Standards					IEC/EN 60947-3, IEC/EN 60669-1
Rated operational current I_e		A			63
Rated operational voltage U_e		For 4 poles in series	V DC		880
Rated power dissipation P_v		Per pole, max.	W		4.4
Rated short-circuit withstand current I_{cw}		1000 V DC, 4-pole	A		760
Rated short-circuit making capacity I_{cm}		1000 V DC, 4-pole	A		500
Rated impulse withstand voltage U_{imp}			kV		> 4
Max. operational voltage U_{max}			V DC		1000
Overvoltage category					II at $U = 880 \text{ V} \dots 440 \text{ V}$ I at $U = 1000 \text{ V}$
Mechanical service life		Switching cycles			10000
Electrical service life		Switching cycles			5000
Utilization category					DC-21B
Minimum contact load		V; mA			24; 300
Terminals		±screw (Pozidriv)			PZ 2
Max. tightening torque			Nm		2.5 ... 3
Conductor cross-sections		Rigid	mm ²		0.75 ... 35
		Flexible, with end sleeve	mm ²		0.75 ... 25
Permissible ambient temperature			°C		-25 ... +45
Resistance to climate					
At 95 % relative humidity		Acc. to DIN 50015	°C		45

Selection and ordering data

Version	I_e	U_e	Conductor cross-sections	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
A	V AC	up to mm ²	MW								kg
DC isolators 1000 V DC, can be used as switch disconnectors according to EN 60947-3, with sealable switch position, separate handle locking device can be retrofitted, auxiliary switch can be retrofitted											
4 NO	63	--	35	4		5TE2 515-1		1	1 unit	029	0.672
Auxiliary switches (AS) For 5TE2 DC isolators, for right-hand-side retrofitting with factory-fitted brackets, for further technical specifications, see chapter "Miniature Circuit Breakers"											
1 NO + 1 NC				0.5	►	5ST3 010		1	1 unit	020	0.066
2 NO				0.5		5ST3 011		1	1 unit	020	0.055
2 NC				0.5		5ST3 012		1	1 unit	020	0.055
Auxiliary switches for low power											
1 NO + 1 NC				0.5	►	5ST3 013		1	1 unit	020	0.055
2 NO				0.5		5ST3 014		1	1 unit	020	0.054
2 NC				0.5		5ST3 015		1	1 unit	020	0.060

Configuration

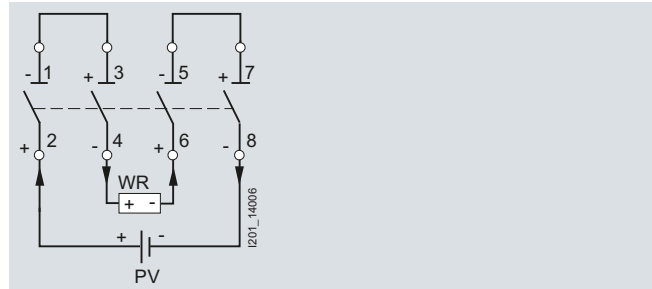
For DC voltages up to 1000 V, the four poles need to be connected in series. In contrast to normal flush-mounting switches, these devices are also fitted with arcing chambers and permanent solenoids to aid the positive quenching of the electric arc in direct currents.



Legend:

PV: Photovoltaic
WR: Inverter

For this reason it is essential to comply with the polarity specifications of the switches when connecting the conductor. Suitable precautions should be taken during plant configuration to ensure there can be no polarity reversal in DC operation (e.g. photovoltaic systems).



Switching Devices

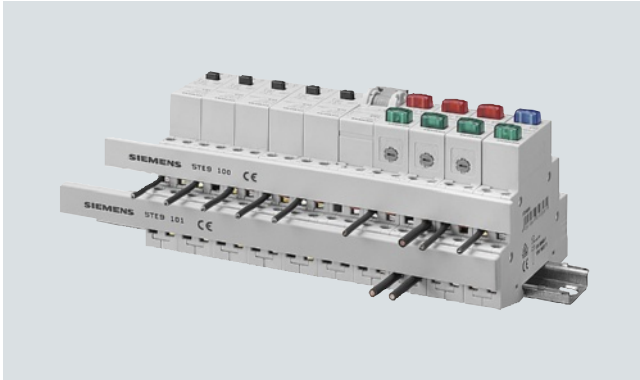
Busbars for 5ST modular installation devices

Overview

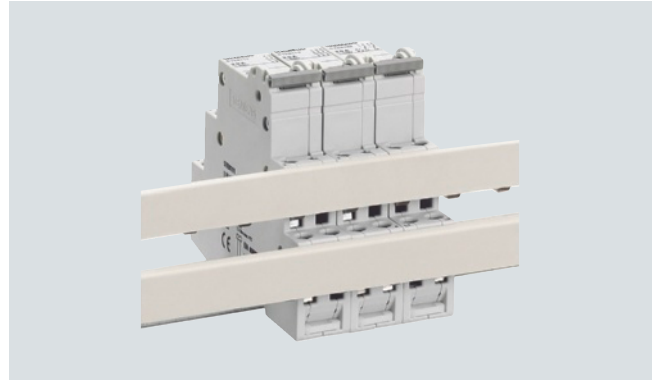
Siemens has developed a rail-mounting concept which makes the linking of switching devices just as easy as that of miniature circuit breakers.

The arrangement of the terminals on the devices is adapted to the bus mounting. With only two busbars, this saves considerable mounting time.

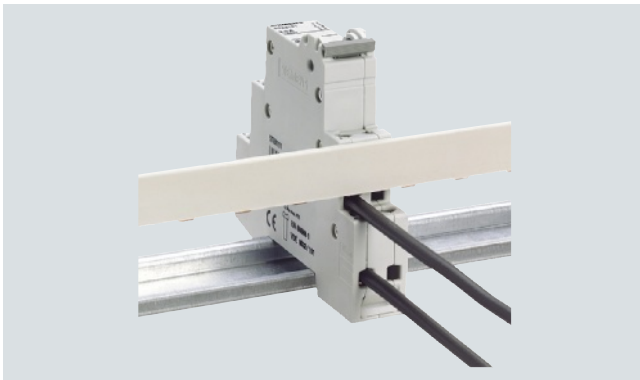
Benefits



- All 5TE8 switches (20 A and 32 A), 5TE4 8 pushbuttons, 5TE5 8 light indicators and 5TT4 1 remote control switches and 5TT4 2 switching relays can be bus-mounted



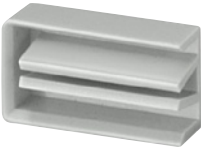
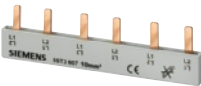
- All 5TE8 switches (20 A and 32 A) in 1 MW can be fed via the single or two-phase busbars. Thus 2 two-phase busbars support a 4-pole infeed



- Infeed: The phase busbar is fed in at the tunnel terminal for conductors up to 6 mm² up to 32 A. No additional feeder terminals required

Busbars for 5ST modular installation devices

Selection and ordering data

Version	Length mm	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
 Single-phase busbars For all 5TE8, 20 A and 32 A switches In the 12 MW version for the cutting of unused terminal lugs to ensure insulation clearances if one device terminal is to be supplied separately despite being mounted on the bus, modular clearance = 1 MW Busbar infeed to unit terminal with conductor cross-section of 6 mm ² up to 32 A Can be mounted top or bottom in the front or rear terminal area <u>Note:</u> An end cap is not required on single-phase busbars.	210		5TE9 100		1	10 units	029	0.034
 Two-phase busbars For all 5TE8, 20 A and 32 A switches In 12 MW version with 1 MW division, whereby the two busbars are offset by 0.5 MW Both copper conductors of the two-phase busbar are insulated together. Busbar infeed to unit terminal with conductor cross-section of 6 mm ² up to 32 A Can be mounted from top or bottom, or in the front or rear terminal area, thus allowing realization of a 4-conductor connection using 2 two-phase busbars.	220		5TE9 101		1	10 units	029	0.076
 End caps for two-phase busbars End caps for 5TE9 101 two-phase busbars to maintain insulation clearances when the bar is being cut. 1 set = 10 units			5TE9 102		1	1 set	029	0.001
 5ST3 6 and 5ST3 7 busbar systems All busbars of the 5ST3 6 and 5ST3 7 busbar systems can also be used for all 5TE8 switches from 32 A to 125 A in 1 MW per pole versions (see chapter "Miniature Circuit Breakers").								

5TT4 remote control switches

Overview

Remote control switches are used in residential and non-residential buildings, as well as the switchgear engineering sector. They trip in the event of "current inrushes", i.e. pulses, and then electromechanically save the switching position, even in the event of a power failure.

All the devices have the VDE mark and can also be equipped with an additional auxiliary switch. All devices have a switching position indication and are operated manually. The switching noise is particularly quiet and meets the requirements of residential buildings.

Benefits

- Remote control switches with central/group switching support convenient and high feature applications
- High functional reliability due to electromechanical design without fault-prone electronics
- The devices have no standby losses
- All devices have a switching position indication and are operated manually
- The remote control switches can be bus-mounted on 5TE9 100 and 5TE9 101 busbars; e.g.: bus mounting of the N conductor and/or infeed.
- All the remote control switches can be fitted with an additional auxiliary switch

Central switching functions

Versions with central ON/OFF function allow the central switching of all connected remote control switches. This type of central switching can also be actuated using a time switch. All remote control switches can be switched to the ON or OFF switching state, regardless of their current switching state.

Contact sequences

1 – 2 – 1+2 – 0 or **1 – 0 – 2 – 0** means:

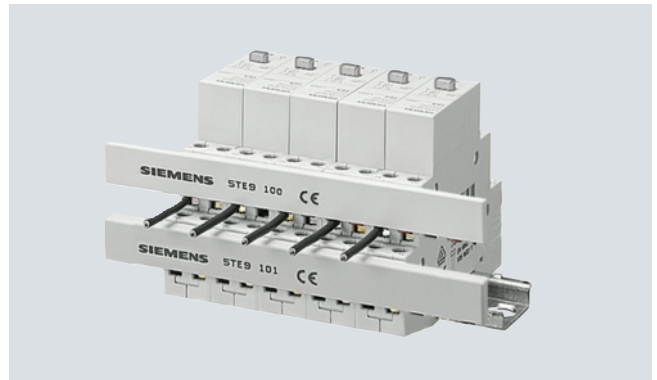
- 0: No contact closed
- 1: Only contact 1 closed
- 2: Only contact 2 closed
- 1+2: Contact 1 and Contact 2 are closed

The contact positions are constantly changing with each push-button impulse.

Note:

Synchronous switching of the contacts cannot be guaranteed with parallel switching. Products with central/group switching must be used for the mutual control of several remote control switches.

Bus mounting



All 5TT4 1 remote control switches can be bus-mounted with each other.

Note:

Busbars to match the 5TT4 1 remote control switch [can be found on page 8/22](#).

