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# Low-Voltage Power Distribution and Electrical Installation Technology

Switching Devices

Catalog  
Extract  
LV 10

Edition  
04/2019

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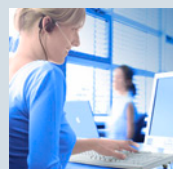


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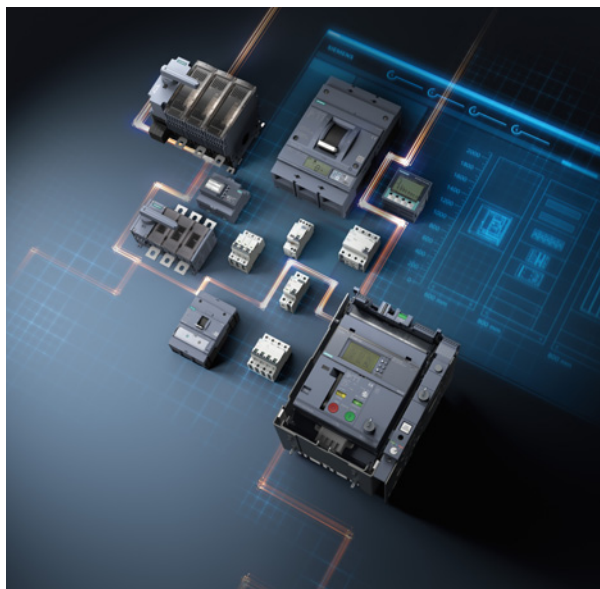
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# Low-Voltage Power Distribution and Electrical Installation Technology

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

SENTRON · SIVACON · ALPHA



**Catalog LV 10 · 04/2019**

You can find the updated catalog valid from October 2019 in the Siemens Industry Online Support under [www.siemens.com/lowvoltage/catalogs](http://www.siemens.com/lowvoltage/catalogs)

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

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## Opening Information

### Ordering notes

#### Overview

##### Ordering special versions

When ordering products that differ from the standard versions listed in the catalog, "-Z" must be added to the Article No. indicated and the required features must be specified using alphanumeric order codes or plain text.

##### Ordering very small quantities

When very small orders are placed, the costs associated with order processing are greater than the order value. We therefore recommend that you combine several small orders. Where this is not possible, we regret that we are obliged to make a small processing charge: for orders with a net goods value of less than € 250 we charge a € 20 supplement to cover our order processing and invoicing costs.

#### Explanations of Selection and ordering data

##### Standard delivery time (SD)

- Preferred type Preferred types are device types that can be delivered immediately ex works, i.e. they are dispatched within 24 hours.

##### Price units (PU)

The price unit defines the number of units, sets or meters to which the specified price applies.

##### Packaging size (PS)

The packaging size defines the number of units, sets or meters, for example, for outer packaging. Only the quantity defined by the packaging size or a multiple thereof can be ordered.

##### Price group (PG)

Each product is allocated to a price group.

##### Example

5TT3400  
SD: Preferred type  
PG: 13C  
Ordering quantity 1 unit or a multiple thereof

8US1923-5CA02  
PG: 14O  
Ordering quantity 10 units or a multiple thereof

8WH9000-1GA00  
PG: 12X  
Ordering quantity 50 units or a multiple thereof

SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
►	<b>5TT3400</b>		1	1 unit	1BK
	<b>8US1923-5CA02</b>		1	10 units	1CU
	<b>8WH9000-1GA00</b>		100	50 units	1BT

##### Note:

The article numbers shown here and the specifications regarding selection and ordering data are examples only. When ordering, always use the selection and ordering data in the product chapters.

##### Metal surcharges/export markings

To compensate fluctuating prices of raw materials (for example silver, copper, aluminum, lead, gold, dysprosium and neodymium), surcharges are calculated on a daily basis for products containing these raw materials using the metal factor. A surcharge for the particular raw material is added to the price of a product if the basic quotations for this raw material are exceeded.

Each product's metal factor dictates for which raw materials the metal surcharges are calculated, from which quotation and with which calculation method (weight or percentage method).

An exact explanation of the metal factor can be found at: [www.siemens.com/automation/salesmaterial-as/catalog/en/terms\\_of\\_trade\\_en.pdf](http://www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf)

A product's export markings/metal surcharges are updated daily at [www.siemens.com/industrymall](http://www.siemens.com/industrymall).

## Switching Devices



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9/41	<b>5TT3 soft-starting devices</b>
9/42	<b>7LF, 5TT3 timers</b> 7LF4 digital time switches
9/46	7LF5 mechanical time switches
9/49	7LF6 timers for buildings
9/52	5TT3 timers for industrial applications

**For further technical product information:**

[Configuration Manual](#)

[Switching Devices](#)

Article No.: 3ZW1012-5TT57-0AC1

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# Switching Devices

## Introduction





### Overview

Devices	Page	Application	Standards	Used in		
				Non-residential buildings	Residential buildings	Industry
 <b>5TE8 control switches</b>	9/5	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, (VDE 0660-107); IEC/EN 60669-1, (VDE 0632-1); GB 14048.3 CCC	✓	✓	✓
 <b>5TE48 pushbuttons</b>	9/8	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, (VDE 0660-107); IEC/EN 60669-1, (VDE 0632-1); GB 14048.3 CCC	✓	--	✓
 <b>5TE58 light indicators</b>	9/11	Light indicators for signaling switching states or faults in systems.	DIN VDE 0710-1-11	✓	--	✓
 <b>5TE81/82 On/Off switches</b>	9/13	For switching of lighting, motors and other electrical devices. TE81: 20 A TE82: 32 A.	20 A: IEC/EN 60947-3, (VDE 0660-107); IEC/EN 60669-1 32 A: IEC/EN 60947-3, (VDE 0660-107)	✓	✓	✓
 <b>5TL1 On/Off switches</b>	9/16	On/Off switches used for lighting control and for switching motors and other electric loads, for example.	32 A ... 125 A: IEC/EN 60947-3, (VDE 0660-107)	✓	✓	✓
 <b>5TE DC isolators</b>	9/20	The DC isolator is a special switch disconnecter for switching DC loads.	IEC/EN 60947-3; IEC/EN 60669-1; GB 14048.3 CCC	✓	✓	✓
 <b>5ST busbars for modular installation devices</b>	9/22	For fast and safe connection.	IEC/EN 60439-1, (VDE 0660-500)	✓	--	✓

Devices	Page	Application	Standards	Used in		
				Non-residential buildings	Residential buildings	Industry
	9/24	For the switching of lighting up to 63 A in rooms using several pushbuttons and central On/Off switches.	IEC 60669-1; IEC 60669-2-2; EN 60669-1-1, (VDE 0632) EN 60669-2-2, (VDE 0632-2-2)	✓	✓	✓
	9/32	For the switching of small loads up to 16 A or as coupling devices in control systems.	EN 60947-5-1, (VDE 0660-200) EN 60947-1, (VDE 0660-100) GB 14048.5 CCC	✓	--	✓
<b>5TT5 Insta contactors</b>						
	9/34	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; VDE 0660; UL 508; GB 14048.4 CCC	✓	✓	✓
	9/37	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; VDE 0660; NF C 61-480, (NF EN 61095)	✓	✓	✓
	9/41	Protection of machines with transmission, belt or chain drives, conveyor belts, fans, pumps, compressors, packing machines or door operating mechanisms.	EN 60947-4-2, (VDE 0660-117)	--	--	✓

# Switching Devices

## Introduction

Devices	Page	Application	Standards	Used in			
				Non-residential buildings	Residential buildings	Industry	
7LF, 5TT3 timers							
	7LF4 digital time switches	9/42	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; VDE 0631-1 and -2-7	✓	✓	✓
	7LF5 mechanical time switches	9/46	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; VDE 0631-1 and -2-7; UL 60730 UL 917	✓	✓	✓
	7LF6 timers for buildings	9/49	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 industrial applications	9/52	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

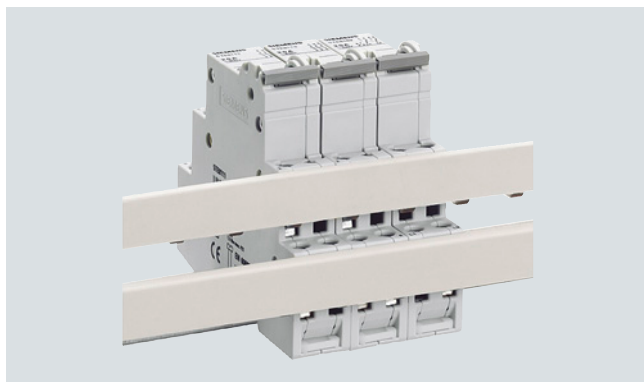
Two-way switches are used in control cabinets and distribution boards for switching small loads on/off or over.

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

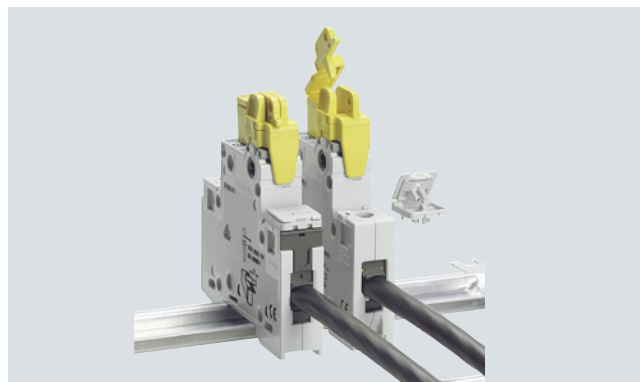
Control switches in a range of contact versions have an integral control lamp for the On setting.

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 5TE48 pushbuttons, 5TE58 light indicators or 5TT41 remote control switches and 5TT42 switching relays
- For busbars, see page 9/22 onwards



- 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





				5TE81
<b>Standards</b>				IEC/EN 60947-3 (VDE 0660-107); IEC/EN 60669-1 (VDE 0632-1)
<b>Approvals</b>				IEC/EN 60947-3 (VDE 0660-107) GB 14048.3-2008 CCC
<b>Rated operational current <math>I_e</math></b>	Per conduct. path	A	20	
<b>Rated operational voltage <math>U_e</math></b>	1-pole	V AC	230	
	Multi-pole	V AC	400	
<b>Rated power dissipation <math>P_v</math></b>	Contact per pole	VA	0.7	
<b>Thermal rated current <math>I_{th}</math></b>		A	20	
<b>Rated breaking capacity</b>	At p.f. = 0.65	A	60	
<b>Rated making capacity</b>	At p.f. = 0.65	A	60	
<b>Short-circuit strength</b> In conjunction with fuse of the same rated operational current	EN 60269 gL/gG	kA	10	
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>		kV	> 5	
<b>Clearances</b>	Open contacts	mm	2 × > 2	
	Between the poles	mm	> 7	
<b>Creepage distances</b>		mm	> 7	
<b>Mechanical service life</b>	Switching cycles		25000	
<b>Electrical service life</b>	Switching cycles		10000	
<b>Minimum contact load</b>		V; mA	10; 300	
<b>Rated short-time currents</b> 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	
	± Screw (Pozidriv)	Nm	1 0.8 ... 1.0	
<b>Terminals</b> Max. tightening torque				
<b>Conductor cross-sections</b>	Rigid	mm <sup>2</sup>	1 ... 6	
	Flexible, with end sleeve	mm <sup>2</sup>	1 ... 6	
<b>Permissible ambient temperature</b>		°C	-5 ... +40	
<b>Resistance to climate</b> 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	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	A	V AC	up to mm <sup>2</sup>	MW	d						
	<b>Two-way switches (20 A)</b> With sealable switch position, separate handle locking device can be retrofitted Retrofittable auxiliary switch										
	1 NO, 1 NC	20	400	6	1	▶	<b>5TE8151</b>		1	1 unit	1BK
	Auxiliary switch cannot be retrofitted										
	2 NO, 2 NC	20	400	6	1		<b>5TE8152</b>		1	1 unit	1BK
	3 NO, 1 NC	20	400	6	1		<b>5TE8153</b>		1	1 unit	1BK
	1 CO	20	230	6	1	▶	<b>5TE8161</b>		1	1 unit	1BK
	2 CO	20	400	6	1	▶	<b>5TE8162</b>		1	1 unit	1BK
	<b>Group switches with center position (20 A)</b> With sealable switch position, separate handle locking device can be retrofitted Auxiliary switch cannot be retrofitted										
	1 CO	20	230	6	1	▶	<b>5TE8141</b>		1	1 unit	1BK
	2 CO	20	400	6	1	▶	<b>5TE8142</b>		1	1 unit	1BK
	<b>Control switches (20 A)</b> 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	▶	<b>5TE8101</b>		1	1 unit	1BK
		20	48	6	1		<b>5TE8101-3</b>		1	1 unit	1BK
	1 NO, for max. 150 m cable length	20	230	6	1		<b>5TE8105</b>		1	1 unit	1BK
	2 NO	20	400	6	1		<b>5TE8102</b>		1	1 unit	1BK
	3 NO	20	400	6	1		<b>5TE8103</b>		1	1 unit	1BK
	With mounted auxiliary switch (1 NO, 1 NC)										
	3 NO	20	400	6	1.5		<b>5TE8108</b>		1	1 unit	1BK

Version	Mounting width MW	SD d	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
 <b>Auxiliary switches (AS)</b> For right-hand-side retrofitting with factory-fitted brackets, for further technical specifications, see chapter "Miniature Circuit Breakers"	1 NO + 1 NC	0.5	▶ <b>5ST3010</b>		1	1 unit	1AD
	2 NO	0.5	<b>5ST3011</b>		1	1 unit	1AD
	2 NC	0.5	<b>5ST3012</b>		1	1 unit	1AD
 <b>Handle locking devices</b> For all 5TE8 switches, can be sealed against undesired/inadvertent mechanical On/Off switching, for padlock with max. 3 mm shackle	--		<b>5ST3801</b>		1	1 unit	1AD
 <b>Spacers</b> 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		<b>5TG8240</b>		1	2 units	1BK
 <b>Cap sets</b> For manual changing of the luminous plates for 5TE810 control switches Cap set comprising 1 red, green, yellow, white and blue plate each	--		<b>5TG8068</b>		1	1 set	1BK

For busbars for control switches, see page 9/22.

## Switching Devices

### 5TE48 pushbuttons

#### Overview

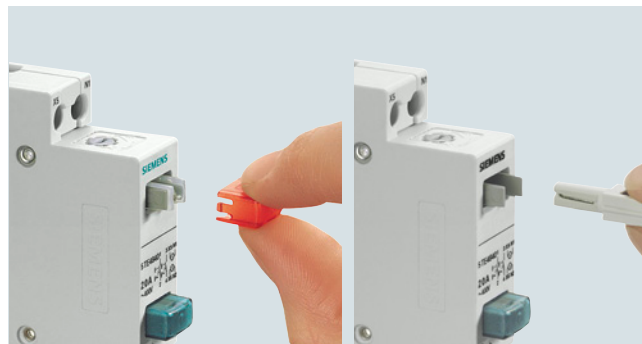
The pushbuttons are used in control systems, e.g. to switch on seal-in circuits or as pushbuttons with maintained-contact

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.
- Transparent caps in different colors are used to indicate system states according to IEC 60073. Three indications are possible for each device – this saves space

#### Technical specifications

				5TE48
<b>Standards</b>				IEC/EN 60947-3; IEC/EN 60669-1
<b>Approvals</b>				IEC/EN 60947-3 (VDE 0660-107)
<b>Rated operational current <math>I_e</math></b>	Per conduct. path	A		20
<b>Rated operational voltage <math>U_e</math></b>	1-pole	V AC		230
	Multi-pole	V AC		400
<b>Rated power dissipation <math>P_v</math></b>	Per pole	VA		0.6
<b>Thermal rated current <math>I_{th}</math></b>		A		20
<b>Rated breaking capacity</b>	At p.f. = 0.65	A		60
<b>Rated making capacity</b>	At p.f. = 0.65	A		60
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>		kV		> 5
<b>Clearances</b>	Open contacts	mm		$2 \times > 2$
	Between the poles	mm		> 7
<b>Creepage distances</b>		mm		> 7
<b>Mechanical service life</b>	Switching cycles			25000
<b>Minimum contact load</b>		V; mA		10; 300
<b>Rated short-time currents</b>				
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).				
<b>Terminals</b>				
± Screw (Pozidriv)				1
Max. tightening torque				Nm 0.8 ... 1.0
<b>Conductor cross-sections</b>				
Rigid				mm <sup>2</sup> 1 ... 6
Flexible, with end sleeve				mm <sup>2</sup> 1 ... 6
<b>Permissible ambient temperature</b>				°C -5 ... +40
<b>Resistance to climate</b>				
At 95 % relative humidity				Acc. to DIN 50015 °C 45

#### Power loss of 5TG805.-. LEDs

##### Rated power dissipation $P_v$




- LED

VA

0.4


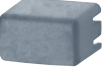



Color	Color coding according to IEC 60073		
	Safety of people or environment	Process state	System state
Red	Danger	Emergency	Faulty
Yellow	Warning/Caution	Abnormal	
Green	Safety	Normal	
Blue	Stipulation		
White, Gray Black	No special significance assigned		

