

**SIEMENS**

Configuration Manual

**SENTRON**

Transfer Switching Equipment  
and Load Transfer Switches

Edition

10/2019

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# SIEMENS

## SENTRON

### Transfer Switching Equipment and Load Transfer Switches

Configuration Manual

Safety information

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3LD2 load transfer switches  
up to 250 A

2

3KC transfer switching  
equipment up to 3200 A

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Transfer control devices

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10/2019

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## Legal information

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indicates that minor personal injury can result if proper precautions are not taken.
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# Safety information

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## 3LD2 load transfer switches up to 250 A

### 2.1 Product description

#### 2.1.1 Overview

The 3LD2 load transfer switches are based on the 3LD2 main control and EMERGENCY STOP switches and are manually operated switch disconnectors according to IEC 60947-3/VDE 0660 Part 107 (EN 60947-3) and comply with the conditions for switch disconnectors.

The load transfer switches from 25 to 250 A are approved according to UL 508 and can be used as "Manual Motor Controller" and "Motor Disconnect". The 3LD load transfer switches have CCC certification in addition.

#### 2.1.2 Applications

The 3LD2 load transfer switches are used for alternate switching between two loads with an incoming power supply. They have the switch positions I-0-II, which means that one of the two loads can be switched on alternately. This makes it possible to switch between two three-phase motors and other loads.

##### Load transfer (schematic representation)

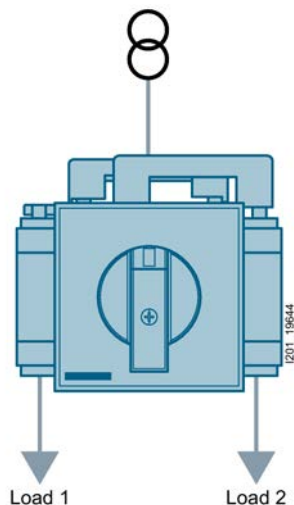
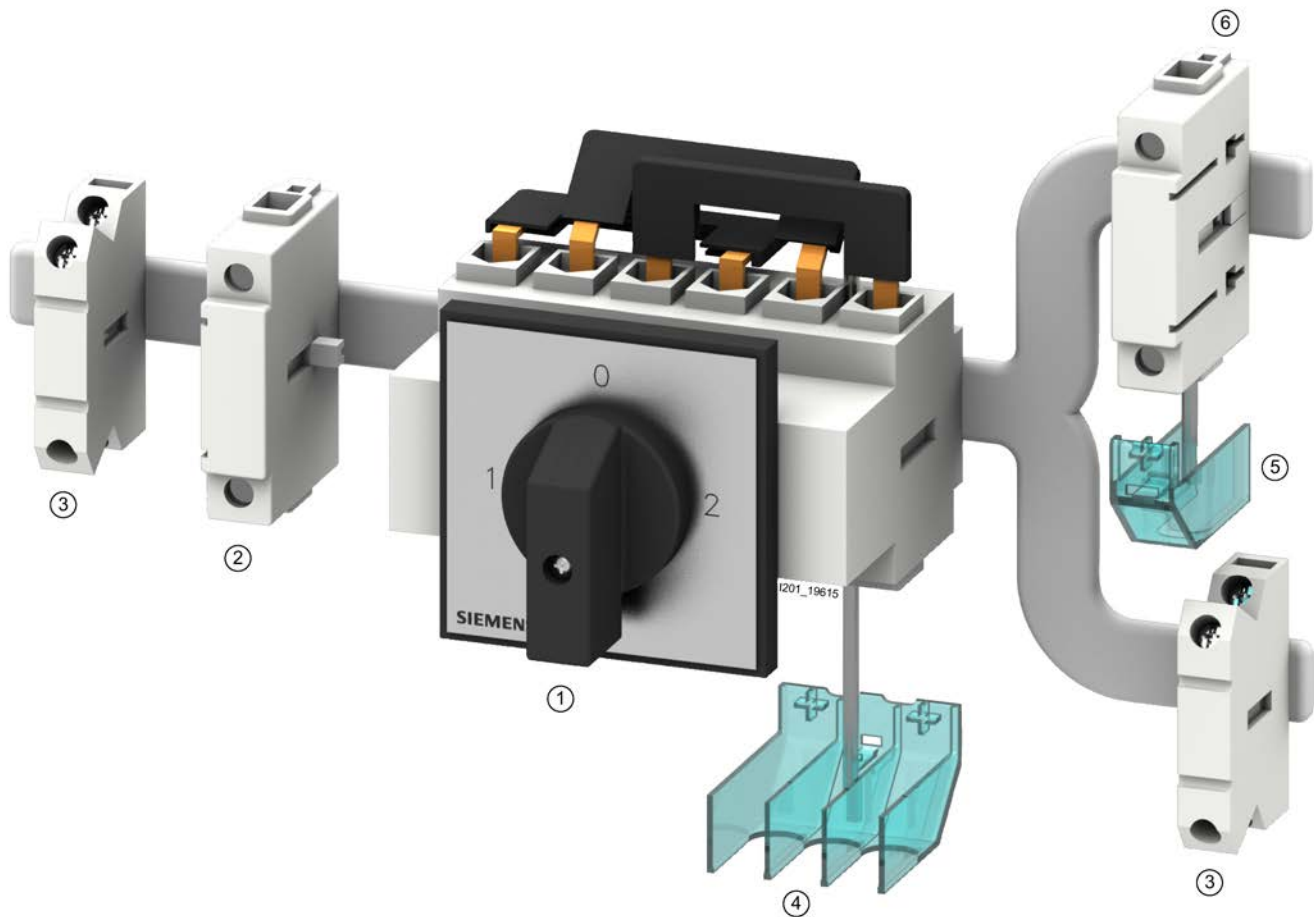