5TT4 remote control switches

Technical specifications

		Remote control switches				Auxiliary switches	
		5TT4 101 5TT4 102 5TT4 105 5TT4 111 5TT4 112 5TT4 115	5TT4 103 5TT4 104	5TT4 12 5TT4 15	5TT4 13 5TT4 14	5TT4 900	5TT4 901
Standards		IEC 60669-1, IEC 60669-2, IEC 60669-3, EN 60669, EN 60669-2-2, EN 60669-2-2/A1					
Approvals		VDE 0632 (EN 60669)					
Contact type		1 NO 2 NO 1 NO 1 NC	3 NO 4 NO	1 NO 2 NO 3 NO 1 NO 1 NC	Series Shutter/ blind	1 CO	1 CO
Manual operation		Yes					--
Switching position indication		Yes					--
Rated control voltage U_c	V AC V DC	8 ... 230 12 ... 110				-- --	
Primary operating range	$\times U_c$	0.8 ... 1.1				--	
Rated frequency f_c (AC types)	Hz	50				--	
Rated impulse withstand voltage U_{imp}	kV	4				1	
Rated power dissipation P_v							
• Magnet coil, only pulse	W/VA	4.5/7	9/13	4.5/7		--	
• Per contact at 16 A	W	1.2				--	
Minimum contact load	V AC; mA	10; 100					5 AC/DC; 1
Rated operational current I_e at p.f. $\varphi = 0.6 ... 1$	A	16				5	0.1
Rated operational voltage U_e							
• 1 NO	V AC	250	--	250	--	250	30 AC/DC
• 2 NO	V AC	400	--	400	250	--	
• 3 NO	V AC	--	400	400	--	--	
• 4 NO	V AC	--	400	--	--	--	
• 1 NO + 1 NC	V AC	250	--	250	--	--	
Glow lamp load at 230 V	mA	5				--	
• With 1 5TT4 920 compensator	mA	25				--	
• With 2x 5TT4 920 compensators	mA	45				--	
Incandescent lamp load²⁾	W	1200				--	
Different phases between magnet coil/contact		Permissible				--	
Contact gap	mm	> 1.2				< 1.2	
Safe separation							
Creepage distances and clearances between magnet coil/contact	mm	> 6					
Pushbutton malfunction							
Protected against continuous voltage, safe due to design		Yes	PTC	Yes ¹⁾	Yes	--	
Minimum pulse duration	ms	50					
Electrical service life							
At I_e/U_e , p.f. = 0.6; incandescent lamp load 600 W	In switching cycles	50000					
Terminals $\pm$screw (Pozidriv)		1					
Conductor cross-sections							
• Rigid	mm ²	1.5 ... 6				0.5 ... 4	
• Flexible, with end sleeve	mm ²	1 ... 6				0.75 ... 4	
Resistance to climate							
At 95 % relative humidity	Acc. to DIN 50015 °C	35					
Permissible ambient temperature	°C	-10 ... +40					
Degree of protection	Acc. to EN 60529	IP20, with connected conductors					
Mounting position		Any					

1) For 2.5 MW 5TT4 123-0 devices with PTC.

2) For 15 000 switching cycles.

Switching Devices

5TT4 remote control switches

Selection and ordering data

	Contacts	U_e	I_e	U_c	U_c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
		V AC	A AC	V AC	V DC	MW							
	Remote control switches, auxiliary switches can be retrofitted												
	1 NO	250	16	230		1	▶	5TT4 101-0		1	1/12 units	028	0.135
				115				5TT4 101-1		1	1 unit	028	0.138
				24			▶	5TT4 101-2		1	1 unit	028	0.134
				12				5TT4 101-3		1	1 unit	028	0.133
				8				5TT4 101-4		1	1 unit	028	0.128
	2 NO	400	16	230		1	▶	5TT4 102-0		1	1 unit	028	0.144
				115				5TT4 102-1		1	1 unit	028	0.150
				24			▶	5TT4 102-2		1	1 unit	028	0.144
				12				5TT4 102-3		1	1 unit	028	0.145
				8				5TT4 102-4		1	1 unit	028	0.141
	3 NO		16	230		2	▶	5TT4 103-0		1	1 unit	028	0.199
				24			▶	5TT4 103-2		1	1 unit	028	0.198
	4 NO		16	230		2	▶	5TT4 104-0		1	1 unit	028	0.211
				24			▶	5TT4 104-2		1	1 unit	028	0.210
	1 NO + 1 NC	250	16	230		1	▶	5TT4 105-0		1	1 unit	028	0.144
				115				5TT4 105-1		1	1 unit	028	0.151
				24			▶	5TT4 105-2		1	1 unit	028	0.144
				12				5TT4 105-3		1	1 unit	028	0.145
				8				5TT4 105-4		1	1 unit	028	0.140
	Remote control switches DC applications												
	1 NO		16		110	1	▶	5TT4 111-1		1	1 unit	028	0.126
				24		▶	5TT4 111-2		1	1 unit	028	0.126	
				12		▶	5TT4 111-3		1	1 unit	028	0.126	
2 NO		16		110	1	▶	5TT4 112-1		1	1 unit	028	0.130	
				24		▶	5TT4 112-2		1	1 unit	028	0.130	
				12		▶	5TT4 112-3		1	1 unit	028	0.130	
	1 NO + 1 NC	250	16		110	1	▶	5TT4 115-1		1	1 unit	028	0.144
					24		▶	5TT4 115-2		1	1 unit	028	0.147
					12		▶	5TT4 115-3		1	1 unit	028	0.144
	Remote control switches with central ON/OFF switching, auxiliary switch cannot be retrofitted												
	1 NO	250	16	230		1.5	▶	5TT4 121-0		1	1 unit	028	0.155
				24			▶	5TT4 121-2		1	1 unit	028	0.165
	2 NO	400	16	230		1.5	▶	5TT4 122-0		1	1 unit	028	0.163
				24			▶	5TT4 122-2		1	1 unit	028	0.175
	3 NO	400	16	230		2.5	▶	5TT4 123-0		1	1 unit	028	0.227
	1 NO + 1 NC	250	16	230		1.5	▶	5TT4 125-0		1	1 unit	028	0.163
	Remote control switches, with central and group ON/OFF switching, auxiliary switch cannot be retrofitted												
	1 NO	250	16	230		1.5	▶	5TT4 151-0		1	1 unit	028	0.145
				24		1.5	▶	5TT4 151-2		1	1 unit	028	0.144
	2 NO	400	16	230		1.5	▶	5TT4 152-0		1	1 unit	028	0.156
				24		1.5	▶	5TT4 152-2		1	1 unit	028	0.155
	Series remote control switches Contact sequence 1 – 2 – 1+2 – 0 auxiliary switch cannot be retrofitted												
	2 NO	250	16	230		1	▶	5TT4 132-0		1	1 unit	028	0.143
				12			▶	5TT4 132-3		1	1 unit	028	0.130
	Blinds remote control switches Contact sequence 1 – 0 – 2 – 0 auxiliary switch cannot be retrofitted												
	2 NO	250	16	230		1	▶	5TT4 142-0		1	1 unit	028	0.144
				24				5TT4 142-2		1	1 unit	028	0.145
				12				5TT4 142-3		1	1 unit	028	0.143

5TT4 remote control switches

	Contacts	U_e	I_e	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
		V AC	A AC	MW							
	Auxiliary switches					5TT4 900		1	1 unit	028	0.049
	One device can be retrofitted per remote control switch										
	1 CO	250	5	0.5	▶						
	1 CO	30	0.1	0.5	▶						
	For small powers	AC/DC				5TT4 901		1	1 unit	028	0.050
	Compensators					5TT4 920		1	1 unit	028	0.073
	for increasing the glow lamp load by 20 mA										
		250	--	1	▶						

5TT4 switching relays

Overview

Switching relays are used in residential, non-residential and industrial buildings for the purpose of contact multiplication. They can be used with safe isolation between coil voltage and contact.

With the 5TE9 100 and 5TE9 101 busbars, the switching relays can be mounted quickly and safely, e.g. by bus mounting the N conductor and/or infeed.

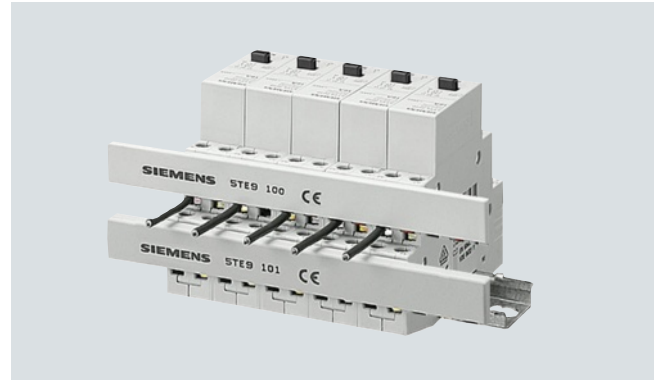
Note:

Busbars to match the 5TT4 2 switching relay [can be found on page 8/22](#).

Benefits

- Easy installation due to busbar mounting
- Switching position indication when checking the plant for enhanced safety
- Manual intervention through manual operation

Bus mounting



All 5TT4 2 switching relays can be bus-mounted with each other.

Technical specifications

		5TT4 201-	5TT4 202-	5TT4 204-	5TT4 205-	5TT4 206-	5TT4 207-	5TT4 217-
Standards		EN 60947-5-1, EN 60669-2-2						
Contact type		1 NO	2 NO	4 NO	1 NO + 1 NC	1 CO	2 CO	2 CO
Manual operation		Yes						
Rated control voltage U_c	V AC V DC	8 ... 230 --						-- 12 ... 110
Primary operating range	x U_c	0.8 ... 1.1						
Rated frequency f_c	Hz	50						
Rated impulse withstand voltage U_{imp}	kV	4						
Rated power dissipation P_v • Magnet coil • Per contact at 16 A	W/VA W	2.4/3.0 1.0	2.4/3.0	4.8/6.0	2.4/3.0	2.4/3.0	2.4/3.0	1.7
Minimum contact load	V AC; mA	10; 100						
Rated operational current I_e At p.f. = 0.6 ... 1	A	16						
Rated operational voltage U_e		250	400	400	400	250	400	400
Different phases Between magnet coil/contact		Permissible						
Contact gap	mm	> 1.2				< 1.2		
Safe separation	mm	> 6						
Electrical service life At I_e/U_e , p.f. = 0.6; incandescent lamp load 600 W	Switching cycles	50000						
Terminals	±screw (Pozidriv)	1						
Conductor cross-sections • Rigid • Flexible, with end sleeve	mm ² mm ²	1.5 ... 6 1 ... 6						
Resistance to climate At 95 % relative humidity	Acc. to DIN 50015	°C						
Permissible ambient temperature	°C	-10 ... +40						
Degree of protection	Acc. to EN 60529	IP20, with connected conductors						
Mounting position		Any						