## Selection and ordering data

Version	$I_e$	$U_e$	Conductor cross-sections	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?ArticleNo.">www.siemens.com/product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	A	V AC	up to mm <sup>2</sup>	MW	d					
	<b>Pushbuttons without maintained-contact function</b>									
	1 NO, 1 NC									
	1 gray pushbutton	20	400	6	1	▶ <b>5TE4800</b>		1	1 unit	1BK
	1 red pushbutton	20	400	6	1	<b>5TE4805</b>		1	1 unit	1BK
	1 green pushbutton	20	400	6	1	<b>5TE4806</b>		1	1 unit	1BK
	1 yellow pushbutton	20	400	6	1	<b>5TE4807</b>		1	1 unit	1BK
	1 blue pushbutton	20	400	6	1	<b>5TE4808</b>		1	1 unit	1BK
	2 NO, 2 NC									
	1 gray pushbutton	20	400	6	1	<b>5TE4801-2</b>		1	1 unit	1BK
	3 NO, 1 NC									
	1 gray pushbutton	20	400	6	1	<b>5TE4802</b>		1	1 unit	1BK
	1 NO, 1 NO									
	1 green pushbutton, 1 blue pushbutton	20	400	6	1	<b>5TE4804</b>		1	1 unit	1BK
	<b>Pushbuttons with maintained-contact function</b>									
	1 NO, 1 NC									
	1 gray pushbutton	20	400	6	1	<b>5TE4810</b>		1	1 unit	1BK
	2 NO									
	1 gray pushbutton	20	400	6	1	<b>5TE4811</b>		1	1 unit	1BK
	2 NO, 2 NC									
	1 gray pushbutton	20	400	6	1	<b>5TE4811-2</b>		1	1 unit	1BK
	3 NO + N									
	1 gray pushbutton	20	400	6	1	<b>5TE4812</b>		1	1 unit	1BK
	4 NC									
	1 gray pushbutton	20	400	6	1	<b>5TE4813</b>		1	1 unit	1BK
	3 NO, 1 NC									
	1 gray pushbutton	20	400	6	1	<b>5TE4812-1</b>		1	1 unit	1BK
	2 CO									
	1 gray pushbutton	20	400	6	1	<b>5TE4814</b>		1	1 unit	1BK
	<b>Control pushbuttons with maintained-contact function or momentary-contact function and lamp, 230 V, for max. 5 m cable length</b>									
	1 NO, 1 NC									
	1 red pushbutton	20	400	6	1	▶ <b>5TE4820</b>		1	1 unit	1BK
	1 NO									
	1 red pushbutton	20	230	6	1	▶ <b>5TE4821</b>		1	1 unit	1BK
	2 NO									
	1 red pushbutton	20	400	6	1	<b>5TE4823</b>		1	1 unit	1BK
	2 NC									
	1 red pushbutton	20	400	6	1	<b>5TE4824</b>		1	1 unit	1BK
	<b>Control pushbuttons with maintained-contact function or momentary-contact function and lamp, 230 V, for max. 150 m cable length</b>									
	1 NO									
	1 red pushbutton	20	230	6	1	<b>5TE4822</b>		1	1 unit	1BK
	<b>Double pushbuttons with maintained-contact function and/or momentary-contact function</b>									
	1 NO and 1 NC, 1 green pushbutton, 1 red pushbutton	20	400	6	1	<b>5TE4830</b>		1	1 unit	1BK
	1 NO, 1 NC and 1 NO, 1 NC 1 green pushbutton, 1 red pushbutton	20	400	6	1	<b>5TE4831</b>		1	1 unit	1BK
	<b>Double pushbuttons with maintained-contact function and/or momentary-contact function and two lamps, 230 V, for max. 5 m cable length</b>									
	1 NO and 1 NO, 1 green pushbutton, 1 red pushbutton	20	400	6	1	<b>5TE4840</b>		1	1 unit	1BK
	1 NO and 1 NC, 1 green pushbutton, 1 red pushbutton	20	400	6	1	<b>5TE4841</b>		1	1 unit	1BK

## Switching Devices

## 5TE48 pushbuttons

Version	$I_e$	$U_n$	SD	Article No. <a href="http://www.siemens.com/product?ArticleNo.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	mA	V	d					
	<b>LEDs for manual replacement</b>							
	White	0.4	12 ... 60 AC/DC	<b>5TG8056-0</b>		1	5 units	1BK
	Red			<b>5TG8056-1</b>		1	5 units	1BK
	Yellow			<b>5TG8056-2</b>		1	5 units	1BK
	Green			<b>5TG8056-3</b>		1	5 units	1BK
	Blue			<b>5TG8056-4</b>		1	5 units	1BK
	White	0.4	115 AC/DC	<b>5TG8057-0</b>		1	5 units	1BK
	Red			<b>5TG8057-1</b>		1	5 units	1BK
	Yellow			<b>5TG8057-2</b>		1	5 units	1BK
	Green			<b>5TG8057-3</b>		1	5 units	1BK
	Blue			<b>5TG8057-4</b>		1	5 units	1BK
	White	0.4	230 AC	<b>5TG8058-0</b>		1	5 units	1BK
	Red			<b>5TG8058-1</b>		1	5 units	1BK
	Yellow			<b>5TG8058-2</b>		1	5 units	1BK
	Green			<b>5TG8058-3</b>		1	5 units	1BK
	Blue			<b>5TG8058-4</b>		1	5 units	1BK
<b>Cap sets, manually replaceable with colored caps with or without lamps</b>								
	Gray, non-transparent (1 set = 5 units)			<b>5TG8060</b>		1	1 set	1BK
	Red, transparent (1 set = 5 units)			<b>5TG8061</b>		1	1 set	1BK
	Green, transparent (1 set = 5 units)			<b>5TG8062</b>		1	1 set	1BK
	Yellow, transparent (1 set = 5 units)			<b>5TG8063</b>		1	1 set	1BK
	Blue, transparent (1 set = 5 units)			<b>5TG8064</b>		1	1 set	1BK
	Black, non-transparent (1 set = 5 units)			<b>5TG8065</b>		1	1 set	1BK
	White, transparent (1 set = 5 units)			<b>5TG8066</b>		1	1 set	1BK
	Red and green (1 set contains 10 lamps per color), Yellow, blue and white (1 set contains 5 lamps per color)			<b>5TG8067</b>		1	1 set	1BK
	Red, green, yellow (1 set = 3 units)			<b>5TG8070</b>		1	1 set	1BK



## 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
- Transparent caps in different colors are used to indicate system states according to 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

5TE58			
<b>Standards</b>			DIN VDE 0710-1-11
<b>Rated operational voltage <math>U_e</math></b>	Max.	V AC	230 (for different voltages, see 5TG8 lamps)
<b>Rated power dissipation <math>P_v</math></b>		VA	See 5TG8 lamps
<b>Clearances</b>	Between the terminals	mm	> 7
<b>Terminals</b>	± Screw (Pozidriv)	Nm	1 1.2
<b>Conductor cross-sections</b>	Rigid Flexible, with end sleeve	mm <sup>2</sup> mm <sup>2</sup>	1.5 ... 6 1 ... 6
<b>Permissible ambient temperature</b>		°C	-5 ... +40
<b>Resistance to climate</b>			
At 95 % relative humidity	Acc. to DIN 50015	°C	45

5TG805.		
<b>Rated power dissipation <math>P_v</math></b>		
• LED	VA	0.4





## Color coding according to IEC 60073

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

## Switching Devices

## 5TE58 light indicators

## Selection and ordering data

Version	$U_e$ V AC	Conductor cross-sections up to mm <sup>2</sup>	Mounting width MW	SD d	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	<b>Light indicators for a max. cable length of up to 5 m</b>								
	With 1 red lamp	230	6	1	▶ <b>5TE5800</b>		1	1 unit	1BK
	With 2 lamps, green and red				▶ <b>5TE5801</b>		1	1 unit	1BK
	With 3 green lamps				▶ <b>5TE5802</b>		1	1 unit	1BK
	With 3 lamps, red, yellow and green				▶ <b>5TE5803</b>		1	1 unit	1BK
	<b>Light indicators for a max. cable length of up to 250 m</b>								
	With 1 red lamp	230	6	1	<b>5TE5804</b>		1	1 unit	1BK
Version	$I_e$ mA	$U_e$ V		SD d	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	<b>LEDs for manual replacement</b>								
	White	0.4	12 ... 60 AC/DC		<b>5TG8056-0</b>		1	5 units	1BK
	Red				<b>5TG8056-1</b>		1	5 units	1BK
	Yellow				<b>5TG8056-2</b>		1	5 units	1BK
	Green				<b>5TG8056-3</b>		1	5 units	1BK
	Blue				<b>5TG8056-4</b>		1	5 units	1BK
	White	0.4	115 AC/DC		<b>5TG8057-0</b>		1	5 units	1BK
	Red				<b>5TG8057-1</b>		1	5 units	1BK
	Yellow				<b>5TG8057-2</b>		1	5 units	1BK
	Green				<b>5TG8057-3</b>		1	5 units	1BK
	Blue				<b>5TG8057-4</b>		1	5 units	1BK
	White	0.4	230 AC		<b>5TG8058-0</b>		1	5 units	1BK
	Red				<b>5TG8058-1</b>		1	5 units	1BK
	Yellow				<b>5TG8058-2</b>		1	5 units	1BK
	Green				<b>5TG8058-3</b>		1	5 units	1BK
	Blue				<b>5TG8058-4</b>		1	5 units	1BK
	<b>Cap sets for manual changing of colored caps</b>								
	Red, transparent (1 set = 5 units)				<b>5TG8061</b>		1	1 set	1BK
	Green, transparent (1 set = 5 units)				<b>5TG8062</b>		1	1 set	1BK
	Yellow, transparent (1 set = 5 units)				<b>5TG8063</b>		1	1 set	1BK
	Blue, transparent (1 set = 5 units)				<b>5TG8064</b>		1	1 set	1BK
	White, transparent (1 set = 5 units)				<b>5TG8066</b>		1	1 set	1BK
	Red and green (1 set = 10 lamps per color) Yellow, blue and white (1 set = 5 lamps per color) Red, green, yellow (1 set = 3 units)				<b>5TG8067</b>    <b>5TG8070</b>		1	1 set	1BK

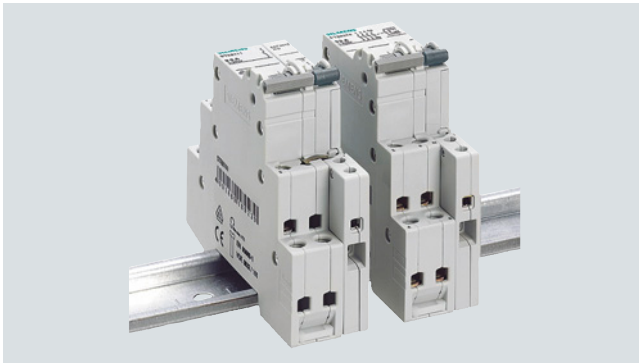
## Overview

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

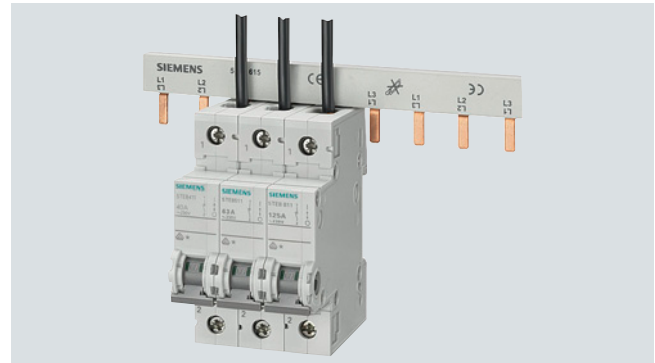
For rated currents of 20 A and 32 A, a compact series in a space-saving design is available with up to 4 NO contacts in one MW.

In addition, the 5TE82 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.

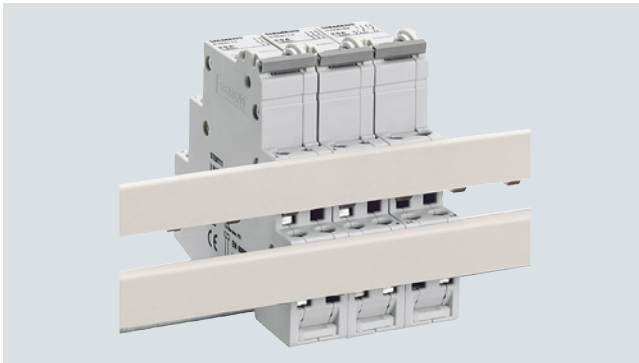
## Benefits



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



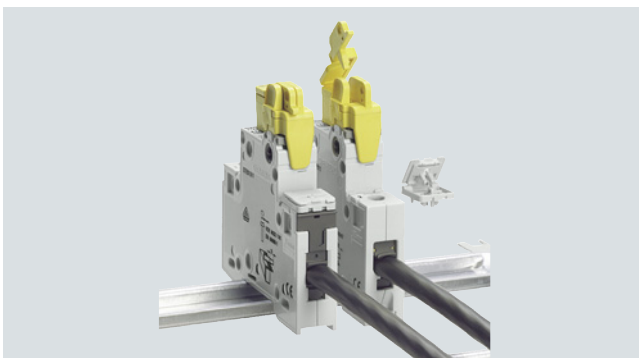
- Clear and visible conductor connection in front of the busbar for safe and easy mounting
- Optional top or bottom infeed as the terminals are identical



- The 20 A and 32 A switches can be bus-mounted with each other or with 5TE48 pushbuttons, 5TE58 light indicators or 5TT41 remote control switches and 5TT42 switching relays
- For busbars, see [page 9/22](#)



- 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






## Switching Devices

### 5TE81/82 On/Off switches

#### Technical specifications

				5TE81	5TE82
<b>Standards</b>				IEC/EN 60947-3, (VDE 0660-107); IEC/EN 60669-1	IEC/EN 60947-3, (VDE 0660-107)
<b>Approvals</b>				IEC/EN 60947-3 (VDE 0660-107)	
<b>Rated operational current <math>I_e</math></b>	Per conduct. path	A		20	32
<b>Rated operational voltage <math>U_e</math></b>	1-pole	V AC		230	
	Multi-pole	V AC		400	
<b>Rated power dissipation <math>P_v</math></b>	Per pole, max.	VA		0.7	
<b>Thermal rated current <math>I_{th}</math></b>		A		20	32
<b>Rated breaking capacity</b>	At p.f. = 0.65	A		60	96
<b>Rated making capacity</b>	At p.f. = 0.65	A		60	96
<b>Rated short-circuit making capacity <math>I_{cm}</math></b> In conjunction with fuse of the same rated operational current	EN 60269 gL/gG	kA		10	
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>		kV		> 5	
<b>Clearances</b>	Open contacts	mm		2 × > 2	
	Between the poles	mm		> 7	
<b>Creepage distances</b>		mm		> 7	
<b>Mechanical service life</b>		Switching cycles		25000	
<b>Electrical service life</b>		Switching cycles		10000	
<b>Minimum contact load</b>		V; mA		10; 300	
<b>Rated short-time withstand current <math>I_{cw}</math></b> 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
<b>Terminals</b>	± Screw (Pozidriv)	Nm		1 1.2	
<b>Conductor cross-sections</b>	Rigid	mm <sup>2</sup>		1.5 ... 6	
	Flexible, with end sleeve	mm <sup>2</sup>		1 ... 6	
<b>Permissible ambient temperature</b>		°C		-5 ... +40	
<b>Resistance to climate</b> At 95 % relative humidity	Acc. to DIN 50015	°C		45	

## Selection and ordering data

	Version	$I_e$	$U_e$	Conductor cross-sections	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	A	V AC	up to mm <sup>2</sup>	MW	d						
	<b>On/Off switches (20 A and 32 A)</b>										
	With sealable switch position, separate handle locking device can be retrofitted										
	Retrofittable auxiliary switch										
	1 NO	20 32	230	6	1	▶	<b>5TE8111</b> <b>5TE8211</b>		1 1	1 unit 1 unit	1BK 1BK
	2 NO	20 32	400	6	1	▶	<b>5TE8112</b> <b>5TE8212</b>		1 1	1 unit 1 unit	1BK 1BK
	3 NO	20 32	400	6	1		<b>5TE8113</b> <b>5TE8213</b>		1 1	1 unit 1 unit	1BK 1BK
	Auxiliary switch cannot be retrofitted										
	3 NO + N	20 32	400	6	1	▶	<b>5TE8114</b> <b>5TE8214</b>		1 1	1 unit 1 unit	1BK 1BK
	With mounted auxiliary switch										
	3 NO + N	20 32	400	6	1.5		<b>5TE8118</b> <b>5TE8218</b>		1 1	1 unit 1 unit	1BK 1BK
	<b>Auxiliary switches (AS)</b>										
	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	▶	<b>5ST3010</b>		1	1 unit	1AD
	2 NO				0.5		<b>5ST3011</b>		1	1 unit	1AD
	2 NC				0.5		<b>5ST3012</b>		1	1 unit	1AD
	Auxiliary switches for low power										
	1 NO + 1 NC				0.5	▶	<b>5ST3013</b>		1	1 unit	1AD
	<b>Handle locking devices</b>										
	For all 5TE8 switches, can be sealed against undesired/inadvertent mechanical On/Off switching, for padlock with max. 3 mm shackle										
	<b>Terminal covers</b>										
	For all 5TE85 to 5TE88 switches, in 1 MW per pole version, for covering screw openings, sealable										
	<b>Spacers</b>										
	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										

## Switching Devices

### 5TL1 On/Off switches

#### Overview

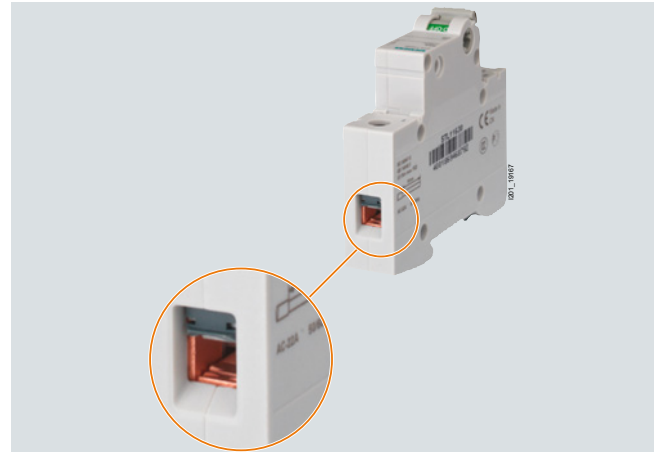
The new 5TL1 On/Off switches are used for the switching of lighting, motors and other electrical devices. Rated currents range between 32 A and 125 A. The new design of the 5TL1 On/Off switches allows them to be optically perfectly integrated in the series of RCCBs and MCBs.