Figure 2-1 Load transfer switches (IEC 60947-3)

## 2.2 Overview of components



- ① 3LD2 load transfer switches
- ② 4th contact element (N conductor)
- ③ Auxiliary switch 1 NO + 1 NC, for mounting onto the left and/or right
- ④ Terminal cover, 3-pole
- ⑤ Terminal cover, 1-pole
- ⑥ N or PE terminal

## 2.3 Technical specifications

### 2.3.1 Technical specifications of 3LD2

#### General technical details

Standards		DIN VDE 0660, IEC 60947							
Switch	Type	3LD21	3LD22	3LD25	3LD27	3LD23	3LD24		
Rated insulation voltage $U_i$	V	690							
Rated operational voltage $U_e$	V AC	690							
Rated frequency	Hz	50 ... 60							
Rated impulse withstand voltage $U_{imp}$	kV	6	6	6	6	6	6		
Rated short-time withstand current (1 s current, rms value)	A	640	640	1260	2000	4000	6000		
Short-circuit protection, max. back-up fuse (gL)	A	25	40	63	100	160	250		
Rated conditional short-circuit current with upstream fuses at 50/60 Hz AC, 690 V	kA	50	50	50	50	50	50		
Maximum permissible let-through $I^2t$ value	kA <sup>2</sup> s	4	9	21	64	185	557		
Permissible let-through current of the fuse	kA	3.5	4.5	6	10	15	15		
<b>Rated uninterrupted current <math>I_u</math></b>	A	25	32	63	100	160	250		
AC-21 A load switch	Rated operational current $I_e$	A	25	32	63	100	160	250	
AC-3 motor load switch for in-service switching of individual motors	Rated operational power								
	At 220 ... 240 V	kW	4.0	5.5	11.0	18.5	35.0	55.0	
	At 380 ... 440 V	kW	7.5	9.5	18.5	30.0	50.0	110.0	
AC-23A main control switch	Rated operational power								
	Repair switch	At 220 ... 240 V	kW	5.0	6.0	11.0	18.5	45.0	75.0
	Frequent, but not in-service switching of individual motors	At 380 ... 440 V	kW	9.5	11.5	22.0	37.0	75.0	132.0
	At 660/690 V	kW	9.5	11.5	18.5	30.0	45.0	55.0	
Power loss per current path at $I_e$	W	1.1	1.8	4.5	7.5	36.0	36.0		
Endurance, mechanical	Operating cycles	100 000							
Switching frequency	1/h	50							
Permissible ambient temperature	°C	-25 ... +55							
Isolating features	Up to max.	V 690							

2.3 Technical specifications

Conductor cross-sections for main conductors <sup>1)</sup>

Standards		DIN VDE 0660, IEC 60947					
Switch	Type	3LD21	3LD22	3LD25	3LD27	3LD23	3LD24
Solid or stranded	mm <sup>2</sup>	1.5 ... 16	1.5 ... 16	2.5 ... 35	4 ... 50	16 ... 185	16 ... 185
Finely stranded with end sleeve (max.)	mm <sup>2</sup>	10	10	16	35	150	150
Conductor cross-sections	Cu conductor	AWG	14 ... 8	14 ... 8	14 ... 6	12 ... 1	1 ... MCM400
Torque for terminal	Nm	2 ... 2.5	2 ... 2.5	2.5 ... 3	2.5 ... 3	9.5 ... 10	9.5 ... 10
Touch protection according to EN 50274		Yes					

<sup>1)</sup> Depending on the cable infeed, only small cross-sections may be possible with devices in molded-plastic enclosures.

Auxiliary switches

Standards		DIN VDE 0660, IEC 60947					
Switch	Type	3LD21	3LD22	3LD25	3LD27	3LD23	3LD24
Rated insulation voltage U <sub>i</sub>	V	500					
Rated operational voltage U <sub>e</sub>	V AC	500					
Rated uninterrupted current I <sub>u</sub>	A	10					
Rated operational current I <sub>e</sub> , AC-15	At 120 V	6					
	At 220 ... 240 V	3					
	At 380 ... 415 V	1.8					
	At 500 V	1.4					
Short-circuit protection of auxiliary switch, max. back-up fuse (gL/gG)	A	10					

Conductor cross-sections for auxiliary conductors

Standards		DIN VDE 0660, IEC 60947					
Switch	Type	3LD21	3LD22	3LD25	3LD27	3LD23	3LD24
Connection type		Screw terminals					
Solid or stranded	mm <sup>2</sup>	2 × (0.75 ... 2.5), 1 × 4					
Finely stranded with end sleeve	mm <sup>2</sup>	2 × (0.75 ... 1.5), 1 × 2.5					
Torque for terminal	Nm	0.8					

### 2.3.2 3LD switches for UL/CSA as "Manual Motor Controller"

The 3LD switches for UL/CSA are approved in accordance with UL/CSA as "manual motor controllers", and they can be used as repair switches in the molded-plastic enclosure, for example. However, they do not have UL approval as main control switches.