5TT4 switching relays

Selection and ordering data

	Contacts	U _e	I _e	U _c	U _c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.	
		V AC	A AC	V AC	V DC	MW							kg	
	Switching relays for AC voltage													
	1 NO	250	16	230 115 24 12 8		1	►	5TT4 201-0 5TT4 201-1 5TT4 201-2 5TT4 201-3 5TT4 201-4		1 1 1 1 1	1/12 units 1 unit 1 unit 1 unit 1 unit	028 028 028 028 028	0.130 0.138 0.132 0.131 0.129	
	2 NO	400	16	230 115 24 12 8		1	►	5TT4 202-0 5TT4 202-1 5TT4 202-2 5TT4 202-3 5TT4 202-4		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	028 028 028 028 028	0.143 0.147 0.142 0.142 0.139	
	4 NO	400	16	230 115 24 12 8		2	►	5TT4 204-0 5TT4 204-1 5TT4 204-2 5TT4 204-3 5TT4 204-4		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	028 028 028 028 028	0.266 0.276 0.278 0.262 0.261	
	1 NO + 1 NC	400	16	230 115 24 12 8		1	►	5TT4 205-0 5TT4 205-1 5TT4 205-2 5TT4 205-3 5TT4 205-4		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	028 028 028 028 028	0.142 0.147 0.144 0.142 0.139	
	1 CO	250	16	230 115 24 12 8		1	►	5TT4 206-0 5TT4 206-1 5TT4 206-2 5TT4 206-3 5TT4 206-4		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	028 028 028 028 028	0.135 0.140 0.137 0.136 0.137	
	2 CO	400	16	230 115 24 12 8		1	►	5TT4 207-0 5TT4 207-1 5TT4 207-2 5TT4 207-3 5TT4 207-4		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	028 028 028 028 028	0.149 0.153 0.150 0.145 0.147	
	Switching relays for direct voltage													
	2 CO	400	16		110 30 24 12	1	►	5TT4 217-1 5TT4 217-6 5TT4 217-2 5TT4 217-3		1 1 1 1	1 unit 1 unit 1 unit 1 unit	028 028 028 028	0.150 0.135 0.152 0.145	
		Spacers												
		In the case of higher ambient temperatures, we recommend placing a spacer after every second switching relay for better heat dissipation.					0.5		5TG8 240		1	2 units	026	0.010

5TT5 Insta contactors, AC/DC technology



Overview

The Insta contactors are the ideal switching device for controlling AC/DC control voltage in industrial applications and infrastructure.

In addition to their basic function, they can also be used for the ON/OFF switching of single-phase and three-phase electrical motors.

The 5TT5 0 Insta contactors meet the requirements of EN 60947 and are approved to UL 508.

The simultaneous switching of lamp loads at varying phases can be achieved with a single contactor, whereby it is essential to strive for/ensure a symmetrical load of the phases. Upstream short-circuit detection devices must disconnect at all poles or must be equipped with phase failure detection. Violations of the specified capacitor load limits may cause excessive inrush peak currents. The level of inrush peak currents is also affected by the following factors:

- Length and cross-section of the installed supply lines
- Type of electronic ballasts
- Brand/make of lamp

Benefits

8



- Insta contactors with O/I automatic function enable the testing of a plant via manual switch without the need to apply a control voltage



- Switching position indication for fast recognition of operating states offers greater safety when checking the plant



5TT5 Insta contactors, AC/DC technology

Technical specifications

		5TT5 00 2-pole	5TT5 03 4-pole	5TT5 04 4-pole	5TT5 05 4-pole
Standards		EN 60947-4-1; EN 60947-5-1; EN 61095			
Approvals		UL 508; UL File No. E303328			
Rated frequency at AC f_n	Hz	50/60			
Rated control voltage U_c	V AC	24, 230	24, 115, 230	24, 230	
	V DC	24, 220	24, 110, 220	24, 230	
Primary operating range	$\times U_c$	0.85 ... 1.1			
Rated operational voltage U_e	V	230	400		
Rated operational current I_e	at V AC	Acc. to UL 480; acc. to IEC 440			
• AC-1/AC-7a, NO contacts	A 20	25	40	63	
• AC-1/AC-7a, NC contacts	A 20	25	40	63	
• AC-3/AC-7b, NO contacts	A 9	8.5	22	30	
• AC-3/AC-7b, NC contacts	A 6	8.5	22	30	
Rated power dissipation P_v	VA/W	2.1/2.1	2.6/2.6	5/5	5/5
• Pick-up power (without manual switch or manual switch in "I" position)	VA/W	2.1/4.1	2.6/2.6	5/5	5/5
• Pick-up power (with manual switch in "AUTO" position)	VA/W	2.1/2.1	2.6/2.6	5/5	5/5
• Holding power	VA	1.7	2.2	4	8
• Per contact AC-1/AC-7a					
Switching times	ms	15 - 45	15 - 45	15 - 20	
• Closing (NO contacts)	ms	20 - 50	20 - 70	35 - 45	
• Opening (NO contacts)					
Rated impulse withstand voltage U_{imp}	kV	≤ 4			
Contact gap (S contacts) min.	mm	3.6			
Electrical service life					
At I_e and load	AC-1/AC-7a AC-3/AC-7b	For switching cycles For switching cycles	200000 300000	100000	150000
Mechanical service life		For switching cycles	3 million		
Maximum switching frequency					
At load	AC-1/AC-7a AC-3/AC-7b	Switching cycles/h Switching cycles/h	600 600		
Switching of resistive loads AC-1	V AC	230	400		
for rated operational power P_s (NO contacts)					
• Single-phase	kW	4	5.4	8.7	13.3
• Three-phase	kW	--	16	26	40
Switching of three-phase asynchronous motors AC-3	V AC	230	400		
for rated operational power P_s (NO contacts)					
• Single-phase	kW	1.3/0.75	1.3/1.3	3.7/3.7	5/5
• Three-phase	kW	--	4	11	15
Minimum switching capacity	V; mA	≥ 17 ; 50			
Overload withstand capability					
Per conducting path (NO contacts only) at 10 s	A	72	68	176	240
Short-circuit protection, according to coordination type 1					
Back-up fuse characteristic gL/gG	A	20	25	63	80
Terminals	$\pm$ screw (Pozidriv)				
• Coil connection		1	1		
• Main connection		1	2		
Tightening torques					
• Coil connection	Nm	0.6	0.6		
• Main connection	Nm	1.2	3.5		
Conductor cross-sections					
• Coil connection					
- Solid	mm ²	1.0 ... 2.5			
- Stranded, with end sleeve	mm ²	1.0 ... 2.5			
- AWG cables	AWG	16 ... 10			
Tightening torques	lb.in	8			
• Main connection					
- Solid	mm ²	1.0 ... 10	1.5 ... 25		
- Stranded, with end sleeve	mm ²	1.0 ... 6	1.5 ... 16		
- AWG cables	AWG	16 ... 8	16 ... 4		
Tightening torques	lb.in	9	20		
Permissible ambient temperature					
• For operation	°C	-15 ... +55 ¹⁾			
• For storage	°C	-50 ... +80			
Degree of protection	Acc. to EN 60529	IP 20, with connected conductors			
Acc. to UL 508	I_n	A 20	25	40	63
UL 508 General Use 240 V/480 V	FLA	A 20	25	40	63
UL 508 AC discharge lamps		A 20	25	30	40
UL 508 motor load 240 V	Power	hp 1	3	7.5	10
UL 508 motor load 480 V	Power	hp --	5	15	20
UL 508 short circuit at 480 V	K5 fuses	A 20	25	60	70
		kA 5			

¹⁾ Contactors can be operated at ambient temperatures of between -25 °C and +70 °C, but only under special conditions.
For more information, please contact Siemens Support

5TT5 Insta contactors, AC/DC technology



Selection and ordering data

	Contacts	U_e	I_e	U_c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
		V AC	A AC	V AC V DC	MW							kg
 5TT50 00-0	Insta contactors For AC or DC continuous operation, with switching position indication, with DC magnetic system											
	2 NO	230	20	230 24	220 24	1	5TT5 000-0 5TT5 000-2		1	1 unit	028	0.141
	1 NO + 1 NC	230	20	230 24	220 24	1	5TT5 001-0 5TT5 001-2		1	1 unit	028	0.150
	2 NC	230	20	230 24	220 24	1	5TT5 002-0 5TT5 002-2		1	1 unit	028	0.150
	4 NO	400	25	230 115 24	220 110 24	2	5TT5 030-0 5TT5 030-1 5TT5 030-2		1	1 unit	028	0.150
	3 NO + 1 NC	400	25	230 24	220 24	2	5TT5 031-0 5TT5 031-2		1	1 unit	028	0.150
	2 NO + 2 NC	400	25	230 24	220 24	2	5TT5 032-0 5TT5 032-2		1	1 unit	028	0.150
	4 NC	400	25	230 24	220 24	2	5TT5 033-0 5TT5 033-2		1	1 unit	028	0.150
	4 NO	400	40	230 24	220 24	3	5TT5 040-0 5TT5 040-2		1	1 unit	028	0.150
	3 NO + 1 NC	400	40	230 24	220 24	3	5TT5 041-0 5TT5 041-2		1	1 unit	028	0.150
	2 NO + 2 NC	400	40	230 24	220 24	3	5TT5 042-0 5TT5 042-2		1	1 unit	028	0.150
	4 NC	400	40	230 24	220 24	3	5TT5 043-0 5TT5 043-2		1	1 unit	028	0.150
	4 NO	400	63	230 24	220 24	3	5TT5 050-0 5TT5 050-2		1	1 unit	028	0.150
	3 NO + 1 NC	400	63	230 24	220 24	3	5TT5 051-0 5TT5 051-2		1	1 unit	028	0.150
	2 NO + 2 NC	400	63	230 24	220 24	3	5TT5 052-0 5TT5 052-2		1	1 unit	028	0.150
 5TT50 00-6	Automatic Insta contactor For AC or DC continuous operation, with switching position indication, with DC magnetic system											
	2 NO	230	20	230 24	220 24	1	5TT5 000-6 5TT5 000-8		1	1 unit	028	0.150
	1 NO + 1 NC	230	20	230 24	220 24	1	5TT5 001-6 5TT5 001-8		1	1 unit	028	0.150
	4 NO	400	25	230 24	220 24	2	5TT5 030-6 5TT5 030-8		1	1 unit	028	0.150
	3 NO + 1 NC	400	25	230 24	220 24	2	5TT5 031-6 5TT5 031-8		1	1 unit	028	0.150
 5TT5 910-0	Auxiliary switches For mounting on right-hand side Max. one auxiliary switch per Insta contactor											
	2 NO	230, AC-15	6	--	--	0.5	5TT5 910-0 5TT5 910-1		1	1 unit	028	0.045
	1 NO + 1 NC	230, AC-15	6	--	--				1	1 unit	028	0.046
	Sealable terminal covers For Insta contactor 20 A For Insta contactor 25 A For Insta contactors 40 A and 63 A											
						1	5TT5 910-5		1	2 units	028	0.002
						2	5TT5 910-6		1	2 units	028	0.003
						3	5TT5 910-7		1	2 units	028	0.003

5TT5 Insta contactors, AC technology

Overview

The 5TT5 8 Insta contactors are equipped with an AC magnetic system and are ideal for use under harsh conditions. The auxiliary switches can be mounted without tools. When equipped with terminal covers, the devices can also be sealed.

Insta contactors without manual switch

Insta contactors are ideal for a wide range of uses in industry, such as for motors where distribution technology plays a major role, e.g. in installations for heat pumps and air conditioning technology. In addition to their basic function, they can also be used for the ON/OFF switching of single-phase and three-phase electrical motors.