In addition, the 5TL1 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



- Attractive design
- Easily recognizable, colored switch position indication integrated in the operating handle
- Actuating elements in gray
- Ergonomically shaped handle and enclosure contours for user-friendly switching



- Simplified cable entry, thanks to square terminal design for joint accommodation of pin busbars with cables from 0.75 to 25 mm<sup>2</sup>

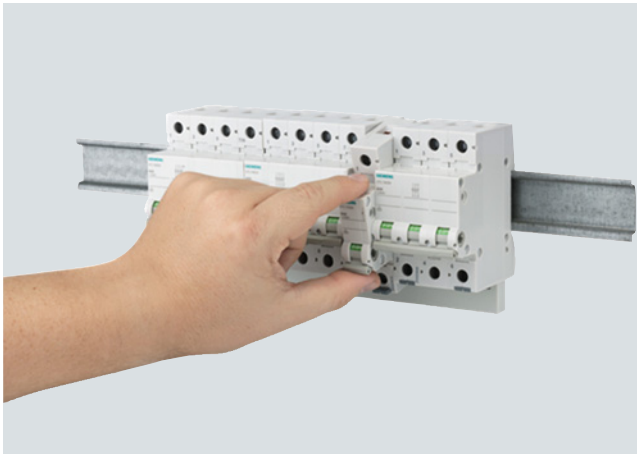


- Effective shock-hazard protection when grasping
- Manual operation of the snap slide with latch-down option



- Terminal for accommodating 2 conductors of the same cross-section (single-wire up to 2 x 10 mm<sup>2</sup>, finely stranded with end sleeve 2 x 4 mm<sup>2</sup>)





- Replacement of a device from the busbar-mounted assembly requires no tools



- The On/Off switches are ideal for quick and easy mounting of auxiliary switches






### Technical specifications

			5TL1132 5TL1232 5TL1332 5TL1432 5TL1632	5TL1140 5TL1240 5TL1340 5TL1440 5TL1640	5TL1163 5TL1263 5TL1363 5TL1463 5TL1663	5TL1180 5TL1280 5TL1380 5TL1480 5TL1680	5TL1191 5TL1291 5TL1391 5TL1491 5TL1691	5TL1192 5TL1292 5TL1392 5TL1492 5TL1692
<b>Standards</b>			IEC/EN 60947-3 (VDE 0660-107)					
<b>Approvals</b>			EN 60669-1					
<b>Rated operational current <math>I_e</math></b>	Per conduct. path	A	32	40	63	80	100	125
<b>Rated operational voltage <math>U_e</math></b>	1-pole	V AC	250					
	Multi-pole	V AC	440					
<b>Rated power dissipation <math>P_v</math></b>	Per pole, max.	VA	0.7	0.9	2.2	3.5	5.5	8.6
<b>Thermal rated current <math>I_{th}</math></b>		A	32	40	63	80	100	125
<b>Rated breaking capacity AC-22A</b>	At p.f. = 0.65	A	96	120	196	240	300	375
<b>Rated making capacity AC-22A</b>	At p.f. = 0.65	A	96	120	196	240	300	375
<b>Rated short-circuit making capacity <math>I_{cm}</math></b> In conjunction with fuse of the same rated operational current	EN 60269 gL/gG	kA	10					
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>		kV	>5					
<b>Clearances</b>	Open contacts	mm	>7					
	Between the poles	mm	>7					
<b>Creepage distances</b>		mm	>7					
<b>Mechanical service life</b>		Switching cycles	20000					
<b>Electrical service life</b>		Switching cycles	10000		5000	2000		
<b>Minimum contact load</b>		V; mA	24; 300					
<b>Rated power</b> Switching of resistive loads including moderate overload AC-21	1-pole	kW	5	6.5	10	13	16	16
	2-pole	kW	9	11	18	22	28	28
	3/4-pole	kW	15	15	30	39	48	48
<b>Rated short-time withstand current <math>I_{cw}</math></b> 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	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
<b>Terminals</b> Max. tightening torque	± Screw (Pozidriv)	Nm	2 3.5					
<b>Conductor cross-sections</b>	Rigid	mm <sup>2</sup>	1 ... 35			2.5 ... 50		
	Flexible, with end sleeve	mm <sup>2</sup>	1 ... 25			2.5 ... 50		
<b>Permissible ambient temperature</b>		°C	-5 ... +40					
<b>Resistance to climate</b> At 95 % relative humidity	Acc. to DIN 50015	°C	45					



## Switching Devices

## 5TL1 On/Off switches

## Selection and ordering data

Version	$I_e$	$U_e$	Conductor cross-sections	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?ArticleNo.">www.siemens.com/product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
A	V AC	up to mm <sup>2</sup>	MW	d						
	<b>On/Off switches (32 A to 125 A) can be used as switch disconnectors according to EN 60947-1</b>									
	With sealable switch position, separate handle locking device can be retrofitted, auxiliary switches can be retrofitted									
	1 NO, red handle	63	230	35	1	5TL1163-1		1	1 unit	1BK
		100		50		5TL1191-1		1	1 unit	1BK
	1 NO, gray handle	32		35		5TL1132-0		1	1 unit	1BK
		40				5TL1140-0		1	1 unit	1BK
		63				5TL1163-0		1	1 unit	1BK
		80		50		5TL1180-0		1	1 unit	1BK
		100				5TL1191-0		1	1 unit	1BK
		125				5TL1192-0		1	1 unit	1BK
	2 NO, red handle	63	400	35	2	5TL1263-1		1	1 unit	1BK
		100		50		5TL1291-1		1	1 unit	1BK
	2 NO, gray handle	32		35		5TL1232-0		1	1 unit	1BK
		40				5TL1240-0		1	1 unit	1BK
		63				5TL1263-0		1	1 unit	1BK
		80		50		5TL1280-0		1	1 unit	1BK
		100				5TL1291-0		1	1 unit	1BK
		125				5TL1292-0		1	1 unit	1BK
	3 NO, red handle	63	400	35	3	5TL1363-1		1	1 unit	1BK
		100		50		5TL1391-1		1	1 unit	1BK
	3 NO, gray handle	32		35		5TL1332-0		1	1 unit	1BK
		40				5TL1340-0		1	1 unit	1BK
		63				5TL1363-0		1	1 unit	1BK
		80		50		5TL1380-0		1	1 unit	1BK
		100				5TL1391-0		1	1 unit	1BK
		125				5TL1392-0		1	1 unit	1BK
	3 NO + N, red handle	63	400	35	4	5TL1663-1		1	1 unit	1BK
		100		50		5TL1691-1		1	1 unit	1BK
	3 NO + N, gray handle	32		35		5TL1632-0		1	1 unit	1BK
		40				5TL1640-0		1	1 unit	1BK
		63				5TL1663-0		1	1 unit	1BK
		80		50		5TL1680-0		1	1 unit	1BK
		100				5TL1691-0		1	1 unit	1BK
		125				5TL1692-0		1	1 unit	1BK
	4 NO, gray handle	32		35	4	5TL1432-0		1	1 unit	1BK
		40				5TL1440-0		1	1 unit	1BK
		63				5TL1463-0		1	1 unit	1BK
		80		50		5TL1480-0		1	1 unit	1BK
		100				5TL1491-0		1	1 unit	1BK
		125				5TL1492-0		1	1 unit	1BK
	<b>Auxiliary switches (AS)</b>									
	For all 5TL1 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	▶	5ST3010		1	1 unit	1AD
	2 NO			0.5		5ST3011		1	1 unit	1AD
	2 NC			0.5		5ST3012		1	1 unit	1AD
	Auxiliary switches for low power									
	1 NO + 1 NC			0.5	▶	5ST3013		1	1 unit	1AD
	2 NO			0.5		5ST3014		1	1 unit	1AD
	2 NC			0.5		5ST3015		1	1 unit	1AD

## 5TL1 On/Off switches

	Version	$I_e$	$U_e$	Conductor cross-sections	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
		A	V AC	up to mm <sup>2</sup>	MW	d					
	<b>Handle locking devices</b> For all 5TL1 switches, can be sealed against undesired/inadvertent mechanical On/Off switching, for padlock with max. 3 mm shackle						<b>5ST3806</b>		1	5 units	1AD
	<b>Terminal covers</b> For all 5TL1 switches, in 1 MW per pole version, for covering screw openings, sealable					►	<b>5ST3800</b>		1	10 units	1AD
	<b>Spacers</b> 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	<b>5TG8240</b>		1	2 units	1BK
	<b>Phase connectors</b> For easier wiring in various circuit versions and bus mountings or as a support terminal for conductors from 2.5 to 50 mm <sup>2</sup>										
	1P	125	230	50		1	<b>5TL1192-4</b>		1	1 unit	1BK
	<b>N conductor connectors</b> For easier wiring in various circuit versions and bus mountings or as a support terminal for N conductors from 2.5 to 50 mm <sup>2</sup> with blue color marking										
	1P	125	230	50		1	<b>5TL1192-3</b>		1	1 unit	1BK

## Switching Devices

### 5TE DC isolators

#### Benefits

- 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 system that requires no tools enable fast assembly and disassembly of switch disconnectors
- Clear and visible conductor connection that can be easily checked in front of the busbar

#### Technical specifications

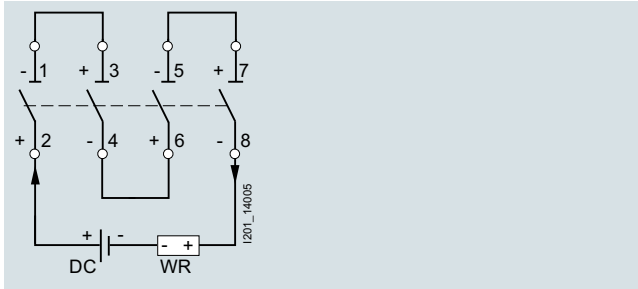
				5TE2515-1
<b>Standards</b>				IEC/EN 60947-3, IEC/EN 60669-1, GB14048.3 CCC
<b>Rated operational current <math>I_e</math></b>		A		63
<b>Rated operational voltage <math>U_e</math></b>	For 4 poles in series	V DC		880
<b>Rated power dissipation <math>P_v</math></b>	Per pole, max.	W		4.4
<b>Rated short-time withstand current <math>I_{cw}</math></b>	1000 V DC, 4-pole	A		760
<b>Rated short-circuit making capacity <math>I_{cm}</math></b>	1000 V DC, 4-pole	A		500
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>		kV		> 4
<b>Maximum operating voltage <math>U_{max}</math></b>		V DC		1000
<b>Overvoltage category</b>				II at $U = 880 \text{ V} \dots 440 \text{ V}$ I at $U = 1000 \text{ V}$
<b>Mechanical service life</b>	Switching cycles			10000
<b>Electrical service life</b>	Switching cycles			5000
<b>Utilization category</b>				DC-21B
<b>Minimum contact load</b>		V; mA		24; 300
<b>Terminals</b>	± Screw (Pozidriv)			PZ 2
Max. tightening torque		Nm		2.5 ... 3
<b>Conductor cross-sections</b>	Rigid	mm <sup>2</sup>		0.75 ... 35
	Flexible, with end sleeve	mm <sup>2</sup>		0.75 ... 25
<b>Permissible ambient temperature</b>		°C		-25 ... +45
<b>Resistance to climate</b>				
At 95 % relative humidity	Acc. to DIN 50015	°C		45

#### Selection and ordering data

Version	$I_e$	$U_e$	Conductor cross-sections	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?ArticleNo.">www.siemens.com/product?ArticleNo.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
A	V AC	up to mm <sup>2</sup>	MW	d						
<b>DC isolators</b>										
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		<b>5TE2515-1</b>		1	1 unit	1BK
<b>Auxiliary switches (AS)</b>										
For all 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	▶	<b>5ST3010</b>		1	1 unit	1AD
2 NO				0.5		<b>5ST3011</b>		1	1 unit	1AD
2 NC				0.5		<b>5ST3012</b>		1	1 unit	1AD
Auxiliary switches for low power										
1 NO + 1 NC				0.5	▶	<b>5ST3013</b>		1	1 unit	1AD
2 NO				0.5		<b>5ST3014</b>		1	1 unit	1AD
2 NC				0.5		<b>5ST3015</b>		1	1 unit	1AD

### Configuration

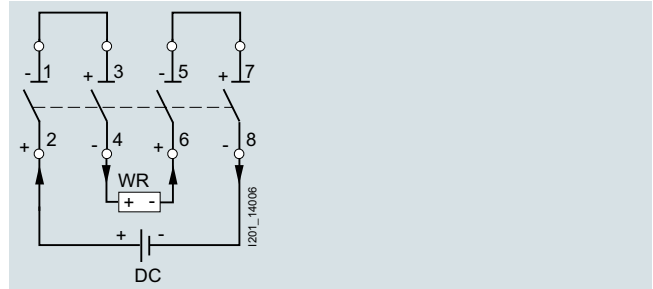
For DC voltages up to 1000 V, the four poles need to be connected in series. In contrast to normal flush-mounting switches, these devices are also fitted with arcing chambers and permanent solenoids to aid the positive quenching of the electric arc in direct currents.



Legend:

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.



## Switching Devices

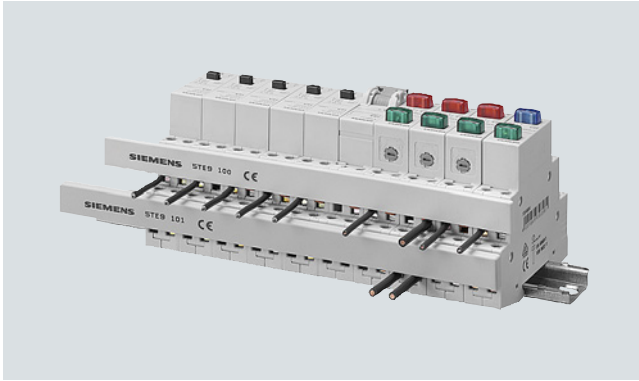
### 5ST busbars for modular installation devices

#### Overview

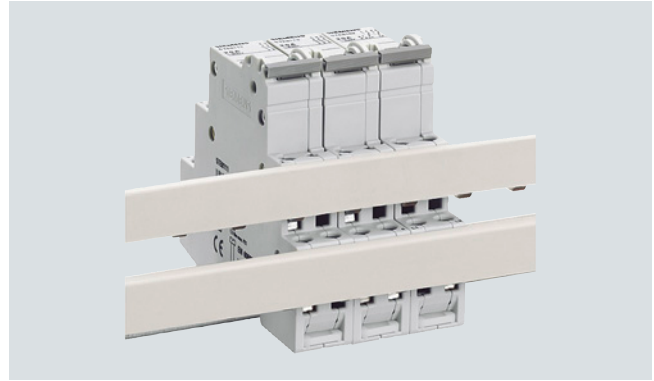
Siemens has developed a rail-mounting concept which makes the linking of switching devices just as easy as that of miniature circuit breakers.