Standards			UL / CSA					
Switch		Type	3LD21	3LD22	3LD25	3LD27	3LD23	3LD24
Rated operational voltage $U_e$		V AC	600	600	600	600	600	600
Rated uninterrupted current $I_u$		A	20	30	60	100	160	250
	Current rating		A 600	A 600	--	--	--	--
	Pilot duty		P 600	P 600	--	--	--	--
Conventional thermal current $I_{th}$		A	25	32	63	100	160	250
Maximum rated power (AC-3)	3 ~ 120 V	HP	3	3	5	10	--	--
Alternating current motors 40 ... 60 Hz (HP = horse power)	240 V	HP	7.5	10 (7.5) <sup>1)</sup>	15	30	40	50
	480 V	HP	10	20 (15) <sup>1)</sup>	40	60	75	100
	600 V	HP	15	30 (20) <sup>1)</sup>	50	75	75	75
	1 ~ 120 V	HP	2	2	3	--	--	--
	240 V	HP	3	3	10	--	--	--
Conductor cross-sections	Cu conductor	AWG	14 ... 8	14 ... 8	14 ... 6	12 ... 1	1 ... MCM400	
Torque		Nm	2 ... 2.5	2 ... 2.5	2.5 ... 3	2.5 ... 3	10	

<sup>1)</sup> Values in brackets apply to devices in molded-plastic enclosure.



## 3KC transfer switching equipment up to 3200 A

### 3.1 Product description

#### 3.1.1 Overview





- ① 3KC MTSE transfer switching equipment up to 1600 A
- ② 3KC RTSE transfer switching equipment up to 160 A
- ③ 3KC ATSE transfer switching equipment up to 3200 A

3KC transfer switching equipment of class PC offers a convenient and safe solution for switching over from one supply network to an alternative network in the event of network fluctuations.

Systems are switched over with an interruption of the power supply during the switching operation. The fast transfer switching of the ATSE ensures a short load downtime. The integration of transfer switching and control in a single unit makes it possible to combine high performance and easy installation.



3.1 Product description

3.1.1.1 3KC0 manual transfer switching equipment (MTSE)

Rated current $I_n$ (A)	16	32	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600		
																			
<b>Manual transfer switching equipment (MTSE)</b>																			
<b>Size (MTSE type)</b>	1 (3KC0...-.M)		2 (3KC0...-.N)					3 (3KC0...-.P)				4 (3KC0...-.0)			5 (3KC0...-.R)				
<b>Number of poles</b>																			
• 3-pole	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• 4-pole	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<b>Connection</b>																			
• Flat terminals	--	--	--	--	--	--	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• Box terminals	✓	✓	✓	✓	✓	✓	✓	--	--	--	--	--	--	--	--	--	--	--	





3.1.1.2 3KC3/4 remote transfer switching equipment (RTSE) with motorized operating mechanism

Rated current $I_n$													
(A)	40	63	80	100	125	160	250	400	630	800 1000	1250	1600	2000 2500 3200
													
Remote transfer switching equipment (RTSE)													
RTSE type	3KC												
	3424	3426	3428	3430	3432	3434	4.38	4.42	4.46	4.48 4.50	4.52	4.54	4.56 4.58 4.60
Number of poles													
• 3-pole	--	--	--	--	--	--	✓	✓	✓	✓	✓	✓	✓
• 4-pole	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connection													
• Flat terminals	--	--	--	--	--	--	✓	✓	✓	✓	✓	✓	✓
• Box terminals	✓	✓	✓	✓	✓	✓	--	--	--	--	--	--	--

3.1 Product description

3.1.1.3 3KC6/8 automatic transfer switching equipment (ATSE) with motorized operating mechanism

Rated current $I_n$													
(A)	40	63	80	100	125	160	250	400	630	800 1000	1250	1600	2000 2500 3200
													
Automatic transfer switching equipment (ATSE)													
ATSE type	3KC												
	6424	6426	6428	6430	6432	6434	8.38	8.42	8.46	8.48 8.50	8.52	8.54	8.56 8.58 8.60
Number of poles													
• 3-pole	--	--	--	--	--	--	✓	✓	✓	✓	✓	✓	✓
• 4-pole	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connection													
• Flat terminals	--	--	--	--	--	--	✓	✓	✓	✓	✓	✓	✓
• Box terminals	✓	✓	✓	✓	✓	✓	--	--	--	--	--	--	--

3.1.2 Features

**Common features**

- Easy installation
- Conformity with IEC 60947-6-1 and IEC 60947-3

**Integrated solution**

- Particularly easy installation of a complete solution with an integrated ATSE for the entire 40 ... 3200 A current range

**Modular design of MTSE and of RTSE/ATSE from 250 A**

- Controller (electronic module) and motorized operating mechanism can be replaced individually on the RTSE/ATSE
- MTSE can be expanded by an additional pole

### Maximum safety

- Maximum safety thanks to electrical and mechanical interlocking of switches (I, II)
- RTSE/ATSE: Supplied as standard with a manual emergency handle to enable fast intervention in an emergency
- Switch position indication
- Locking with a padlock in position 0 enables safe maintenance work.
- In the case of RTSE/ATSE transfer switches up to 160 A, locking with a padlock can be configured for every position before installation: I, 0 or II.
- Ensuring device availability by means of constant monitoring of the device's operating conditions

### Easy installation of transfer switches up to 160 A

- Compact design of the ATSE with integrated controller, prewired ready for operation (including power supply)
- Easy access to network connection thanks to low mounting depth
- Fast and easy mounting on a DIN mounting rail or mounting plate
- Easy wiring thanks to box terminals and the bridging bars provided for them, enabling a common outgoing assembly point. Thanks to the bridging bars, the connection capacity of the box terminal is not reduced

### High switching capacity

- Closing and opening under load, also for inductive loads (AC-33)
- Resilient to voltage fluctuations in the supply system thanks to stable switch positions. The switching operations are fault-tolerant by a fail-safe power supply that is either integrated in the controller or is connected separately
- High dynamic strength for enhanced safety when switching to a short circuit
- For RTSE up to 160 A: Extremely low load downtimes (< 90 ms) thanks to electromagnetic operating mechanism

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### Note

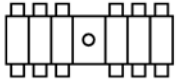
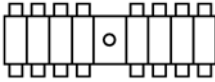

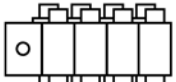
The 3KD switch disconnector can be used as a disconnecting means in compliance with IEC 60204-1, see Switch Disconnectors Configuration Manual (<https://support.industry.siemens.com/cs/ww/en/view/109769744>).