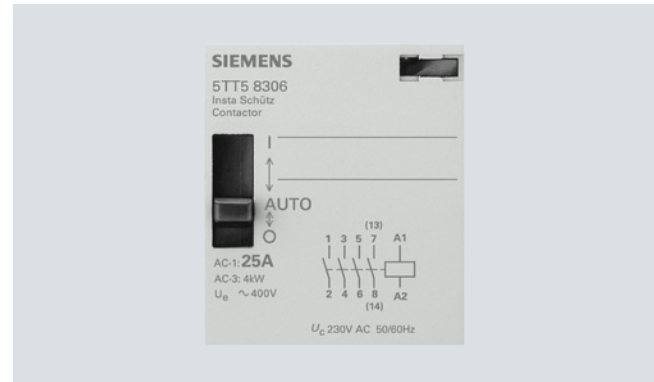
Insta contactors with manual switch

Insta contactors with manual operation can be switched on and off by hand.

Benefits



- Extremely long service life of 3 million switching cycles
- Safe cable routing through the cable entry funnel
- Insulated right through to the cable entry funnel.
- Auxiliary switches can be retrofitted on all versions - even on the 20 A type



- Insta contactors with O/I/Automatic function enable the testing of a plant by manual switch without the need to apply a control voltage
- Switching position indication for fast recognition of operating states offers greater safety when checking the plant

5TT5 Insta contactors, AC technology

Technical specifications

			Insta contactors				Auxiliary switches 5TT5 910
			5TT5 80.	5TT5 82., 5TT5 83.	5TT5 84.	5TT5 85.	
Standards			IEC 60947-4-1, IEC 60947-5-1, IEC 61095; EN 60947-4-1, EN 60947-5-1, EN 61095 VDE 0637				
Approvals							
Number of poles			2	4	4	4	2
Rated frequency at AC			50/60				
Rated control voltage U_c			24, 230	24, 115, 230	24, 230	24, 230	--
Primary operating range			$\times U_c$ 0.85 ... 1.1				
Rated operational voltage U_e			230	400			230/400
Rated operational current I_e			20	25	40	63	6/4 (230/400 V)
Rated power dissipation P_v							
• Pick-up power (without manual switch or manual switch in "I" position)		VA/W	6/3.8	10/5	15.4/6		--
• Pick-up power (with manual switch in "AUTO" position)		VA/W	12/10	33/25	62/50		--
• Holding power		VA/W	2.8/1.2	5.5/1.6	7.7/3		--
• Per contact		VA	1.7	2.2	4	8	--
Switching times							
• Closing (NO contacts)		ms	15 ... 25	10 ... 20	15 ... 20		--
• Opening (NO contacts)		ms	20	20	10		--
• Closing (NC contacts)		ms	20 ... 30	20 ... 30	5 ... 10		--
• Opening (NC contacts)		ms	10	10	10 ... 15		--
Rated impulse withstand voltage U_{imp}			4				
Rated insulation voltage U_i			440		500		
Contact gap, minimum			3.6		3.4		4
Electrical service life							
At I_e and load							
• AC-1/AC-7a		For switching cycles	200000		100000		--
• AC-3/AC-7b			300000	500000	150000		--
Mechanical service life			For switching cycles	3 million			
Maximum switching frequency							
At load		In switching cycles/h	600				
Switching of resistive loads AC-1/AC-7a							
For rated operational power P_s							
• Single-phase 230 V		kW	4	5.4	8.7	13.3	--
• Three-phase 400 V		kW	--	16	26	40	--
Switching of three-phase asynchronous motors AC-3/AC-7b							
For rated operational power P_s							
• Single-phase 230 V		kW	1.3 ¹⁾	1.3	3.7	5	--
• Three-phase 400 V		kW	--	4	11	15	--
Minimum switching capacity			17; 50				12; 5
Overload withstand capability							
Per conducting path (NO contacts only)		at 10 s	A	72	68	176	240
Short-circuit protection, according to coordination type 1							
Back-up fuse characteristic gL/gG		A	20	25	63	80	6
Terminals							
±screw (Pozidriv)							
• Coil connection			1		1.2		--
• Main connection			1		3.5		1
Tightening torques							
• Coil connection		Nm	0.6				--
• Main connection		Nm	1.2		2		0.8
Conductor cross-sections							
• Coil connection							
		Rigid	mm ²	1.0 ... 2.5			--
		Flexible, with end sleeve	mm ²	1.0 ... 2.5			--
• Main connection							
		Rigid	mm ²	1.0 ... 10	1 ... 25		1 ... 2.5
		Flexible, with end sleeve	mm ²	1.0 ... 6	1 ... 16		1 ... 2.5
Permissible ambient temperature							
• For operation		°C	-5 ... +55				
• For storage		°C	-30 ... +80				
Degree of protection			Acc. to EN 60529	IP20, with connected conductors			

1) For NO contacts only.

5TT5 Insta contactors, AC technology

Selection and ordering data

	Version	U _e	I _e	U _c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
		V AC	A AC	V AC	MW							kg
 5TT5 800-0	Insta contactors without manual switch											
	For alternating current continuous operation, with switching position indication, with AC magnetic system											
	2 NO	230	20	230	1	▶	5TT5 800-0		1	1 unit	028	0.143
				24		▶	5TT5 800-2		1	1 unit	028	0.141
	1 NO + 1 NC	230	20	230		▶	5TT5 801-0		1	1 unit	028	0.141
				24		▶	5TT5 801-2		1	1 unit	028	0.142
	2 NC	230	20	230		▶	5TT5 802-0		1	1 unit	028	0.143
				24		▶	5TT5 802-2		1	1 unit	028	0.141
	4 NO	400	25	230	2	▶	5TT5 830-0		1	1 unit	028	0.258
				115		▶	5TT5 830-1		1	1 unit	028	0.274
 5TT5 830-0				24		▶	5TT5 830-2		1	1 unit	028	0.272
	3 NO + 1 NC	400	25	230		▶	5TT5 831-0		1	1 unit	028	0.260
				115		▶	5TT5 831-1		1	1 unit	028	0.274
				24		▶	5TT5 831-2		1	1 unit	028	0.272
	4 NO	400	25	230	2		5TT5 820-0		1	1 unit	028	0.230
	For high capacitive loads up to 150 µF											
	2 NO + 2 NC	400	25	230		▶	5TT5 832-0		1	1 unit	028	0.260
				24		▶	5TT5 832-2		1	1 unit	028	0.273
	4 NC	400	25	230		▶	5TT5 833-0		1	1 unit	028	0.258
				24		▶	5TT5 833-2		1	1 unit	028	0.271
 5TT5 840-0	4 NO	400	40	230	3	▶	5TT5 840-0		1	1 unit	028	0.393
				24		▶	5TT5 840-2		1	1 unit	028	0.389
	3 NO + 1 NC	400	40	230			5TT5 841-0		1	1 unit	028	0.387
				24			5TT5 841-2		1	1 unit	028	0.398
	2 NO + 2 NC	400	40	230			5TT5 842-0		1	1 unit	028	0.398
				24			5TT5 842-2		1	1 unit	028	0.388
	4 NC	400	40	230		▶	5TT5 843-0		1	1 unit	028	0.396
				24		▶	5TT5 843-2		1	1 unit	028	0.396
	4 NO	400	63	230	3	▶	5TT5 850-0		1	1 unit	028	0.390
				24		▶	5TT5 850-2		1	1 unit	028	0.397
	3 NO + 1 NC	400	63	230		▶	5TT5 851-0		1	1 unit	028	0.391
				24		▶	5TT5 851-2		1	1 unit	028	0.391
	2 NO + 2 NC	400	63	230			5TT5 852-0		1	1 unit	028	0.400
				24			5TT5 852-2		1	1 unit	028	0.388
	4 NC	400	63	230		▶	5TT5 853-0		1	1 unit	028	0.403
				24			5TT5 853-2		1	1 unit	028	0.396
 5TT5 910-0	Auxiliary switches											
	For mounting on right-hand side											
	Max. one auxiliary switch per Insta contactor											
	2 NO	230, AC-15	6	--	0.5	▶	5TT5 910-0		1	1 unit	028	0.045
	1 NO + 1 NC	230, AC-15	6	--		▶	5TT5 910-1		1	1 unit	028	0.046
	Sealable terminal covers											
	For Insta contactor 20 A											
	For Insta contactor 25 A											
	For Insta contactors 40 A and 63 A											

Switching Devices

5TT5 Insta contactors, AC technology

	Version	U_e	I_e	U_c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
		V AC	A AC	V AC	MW							kg
	Insta contactors with manual switch 0//Automatic											
	For alternating current continuous operation, with switching position indication, with AC magnetic system											
	2 NO	230	20	230 24	1	▶	5TT5 800-6		1	1 unit	028	0.141
						▶	5TT5 800-8		1	1 unit	028	0.143
	1 NO + 1 NC	230	20	230 24			5TT5 801-6		1	1 unit	028	0.143
							5TT5 801-8		1	1 unit	028	0.148
	4 NO	400	25	230 24	2	▶	5TT5 830-6		1	1 unit	028	0.261
						▶	5TT5 830-8		1	1 unit	028	0.261
	3 NO + 1 NC	400	25	230 24		▶	5TT5 831-6		1	1 unit	028	0.261
							5TT5 831-8		1	1 unit	028	0.263
	4 NO	400	40	230 24	3	▶	5TT5 840-6		1	1 unit	028	0.399
							5TT5 840-8		1	1 unit	028	0.402
	3 NO + 1 NC	400	40	230 24			5TT5 841-6		1	1 unit	028	0.399
							5TT5 841-8		1	1 unit	028	0.406
	4 NO	400	63	230		▶	5TT5 850-6		1	1 unit	028	0.394
	Auxiliary switches											
	For mounting on right-hand side											
	Max. one auxiliary switch per Insta contactor											
	2 NO	230, AC-15	6	--	0.5	▶	5TT5 910-0		1	1 unit	028	0.045
	1 NO + 1 NC	230, AC-15	6	--		▶	5TT5 910-1		1	1 unit	028	0.046
	Sealable terminal covers											
	For Insta contactor 20 A											
	For Insta contactor 25 A											
	For Insta contactors 40 A and 63 A											
					1		5TT5 910-5		1	2 units	028	0.002
					2		5TT5 910-6		1	2 units	028	0.003
					3		5TT5 910-7		1	2 units	028	0.003

5TT3 soft-starting devices

Overview

The soft-starting device is an electronic control unit for the soft startup of single-phase asynchronous machines. A phase control causes the current to rise steadily. This also increases the motor torque and the drive starts up smoothly. The starting current is minimized. There is no speed adjustment. There is no marked soft start behavior without a mechanically connected load.

If the power semiconductor is to be protected against short-circuits or ground faults during startup, a quick-acting fuse must be installed. In the case of high switching frequencies, we recommend installing a thermistor motor protection for monitoring the permissible motor temperature.

The soft-starting device must not be operated with capacitive load. It can be retrofitted in existing plants at any time.