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

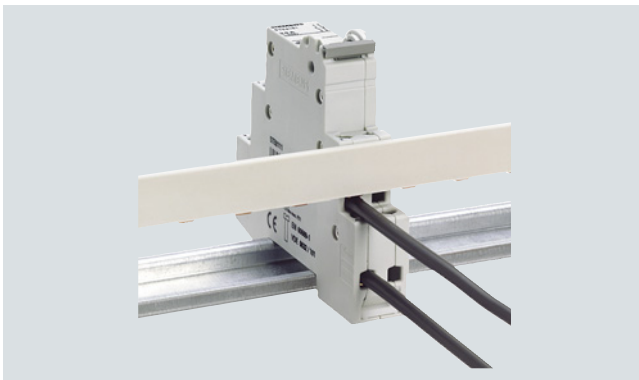
#### Benefits



- All 5TE8 switches (20 A and 32 A), 5TE48 pushbuttons, 5TE58 light indicators and 5TT41 remote control switches, 5TT42 switching relays and 5TL1 On/Off switches 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




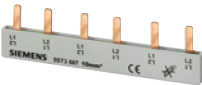


- Infeed: The phase busbar is fed in at the tunnel terminal for conductors up to 6 mm<sup>2</sup> up to 32 A. No additional feeder terminals required



## 5ST busbars for modular installation devices

## Selection and ordering data

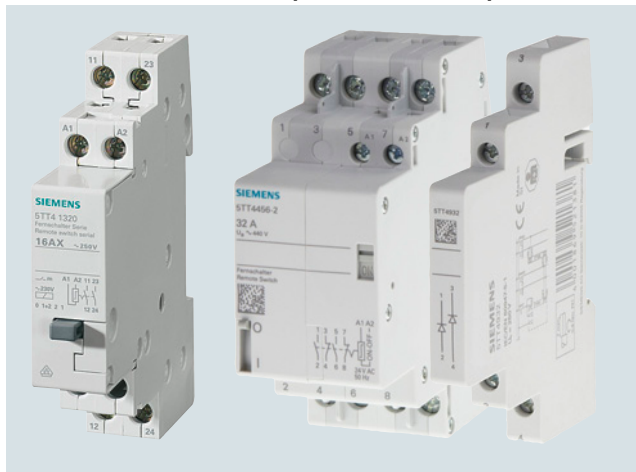
Version	Length mm	SD d	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
 <b>Single-phase busbars</b> For all 5TE8, 20 A and 32 A switches In the 12 MW version for the cutting of unused terminal lugs to ensure 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 <sup>2</sup> up to 32 A Can be mounted from top or bottom, in the front or rear terminal area Note: An end cap is not required on single-phase busbars	210		<b>5TE9100</b>		1	10 units	1BK
 <b>Two-phase busbars</b> 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 <sup>2</sup> 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		<b>5TE9101</b>		1	10 units	1BK
 <b>End caps for two-phase busbars</b> End caps for 5TE9101 two-phase busbars to maintain insulation clearances when the bar is being cut 1 set = 10 units	--		<b>5TE9102</b>		1	1 set	1BK
 <b>5ST36 and 5ST37 busbar systems</b> All busbars of the 5ST36 and 5ST37 busbar systems can also be used for all 5TE8 switches from 32 to 125 A in 1 MW per pole (see chapter "Miniature Circuit Breakers").	--						

## Switching Devices

### 5TT4 remote control switches

#### Overview

#### Remote control switches up to 16 A and 20 up to 63 A



5TT4101-0 remote control switch for AC applications, up to 16 A, 2 NO contacts (left)  
 5TT44 remote control switch for AC applications, 2 CO contacts (center)  
 5TT4930 auxiliary switch for 5TT44 remote control switches, 1 NO + 1 NC (right)

Remote control switches are used in residential and non-residential buildings, as well as the switchboard 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 CE 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.

In addition to the 5TT41 remote control switch for up to 16 A, the 5TT44 version is now also available for 20 ... 63 A (up to 32 A DC).

#### 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
- All the remote control switches can be fitted with an additional auxiliary switch
- The remote control switches can be bus-mounted on 5TE9100 and 5TE9101 busbars; e.g.: bus mounting of the N conductor and/or infeed

#### 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.

#### 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.

#### Contact sequences for remote control switches up to 16 A

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

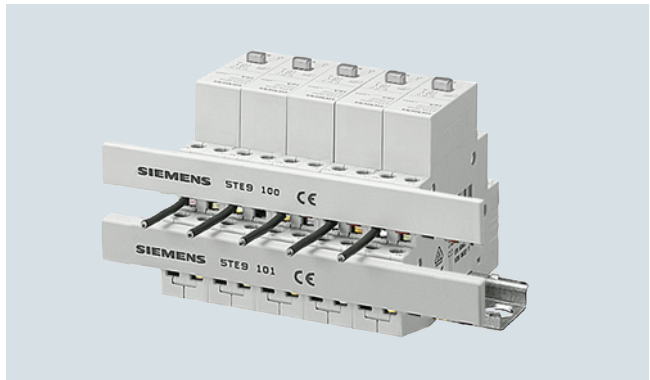
1+2: Contact 1 and contact 2 are closed

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.

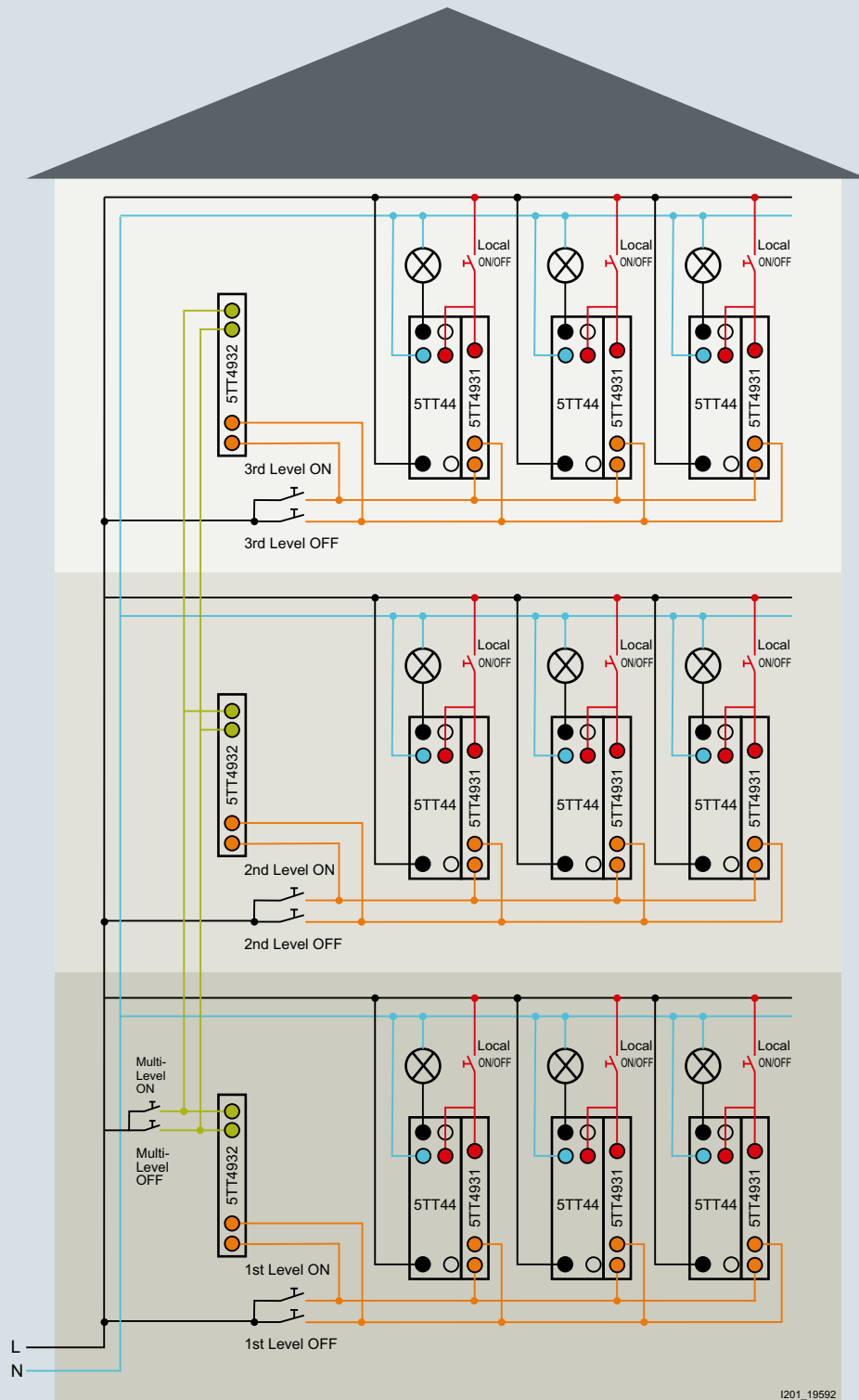
#### Bus mounting



All 5TT41 remote control switches up to 16 A and 5TT44 from 20 ... 63 A can be bus-mounted with each other.

#### Note:

For suitable busbars, [see page 9/22](#).

**Application****Example for 5TT44 remote control switches up to 63 A**

## Switching Devices

## 5TT4 remote control switches

## Technical specifications

	5TT41 remote control switches up to 16 A				Auxiliary switches for 5TT41		5TT44 remote control switches from 20 ... 63 A	Auxiliary switches for 5TT44		
	5TT4101/02/05/11/12/14/15	5TT4103 5TT4104	5TT412 5TT415	5TT413 5TT414	5TT4900	5TT4901		5TT4930	5TT4931	5TT4932
Standards	IEC 60669-1, IEC 60669-2, IEC 60669-3, EN 60669 (VDE 0632), EN 60669-2-2, EN 60669-2-2/A1				EN 60947-1 (VDE 0660 Part 100) EN 60947-5-1 (VDE 0660 Part 200)		IEC 60669-2-2 (up to 32 A) EN IEC 60947-4-1 (40 ... 63 A)	IEC/EN 60947-5-1		
Approvals	VDE						CE	CE, EAC		
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	2 NO 4 NO 1 NO + 1 NC 2 NO + 2 NC 1 CO 2 CO	1 NO +1 NC	Central	Group
Manual operation	Yes				--		Yes	No		
Switching position indication	Yes				--		Yes	No		
Rated control voltage $U_c$	V AC V DC	8 ... 230 12 ... 110				-- --	230, 24 24	250 --		
Primary operating range	$\times U_c$	0.8 ... 1.1			--		--	--		
Rated frequency $f_c$ (AC types)	Hz	50			--		50/60	50/60		
Rated impulse withstand voltage $U_{imp}$	kV	4			1		3	1		
Rated power dissipation $P_v$	W	--			--	--	--	0.3 per pole		
• Magnet coil, only pulse at 16 A	W/VA	4.5/7	9/13	4.5/7	--	--	--	--	--	--
• Magnet coil, for "on" pulse at 20 ... 25 A	W/VA	--	--	--	--	--	13/18; DC: 9/9	--	--	--
• Magnet coil, for "on" pulse at 40 ... 63 A	W/VA	--	--	--	--	--	12/26	--	--	--
• Per contact at 16 A	W	1.2			--	--	--	--	--	--
• Per contact at 20 A	W	--			--	--	1.5	--	--	--
• Per contact at 25 A	W	--			--	--	2	--	--	--
• Per contact at 32 A	W	--			--	--	3	--	--	--
• Per contact at 40 A	W	--			--	--	3	--	--	--
• Per contact at 63 A	W	--			--	--	3.5	--	--	--
Minimum contact load	V; mA	10; 100 AC				AC/DC 5;1		10; 100 AC	12; 5	--
Rated operational current $I_e$ At p.f. = 0.6 ... 1 (AC-15)	A	16						5TT440../41...: 20 5TT442../43...: 25 5TT445...: 32 5TT446...: 40 5TT447...: 63	4	--
Rated operational voltage $U_e$	V AC							--	--	250
• 1 NO	V AC	250	--	250	--	250	--	250	--	--
• 2 NO	V AC	400	--	400	250	--	--	440	--	--
• 3 NO	V AC	--	400	400	--	--	--	440	--	--
• 4 NO	V AC	400	400	--	--	--	--	440	--	--
• 1 NO + 1 NC	V AC	250	--	250	--	--	--	440	250	--
• 2 NO + 2 NC	V AC	--	--	--	--	--	--	440	--	--
• 1 CO	V	--	--	--	--	250 AC	30 AC/DC	250 AC	--	--
• 2 CO	V AC	--	--	--	--	--	--	440 AC	--	--
Glow lamp load at 230 V	mA	5				--		--		
• With 1 5TT4920 compensator	mA	25				--		--		
• With 2 5TT4920 compensators	mA	45				--		--		
Incandescent lamp load										
With AC-5b (230 V) switching of incandescent lamps for 15000 switching cycles	W	1200				--		5TT440../41...: 4400 5TT442../43...: 5500 5TT445...: 7000 5TT446...: 8800 5TT447...: 13800	--	
Rated operational power (AC-3)										
• 1-phase, at 230 V	kW	--				--		5TT440../41...: 0.5 5TT442../43...: 0.75 5TT445...: 1.1 5TT446...: 2.2 5TT447...: 4	--	
• 3-phase, at 230 V	kW	--				--		5TT440../41...: 1.5 5TT442../43...: 2.2 5TT445...: 3 5TT446...: 5.5 5TT447...: 11	--	
• 3-phase, at 400 V	kW	--				--		5TT440../41...: 3 5TT442../43...: 4 5TT445...: 5.5 5TT446...: 11 5TT447...: 18.5	--	

## 5TT4 remote control switches






		5TT41 remote control switches up to 16 A				Auxiliary switches for 5TT41		5TT44 remote control switches from 20 ... 63 A	5TT44 auxiliary switches for 5TT44			
		5TT4101/ 02/05/11/ 12/14/15	5TT4103 5TT4104	5TT412 5TT415	5TT413 5TT414	5TT4900	5TT4901		5TT4930	5TT4931	5TT4932	
Different phases Between magnet coil/contact		Permissible					--	Permissible	--			
Contact gap	mm	> 1.2					< 1.2	> 3				
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 <sup>1)</sup>	Yes	Yes	Yes	Yes	--			
Minimum pulse duration	ms	50					--	--				
Max. switching speed In switching cycles per hour	h <sup>-1</sup>	--					--	5TT440.../41...: 600 5TT442.../43...: 450 5TT445.../43...: 450 5TT446...: 360 5TT447...: 360		--		
Electrical service life At $I_e/U_e$ , p.f. = 0.6; incandescent lamp load 600 W (switching cycles)		50000					--	50000		100000	--	
Terminals ± Screw (Pozidriv)		1							Coil: 1; Contact: 2		1	
Torque	Nm	0.8 ... 1.0					max. 0.5		see conductor cross-sections		0.8	
Conductor cross-sections												
• Rigid	mm <sup>2</sup>	1 ... 6					0.5 ... 2.5		Coil: 1 ... 4, Torque: 0.6 Nm Contacts: 20 ... 32 A: 1 ... 10, Torque: 1.2 Nm 40 ... 63 A: 2.5 ... 25, Torque: 2 Nm		1 ... 4	
• Flexible, with end sleeve	mm <sup>2</sup>	1 ... 6					0.5 ... 2.5		Coil: 1 ... 4, Torque: 0.6 Nm Contacts: 20 ... 32 A: 1 ... 10, Torque: 1.2 Nm 40 ... 63 A: 2.5 ... 25, Torque: 2.0 Nm		1 ... 4	
Resistance to climate At 95 % relative humidity acc. to DIN 50015	°C	35							55		55	
Permissible ambient temperature	°C	-10 ... +40							Storage temperature -30 ... +80 Operating temperature -25 ... +55		Storage temperature -30 ... +80 Operating temperature -25 ... +70	
Degree of protection acc. to EN 60529		IP20, with connected conductors							IP20		IP20	
Mounting position		Any							Any (not upside down)			

<sup>1)</sup> For 2.5 MW 5TT4123-0 devices with PTC.