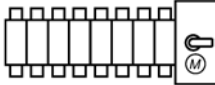
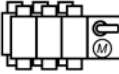
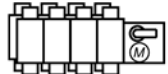
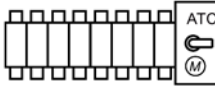
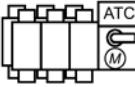
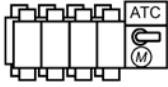
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### 3.1.3 Switch versions

The following versions of the 3KC transfer switching equipment are available:

- Manual transfer switching equipment (MTSE)
- Remote transfer switching equipment (RTSE)
- Automatic transfer switching equipment (ATSE)

Number of poles	3-pole	4-pole	3-pole	4-pole
Rated current	16 ... 160 A		200 ... 1600 A	
MTSE 3KC0				

Number of poles	3-pole	4-pole	3-pole	4-pole
Rated current	40 ... 160 A		250 ... 3200 A	
RTSE	--	3KC3 	3KC4  	
ATSE	--	3KC6 	3KC8  	

### 3.1.4 Benefits

- 3 and 4-pole versions
- Transfer switching equipment up to 3200 A (MTSE up to 1600 A)
- Very short switching time (for transfer switches up to 160 A)
- Compact design of transfer switches up to 160 A
- Switching from network to network and from network to generator for ATSE from 250 A
- No additional software needed for parameterization
- Auto-configuration of voltage and frequency levels
- Watchdog relay ensures operability of the switch
- Direct control of the generator via a control signal for ATSE from 250 A
- Integrated dual power supply for ATSE from 250 A
- Resistant to shock and vibrations

- Additional fail-safe mechanical interlock
- External display for installation in control cabinet door

### 3.1.5 Applications

#### Industries

##### **Non-residential/residential:**

- Safety devices in tall buildings
- Computing centers (banks, insurance companies, etc.)
- Fire extinguishing pumps, air conditioning systems, cold rooms
- Lighting systems in shopping malls

##### **Industry:**

- Production lines in continuous operation
- Engine rooms
- Auxiliary facilities in essentially important thermal power stations
- Pumps
- Cooling systems
- Fans

##### **Infrastructure:**

- Installations in ports and rail loading stations
- Airports
- Lighting

#### Network configurations

All versions of the 3KC transfer switching equipment can be used for all conventional network configurations, including:

- TT systems
- TN systems
  - TN-C systems
  - TN-C-S systems
  - TN-S systems
- IT systems

### 3.1.6 Applications

#### Network/generator transfer

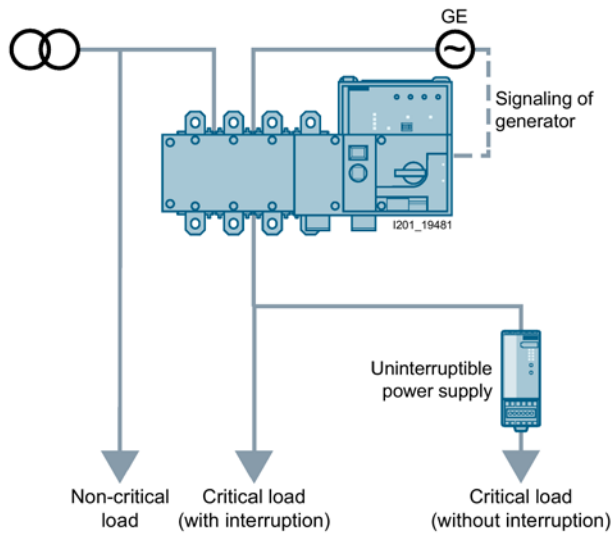


Figure 3-1 Network/generator operation (IEC 60947-6-1)

#### Network/network transfer

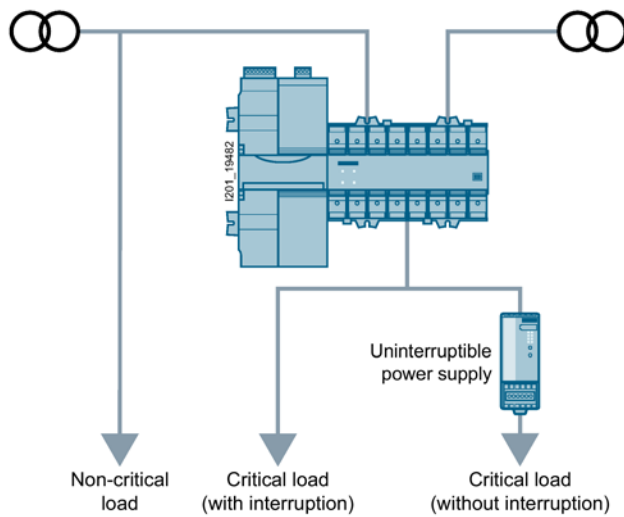


Figure 3-2 Network/network operation (IEC 60947-6-1)