Benefits

- On completion of startup, the power semiconductors are bridged, which prevents overheating in the case of frequent starting and inhibits premature wear and tear
- Separate setting of ramp-up time and starting torque enables optimum adaptation to the mechanical system
- The LEDs for startup and continuous operation provide constant information on the operating state

Technical specifications

			5TT3 440	5TT3 441
Standards			EN 60947-4-2 (VDE 0660-117)	
Supply/motor voltage	V AC		400	230
Primary operating range	$\times U_c$		0.8 ... 1.1	
Rated power	VA		3.5	1.4
Rated frequency	Hz		50/60	
Rated power dissipation P_v	Coil/drive Contact ¹⁾ per pole		3.5 4.6	1.7 0.7
Rated output of motor				
- Max.	At 400 V	VA	5500	1500
- Min.	At 400 V	VA	300	100
Startup voltage		%	30 ... 70	20 ... 70
Starting ramp		s	0.1 ... 10	
Recovery time		ms	100	200
Switching frequency				
$3 \times I_N, T_{AN} = 10 \text{ s}, v_u = 20 \%$		Switching cycles/h	36 (up to 3 kW)	10
$3 \times I_N, T_{AN} = 10 \text{ s}, v_u = 20 \%$		Switching cycles/h	20 (from 3...5.5 kW)	10
Semiconductor fuse	Quick-acting	A	35	20
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	-20 ... +55
Resistance to climate	Acc. to EN 60068-1		20/60/4	20/55/4

¹⁾ For rated operational current.

Selection and ordering data

Version	U_e	P_c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	V AC	W	MW							
	Soft-starting devices									
	Single-phase	230	100 ... 1500	2	5TT3 441		1	1 unit		0.160
	Soft-starting devices, mounting depth 55 mm									
	Three-phase, 2-phase motor control	400	300 ... 5500	6	5TT3 440		1	1 unit		0.450

Technical specifications

		Mini 7LF4 401-5	Top 7LF4 411 7LF4 412	Profi 7LF4 421 7LF4 422	Astro 7LF4 431 7LF4 432	Expert 7LF4 444
Standards		EN 60730-1, -2-7; UL 60730				EN 60730-1, -2-7
Approvals		VDE, UL 60730-1, -2-7/UL 917 CSA C22.2 No. 14 and 177				VDE (EN)
Supply						
• Rated control supply voltage U_c	V AC V AC/DC	110 ... 240 --	120, 230 --	120, 230 24	230 --	120/230 24
- Primary operating range	$\times U_c$	0.85 ... 1.1	0.85 ... 1.1	0.85 ... 1.1 ¹⁾	0.85 ... 1.1	80 ... 253 V ¹⁾
- Frequency ranges	Hz	50 ... 60	50 ... 60	50 ... 60 ²⁾	50 ... 60	50 ... 60 ²⁾
• Rated power dissipation P_v	VA	0.035	2	2	2	2.5/4 ³⁾
Channels/contacts						
• Switching channels		1	1 or 2			4
- Rated operational voltage U_e	V AC	250				
- Rated operational current I_e	A A A	16 10				
• Contacts		1 CO	1 or 2 CO			4 CO
- Mechanical switching cycles (in millions)		> 5	10			
- Electrical switching cycles	At p.f. = 1 At p.f. = 0.6	6000 (20 A)	100000			
• Minimum contact load	V; mA	12; 100				
- Incandescent lamp load	A	5	8			
- Fluorescent lamp load	At 7 μ F Uncorrected	58 VA VA	60 1400			
- Energy-saving lamp load	W	100				
Safety						
• Different phases permissible between actuator/contact		Yes				
• Rated impulse withstand voltage U_{imp}	kV	4				
- EMC: burst	Acc. to IEC 61000-4-4	> 4.4				
- EMC: surge	Acc. to IEC 61000-4-5	> 2.0				
- Electrostatic discharge	Acc. to IEC 61000-4-2	> 8.0				
• Power reserve storage	Mains/battery	6/2	6		5	
- Battery type		Li primary cell				
• Program memory	Captive	--	Yes			
• Overvoltage category	Acc. to EN 61010-1	III				
Function						
• Minimum switching sequences		1 min				1 s
• Make and break cycles		1 min				1 s
• Clock errors per day	Typical	+0.3 $\pm$ 1 ⁴⁾	$\pm$ 0.86	$\pm$ 0.2		
• Control input	Terminal S	--			Yes	
• Memory spaces		28	56 (2 $\times$ 28)		28 (2 $\times$ 14)	4 $\times$ 3 $\times$ 28
- Programs ⁵⁾		--		84	--	
- Pulse (alternatively)		--		1 s ... < 60 min	--	
- Pulse cycle		--				
Connections						
• Terminals $\pm$ screw (Pozidriv)		PZ 1				
• Conductor cross-sections of main current paths						
- Rigid, max.	mm ²	4				
- Rigid, min.	mm ²	1.5				
- Flexible with end sleeve	Max. mm ²	2.5				
Environmental conditions						
• Permissible ambient temperature	°C	-10 ... +55	-20 ... +55			
• Storage temperature	°C	-20 ... +60				
• Resistance to climate	Acc. to EN 60068-1	10/055/21	20/055/21			
• Degree of protection	Acc. to EN 60529	IP20, with connected conductors				
• Safety class	Acc. to EN 60730-1	II				

¹⁾ For 24 V devices (7LF4 421-2, 7LF4 422-2 and 7LF4 444-2): Tolerance -10/+10 %; operating range 0.9 ... 1.1 $\times U_c$.

²⁾ For 24 V devices (7LF4 421-2, 7LF4 422-2 and 7LF4 444-2): Frequency range 0 ... 60 Hz.

³⁾ For 24 V device (7LF4 444-2): $P_v = 4$ VA.

⁴⁾ At 25°C a clock error of +0.3s is assumed. Accuracy may deviate by a further ± 1 s around this value.

⁵⁾ A program consists of an ON time, an OFF time and assigned ON and OFF days or day blocks.

Switching Devices

7LF, 5TT3 Timers

7LF4 digital time switches

Selection and ordering data

	Contacts	U_e	I_e	U_c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
		V AC	A AC	V AC	MW							kg
	Mini digital time switches											
	- Weekly program 1 channel											
	1 CO	250	16	110 ... 240	1	▶	7LF4 401-5		1	1 unit	025	0.156
	Top digital time switches											
	- Weekly program - With text-assisted programming concept languages: German, English, French, Italian, Dutch, Spanish 1 channel 56 programs											
	1 CO	250	16	230	2	▶	7LF4 411-0		1	1 unit	025	0.157
	1 CO	250	16	120	2	▶	7LF4 411-1		1	1 unit	025	0.159
	2 channels 56 programs (28 per channel)											
	2 CO	250	16	230	2	▶	7LF4 412-0		1	1 unit	025	0.182
	2 CO	250	16	120	2	▶	7LF4 412-1		1	1 unit	025	0.181
	Profi digital time switches											
	- Weekly program - With text-assisted programming concept languages: German, English, French, Italian, Dutch, Spanish - Simple program creation by means of PC using the software included with the 7LF4 940-0 USB adapter - Vacation program - Random program - Operating hours counter, counting range: 65535 h											
	1 channel 56 programs - Pulse function, 84 start times											
	1 CO	250	16	230	2	▶	7LF4 421-0		1	1 unit	025	0.195
	1 CO	250	16	120	2	▶	7LF4 421-1		1	1 unit	025	0.192
	1 CO	250	16	24 AC/DC	2	▶	7LF4 421-2		1	1 unit	025	0.189
	2 channels 56 programs (28 per channel)											
	2 CO	250	16	230	2	▶	7LF4 422-0		1	1 unit	025	0.210
	2 CO	250	16	120	2	▶	7LF4 422-1		1	1 unit	025	0.209
	2 CO	250	16	24 AC/DC	2	▶	7LF4 422-2		1	1 unit	025	0.207
	Astro digital time switches											
	- Weekly program - Astro function - With text-assisted programming concept languages: German, English, French, Italian, Dutch, Spanish - Simple program creation by means of PC using the software included with the 7LF4 940-0 USB adapter - Vacation program 1 h test - Input disable via PIN code - Operating hours counter, counting range: 65535 h											
	1 channel 28 programs - With control input, delay time 0 min ... 23 h 59 min											
	1 CO	250	16	230	2	▶	7LF4 431-0		1	1 unit	025	0.206
	2 channels 28 programs (14 per channel)											
	2 CO	250	16	230	2	▶	7LF4 432-0		1	1 unit	025	0.221

Switching Devices

7LF, 5TT3 Timers

7LF4 digital time switches

	Contacts	U_e	I_e	U_c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	
		V AC	A AC	V AC	MW							kg	
	Expert digital time switches • Weekly program • Year program • Exception program (priority program) • Astro function • With text-assisted programming concept languages: German, English, French, Italian, Dutch, Spanish • Simple program creation by means of PC using the software included with the 7LF4 940-0 USB adapter • Cycle function for channel 1 • Vacation function • 1 h test • Input disable via PIN code • Operating hours counter, counting range: 65535 h • 84 programs per channel • With control input (only 1 channel), delay time 0 min ... 23 h 59 min • With Expert data key, Order No. 7LF4 940-2												
	4 CO	250	16	120/230	6	►	7LF4 444-0		1	1 unit	025	0.460	
	4 CO	250	16	24 AC/DC	6	►	7LF4 444-2		1	1 unit	025	0.450	
	Data keys for digital time switches: Profi and Astro • Programming at the PC (7LF4 940-0 USB adapter and software required) • Read-in of programs to the time switch • Writing of programs from the time switch • Transfer of programs - From PC to time switch and vice versa - From time switch to time switch						►	7LF4 940-1		1	1 unit	025	0.020
	Data keys for Expert digital time switch • Programming at the PC (7LF4 940-0 USB adapter and software required) • Read-in of programs to the time switch • Writing of programs from the time switch • Transfer of programs - From PC to time switch and vice versa - From time switch to time switch						►	7LF4 940-2		1	1 unit	025	0.022
	USB adapter and software for digital time switches: Profi, Astro and Expert • For the reading and writing of data keys at the PC • With programming software • With one data key for Profi, Astro • Order No. 7FL4 940-1 • Can be connected over USB interface • System requirements: - Windows 7, Windows Vista, Windows 2000, Windows ME, Windows XP or Windows 98 Second Edition - USB connection - 40 MB free disk space						►	7LF4 940-0		1	1 unit	025	0.111
	Holders for front panel installation Universal application for devices from 1 MW to 6 MW Cutout dimensions: Height 45^{+0.5} mm Width 23 mm, 41 mm, 59 mm, 77 mm, 95 mm or 113 mm							7LF9 006		1	1 unit	025	0.070

Switching Devices

7LF, 5TT3 Timers

7LF5 mechanical time switches

Overview



Mechanical time switches with day disk



Mechanical time switches with week disk

8

Synchronous time switches without power reserve

The control gear is driven by a synchronous motor so it is dependent on the power supply frequency. If this frequency is unstable, the devices cannot be used. In the event of a power failure, the time switch will stop.

Quartz-clock time switches with power reserve

A quartz electronic circuit supplies the drive with a stabilized frequency so that the time switch is not dependent on the power supply frequency. In the event of a power failure, the time switch continues to operate on its power reserve.