## Switching Devices




## 5TT4 remote control switches

## Selection and ordering data

	Contacts	$U_e$	$I_e$	$U_c$	$U_c$	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG		
		V AC	A AC	V AC	V DC	MW	d							
5TT41 remote control switches up to 16 A														
	Remote control switches, auxiliary switches can be retrofitted													
	1 NO	250	16	230 115 24 12 8	-- -- -- -- --	1	▶     	5TT4101-0 5TT4101-1 5TT4101-2 5TT4101-3 5TT4101-4		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	1BK 1BK 1BK 1BK 1BK		
	2 NO	400	16	230 115 24 12 8	-- -- -- -- --	1	▶     	5TT4102-0 5TT4102-1 5TT4102-2 5TT4102-3 5TT4102-4		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	1BK 1BK 1BK 1BK 1BK		
	3 NO	400	16	230 24	-- --	2	▶  	5TT4103-0 5TT4103-2		1 1	1 unit 1 unit	1BK 1BK		
	4 NO	400	16	230 24	-- --	2	▶  	5TT4104-0 5TT4104-2		1 1	1 unit 1 unit	1BK 1BK		
	1 NO + 1 NC	250	16	230 115 24 12 8	-- -- -- -- --	1	▶     	5TT4105-0 5TT4105-1 5TT4105-2 5TT4105-3 5TT4105-4		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	1BK 1BK 1BK 1BK 1BK		
		Remote control switches DC applications												
		1 NO	250	16	-- -- 12	110 24 12	1	▶   	5TT4111-1 5TT4111-2 5TT4111-3		1 1 1	1 unit 1 unit 1 unit	1BK 1BK 1BK	
		2 NO	400	16	-- -- 12	110 24 12	1	▶   	5TT4112-1 5TT4112-2 5TT4112-3		1 1 1	1 unit 1 unit 1 unit	1BK 1BK 1BK	
		1 NO + 1 NC	250	16	-- -- 12	110 24 12	1	▶   	5TT4115-1 5TT4115-2 5TT4115-3		1 1 1	1 unit 1 unit 1 unit	1BK 1BK 1BK	
		4 NO	400	16	-- -- 24	110 24 24	2	▶   	5TT4114-1 5TT4114-2		1 1	1 unit 1 unit	1BK 1BK	
			Remote control switches with central On/Off switching, auxiliary switch cannot be retrofitted											
			1 NO	250	16	230 24	-- --	1.5	▶  	5TT4121-0 5TT4121-2		1 1	1 unit 1 unit	1BK 1BK
			2 NO	400	16	230 24	-- --	1.5	▶  	5TT4122-0 5TT4122-2		1 1	1 unit 1 unit	1BK 1BK
			3 NO	400	16	230	--	2.5	▶	5TT4123-0		1	1 unit	1BK
			1 NO + 1 NC	250	16	230	--	1.5	▶	5TT4125-0		1	1 unit	1BK
				Remote control switches, with central and group On/Off switching, auxiliary switch cannot be retrofitted										
		1 NO		250	16	230 24	-- --	1.5 1.5	▶  	5TT4151-0 5TT4151-2		1 1	1 unit 1 unit	1BK 1BK
	2 NO	400		16	230 24	-- --	1.5 1.5	▶  	5TT4152-0 5TT4152-2		1 1	1 unit 1 unit	1BK 1BK	
		Series remote control switches Contact sequence 1 – 2 – 1+2 – 0 auxiliary switch cannot be retrofitted												
2 NO		250		16	230 12	-- --	1	▶  	5TT4132-0 5TT4132-3		1 1	1 unit 1 unit	1BK 1BK	










## 5TT4 remote control switches









	Contacts	$U_e$	$I_e$	$U_c$	$U_c$	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
		V AC	A AC	V AC	V DC	MW	d					
	<b>Shutter/blind remote control switches</b> <b>Contact sequence 1 – 0 – 2 – 0</b> <b>auxiliary switch cannot be retrofitted</b>							<b>5TT4142-0</b> <b>5TT4142-2</b> <b>5TT4142-3</b>		1 1 1	1 unit 1 unit 1 unit	1BK 1BK 1BK
	2 NO	250	16	230	--	1	▶					
				24	--							
				12	--							
<b>Auxiliary switches for 5TT41 remote control switches</b>										1 1	1 unit 1 unit	1BK 1BK
	<b>Auxiliary switches</b> <b>One device can be retrofitted per remote control switch</b>											
	1 CO	250	5	--	--	0.5	▶					
	1 CO for low power	30 AC/DC	0.1	--	--	0.5	▶					
	<b>Compensators</b> <b>For increasing the glow lamp load by 20 mA</b>							<b>5TT4920</b>		1	1 unit	1BK
		250	--	--	--	1	▶					

## Switching Devices

## 5TT4 remote control switches

	Contacts	U <sub>e</sub>	I <sub>e</sub>	U <sub>c</sub>	U <sub>c</sub>	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
		V AC	A AC	V AC	V DC	MW	d					
5TT44 remote control switches from 20 ... 63 A												
5TT44 remote control switches for AC applications												
	2 NO	440	20	230	--	1		5TT4402-0		1	1 unit	1BK
		440		24	--	1		5TT4402-2		1	1 unit	1BK
	1 NO + 1 NC	440		230	--	1		5TT4405-0		1	1 unit	1BK
		440		24	--	1		5TT4405-2		1	1 unit	1BK
	1 CO	250		230	--	1		5TT4407-0		1	1 unit	1BK
		250		24	--	1		5TT4407-2		1	1 unit	1BK
	2 NO	440	25	230	--	1		5TT4422-0		1	1 unit	1BK
		440		24	--	1		5TT4422-2		1	1 unit	1BK
	1 NO + 1 NC	440		230	--	1		5TT4425-0		1	1 unit	1BK
		440		24	--	1		5TT4425-2		1	1 unit	1BK
	2 CO	440		230	--	2		5TT4428-0		1	1 unit	1BK
		440		24	--	2		5TT4428-2		1	1 unit	1BK
	4 NO	440		230	--	2		5TT4424-0		1	1 unit	1BK
		440		24	--	2		5TT4424-2		1	1 unit	1BK
	2 NO + 2 NC	440		230	--	2		5TT4426-0		1	1 unit	1BK
		440		24	--	2		5TT4426-2		1	1 unit	1BK
	2 NO	440	32	230	--	1		5TT4452-0		1	1 unit	1BK
		440		24	--	1		5TT4452-2		1	1 unit	1BK
	1 NO + 1 NC	440		230	--	1		5TT4455-0		1	1 unit	1BK
		440		24	--	1		5TT4455-2		1	1 unit	1BK
	2 CO	440		230	--	2		5TT4458-0		1	1 unit	1BK
		440		24	--	2		5TT4458-2		1	1 unit	1BK
	4 NO	440		230	--	2		5TT4454-0		1	1 unit	1BK
		440		24	--	2		5TT4454-2		1	1 unit	1BK
	2 NO + 2 NC	440		230	--	2		5TT4456-0		1	1 unit	1BK
		440		24	--	2		5TT4456-2		1	1 unit	1BK
	2 NO	440	40	230	--	2		5TT4462-0		1	1 unit	1BK
		440		24	--	2		5TT4462-2		1	1 unit	1BK
	1 NO + 1 NC	440		230	--	2		5TT4465-0		1	1 unit	1BK
		440		24	--	2		5TT4465-2		1	1 unit	1BK
	2 CO	440		230	--	2		5TT4468-0		1	1 unit	1BK
		440		24	--	2		5TT4468-2		1	1 unit	1BK
	4 NO	440		230	--	4		5TT4464-0		1	1 unit	1BK
		440		24	--	4		5TT4464-2		1	1 unit	1BK
	2 NO + 2 NC	440		230	--	4		5TT4466-0		1	1 unit	1BK
		440		24	--	4		5TT4466-2		1	1 unit	1BK
	2 NO	440	63	230	--	2		5TT4472-0		1	1 unit	1BK
		440		24	--	2		5TT4472-2		1	1 unit	1BK
	1 NO + 1 NC	440		230	--	2		5TT4475-0		1	1 unit	1BK
		440		24	--	2		5TT4475-2		1	1 unit	1BK
	2 CO	440		230	--	2		5TT4478-0		1	1 unit	1BK
		440		24	--	2		5TT4478-2		1	1 unit	1BK
	4 NO	440		230	--	4		5TT4474-0		1	1 unit	1BK
		440		24	--	4		5TT4474-2		1	1 unit	1BK
	2 NO + 2 NC	440		230	--	4		5TT4476-0		1	1 unit	1BK
2 NO + 2 NC		440		24	--	4		5TT4476-2		1	1 unit	1BK

## 5TT4 remote control switches

	Contacts	$U_e$	$I_e$	$U_c$	$U_c$	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
		V AC	A AC	V AC	V DC	MW	d					
	<b>5TT44 remote control switches for DC applications</b>											
	2 NO	440	20	--	24	1		<b>5TT4412-5</b>		1	1 unit	1BK
	2 NO	440	25	--	24	1		<b>5TT4432-5</b>		1	1 unit	1BK
	2 NO	440	32	--	24	1		<b>5TT4452-5</b>		1	1 unit	1BK
2 NO 	1 NO + 1 NC	440	20	--	24	1		<b>5TT4415-5</b>		1	1 unit	1BK
	1 NO + 1 NC	440	25	--	24	1		<b>5TT4435-5</b>		1	1 unit	1BK
	1 NO + 1 NC	440	32	--	24	1		<b>5TT4455-5</b>		1	1 unit	1BK
1 NO + 1 NC 	1 CO	250	20	--	24	1		<b>5TT4417-5</b>		1	1 unit	1BK
	1 CO	250	25	--	24	1		<b>5TT4437-5</b>		1	1 unit	1BK
	1 CO	250	32	--	24	1		<b>5TT4457-5</b>		1	1 unit	1BK
1 CO 	1 NO	250	20	--	24	1		<b>5TT4411-5</b>		1	1 unit	1BK
	1 NO	250	25	--	24	1		<b>5TT4431-5</b>		1	1 unit	1BK
	1 NO	250	32	--	24	1		<b>5TT4451-5</b>		1	1 unit	1BK
1 NO 												
<b>Auxiliary switches for 5TT44 remote control switches</b>												
	<b>Auxiliary switches</b>											
	1 NO + 1 NC	250	16	--	--	0.5		<b>5TT4930</b>		1	1 unit	1BK
	<b>Auxiliary switches, central with diode</b> For central function (no auxiliary switch)											
	--	250	--	--	--	0.5		<b>5TT4931</b>		1	1 unit	1BK
	<b>Auxiliary switches, group with several diodes</b> For group function (no auxiliary switch)											
	--	250	--	--	--	0.5		<b>5TT4932</b>		1	1 unit	1BK

## Switching Devices

### 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 5TE9100 and 5TE9101 busbars, the switching relays can be mounted quickly and safely, e.g. by bus mounting the N conductor and/or infeed.

#### Note:

For suitable busbars for the 5TT42 switching relays, see [page 9/22](#).

#### 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 5TT42 switching relays can be bus-mounted with each other.

#### Technical specifications

		5TT4201-.	5TT4202-.	5TT4204-.	5TT4205-.	5TT4206-.	5TT4207-.	5TT4217-.
Standards		EN 60947-5-1, EN 60669-2-2						
Approvals		VDE, CCC						
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	$\times U_c$	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						
Torque	Nm	0.8 ... 1						
Conductor cross-sections • Rigid • Flexible, with end sleeve	mm <sup>2</sup> mm <sup>2</sup>	1 ... 6 1 ... 6						
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						

## Selection and ordering data

	Contacts	U <sub>e</sub>	I <sub>e</sub>	U <sub>c</sub>	U <sub>c</sub>	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG	
		V AC	A AC	V AC	V DC	MW	d						
	Switching relays for AC voltage												
	1 NO	250	16	230	--	1	▶	5TT4201-0		1	1 unit	1BK	
				115			▶	5TT4201-1					
				24			▶	5TT4201-2					
				12			▶	5TT4201-3					
	2 NO	400	16	230	--	1	▶	5TT4202-0		1	1 unit	1BK	
				115			▶	5TT4202-1					
				24			▶	5TT4202-2					
				12			▶	5TT4202-3					
	4 NO	400	16	230	--	2	▶	5TT4204-0		1	1 unit	1BK	
				115			▶	5TT4204-1					
				24			▶	5TT4204-2					
				12			▶	5TT4204-3					
	1 NO + 1 NC	400	16	230	--	1	▶	5TT4205-0		1	1 unit	1BK	
				115			▶	5TT4205-1					
24				▶			5TT4205-2						
12				▶			5TT4205-3						
1 CO	250	16	230	--	1	▶	5TT4206-0		1	1 unit	1BK		
			115			▶	5TT4206-1						
			24			▶	5TT4206-2						
			12			▶	5TT4206-3						
2 CO	400	16	230	--	1	▶	5TT4207-0		1	1 unit	1BK		
			115			▶	5TT4207-1						
			24			▶	5TT4207-2						
			12			▶	5TT4207-3						
			8				▶	5TT4207-4		1	1 unit	1BK	
	Switching relays for DC voltage												
	2 CO	400	16	--	110 30 24 12	1	▶	5TT4217-1		1	1 unit	1BK	
							▶	5TT4217-6					
							▶	5TT4217-2					
							▶	5TT4217-3					
		Spacers											
		In the case of higher ambient temperatures, we recommend placing a spacer after every second switching relay for better heat dissipation.					0.5		5TG8240		1	2 units	1BK

## Switching Devices

### 5TT5 Insta Contactors

#### 5TT50 Insta contactors, AC/DC technology

##### Overview

The Insta contactors are the ideal switching devices 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 5TT50 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
- Hum-free

##### Benefits



- 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

**Technical specifications**

			5TT500 2-pole	5TT503 4-pole	5TT504 4-pole	5TT505 4-pole
<b>Standards</b>			EN 60947-4-1; EN 60947-5-1; EN 61095			
<b>Approvals</b>			UL 508; UL File No. E303328; CCC			
<b>Rated frequency at AC <math>f_n</math></b>	Hz		50/60			
<b>Rated operational voltage <math>U_c</math></b>	V AC		24, 230	24, 115, 230	24, 230	
	V DC		24, 220	24, 110, 220	24, 230	
<b>Primary operating range</b>	$\times U_c$		0.85 ... 1.1			
<b>Rated operational voltage <math>U_e</math></b>	V		230	400		
<b>Rated operational current <math>I_e</math></b> • AC-1/AC-7a, NO contacts • AC-1/AC-7a, NC contacts • AC-3/AC-7b, NO contacts • AC-3/AC-7b, NC contacts	At V AC		Acc. to UL 480; acc. to IEC 440			
	A		20	25	40	63
	A		20	25	40	63
	A		9	8.5	22	30
	A		6	8.5	22	30
<b>Rated power dissipation <math>P_v</math></b> • Pick-up power (without manual switch or manual switch in "I" position) • Pick-up power (with manual switch in "AUTO" position) • Holding power • Per contact AC-1/AC-7a	VA/W		2.1/2.1	2.6/2.6	5/5	5/5
	VA/W		2.1/4.1	2.6/2.6	5/5	5/5
	VA/W		2.1/2.1	2.6/2.6	5/5	5/5
	VA		1.7	2.2	4	8
<b>Switching times</b> • Closing (NO contacts) • Opening (NO contacts)	ms		15 - 45	15 - 45	15 - 20	
	ms		20 - 50	20 - 70	35 - 45	
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>	kV		$\leq 4$			
<b>Contact gap</b> (NO contacts) min.	mm		3.6			
<b>Electrical service life</b> At $I_e$ and load	AC-1/AC-7a	In switching cycles	200000		100000	
	AC-3/AC-7b	In switching cycles	300000	500000		150000
<b>Mechanical service life</b>		In switching cycles	3 million			
<b>Maximum switching frequency</b> At load	AC-1/AC-7a	Switching cycles/h	600			
	AC-3/AC-7b	Switching cycles/h	600			
<b>Switching of resistive loads AC-1</b> For rated operational power $P_s$ (NO contacts) • Single-phase • Three-phase	V AC		230	400		
	kW		4	5.4	8.7	13.3
	kW		--	16	26	40
<b>Switching of three-phase asynchronous motors AC-3</b> For rated operational power $P_s$ (NO contacts) • Single-phase • Three-phase	V AC		230	400		
	kW		1.3/0.75	1.3/1.3	3.7/3.7	5/5
	kW		--	4	11	15
<b>Minimum switching capacity</b>	V, mA		$\geq 17; 50$			
<b>Overload withstand capability</b> Per conducting path (NO contacts only) At 10 s	A		72	68	176	240
	A		20	25	63	80
<b>Short-circuit protection, according to coordination type 1</b> Back-up fuse characteristic gL/gG			20	25	63	80
<b>Terminals</b> • Coil connection • Main connection	$\pm$ Screw (Pozidriv)		1	1		
			1	2		
<b>Tightening torques</b> • Coil connection • Main connection	Nm		0.6	0.6		
	Nm		1.2	3.5		
<b>Conductor cross-sections</b> • Coil connection - Solid - Stranded, with end sleeve - AWG cables Tightening torque • Main connection - Solid - Stranded, with end sleeve - AWG cables Tightening torque	mm <sup>2</sup>		1.0 ... 2.5			
	mm <sup>2</sup>		1.0 ... 2.5			
	AWG		16 ... 10			
	lbs/in.		8			
	mm <sup>2</sup>		1.0 ... 10	1.5 ... 25		
<b>Permissible ambient temperature</b> • For operation • For storage	°C		-15 ... +55 <sup>1)</sup>			
	°C		-50 ... +80			
<b>Degree of protection</b>	Acc. to EN 60529		IP 20, with connected conductors			
<b>Acc. to UL 508</b>	$I_n$	A	20	25	40	63
<b>UL 508 General Use 240 V/480 V</b>	FLA	A	20	25	40	63
<b>UL 508 AC discharge lamps</b>		A	20	25	30	40
<b>UL 508 motor load 240 V</b>	Power	hp	1	3	7.5	10
<b>UL 508 motor load 480 V</b>	Power	hp	--	5	15	20
<b>UL 508 short-circuit at 480 V</b>	K5 fuses	A	20	25	60	70

<sup>1)</sup> 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. For questions concerning heat dissipation, please refer to the instructions in the [Configuration Manual "Switching Devices"](#).