## Load transfer

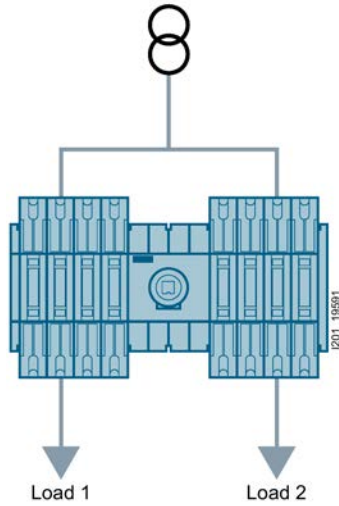
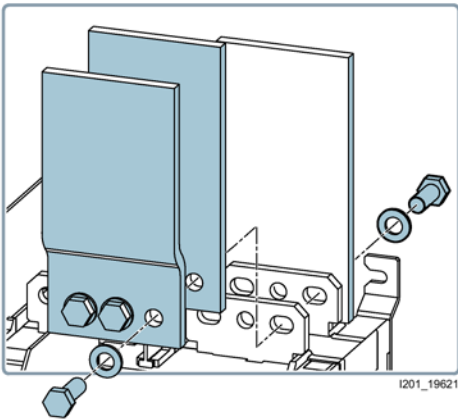


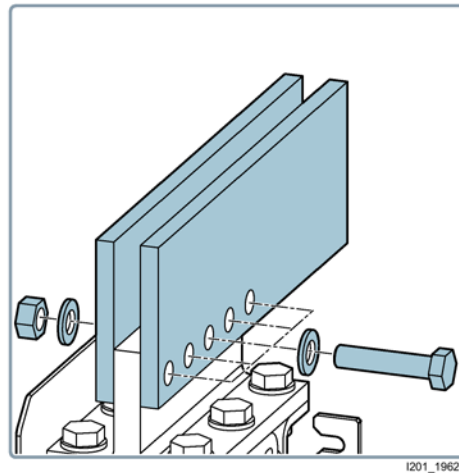
Figure 3-3 Load transfer switch (IEC 60947-3)

### 3.1.7 Direct connections

#### 3.1.7.1 Infeed side



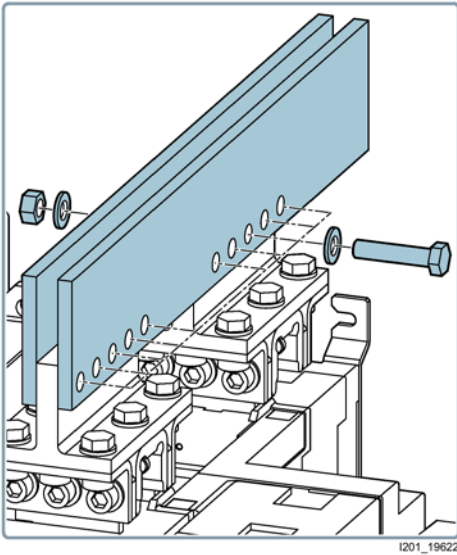
Infeed side, direct connection (2000 to 2500 A)



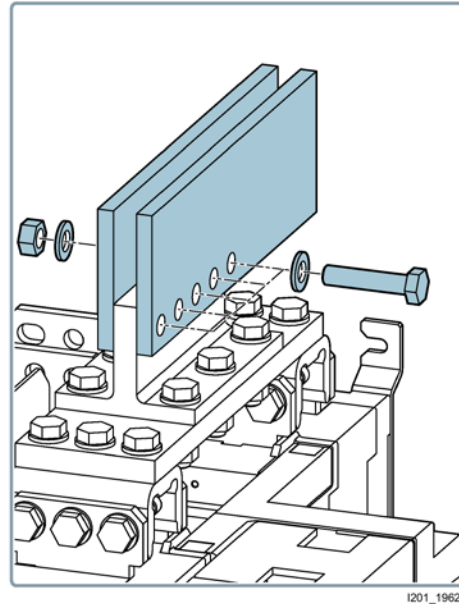
Infeed side, direct connection, rotated 90° (2000 to 2500 A)

3.1 Product description

3.1.7.2 Load side



Load side, direct connection, rotated 90°  
(2000 to 2500 A)