Technical specifications

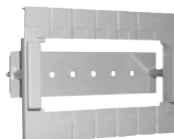
		Synchronous time switches without power reserve				Quartz-clock time switches with power reserve					
		7LF5 300-1	7LF5 300-5	7LF5 300-6	7LF5 301-0	7LF5 301-1	7LF5 301-4	7LF5 301-5	7LF5 301-6	7LF5 301-7	7LF5 305-0
Standards		EN 60730-1, -2-7, UL 917									
Approvals		UL 60730-1,-2-7/UL 917 CSA C22.2 No. 14 and 177									
Operating mode		Synchronous				Quartz					
• Time program		Day	Day	Week	Day	Day	Day	Week	Day	Week	Day
Supply											
• Rated control supply voltage U_c		V AC	230			230					
- Primary operating range		$\times U_c$	0.85 ... 1.1			0.85 ... 1.1					
• Rated frequency		Hz	50			50					
- Frequency ranges		Hz	50			50/60					
• Rated power dissipation P_v		VA	1			1	0.2	0.2	1	1	1
Channels/contacts											
• Switching channels			1			1					
- Rated operational voltage U_e		V AC	250			250					
- Rated operational current I_e											
At p.f. = 1		A	16			16					
At p.f. = 0.6		A	4			4					
• Contacts			1 NO	1 CO	1 CO	1 NO	1 CO	1 CO	1 CO	1 CO	1 CO
- Mechanical switching cycles in millions			20			20					
- Electrical switching cycles at p.f. = 1			100000			100000					
• Minimum contact load		V; mA	4; 1			4; 1					
- Incandescent lamp load		A	5			5					
- Fluorescent lamps											
At 7 μ A		VA	60			60					
Uncorrected		VA	1400			1400					
Safety											
• Different phases permissible between actuator/contact			Yes			Yes					
• Electrical separation, creepage distances and clearances, actuator/contact		mm	8/6			8/6					
• Rated impulse withstand voltage U_{imp} drive/contact		kV	4			4					
- EMC: burst acc. to IEC 61000-4-4		kV	> 4.4			> 4.4					
- EMC: surge acc. to IEC 61000-4-5		kV	> 2.0			> 2.0					
- Electrostatic discharge according to IEC 61000-4-2		kV	> 8.0			> 8.0					
• Power reserve storage		a	--			100 h	6	100 h			
- Minimum loading time		h	--			48	--	48			
- Battery type			--			NiMH cell	Li primary cell		NiMH cell		
- Service life of battery											
At 20 °C		a	--			6	10	6			
At 40 °C		a	--			5					
• Overvoltage category acc. to EN 61010-1			III			III					
Function											
• Minimum switching sequences		min	30	240	30	30	240	30	240	30	
• Make and break cycles		min	15	120	10	15	120	15	120	10	
• Switching accuracy		min	± 5	± 30	± 5	± 5	± 30	± 5	± 30	± 5	
• Clock errors per day			System-synchronized			± 2.5 s	± 60 /year		± 2.5 s		
Connections											
• Terminals $\pm$ screw (Pozidriv)			PZ 1			PZ 1					
• Conductor cross-sections of main current paths											
- Rigid, max.		mm ²	4			4					
- Rigid, min.		mm ²	1.5			1.5					
- Flexible, with end sleeve		mm ²	2.5			2.5					
- Flexible, without end sleeve		mm ²	4			4					
Environmental conditions											
• Permissible ambient temperature		°C	-10 ... +55			-10 ... +55					
• Storage temperature		°C	-10 ... +60			-10 ... +60					
• Resistance to climate		Acc. to EN 60068-1	10/055/21			10/055/21					
• Degree of protection		Acc. to EN 60529	IP20, with connected conductors			IP20, with connected conductors					
• Safety class		Acc. to EN 61140	II			II					

Switching Devices

7LF, 5TT3 Timers

7LF5 mechanical time switches

Selection and ordering data

	Contacts	U_e	I_e	U_c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
		V AC	A AC	V AC	MW							
	Synchronous time switches without power reserve, 1 MW											
	• Day disk											
	1 NO	250	16	230	1	▶	7LF5 300-1		1	1 unit	025	0.083
	Synchronous time switches without power reserve, 3 MW											
	• Day disk											
	1 CO	250	16	230	3	▶	7LF5 300-5		1	1 unit	025	0.151
	• Week disk											
	1 CO	250	16	230	3	▶	7LF5 300-6		1	1 unit	025	0.153
	Synchronous time switches without power reserve, for wall mounting											
	• Day disk											
	1 CO	250	16	230	--	▶	7LF5 301-0		1	1 unit	025	0.196
	Quartz-clock time switches with power reserve											
	• Day disk											
	1 NO	250	16	230	1	▶	7LF5 301-1		1	1 unit	025	0.088
	Quartz-clock time switches with power reserve and automatic time setting for Central European time zone											
	• Time set automatically during commissioning											
	• Automatic daylight savings											
	• With quartz clock mechanism											
	• Clock accuracy ± 0.2 s/day											
	• 5-year power reserve (time buffer in the event of a power failure)											
	• Day disk											
	1 CO	250	16	230	3	▶	7LF5 301-4		1	1 unit	025	0.182
	• Week disk											
1 CO	250	16	230	3	▶	7LF5 301-5		1	1 unit	025	0.179	
	Quartz-clock time switches with power reserve											
	Clock accuracy ± 2.5 s/day											
	• Day disk											
	1 CO	250	16	230	3	▶	7LF5 301-6		1	1 unit	025	0.157
	• Week disk											
1 CO	250	16	230	3	▶	7LF5 301-7		1	1 unit	025	0.158	
	Quartz-clock time switches with power reserve, for wall mounting (surface mounting)											
	• Day disk											
	1 CO	250	16	230	--	▶	7LF5 305-0		1	1 unit	025	0.205
	Holders for front panel installation											
	Universal use for devices from 1 to 6 MW											
	Cutout dimensions: Height 45 ^{+0.5} mm Width 23 mm, 41 mm, 59 mm, 77 mm, 95 mm or 113 mm						7LF9 006		1	1 unit	025	0.070

Overview

Siemens stairwell lighting timers enable the required time to be set precisely without tools using the push-to-lock knurling wheel. The stairwell lighting timers in four-wire installations can be switched back on again at any time by simply pressing the switch. A maintained light switch prevents the need for repeated pressing, for example when moving house. The various types are also available with warning of impending switch-off.

Benefits

- Durable switching of different illuminants thanks to patented contact design
- Suitable for energy-saving lamps
- Quiet switching of stairwell lighting timers
- Warning of impending switch-off in accordance with DIN 18015-2 for stairwell lighting in apartment blocks

Technical specifications

			7LF6 110	7LF6 111	7LF6 113	5TT1 303	7LF6 114	7LF6 115	7LF6 116	7LF6 112
Standards			IEC 60669, EN 60669							
Supply										
• Rated control supply voltage U_c		V AC	230							
- Primary operating range	At 50/60 Hz	$\times U_c$	0.9 ... 1.1							
• Rated power dissipation P_v		VA	Approx. 5							
Setting range		min	0.5 ... 10			1 ... 10	0.5 ... 10	3 ... 60		0.5 ... 10
• Accuracy		s	± 30							
Manual switches	Automatic/permanent		Yes							
Minimum push duration		ms	30							
Voltage endurance	At pushbutton input (pushbutton malfunction)		Yes							
Short-circuit withstand current		A	700			--	700			
Channels/contacts										
• Switching channels										
- Rated operational voltage U_e		V AC	250							
- Rated operational current I_e	At p.f. = 1	A	16	--		10	16			
• Contact gap		mm	> 3			0.3	> 3			
• Minimum contact load		V; mA	10; 300							
Max. incandescent lamp load		W	2000			--	2000		--	
Max. energy-saving lamp load 14 W		Unit(s)	20			--	20		--	
Fluorescent lamp load 58 W										
- Uncorrected		Unit(s)	20			--	20			
- DUO circuit		Unit(s)	2 × 20			--	2 × 20			
- Siemens ECG	1 lamp	Unit(s)	10			6	10			
	2 lamps	Unit(s)	2 × 5			3	2 × 5			
Glow lamp load		mA	50			10	50		--	
Max. fan load		VA	--						200	
Connections										
• Terminals ±screw (Pozidriv)			PZ 1							
• Conductor cross-sections of main current paths										
- Rigid		mm ²	1.5 ... 6							
- Flexible, with end sleeve	Min.	mm ²	1							
Environmental conditions										
• Resistance to climate	Acc. to EN 60068-1	°C	-20 ... +50							
• Degree of protection	Acc. to EN 60529		IP20, with connected conductors							

Switching Devices

7LF, 5TT3 Timers

7LF6 timers for buildings

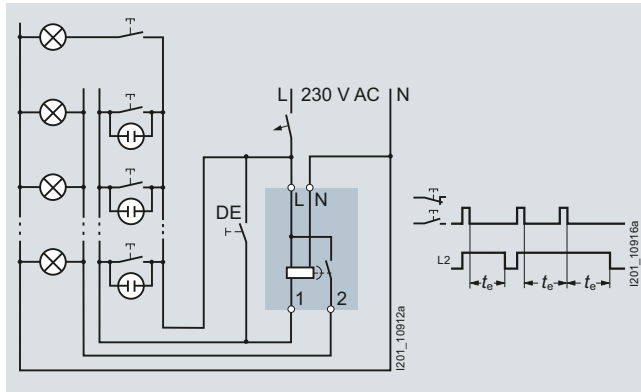
Selection and ordering data

	U_e	I_e	U_c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
	V AC	A AC	V AC	MW							
	Stairwell lighting timers										
	With switch for continuous light and push-to-lock knurling wheel setting, setting range 0.5 ... 10 minutes										
	For 3-wire circuit, L-momentary contact, not resettable										
	250	16	230	1	►	7LF6 110		1	1 unit	025	0.080
	For 4-wire circuit, L-momentary contact, resettable, or 3-wire circuit, N-momentary contact, resettable										
	250	16	230	1	►	7LF6 111		1	1 unit	025	0.088
	With warning by flashing prior to switching off, for 4-wire circuit, L-momentary contact, resettable, or 3-wire circuit, N-momentary contact, resettable										
	250	16	230	1	►	7LF6 113		1	1 unit	025	0.088
	Lighting timers										
	With switch for continuous light and push-to-lock knurling wheel setting, with warning by flashing prior to switch-off, setting range 0.5 ... 10 minutes, 4-fold extension of runtime by pressing the pushbutton for 1 second, for 4-wire circuit, L-momentary contact, or 3-wire circuit, N-momentary contact										
	250	16	230	1	►	7LF6 114		1	1 unit	025	0.088
	Energy-saving timers										
	With switches for continuous light and push-to-lock knurling wheel setting, setting range 3 ... 60 minutes, switch off by pressing pushbutton a second time briefly (< 1 s) as with remote control switch, reset by pressing pushbutton a second time for longer (> 1 s), for 4-wire circuit, L-momentary contact, resettable, or 3-wire circuit, N-momentary contact, resettable										
	250	16	230	1	►	7LF6 116		1	1 unit	025	0.071
	With switches for continuous light and push-to-lock knurling wheel setting, with warning by flashing prior to switch-off, setting range 3 ... 60 minutes, switch off by pressing pushbutton second time as with remote control switch, for 4-wire circuit, L-momentary contact, resettable, or 3-wire circuit, N-momentary contact, resettable										
	250	16	230	1	►	7LF6 115		1	1 unit	025	0.088
	Timers for fans up to 200 VA										
	With switch for continuous operation and push-to-lock knurling wheel setting, setting range 0.5 ... 10 minutes, for delayed switch-on of fan										
	250	16	230	1	►	7LF6 112		1	1 unit	025	0.082
	ECG control switches for ECG 1 ... 10 V										
	With transparent cap, with switch for continuous light and position indication, setting range 1 ... 10 minutes, with warning of switching off through dimming, direct voltage output 1 ... 10 V for controlling 20 ECG										
	250	10	230	2		5TT1 303		1	1 unit		0.143