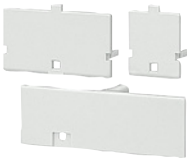


# Switching Devices

## 5TT5 Insta Contactors

### 5TT50 Insta contactors, AC/DC technology

#### Selection and ordering data

	Contacts	$U_e$	$I_e$	$U_c$		Mount- ing width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
		V AC	A AC	V AC	V DC	MW	d					
 5TT5000-0	<b>Insta contactors</b> For AC or DC continuous operation, with switching position indication, with DC magnetic system											
	2 NO	230	20	230 24	220 24	1		5TT5000-0 5TT5000-2		1 1	1 unit 1 unit	1BK 1BK
	1 NO, 1 NC	230	20	230 24	220 24	1		5TT5001-0 5TT5001-2		1 1	1 unit 1 unit	1BK 1BK
	2 NC	230	20	230 24	220 24	1		5TT5002-0 5TT5002-2		1 1	1 unit 1 unit	1BK 1BK
	4 NO	400	25	230 115 24	220 110 24	2		5TT5030-0 5TT5030-1 5TT5030-2		1 1 1	1 unit 1 unit 1 unit	1BK 1BK 1BK
	3 NO, 1 NC	400	25	230 24	220 24	2		5TT5031-0 5TT5031-2		1 1	1 unit 1 unit	1BK 1BK
	2 NO, 2 NC	400	25	230 24	220 24	2		5TT5032-0 5TT5032-2		1 1	1 unit 1 unit	1BK 1BK
	4 NC	400	25	230 24	220 24	2		5TT5033-0 5TT5033-2		1 1	1 unit 1 unit	1BK 1BK
	4 NO	400	40	230 24	220 24	3		5TT5040-0 5TT5040-2		1 1	1 unit 1 unit	1BK 1BK
	3 NO, 1 NC	400	40	230 24	220 24	3		5TT5041-0 5TT5041-2		1 1	1 unit 1 unit	1BK 1BK
	2 NO, 2 NC	400	40	230 24	220 24	3		5TT5042-0 5TT5042-2		1 1	1 unit 1 unit	1BK 1BK
	4 NC	400	40	230 24	220 24	3		5TT5043-0 5TT5043-2		1 1	1 unit 1 unit	1BK 1BK
	4 NO	400	63	230 24	220 24	3		5TT5050-0 5TT5050-2		1 1	1 unit 1 unit	1BK 1BK
	3 NO, 1 NC	400	63	230 24	220 24	3		5TT5051-0 5TT5051-2		1 1	1 unit 1 unit	1BK 1BK
	2 NO, 2 NC	400	63	230 24	220 24	3		5TT5052-0 5TT5052-2		1 1	1 unit 1 unit	1BK 1BK
 5TT5000-6	<b>Automatic Insta contactors</b> For AC or DC continuous operation, with switching position indication, with DC magnetic system											
	2 NO	230	20	230 24	220 24	1		5TT5000-6 5TT5000-8		1 1	1 unit 1 unit	1BK 1BK
	1 NO, 1 NC	230	20	230 24	220 24	1		5TT5001-6 5TT5001-8		1 1	1 unit 1 unit	1BK 1BK
	4 NO	400	25	230 24	220 24	2		5TT5030-6 5TT5030-8		1 1	1 unit 1 unit	1BK 1BK
	3 NO, 1 NC	400	25	230 24	220 24	2		5TT5031-6 5TT5031-8		1 1	1 unit 1 unit	1BK 1BK
 5TT5910-0	<b>Auxiliary switches</b> For mounting on right-hand side Max. one auxiliary switch per Insta contactor											
	2 NO	230, AC-15	6	--	--	0.5	▶	5TT5910-0		1	1 unit	1BK
	1 NO, 1 NC	230, AC-15	6	--	--		▶	5TT5910-1		1	1 unit	1BK
	<b>Sealable terminal covers</b> For Insta contactor 20 A For Insta contactor 25 A For Insta contactors 40 A and 63 A											
						1		5TT5910-5		1	2 units	1BK
						2		5TT5910-6		1	2 units	1BK
						3		5TT5910-7		1	2 units	1BK

### Overview

The 5TT58 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.

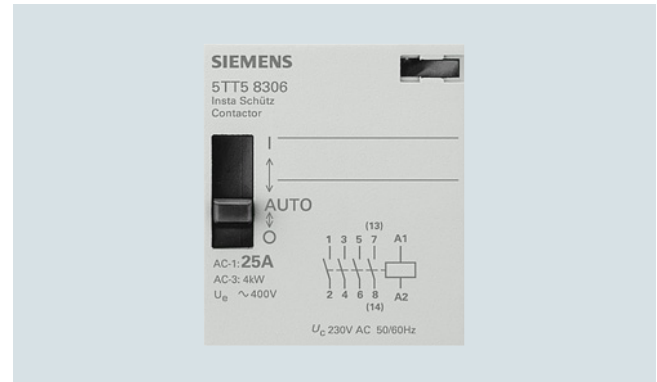
### Insta contactors with manual switch

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

## Switching Devices

### 5TT5 Insta Contactors

#### 5TT58 Insta contactors, AC technology

#### Technical specifications

			Insta contactors				Auxiliary switches
			5TT580.	5TT582., 5TT583.	5TT584.	5TT585.	5TT5910
<b>Standards</b>			IEC 60947-4-1, IEC 60947-5-1, IEC 61095; EN 60947-4-1, EN 60947-5-1, EN 61095, VDE 0660				IEC 60947-5-1
<b>Approvals</b>			CCC				
<b>Number of poles</b>			2	4	4	4	2
<b>Rated frequency at AC</b>			50/60				
<b>Rated operational voltage <math>U_c</math></b>			24, 230	24, 115, 230	24, 230	24, 230	--
<b>Primary operating range</b>			$\times U_c$ 0.85 ... 1.1				--
<b>Rated operational voltage <math>U_e</math></b>			230	400			230/400
<b>Rated operational current <math>I_e</math></b>			20	25	40	63	6/4 (230/400 V)
<b>Rated power dissipation <math>P_v</math></b>							
• 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	--
<b>Switching times</b>							
• 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		--
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>			kV 4				
<b>Rated insulation voltage <math>U_i</math></b>			V 440				500
<b>Contact gap, minimum</b>			mm 3.6				3.4
<b>Electrical service life</b>							
At $I_e$ and load							
• AC-1/AC-7a		In switching cycles	200000		100000		--
• AC-3/AC-7b			300000	500000	150000		--
<b>Mechanical service life</b>			In switching cycles 3 million				
<b>Maximum switching frequency</b>							
At load		In switching cycles/h	600				
<b>Switching of resistive loads AC-1/AC-7a</b>							
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	--
<b>Switching of three-phase asynchronous motors AC-3/AC-7b</b>							
For rated operational power $P_s$							
• Single-phase 230 V		kW	1.3 <sup>1)</sup>	1.3	3.7	5	--
• Three-phase 400 V		kW	--	4	11	15	--
<b>Minimum switching capacity</b>			V; mA 17; 50				12; 5
<b>Overload withstand capability</b>							
Per conducting path (NO contacts only)		At 10 s	A	72	68	176	240
<b>Short-circuit protection, according to coordination type 1</b>							
Back-up fuse characteristic gL/gG		A	20	25	63	80	6
<b>Terminals</b>			± Screw (Pozidriv)				
• Coil connection			PZ1		PZ1		--
• Main connection			PZ1		PZ2		PZ1
<b>Tightening torques</b>							
• Coil connection		Nm	0.6				--
• Main connection		Nm	1.2		3.5		0.8
<b>Conductor cross-sections</b>							
• Coil connection		Rigid	mm <sup>2</sup>	1.0 ... 2.5			--
		Flexible, with end sleeve	mm <sup>2</sup>	1.0 ... 2.5			--
• Main connection		Rigid	mm <sup>2</sup>	1.0 ... 10	1 ... 25		1 ... 2.5
		Flexible, with end sleeve	mm <sup>2</sup>	1.0 ... 6	1 ... 16		1 ... 2.5
<b>Permissible ambient temperature<sup>2)</sup></b>							
• For operation		°C	-5 ... +55				
• For storage		°C	-30 ... +80				
<b>Degree of protection</b>			Acc. to EN 60529				IP20, with connected conductors

<sup>1)</sup> For NO contacts only.





<sup>2)</sup> For questions concerning heat dissipation, please refer to the instructions in the [Configuration Manual "Switching Devices"](#).

# Switching Devices

## 5TT5 Insta Contactors

### 5TT58 Insta contactors, AC technology





#### Selection and ordering data

	Version	U <sub>e</sub>	I <sub>e</sub>	U <sub>c</sub>	Mount- ing width	SD	Article No. <a href="http://www.siemens.com/product?ArticleNo.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
		V AC	A AC	V AC	MW	d					
 5TT5800-0	<b>Insta contactors without manual switch</b>										
	For alternating current continuous operation, with switching position indication, with AC magnetic system										
	2 NO	230	20	230 24	1	▶	5TT5800-0 5TT5800-2		1 1	1 unit 1 unit	1BK 1BK
	1 NO, 1 NC	230	20	230 24		▶	5TT5801-0 5TT5801-2		1 1	1 unit 1 unit	1BK 1BK
	2 NC	230	20	230 24		▶	5TT5802-0 5TT5802-2		1 1	1 unit 1 unit	1BK 1BK
	4 NO	400	25	230 115 24	2	▶	5TT5830-0 5TT5830-1 5TT5830-2		1 1 1	1 unit 1 unit 1 unit	1BK 1BK 1BK
	3 NO, 1 NC	400	25	230 115 24		▶	5TT5831-0 5TT5831-1 5TT5831-2		1 1 1	1 unit 1 unit 1 unit	1BK 1BK 1BK
	4 NO For high capacitive loads up to 150 µF	400	25	230 24	2		5TT5820-0		1	1 unit	1BK
	2 NO, 2 NC	400	25	230 24		▶	5TT5832-0 5TT5832-2		1 1	1 unit 1 unit	1BK 1BK
	4 NC	400	25	230 24		▶	5TT5833-0 5TT5833-2		1 1	1 unit 1 unit	1BK 1BK
 5TT5830-0	4 NO	400	40	230 24	3	▶	5TT5840-0 5TT5840-2		1 1	1 unit 1 unit	1BK 1BK
	3 NO, 1 NC	400	40	230 24			5TT5841-0 5TT5841-2		1 1	1 unit 1 unit	1BK 1BK
	2 NO, 2 NC	400	40	230 24			5TT5842-0 5TT5842-2		1 1	1 unit 1 unit	1BK 1BK
	4 NC	400	40	230 24		▶	5TT5843-0 5TT5843-2		1 1	1 unit 1 unit	1BK 1BK
	4 NO	400	63	230 24	3	▶	5TT5850-0 5TT5850-2		1 1	1 unit 1 unit	1BK 1BK
	3 NO, 1 NC	400	63	230 24		▶	5TT5851-0 5TT5851-2		1 1	1 unit 1 unit	1BK 1BK
	2 NO, 2 NC	400	63	230 24			5TT5852-0 5TT5852-2		1 1	1 unit 1 unit	1BK 1BK
	4 NC	400	63	230 24		▶	5TT5853-0 5TT5853-2		1 1	1 unit 1 unit	1BK 1BK
 5TT5840-0	<b>Auxiliary switches</b>										
	For mounting on right-hand side Max. one auxiliary switch per Insta contactor										
	2 NO 1 NO, 1 NC	230, AC-15 230, AC-15	6 6	-- --	0.5	▶	5TT5910-0 5TT5910-1		1 1	1 unit 1 unit	1BK 1BK
 5TT5910-0	<b>Sealable terminal covers</b>										
	For Insta contactor 20 A						5TT5910-5		1	2 units	1BK
	For Insta contactor 25 A						5TT5910-6		1	2 units	1BK
	For Insta contactors 40 A and 63 A						5TT5910-7		1	2 units	1BK

# Switching Devices

## 5TT5 Insta Contactors

### 5TT58 Insta contactors, AC technology

	Version	$U_e$ V AC	$I_e$ A AC	$U_c$ V AC	Mount- ing width MW	SD d	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
 5TT5800-6   5TT5830-6   5TT5840-6	<b>Insta contactors with manual switch 0/I/Automatic</b> For alternating current continuous operation, with switching position indication, with AC magnetic system										
	2 NO	230	20	230 24	1	▶	5TT5800-6 5TT5800-8		1 1	1 unit 1 unit	1BK 1BK
	1 NO, 1 NC	230	20	230 24		▶	5TT5801-6 5TT5801-8		1 1	1 unit 1 unit	1BK 1BK
	4 NO	400	25	230 24	2	▶	5TT5830-6 5TT5830-8		1 1	1 unit 1 unit	1BK 1BK
	3 NO, 1 NC	400	25	230 24		▶	5TT5831-6 5TT5831-8		1 1	1 unit 1 unit	1BK 1BK
	4 NO	400	40	230 24	3	▶	5TT5840-6 5TT5840-8		1 1	1 unit 1 unit	1BK 1BK
	3 NO, 1 NC	400	40	230 24		▶	5TT5841-6 5TT5841-8		1 1	1 unit 1 unit	1BK 1BK
	4 NO	400	63	230		▶	5TT5850-6		1	1 unit	1BK
	<b>Auxiliary switches</b> For mounting on right-hand side Max. one auxiliary switch per Insta contactor										
	2 NO	230, AC-15	6	--	0.5	▶	5TT5910-0		1	1 unit	1BK
	1 NO, 1 NC	230, AC-15	6	--		▶	5TT5910-1		1	1 unit	1BK
	<b>Sealable terminal covers</b> For Insta contactor 20 A For Insta contactor 25 A For Insta contactors 40 A and 63 A										
					1		5TT5910-5		1	2 units	1BK
					2		5TT5910-6		1	2 units	1BK
					3		5TT5910-7		1	2 units	1BK

## Overview

Soft-starting devices are rugged electronic control devices for soft starting of three-phase asynchronous machines. By means of phase-angle control, two of the motor's three phases are influenced in such a way that the current in these phases rises constantly. The motor torque behaves in the same way during start-up. This ensures that the drive can start without jolting. This rules out damage to drive elements because the starting torque does not rise abruptly on direct activation. This characteristic permits a low-cost design of the drive elements.

A clear reduction in starting noise can also be witnessed. On belt conveyor systems, sliding or tilting over of the goods conveyed is avoided. After starting, the power electronics is by-passed by means of an internal relay contact to minimize losses in the device.

## Benefits


- Extends the service life of asynchronous motors and mechanical drive components.
- Separate possibility of setting the start-up time and the initial torque. Can be combined with motor brake devices.
- 2-phase motor control
- For motor power outputs up to 5.5 kW

## Technical specifications

				5TT3440
<b>Standards</b>				EN 60947-4-2 (VDE 0660-117)
<b>Supply/motor voltage</b>		V AC		400
<b>Primary operating range</b>		$\times U_c$		0.8 ... 1.1
<b>Rated power</b>		VA		3.5
<b>Rated frequency</b>		Hz		50/60
<b>Rated power dissipation <math>P_v</math></b>		Coil/drive Contacts <sup>1)</sup> per pole		3.5 4.6
<b>Rated output of motor</b>				
- Max.	At 400 V	VA		5500
- Min.	At 400 V	VA		300
<b>Startup voltage</b>		%		30 ... 70
<b>Starting ramp</b>		s		0.1 ... 10
<b>Recovery time</b>		ms		100
<b>Switching frequency</b>				
$3 \times I_N, T_{AN} = 10 \text{ s}, v_U = 20 \%$		Switching cycles/h		36 (up to 3 kW)
$3 \times I_N, T_{AN} = 10 \text{ s}, v_U = 20 \%$		Switching cycles/h		20 (from 3 ... 5.5 kW)
<b>Semiconductor fuse</b>		Quick-acting	A	35
<b>Conductor cross-sections</b>		Rigid Flexible, with end sleeve	max. mm <sup>2</sup> min. mm <sup>2</sup>	$2 \times 2.5$ $1 \times 0.5$
<b>Permissible ambient temperature</b>			°C	-20 ... +60
<b>Resistance to climate</b>		Acc. to EN 60068-1		20/60/4

<sup>1)</sup> For rated operational current.

## Selection and ordering data

Version	$U_e$	$P_c$	Mount- ing width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	V AC	W	MW	d					
<b>Soft-starting devices, mounting depth 55 mm</b>									
	Three-phase, two-phase motor control			400	300 ... 5500	6			
							5TT3440	1	1 unit 1BK

## Switching Devices

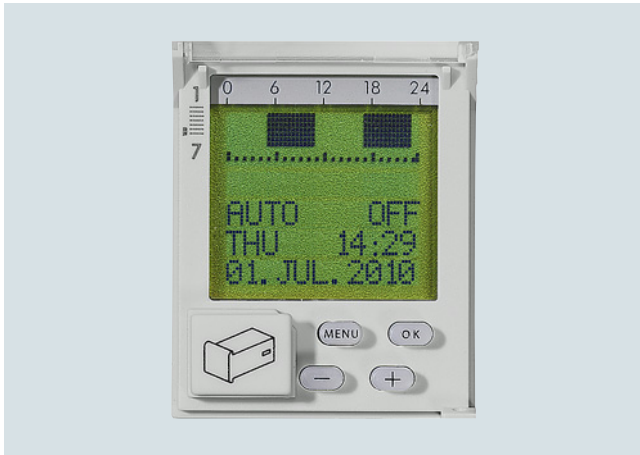
### 7LF, 5TT3 Timers

#### 7LF4 digital time switches

##### Overview

##### *Top, Profi, Astro and Expert digital time switches*

Text-assisted programming directly on the device.

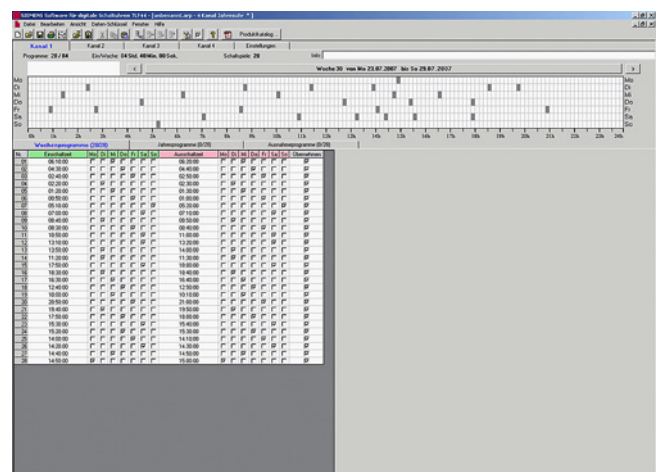


The Profi, Astro and Expert digital time switches support plug-in data keys.