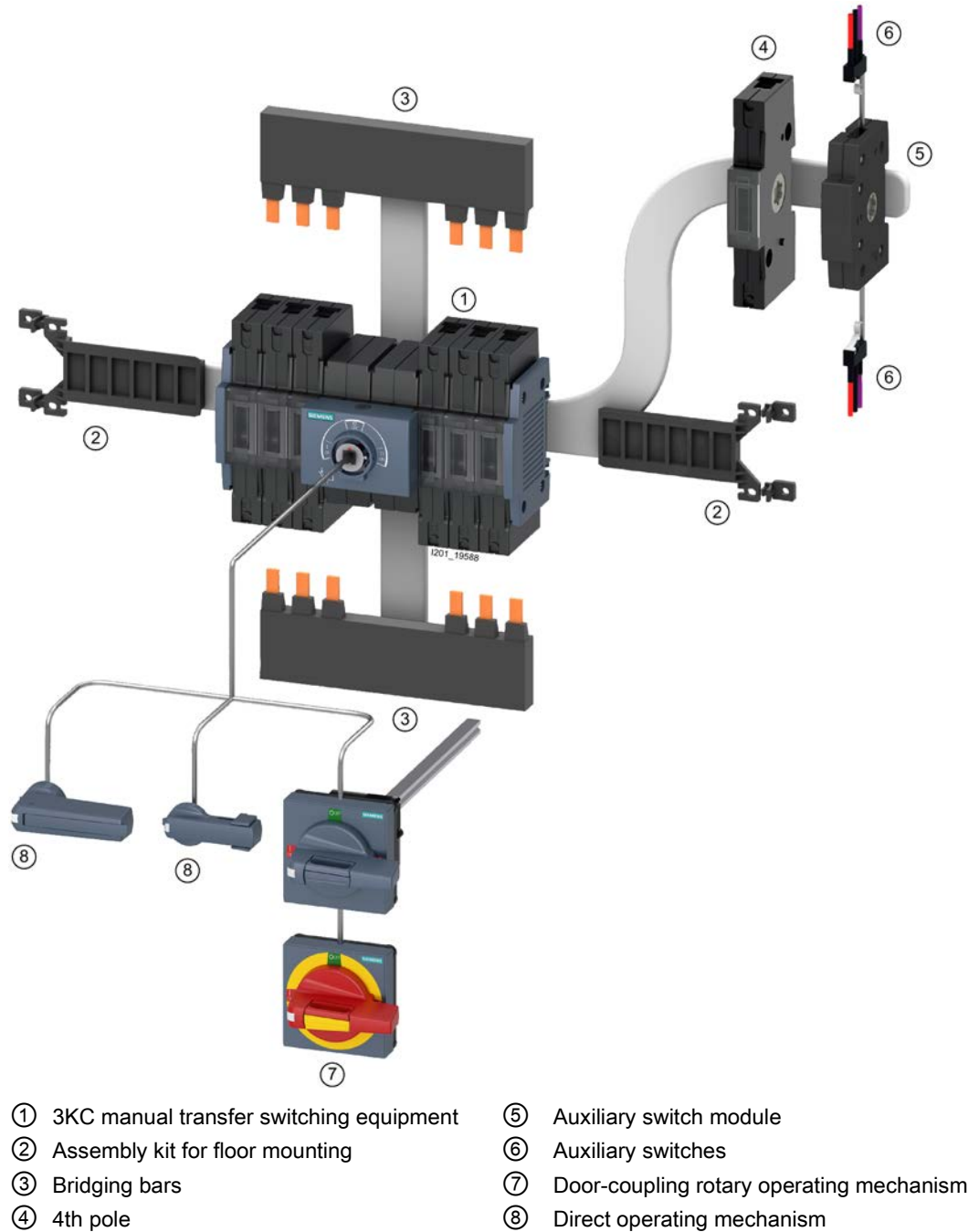
Load side, direct connection, rotated 90°,  
with bridging bar  
(2000 to 2500 A)