Circuit diagrams

Circuit example: 7LF6 111 timer in 4-wire circuit, L-momentary contact, resettable

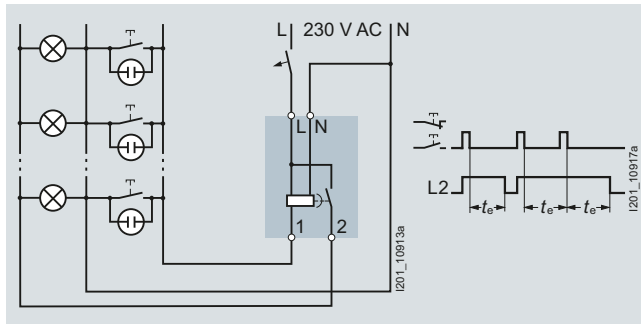
Usual circuit for new installation with separate cable routing for pushbuttons and lights. The additional DI switch allows external switching to continuous light or a time switch can also be used for this purpose. An additional attic circuit is also available, which operates independently of the timer, but on the same electrical circuit. The timer can be restarted before the set time expires.



t_e = runtime

Switching example: 7LF6 111 timer in 3-wire circuit, N-momentary contact, resettable

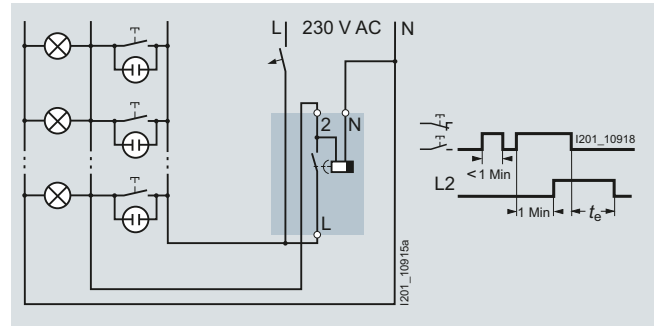
Can only be used with a limited number of wires. The timer can be restarted before the set time expires. While this 3-wire circuit with N-momentary contact is technically possible, it does not comply with DIN VDE 0100-460. However, it is used in old systems for replacement purposes.



t_e = runtime

Circuit example: 7LF6 112 timer for fans up to 200 VA

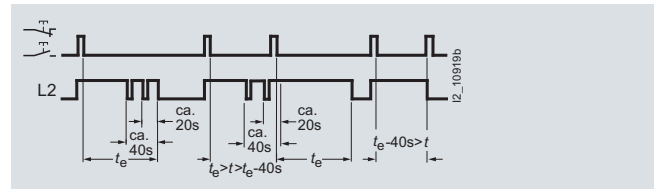
The switch switches the light on immediately, e.g. in a toilet. After a delay of approx. 1 minute, the fan is switched on. When the light is switched off, the fan continues to run for the time set at the timer.



t_e = runtime

Switching example: 7LF6 115 energy-saving timer with advance warning

The timer is connected in the same way as the 7LF6 111 timer in a 4-wire or 3-wire circuit. The energy-saving timer is activated at the first press of the button and deactivated at the second press. If it is not switched off manually, it is automatically switched off after the set time, max. 60 minutes. 20 and 40 seconds before expiry, the light flashes briefly twice (50 ms) to warn of the impending tripping. This allows time to reset the switch while the light is still on. Prior to the warning time, a push of the button ends the timing interval.



t_e = runtime

Switching Devices

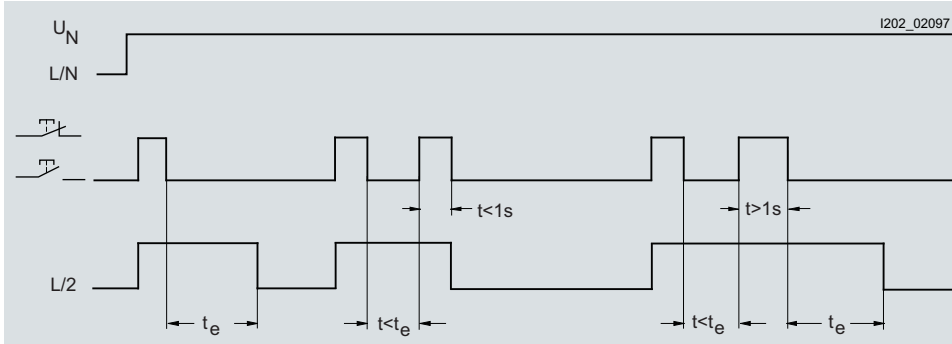
7LF, 5TT3 Timers

7LF6 timers for buildings

Switching example: 7LF6 116 energy-saving timer

The timer is connected in the same way as the 7LF6 115 timer in a 4-wire or 3-wire circuit. The energy-saving timer switches on if pressed once and switches off when it is pressed again briefly (less than 1 second).

Resetting is possible by pressing a second time for longer (more than 1 second). If it is not switched off manually, it is automatically switched off after the set time, max. 60 minutes.



t_e = runtime

Lighting in ancillary rooms and corridors

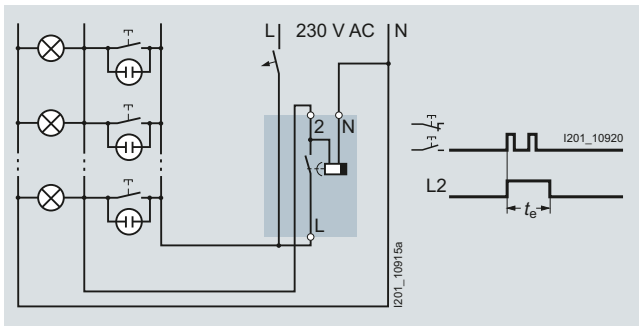
In rooms subject to less frequent use (basements, ironing rooms, attics, heating oil storerooms) there is a risk of the lighting remaining on unnecessarily for lengthy periods. In such cases, the 7LF6 115 and 7LF6 116 energy-saving timers can considerably reduce energy costs while increasing user-friendliness.

Occupants leaving a room can switch off the light by pushbutton, just like an installation with remote control switch. In the event that occupants are unable to switch the light off, or simply forget, it will go out automatically after a pre-set time.

The 7LF6 115 and 7LF6 116 energy-saving timers can also be used in corridors, e.g. as replacements for remote control switches. In this case they combine the familiar functionality of a remote control switch with the energy-saving features of a stairwell lighting timer.

Circuit example: 7LF6 110 timer in 3-wire circuit, L-momentary contact, not resettable

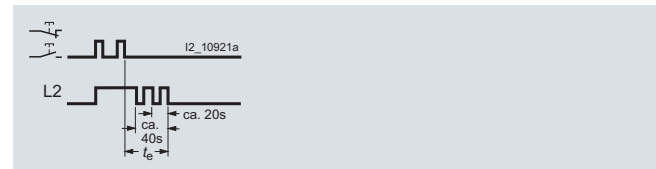
Circuit for new installation with shared cable routing for pushbuttons and lights. The timer can only be restarted after the set time expires.



t_e = runtime

Circuit example: 7LF6 113 timer with advance warning

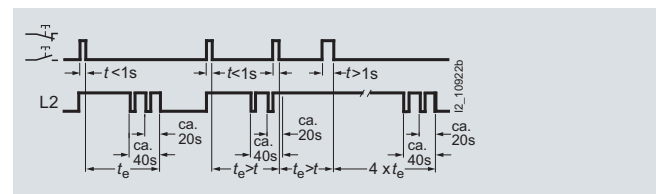
The timer is connected in the same way as the 7LF6 111 timer in a 4-wire or 3-wire circuit. 20 and 40 seconds before expiry, the light flashes briefly twice (50 ms) to warn of the impending tripping. This allows time to reset the switch while the light is still on.



t_e = runtime

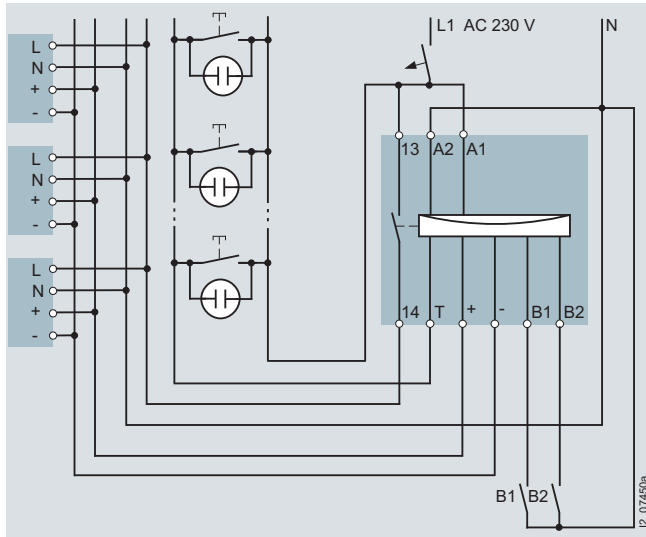
Circuit example: 7LF6 114 lighting timer with advance warning

The timer is connected in the same way as the 7LF6 111 timer in a 4-wire or 3-wire circuit. When pressed, the lighting timer switches on for the set runtime, up to 10 minutes. If the switch is pressed for more than one second, the light is switched on for four times the set time, i.e. up to 40 minutes. The last press of the pushbutton is definitive. 20 and 40 seconds before expiry, the light flashes briefly twice (50 ms) to warn of the impending tripping. This allows time to reset the switch while the light is still on. The timing interval restarts each time the button is pressed.