##### *USB adapter*



The Profi, Astro and Expert time switches are easy to program at the PC using the data key with the USB adapter and software.



- Clear data on the annual ON time of the load enables a precise statement on the annual power consumption
- You can create switching programs conveniently at the PC, store it on the data key and transfer it locally to the time switch
- Time saving during program creation, commissioning and maintenance



## Technical specifications

		Mini 7LF4501-5 <b>NEW</b>	Top 7LF4511 7LF4512	Profi 7LF4521 7LF4522	Astro 7LF4531 7LF4532	Expert 7LF4444
<b>Standards</b>		EN 60730-1, -2-7; VDE 0631-1, -2-7				
<b>Approvals</b>		UL File No. E301698				
<b>Supply</b>						
• Rated control supply voltage $U_c$	V AC	230	230	230	230	120/230
- Primary operating range	V AC/DC	--	--	24	--	24
- Frequency ranges	$\times U_c$	0.85 ... 1.1	0.85 ... 1.1	0.85 ... 1.1 <sup>1)</sup>	0.85 ... 1.1	80 ... 253 V <sup>1)</sup>
	Hz	50/60	50/60	50/60 <sup>2)</sup>	50/60	50/60 <sup>2)</sup>
• Rated power dissipation $P_v$	VA	0.9	2	2	2	2.5/4 <sup>3)</sup>
<b>Channels/contacts</b>						
• Switching channels		1	1 or 2			4
- Rated operational voltage $U_e$	V AC	250				
- Rated operational current $I_e$	A	16				
At p.f. = 1	A	10				
At p.f. = 0.6						
• Contacts		1 NO	1 or 2 CO			4 CO
- Mechanical switching cycles (in millions)		> 5	10			
- Electrical switching cycles	At p.f. = 1	6000 (20 A)	100000			
• Minimum contact load	V; mA	12; 100				
• Incandescent lamp load	A	5	8			
• Fluorescent lamp load	VA	60	60	600		58
Uncorrected	VA	2500	2300	2000		1400
• Energy-saving lamp load	W	300	60 VA	1000		100
<b>Safety</b>						
• Different phases permissible between actuator/contact <sup>7)</sup>		Yes				
• Rated impulse withstand voltage $U_{imp}$	kV	4.0				
- EMC: Burst	Acc. to IEC 61000-4-4	kV	> 4.4			
- EMC: Surge	Acc. to IEC 61000-4-5	kV	> 2.0			
- Electrostatic discharge	Acc. to IEC 61000-4-2	kV	> 8.0			
• Power reserve storage	Battery	a	3	5		
- Battery type		Li primary cell				
• Program memory	Captive	--	No	Yes		
• Overvoltage category	Acc. to EN 61010-1	III				
<b>Function</b>						
• Minimum switching sequences		1 min		1 s		
• Make and break cycles		1 min		1 s		
• Clock errors per day	Typical	s/day	$\pm 1$	$\pm 1.5$	$\pm 0.1$	$\pm 0.2$
• Control input	Terminal S	--	No		Yes (only in the case of 1K clock)	
• Memory spaces						
- Programs <sup>4)</sup>		28	28 (2 × 14)	56 (2 × 28)	56 (2 × 28)	4 × 3 × 28
<b>Connections</b>						
• Terminals ± Screw (Pozidriv)		PZ 1				
• Conductor cross-sections of main current paths						
- Rigid, max.	mm <sup>2</sup>	4				
- Rigid, min.	mm <sup>2</sup>	1.5				
- Flexible with end sleeve	Max. mm <sup>2</sup>	2.5				
<b>Environmental conditions</b>						
• 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				

<sup>1)</sup> For 24 V devices (7LF4521-2, 7LF4522-2 and 7LF4444-2):  
Tolerance -10/+10 %; operating range 0.9 ... 1.1 ×  $U_c$ .

<sup>2)</sup> For 24 V devices (7LF4521-2, 7LF4522-2 and 7LF4444-2):  
Frequency range 0 ... 60 Hz.

<sup>3)</sup> For 24 V device (7LF4444-2):  $P_v = 4$  VA.

<sup>4)</sup> A program consists of an ON time, an OFF time and assigned ON and OFF days or day blocks.

<sup>5)</sup> DCF/GPS atomic clock error, without antenna:  $\pm 0.1$  s/day

<sup>6)</sup> Control input for connection of the time signal + local coordinates (GPS) from the antenna power supply module





<sup>7)</sup> The combination of line voltage (230 V) and SELV in combination with a 2K clock is not admissible. This requirement is, however, admissible in the case of 1K clocks and the Expert 4K.

## Switching Devices

### 7LF, 5TT3 Timers

#### 7LF4 digital time switches






##### Selection and ordering data

	Contacts	$U_e$ V AC	$I_e$ A AC	$U_c$ V AC	Mounting width MW	SD d	Article No. <a href="http://www.siemens.com/product?ArticleNo.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	<b>Mini digital time switches</b> <span style="background-color: orange;">NEW</span>										
	<ul style="list-style-type: none"> <li>Weekly program</li> <li>1 channel</li> </ul> 1 NO	250	16	230	1	▶					
							<b>7LF4501-5</b>		1	1 unit	1BK
	<b>Top digital time switches</b>										
	<ul style="list-style-type: none"> <li>Weekly program</li> <li>With text-assisted programming concept – language: English</li> <li>Manual daylight-saving adjustment</li> <li>1 channel</li> <li>28 programs</li> </ul> 1 CO	250	16	230	2						
	<ul style="list-style-type: none"> <li>2 channels</li> <li>28 programs (14 per channel)</li> </ul> 2 CO	250	16	230	2		<b>7LF4511-0</b>		1	1 unit	1BK
	<b>Profi digital time switches</b>										
	<ul style="list-style-type: none"> <li>Weekly program</li> <li>With text-assisted programming concept languages: 15 languages</li> <li>Simple program creation by means of PC using the software included with the 7LF4941-0 USB adapter</li> <li>Vacation program</li> <li>Random program</li> <li>Operating hours counter, counting range: 65535 h</li> <li>Synchronization 50/60 Hz</li> <li>Cycle function</li> <li>Expert mode</li> <li>Accurate to the second hh:mm:ss</li> <li>Automatic daylight-saving adjustment</li> </ul> 1 channel										
	<ul style="list-style-type: none"> <li>56 programs</li> </ul> 1 CO	250	16	230	2		<b>7LF4521-0</b>		1	1 unit	1BK
	1 CO	250	16	24 AC/DC	2		<b>7LF4521-2</b>		1	1 unit	1BK
	<ul style="list-style-type: none"> <li>2 channels</li> <li>56 programs (28 per channel)</li> <li>Channel changeover function</li> </ul> 2 CO	250	16	230	2		<b>7LF4522-0</b>		1	1 unit	1BK
	2 CO	250	16	24 AC/DC	2		<b>7LF4522-2</b>		1	1 unit	1BK
	<b>Astro digital time switches</b>										
	<ul style="list-style-type: none"> <li>Weekly program</li> <li>Astro function</li> <li>With text-assisted programming concept languages: 15 languages</li> <li>Simple program creation by means of PC using the software included with the 7LF4941-0 USB adapter</li> <li>Vacation program</li> <li>1 h test</li> <li>Input disable via PIN code</li> <li>Operating hours counter, counting range: 65535 h</li> <li>Random program</li> <li>Automatic daylight-saving adjustment</li> <li>Daylight-saving adjustment half-year correction</li> <li>Expert mode</li> <li>Synchronization 50/60 Hz</li> <li>Accurate to the second hh:mm:ss</li> </ul> 1 channel										
	<ul style="list-style-type: none"> <li>56 programs</li> <li>With control input, delay time 0 min ... 23 h 59 min</li> </ul> 1 CO	250	16	230	2		<b>7LF4531-0</b>		1	1 unit	1BK
	<ul style="list-style-type: none"> <li>2 channels</li> <li>56 programs (28 per channel)</li> <li>Channel changeover function</li> </ul> 2 CO	250	16	230	2		<b>7LF4532-0</b>		1	1 unit	1BK

# Switching Devices

## 7LF, 5TT3 Timers

### 7LF4 digital time switches

	Contacts	$U_e$	$I_e$	$U_c$	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
		V AC	A AC	V AC	MW	d					
<b>Expert digital time switches</b> <ul style="list-style-type: none"> <li>Weekly program</li> <li>Year program</li> <li>84 programs per channel</li> <li>Exception program (priority program)</li> <li>Astro function</li> <li>Simple program creation by means of PC using the software included with the 7LF4941-0 USB adapter</li> <li>Vacation function</li> <li>1 h test</li> <li>Input disable via PIN code</li> <li>Operating hours counter, counting range: 65535 h</li> </ul>											
	<b>Expert</b> <ul style="list-style-type: none"> <li>Use Expert data key, Article No. 7LF4940-2</li> <li>With text-assisted programming concept – languages: German, English, French, Italian, Dutch, Spanish</li> <li>Cycle function can be chosen for channel 1 only</li> <li>4 channels</li> </ul>										
	4 CO	250	16	120/230	6	▶	<b>7LF4444-0</b>		1	1 unit	1BK
	4 CO	250	16	24 AC/DC	6	▶	<b>7LF4444-2</b>		1	1 unit	1BK
	<b>Data keys for Profi and Astro digital time switches</b> <ul style="list-style-type: none"> <li>Programming at the PC (7LF4941-0 USB adapter and software required)</li> <li>Read-in of programs to the time switch</li> <li>Writing of programs from the time switch</li> <li>Transfer of programs               <ul style="list-style-type: none"> <li>From PC to time switch and vice versa</li> <li>From time switch to time switch</li> </ul> </li> </ul>						<b>7LF4941-1</b>		1	1 unit	1BK
	<b>Data keys for Expert digital time switch</b> <ul style="list-style-type: none"> <li>Programming at the PC (7LF4940-0 or 7LF4941-0 USB adapter and software required)</li> <li>Read-in of programs to the time switch</li> <li>Writing of programs from the time switch</li> <li>Transfer of programs               <ul style="list-style-type: none"> <li>From PC to time switch and vice versa</li> <li>From time switch to time switch</li> </ul> </li> </ul>						▶ <b>7LF4940-2</b>		1	1 unit	1BK
	<b>USB adapter and software for Profi, Astro and Expert digital time switches</b> <ul style="list-style-type: none"> <li>For the reading and writing of data keys at the PC</li> <li>With programming software</li> <li>With one Profi/Astro data key 7FL4941-1</li> <li>Compatible with Profi/Astro data key predecessor model 7LF4940-1 and Expert data key 7LF4940-2</li> <li>Can be connected over USB interface</li> <li>System requirements:               <ul style="list-style-type: none"> <li>Windows 7, Windows Vista, Windows 2000, Windows ME, Windows XP or Windows 98 Second Edition</li> <li>USB connection</li> <li>40 MB free disk space</li> </ul> </li> </ul>						<b>7LF4941-0</b>		1	1 unit	1BK
	<b>Holders for front panel installation</b> <ul style="list-style-type: none"> <li>Universal application for devices from 1 MW to 6 MW</li> <li>Cutout dimensions:               <ul style="list-style-type: none"> <li>Height 45<sup>+0.5</sup> mm</li> <li>Width 23 mm, 41 mm, 59 mm, 77 mm, 95 mm or 113 mm</li> </ul> </li> </ul>						<b>7LF9006</b>		1	1 unit	1BK

## Switching Devices

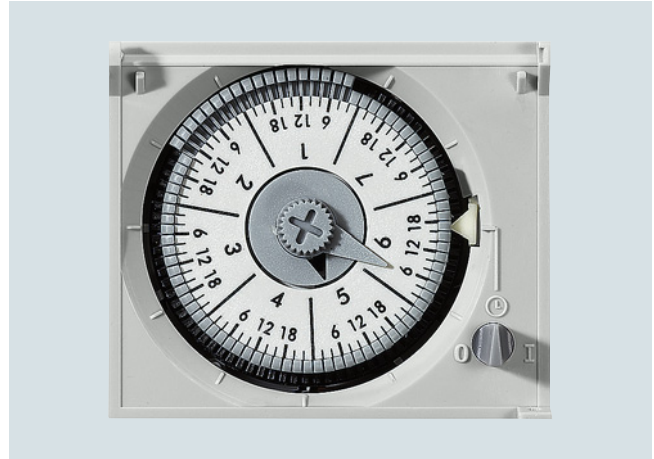
7LF, 5TT3 Timers

### 7LF5 mechanical time switches

#### Overview



Mechanical time switches with day disk



Mechanical time switches with week disk

#### **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
<b>Standards</b>	EN 60730-1, -2-7, UL 917, CSA C22.2 No. 14 and 177									
<b>Approvals</b>	VDE, UL file: E301698									
<b>Operating mode</b>	Synchronous				Quartz					
• Time program	Day	Day	Week	Day	Day	Day	Week	Day	Week	Day
<b>Supply</b>										
• 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
<b>Channels/contacts</b>										
• 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 $\mu$ A	VA	60			60					
Uncorrected	VA	1400			1400					
<b>Safety</b>										
• Different phases permissible between actuator/contact		Yes			Yes					
• Electrical isolation, creepage distances and clearances, actuator/contact	mm	8/6			8/6					
• Rated impulse withstand voltage $U_{imp}$ actuator/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					
<b>Function</b>										
• 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	$\pm 5$	$\pm 30$	$\pm 5$	$\pm 5$		$\pm 30$	$\pm 5$	$\pm 30$	$\pm 5$
• Clock errors per day		System-synchronized			$\pm 2.5$ s	$\pm 60$ s/year		$\pm 2.5$ s		
<b>Connections</b>										
• Terminals $\pm$ Screw (Pozidriv)		PZ 1			PZ 1					
• Conductor cross-sections of main current paths										
- Rigid, max.	mm <sup>2</sup>	4			4					
- Rigid, min.	mm <sup>2</sup>	1.5			1.5					
- Flexible, with end sleeve	mm <sup>2</sup>	2.5			2.5					
- Flexible, without end sleeve	mm <sup>2</sup>	4			4					
<b>Environmental conditions</b>										
• 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	$U_e$ V AC	$I_e$ A AC	$U_c$ V AC	Mounting width MW	SD d	Article No. <a href="http://www.siemens.com/product?Article No.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	<b>Synchronous time switches without power reserve, 1 MW</b>										
	• Day disk 1 NO	250	16	230	1	▶	7LF5300-1		1	1 unit	1BK
	<b>Synchronous time switches without power reserve, 3 MW</b>										
	• Day disk 1 CO	250	16	230	3	▶	7LF5300-5		1	1 unit	1BK
	• Week disk 1 CO	250	16	230	3	▶	7LF5300-6		1	1 unit	1BK
	<b>Synchronous time switches without power reserve, for wall mounting</b>										
	• Day disk 1 CO	250	16	230	--	▶	7LF5301-0		1	1 unit	1BK
	<b>Quartz-clock time switches with power reserve</b>										
	• Day disk 1 NO	250	16	230	1	▶	7LF5301-1		1	1 unit	1BK
	<b>Quartz-clock time switches with power reserve and automatic time setting for Central European time zone</b>										
	<ul style="list-style-type: none"> <li>Time set automatically during commissioning</li> <li>Automatic daylight savings</li> <li>With quartz clock mechanism</li> <li>Clock accuracy <math>\pm 0.2</math> s/day</li> <li>5-year power reserve (time buffer in the event of a power failure)</li> </ul>										
	• Day disk 1 CO	250	16	230	3	▶	7LF5301-4		1	1 unit	1BK
	• Week disk 1 CO	250	16	230	3	▶	7LF5301-5		1	1 unit	1BK
	<b>Quartz-clock time switches with power reserve</b>										
	Clock accuracy $\pm 2.5$ s/day										
	• Day disk 1 CO	250	16	230	3	▶	7LF5301-6		1	1 unit	1BK
	• Week disk 1 CO	250	16	230	3	▶	7LF5301-7		1	1 unit	1BK
	<b>Quartz-clock time switches with power reserve, for wall mounting (surface mounting)</b>										
	• Day disk 1 CO	250	16	230	--	▶	7LF5305-0		1	1 unit	1BK
	<b>Holders for front panel installation</b>										
	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										
							7LF9006		1	1 unit	1BK

**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**

		7LF6110	7LF6111	7LF6114	7LF6115
<b>Standards</b>		IEC 60669, EN 60669			
<b>Supply</b>					
• Rated control supply voltage $U_c$	At 50/60 Hz	V AC	230		
- Primary operating range		$\times U_c$	0.9 ... 1.1		
• Rated power dissipation $P_v$		VA	Approx. 5		
<b>Setting range</b>		min	0.5 ... 10	0.5 ... 10	3 ... 60
• Accuracy		s	$\pm 30$		
<b>Manual switches</b>	Automatic/permanent		Yes		
<b>Minimum push duration</b>		ms	30		
<b>Voltage endurance</b>	At pushbutton input (pushbutton malfunction)		Yes		
<b>Short-circuit strength</b>		A	700	700	
<b>Channels/contacts</b>					
• Switching channels	At p.f. = 1	V AC	250		
- Rated operational voltage $U_e$		A	16	16	
- Rated operational current $I_e$		mm	> 3	> 3	
• Contact gap		V; mA	10; 300		
• Minimum contact load					
<b>Max. incandescent lamp load</b>		W	2000	2000	
<b>Max. energy-saving lamp load 14 W</b>		Unit(s)	20	20	
<b>Fluorescent lamp load 58 W</b>		Unit(s)	20	20	
- Uncorrected	1 lamp 2 lamps	Unit(s)	2 × 20	2 × 20	
- DUO circuit		Unit(s)	10	10	
- Siemens ECG		Unit(s)	2 × 5	2 × 5	
		Unit(s)	2 × 5	2 × 5	
<b>Glow lamp load</b>		mA	50	50	
<b>Max. fan load</b>		VA	--		
<b>Connections</b>					
• Terminals ± Screw (Pozidriv)			PZ 1		
• Conductor cross-sections of main current paths					
- Rigid		mm <sup>2</sup>	1.5 ... 6		
- Flexible, with end sleeve	Min.	mm <sup>2</sup>	1		
<b>Environmental conditions</b>					
• 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