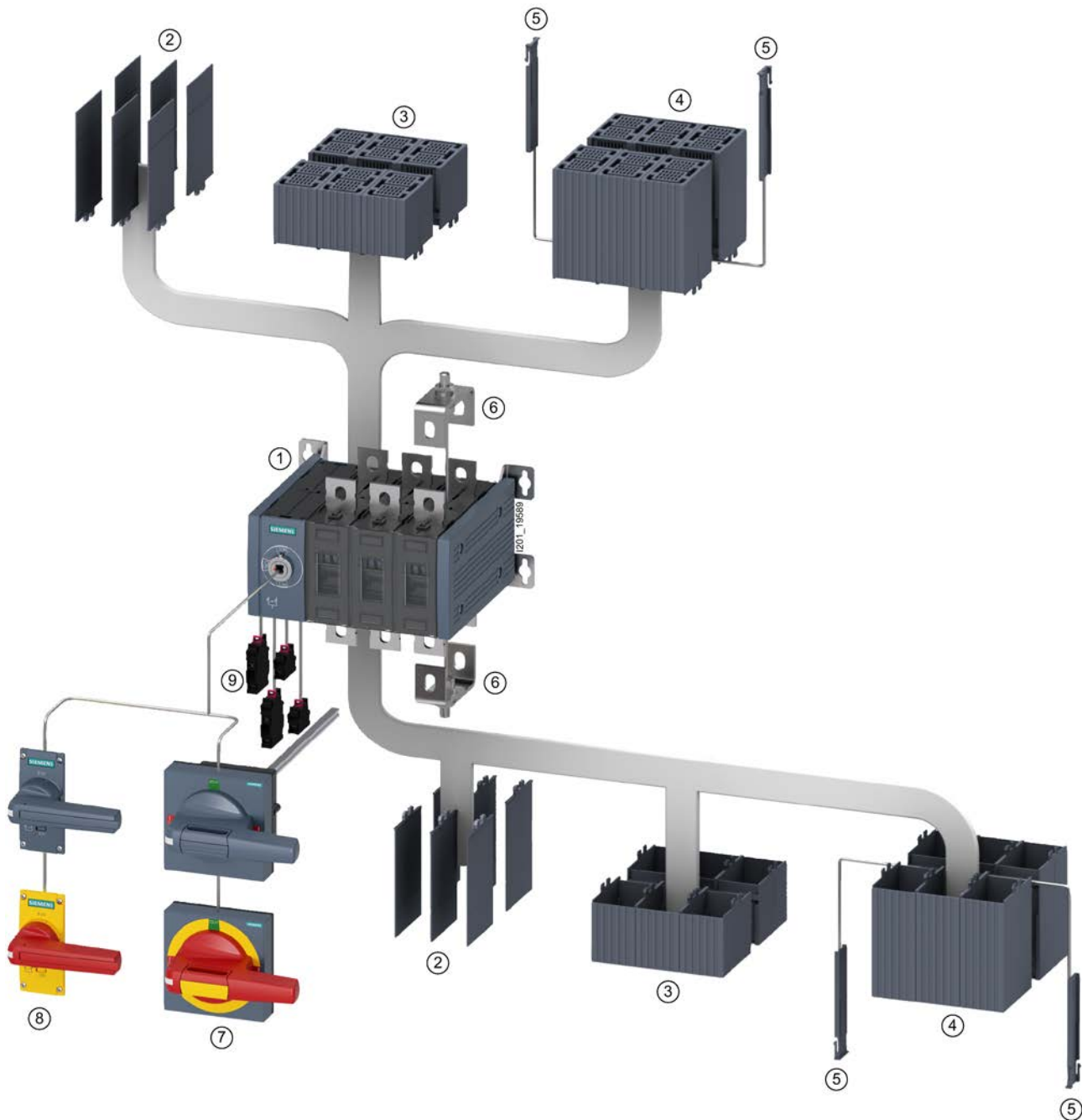
## 3.2 Overview of components

### 3.2.1 Manual transfer switching equipment (MTSE)

#### 3.2.1.1 3KC0 (MTSE) for 16 to 160 A, 3-/4-pole



3.2.1.2 3KC0 (MTSE) for 200 to 1600 A, 3-/4-pole



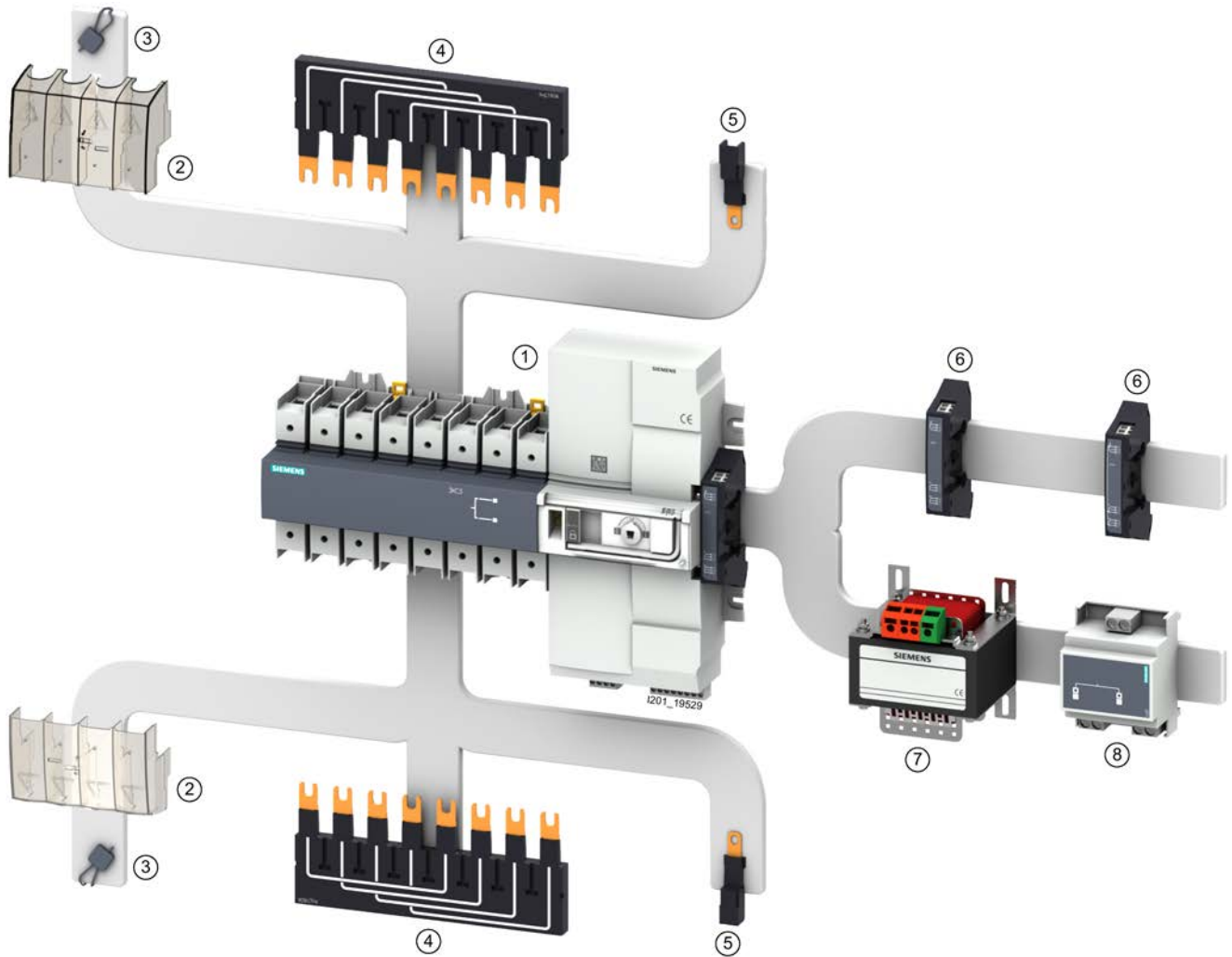
- ① 3KC manual transfer switching equipment
- ② Phase barriers
- ③ Terminal covers, short

- ④ Terminal covers
- ⑤ Side plates
- ⑥ Bridging bars

- ⑦ Door-coupling rotary operating mechanism
- ⑧ Direct operating mechanism
- ⑨ Auxiliary switches