t_e = runtime

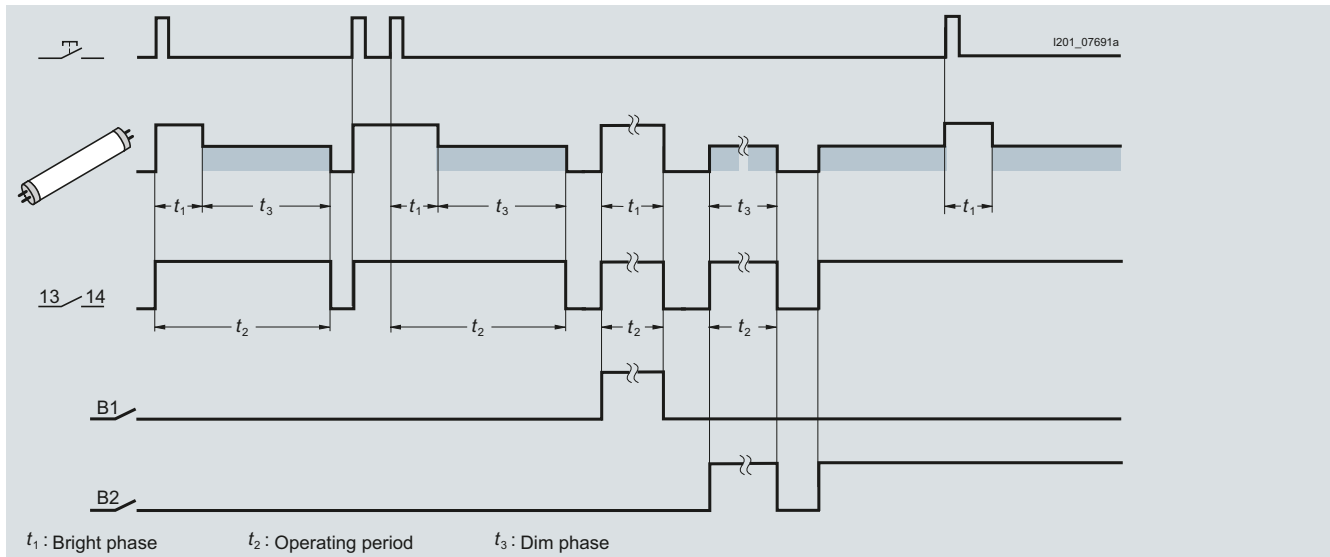
Switching example: 5TT1 303 ECG control switch



The device is fitted with a direct voltage input for the control of an ECG. When the pushbutton is actuated, the power supply is released and the ECG is brightened for up to 10 minutes, depending on the setting of the timer.

On expiry of this time, the ECG is dimmed according to the set dimmer level, if pressed again it brightens again. If no requests are made for 30 minutes (no buttons pressed), the lighting is fully deactivated. In addition to these functions, the dimming time and brightness period can also be controlled using a separate pushbutton or time switch over the control inputs B1 and B2.

Switching the ECG and the fluorescent lamp as little as possible extends the service life.



Hall lighting in nursing home

At meal times, from 5 to 7 p.m., the light in the corridors can be permanently switched on using a time switch (contact B1). Between 7 p.m. and 10 p.m., the lighting is dimmed using switch B2. Simply press the corridor pushbutton again to return the lighting to the bright setting at any time. After 10 p.m., the light is switched off. It can be switched back on at any time by pressing the corridor pushbutton.

Corridor lighting in hospitals

During the day – i.e. during peak periods, lunch times, visiting times, shift changes, doctor's rounds – the light is switched on. During quiet periods, i.e. afternoons and nights, the light is switched to a dimmed state. A patient can switch the light back to the bright setting at any time by pressing the corridor pushbutton. In emergencies, the nurse can use a B1 switch to switch to "emergency operation", i.e. permanently bright (no time limit of brightness period).

Switching Devices

7LF, 5TT3 Timers

5TT3 timers for industry

Overview

Time relays are primarily used in series applications where the use of PLC controls is too labor and cost-intensive. Multifunction relays with a range of functionalities and clear and intuitive operation are now market standard.

Benefits

- Suitable for universal use because the devices can be operated with 12 - 240 V AC/DC and work across a broad range from seconds to hours
- An off-delay without auxiliary power supports expanded application

Technical specifications

		5TT3 185	5TT3 181 5TT3 182 5TT3 183	5TT3 184
Standards		EN 60255; DIN VDE 0435-110		
Supply				
• Rated control supply voltage U_c	V AC	12 ... 240	220 ... 240	110 ... 240
- Primary operating range	V DC	12 ... 240	--	110 ... 240
• Rated frequency f_n	$\times U_c$	0.8 ... 1.1		
• Rated power dissipation P_v	Hz	45 ... 400	50/60	
	VA	Approx. 1.5	Approx. 5	Approx. 1
Setting ranges		See setting ranges, timing intervals		
Recovery time	ms	15 ... 80	Approx. 40	Approx. 100
Contacts				
• Switching channels				
- Rated operational voltage U_e	V AC	250		
- Rated operational current I_e	A	4	8	5
• Contact gap	mm	μ contact		
- Minimum contact load	V; mA	10; 300		
Rated impulse withstand voltage U_{imp}	Input/output	kV	> 4	
Electrical service life	In switching cycles At AC-15	1 A	1.5×10^5 --	-- 1.5×10^5 --
Connections				
• Terminals $\pm$ screw (Pozidriv)			2	
• Conductor cross-sections of main current paths				
- Rigid, max.	mm ²	2 $\times$ 2.5		
- Flexible, with end sleeve, min.	mm ²	2 $\times$ 1.5		
Environmental conditions				
• Permissible ambient temperature		°C	-40 ... +60	
• Resistance to climate	Acc. to EN 60068-1		40/60/4	

Selection and ordering data

	Contacts	U_e	I_e	U_c	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
		V AC	A AC	V	MW							kg
	Multifunction timers											
	Programmable for: response delay; passing make contact function; delayed pulse generator; clock generator starting with impulse; off-delay; pulse converter; passing break contact function; response/off-delay											
	1 CO	250	4	12 ... 240 DC 12 ... 240 AC	1	►	5TT3 185		1	1 unit	025	0.085
	Delay timers											
	1 CO	250	8	220 ... 240 AC	1	►	5TT3 181		1	1 unit	025	0.090
	Wiper timers											
	1 CO	250	8	220 ... 240 AC	1		5TT3 182		1	1 unit	025	0.079
	Flashing timers											
	Pulse time is equal to idle time											
	1 CO	250	8	220 ... 240 AC	1		5TT3 183		1	1 unit	025	0.084
	Off-delay timers											
	1 CO	250	5	110 ... 240 AC 110 ... 240 DC	1		5TT3 184		1	1 unit	025	0.077

More information

5TT3 185 multifunction timers

Setting aids

The period of the flashing of the green LED 1 when set for a timing interval is $1 \pm 4\%$, which can therefore be used as a setting aid. This is particularly useful in the lower time setting range and for long delay times because of the accuracy of the multiplication factors between the individual time ranges.

Example:

Delay time to be set: 40 min.

Using the fine setting, this delay time can be set within the setting range 3 ... 300 min. However, in this case it takes a long time to check the time and requires several operational sequences in realtime. To speed up the setting process, the setting range is switched to 0.03 ... 3 min. In this case, the required value corresponds to a delay time 0.4 min (= 24 s). The timing interval is triggered and the potentiometer is set to 24 flashing periods of the yellow LED 2. The device is then set back to the setting range 3 ... 300 min and the setting process is completed.

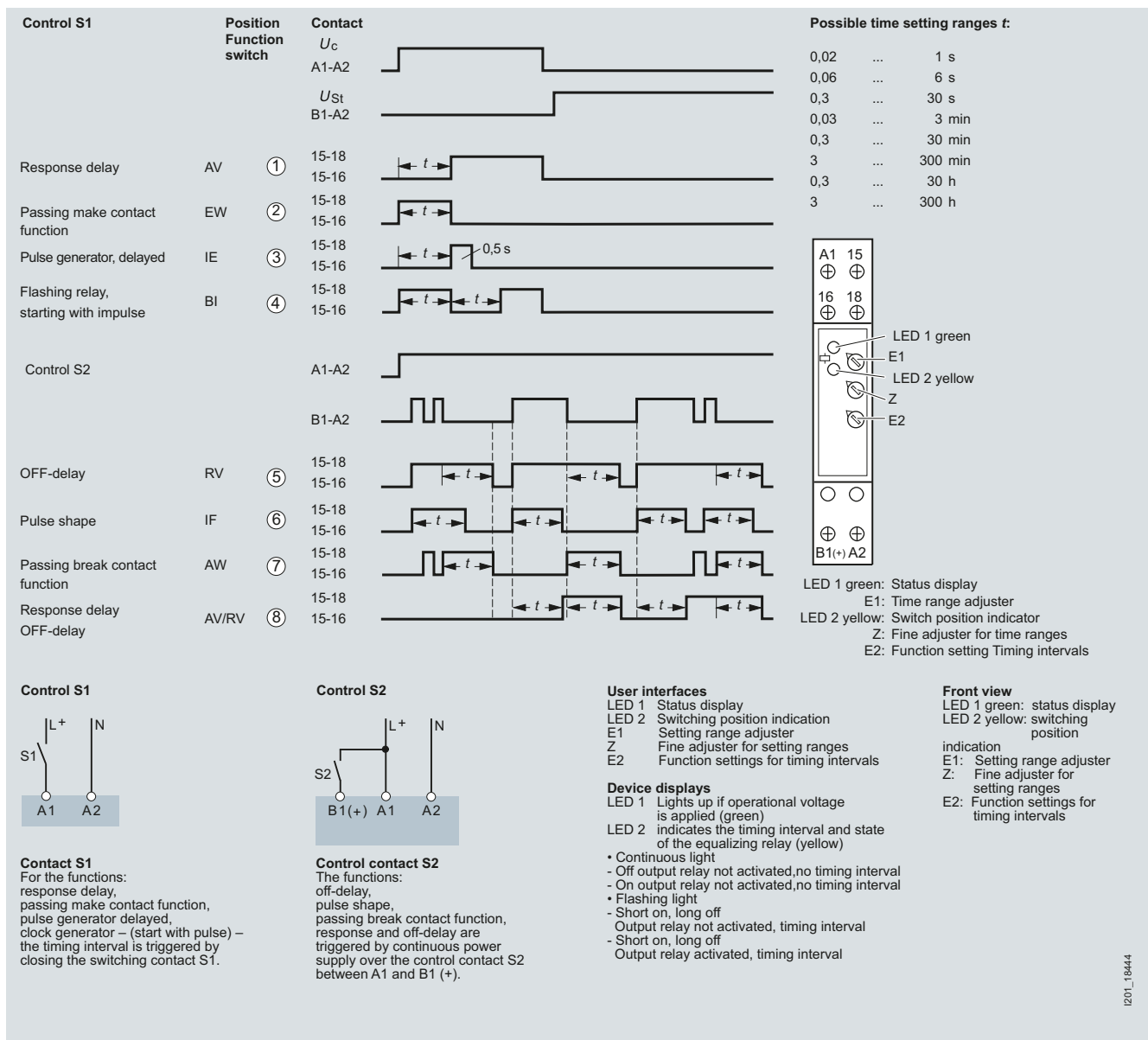
Time operation interruption/time addition

For the functions AV, EW, IE, BI, the timing interval can be interrupted at any time by activating B1 (+) and continued again by removing the control voltage (time addition).

Control input B1

The functions RV, IF, AW, AV/RV can be controlled using the control input B1 (+) with potential against terminal A2. The auxiliary voltage of terminal A1 - or any other voltage within the range 12 ... 240 V AC/DC - can be used for this purpose. The operation of parallel loads (e.g. contactors) from B1 (+) to A2 is also permissible.

If voltage is simultaneously applied to the control input B1 (+) and A1 for the IF function, an output pulse is triggered with the set time interval t_1 .



Switching Devices

Notes

8