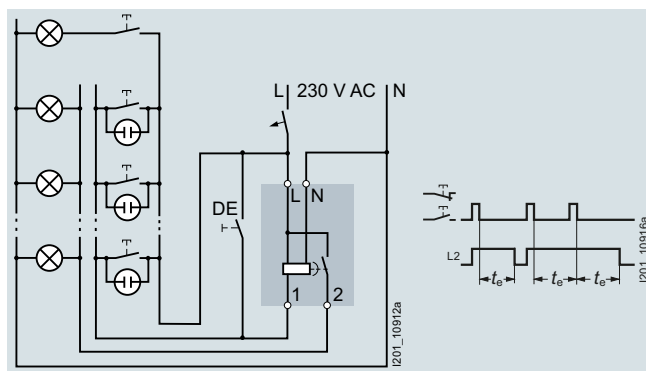
#### 7LF6 timers for buildings

#### Selection and ordering data

Version	$U_e$	$I_e$	$U_c$	Mounting width	SD	Article No. <a href="http://www.siemens.com/product?ArticleNo.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
	V AC	A AC	V AC	MW	d					
	<b>Stairwell lighting timers</b> 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	▶	<b>7LF6110</b>		1	1 unit	1BK
	For 4-wire circuit, L-momentary contact, resettable, or 3-wire circuit, N-momentary contact, resettable									
	250	16	230	1	▶	<b>7LF6111</b>		1	1 unit	1BK
	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	▶	<b>7LF6113</b>		1	1 unit	1BK
	<b>Lighting timers</b> 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	▶	<b>7LF6114</b>		1	1 unit	1BK
	<b>Energy-saving timers</b> With switch 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	▶	<b>7LF6115</b>		1	1 unit	1BK

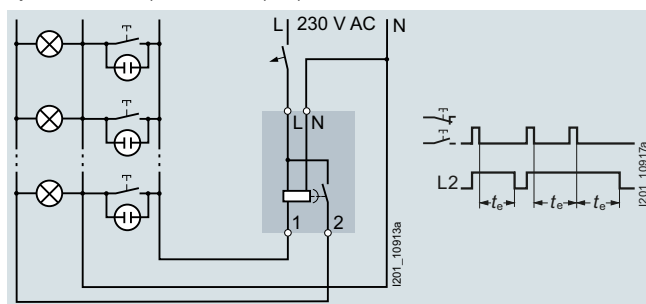
**Circuit diagrams**
**Typical circuit for 7LF6111 timer in 4-wire circuit, L-momentary, resettable**

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

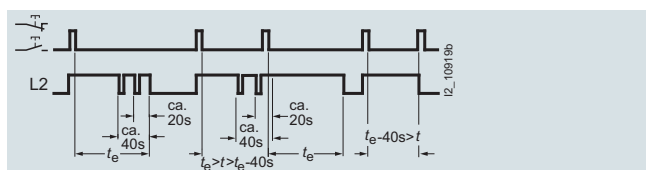
**Typical circuit for 7LF6111 timer in 3-wire circuit, N-momentary, resettable**

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 legacy systems for replacement purposes.


 $t_e$  = runtime

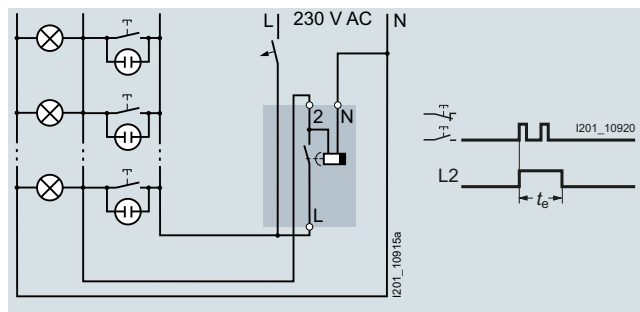
**Typical circuit for 7LF6115 energy-saving timer with advance warning**

The timer is connected in the same way as the 7LF6111 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. 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

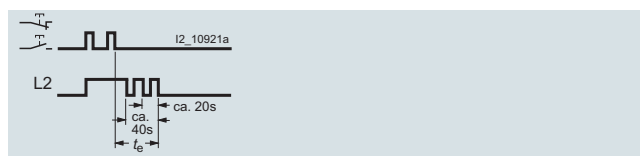
**Typical circuit for 7LF6110 timer in 3-wire circuit, L-momentary contact, not resettable**

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

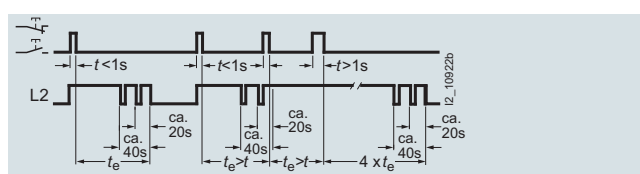
**Typical circuit for 7LF6113 energy-saving timer with advance warning**

The timer is connected in the same way as the 7LF6111 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

**Typical circuit for 7LF6114 energy-saving timer with advance warning**

The timer is connected in the same way as the 7LF6111 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 Devices

### 7LF, 5TT3 Timers

#### 5TT3 timers for industrial applications

##### 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 to 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

		5TT3185	5TT3181
<b>Standards</b>		EN 60255; DIN VDE 0435-110	
<b>Supply</b>			
• Rated control supply voltage $U_c$	V AC	12 ... 240	220 ... 240
	V DC	12 ... 240	--
- Primary operating range	$\times U_c$	0.8 ... 1.1	
• Rated frequency $f_n$	Hz	45 ... 400	50/60
• Rated power dissipation $P_v$	VA	Approx. 1.5	Approx. 5
<b>Setting ranges</b>		See setting ranges, timing intervals	
<b>Recovery time</b>	ms	15 ... 80	Approx. 40
<b>Contacts</b>			
• Switching channels			
- Rated operational voltage $U_e$	V AC	250	
- Rated operational current $I_e$	A	4	8
• Contact gap	mm	μ contact	
- Minimum contact load	V; mA	10; 300	
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>	Input/output	kV	> 4
<b>Electrical service life</b>	In switching cycles	1 A	$1.5 \times 10^5$
	At AC-15	--	$1.5 \times 10^5$
<b>Connections</b>			
• Terminals ± Screw (Pozidriv)		2	
• Conductor cross-sections of main current paths			
- Rigid, max.	mm <sup>2</sup>	2 × 2.5	
- Flexible, with end sleeve, min.	mm <sup>2</sup>	2 × 1.5	
<b>Environmental conditions</b>			
• 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	SD	Article No. <a href="http://www.siemens.com/product?ArticleNo.">www.siemens.com/ product?Article No.</a>	Price per PU	PU (UNIT, SET, M)	PS	PG
		V AC	A AC	V	MW	d					
	<b>Multifunction timers</b>										
	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	►	<b>5TT3185</b>		1	1 unit	1BK
	<b>Delay timers</b>										
	1 CO	250	8	220 ... 240 AC	1	►	<b>5TT3181</b>		1	1 unit	1BK

## More information

## 5TT3185 multifunction timers

## Setting aids

The period of the flashing of the green LED 1 when set for a timing interval is  $1 \text{ s} \pm 4 \%$ , 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.

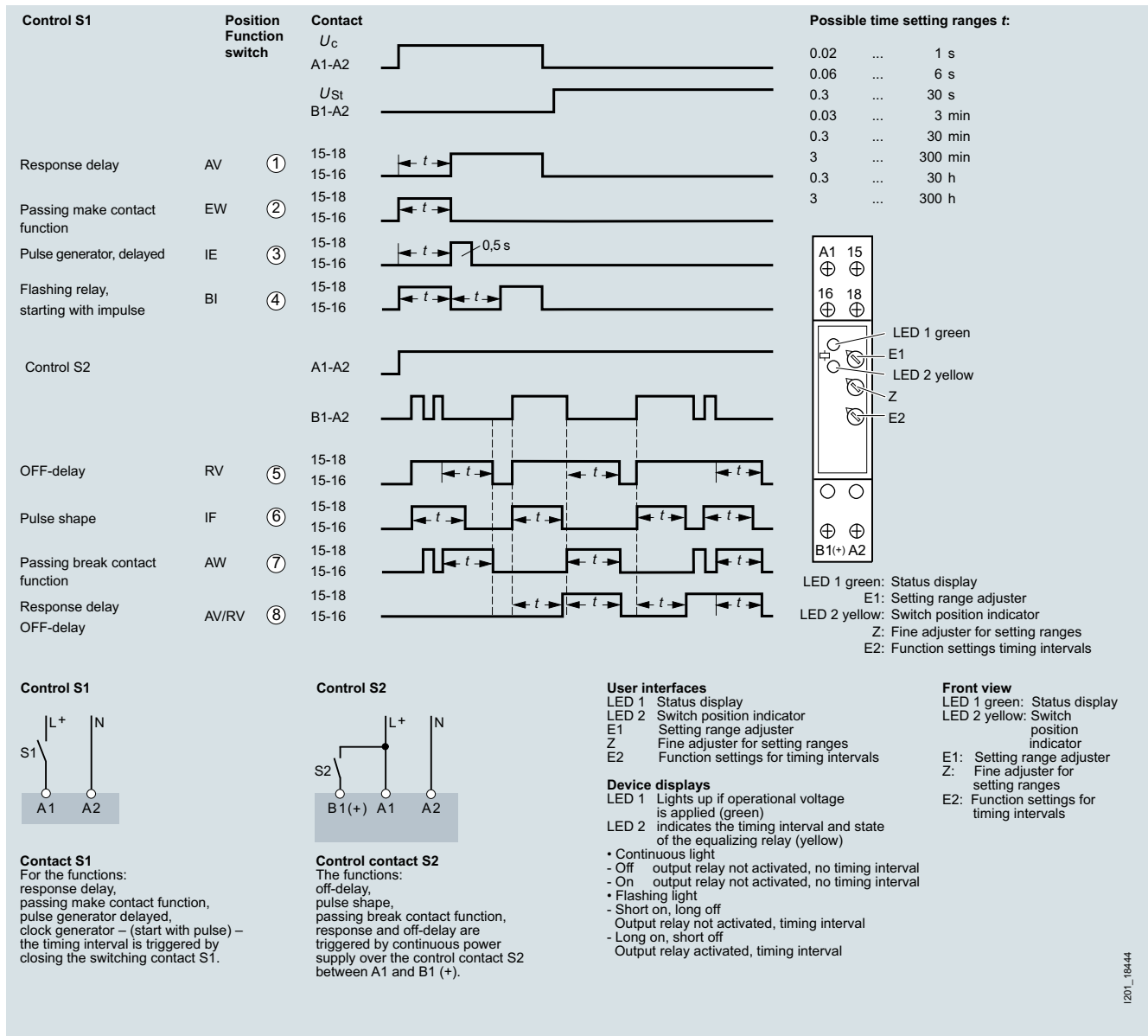
Using the fine setting, this delay time can be set within the setting range 3 ... 300 min. However, in this case it takes a long time to check the time and requires several operational sequences in real time. To speed up the setting process, the setting range is switched to 0.03 ... 3 min. In this case, the required value corresponds to a delay time of 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 can be used for this purpose, as well as any other voltage within the range 12 ... 240 V AC/DC. 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, this triggers an output pulse with the set time interval  $t_1$ .



## Switching Devices

7LF, 5TT3 Timers

Notes

## 1. General standards

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to these conditions of sale and delivery (hereinafter: CSD). Please note: the scope, the quality and the conditions for supplies and services, including software products, by any Siemens group or Regional Company having a registered office outside of Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. These CSD apply exclusively for orders placed with Siemens AG, Germany.

### 1.1 For customers with a seat or registered office in Germany

For customers with a seat or registered office in Germany, the following shall be subordinate to these CSD

- for installation, the "Standard Terms and Conditions for Installation –Germany" and
- for Plant Analytics Services the "Standard Terms and Conditions for Plant Analytics Services – for Customers in Germany"<sup>1)</sup> and
- for standalone software products and software products that are part of another product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office in Germany"<sup>1)</sup> and
- for other supplies and services, the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"<sup>1)</sup>.  
In the event that such other supplies and services include open-source software, the conditions of which override the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"<sup>1)</sup>, the product will be supplied with a notice detailing the special conditions that apply for the relevant open-source software. This applies accordingly in the case of a reference to other third-party software components.

### 1.2 For customers with a seat or registered office outside of Germany

For customers with a seat or registered office outside of Germany, the following shall be subordinate to these CSD

- for Plant Analytics Services the "Standard Terms and Conditions for Plant Analytics Services"<sup>1)</sup> (only available in English) and
- for services, the "International Terms & Conditions for Services"<sup>1)</sup> supplemented by the "Software Licensing Conditions"<sup>1)</sup> and
- for the supply of other hardware and software the "International Terms & Conditions for Products"<sup>1)</sup> supplemented by the "Software Licensing Conditions"<sup>1)</sup>.

### 1.3 For customers with framework agreements

To the extent that our products and services are covered by an existing framework agreement, the conditions there apply instead of this CSD.

## 2. Prices

The prices are in € (euros) ex works, excluding packaging.

The sales tax (value added tax) is not included in the prices. It shall be debited separately at the respective rate according to the applicable legal regulations.

Prices are subject to change without prior notice. We will debit the prices valid at the time of delivery.

To compensate fluctuating prices of raw materials (for example silver, copper, aluminum, lead, gold, dysprosium and neodymium), surcharges are calculated on a daily basis for products containing these raw materials using the metal factor. A surcharge for the particular raw material is added to the price of a product if the basic quotations for this raw material are exceeded.

Each product's metal factor dictates for which raw materials the metal surcharges are calculated, from which quotation and with which calculation method (weight or percentage method).

An exact explanation of the metal factor can be found at: [www.siemens.com/automation/salesmaterial-as/catalog/en/terms\\_of\\_trade\\_en.pdf](http://www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf)

The surcharge will be calculated (except in the case of dysprosium and neodymium) on the basis of the official price on the day prior to receipt of the order or prior to the release order for calculation of the surcharge.

In the event of placement of an order, the relevant three-month average price from the quarter prior to order receipt or the release order shall be used with a one-month buffer to calculate the dysprosium and neodymium surcharge ("rare earths") (you will find details in the aforementioned explanation of the metal factor).

## 3. Additional terms and conditions

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

Illustrations are not binding.

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

<sup>1)</sup> You can download the text of the Siemens AG terms and conditions of trade at [www.siemens.com/automation/salesmaterial-as/catalog/en/terms\\_of\\_trade\\_en.pdf](http://www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf)

## Appendix

### Conditions of sale and delivery

#### 4. Export regulations

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

Exporting may be subject to authorization. In delivery information, we label authorization obligations according to German, European and US export lists.

Our products are controlled by the U.S. authorities (goods labeled with "ECCN" not equal to "N") and may only be supplied to the stated country of the end user for sole use by the end user. Without U.S. government approval or other approval under U.S. law, the products may not be sold, transferred or otherwise forwarded to other countries or to other persons other than the specified end user, either in their original form or after further processing into other goods. Goods labeled with an "AL" not equal to "N" are subject European/national export authorization requirements.

Please note that you can also preview the export designations in the respective product description via our "Industry Mall" online catalog system. The deciding factors, however, are the AL or ECCN export designations indicated on order confirmations, delivery notes and invoices.

Unmarked items or items marked "AL:N" / "ECCN:N" or "AL:9X9999" / "ECCN: 9X9999" may require authorization based on their intended use or ultimate destination.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you shall comply with all applicable national and international (re-) export control regulations.

If required to conduct export control checks, you, at our request, shall promptly provide us with all information pertaining to particular end customers, destination and intended use of goods, works and services provided by us, as well as any relevant export control restrictions.

The products listed in this catalog may be subject to European/German and/or US export regulations. Therefore, any export requiring a license is subject to approval by the competent authorities.

Errors excepted and subject to change without prior notice.

Further information can be obtained from our branch offices listed at [www.siemens.com/lowvoltage/contact](http://www.siemens.com/lowvoltage/contact)

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<b>Building Control</b>		
GAMMA Building Control	ET G1	
<b>Drive Systems</b>		
SINAMICS G130 Drive Converter Chassis Units	D 11	
SINAMICS G150 Drive Converter Cabinet Units		
<i>Digital: SINAMICS PERFECT HARMONY GH180 Medium-Voltage Air-Cooled Drives (Germany Edition)</i>	D 15.1	
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SINAMICS S120 Cabinet Modules		
SINAMICS S150 Converter Cabinet Units		
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