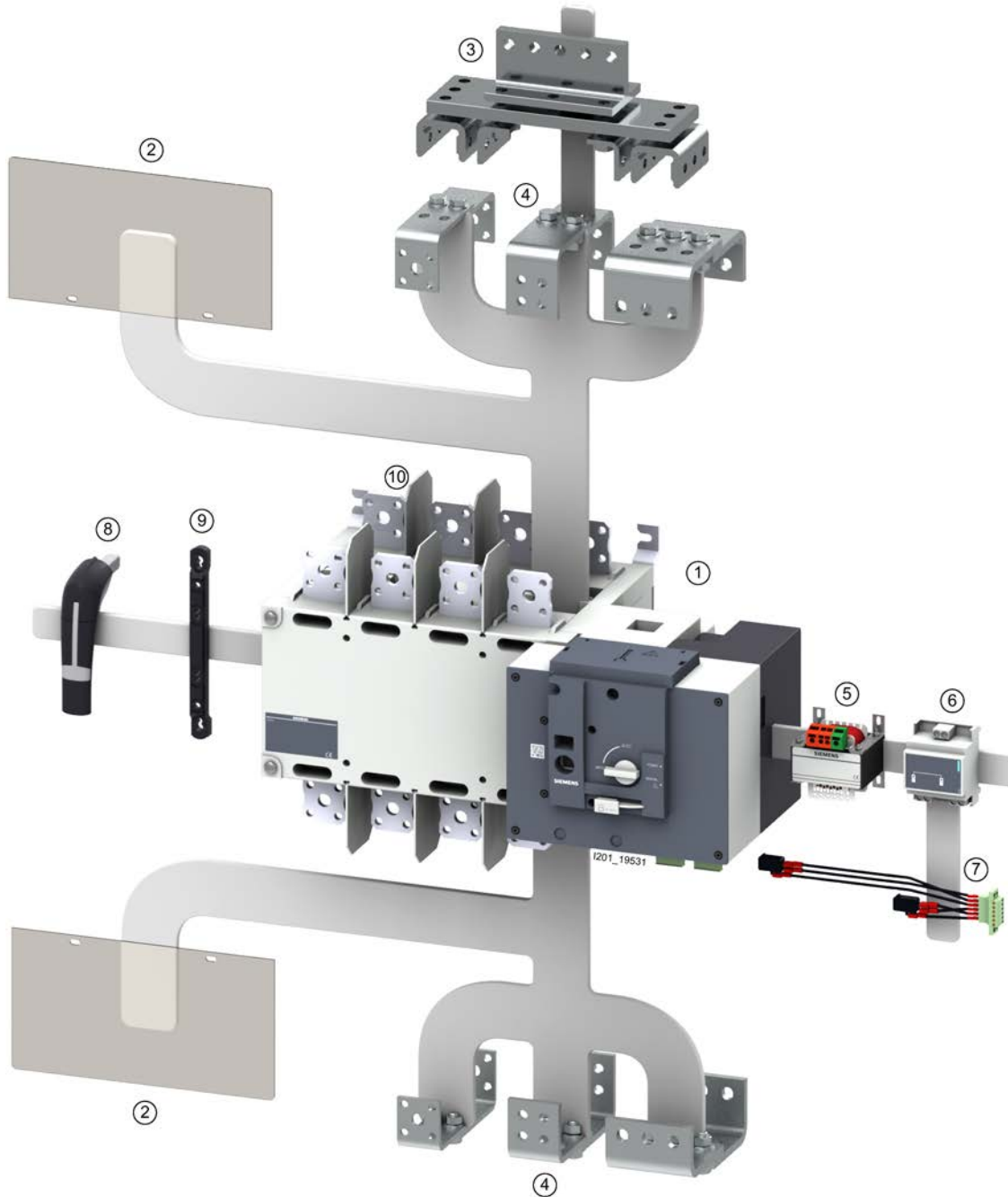
### 3.2.2 Remote transfer switching equipment

#### 3.2.2.1 3KC3 (RTSE) for 40 to 160 A, 4-pole



- |   |                                |
|---|--------------------------------|
| ① 3KC remote transfer switching equipment | ⑤ Auxiliary conductor terminal |
| ② Terminal covers                         | ⑥ Auxiliary switches           |
| ③ Sealing ribbon                          | ⑦ Autotransformer              |
| ④ Bridging bar                            | ⑧ Dual power supply            |

3.2.2.2 3KC4 (RTSE) for 250 to 3200 A, 3-/4-pole



- ① 3KC remote transfer switching equipment
- ② Terminal plates
- ③ Copper bar connection kit

- ④ Autotransformer
- ⑤ Dual power supply
- ⑥ Auxiliary switches

- ⑦ Handle
- ⑧ Spacer
- ⑨ Phase barriers

Copper bar, connection kit for transfer switching equipment from 2000 to 3200 A		C-bracket	Bolt set, 45 mm	Bolt set, 35 mm	T-piece	L-bracket	Bridging bar
	Number of poles	3KC9811-0	3KC9811-1	3KC9811-2	3KC9811-3	3KC9811-4	3KC9818-8
<b>Infeed side</b>							
Direct connection 2 x 100 x 10 mm; 4 x 100 x 5 mm	3	--	--	6 x	--	--	--
	4	--	--	8 x	--	--	--
Direct connection, rotated 90° 2 x 100 x 10 mm; 4 x 100 x 5 mm	3	6 x	--	--	6 x	6 x	--
	4	8 x	--	--	8 x	8 x	--
Direct connection 3 x 100 x 10 mm (necessary for 3200 A)	3	✓ <sup>1)</sup>	3 x	3 x	--	--	--
	4	✓ <sup>1)</sup>	4 x	4 x	--	--	--
Direct connection, rotated 90° 3 x 100 x 10 mm (necessary for 3200 A) <sup>2)</sup>	3	✓ <sup>1)</sup>	--	--	6 x	6 x	--
	4	✓ <sup>1)</sup>	--	--	8 x	8 x	--
<b>Load side</b>							
Direct connection, rotated 90° 2 x 100 x 10 mm; 4 x 100 x 5 mm	3	6 x	--	--	6 x	6 x	--
	4	8 x	--	--	8 x	8 x	--
Direct connection, rotated 90°, with bridging bar 2 x 100 x 10 mm; 4 x 100 x 5 mm	3	6 x	6 x	--	--	--	3 x
	4	8 x	8 x	--	--	--	4 x
Direct connection, rotated 90° 3 x 100 x 10 mm (necessary for 3200 A)	3	✓ <sup>1)</sup>	--	--	6 x	6 x	--
	4	✓ <sup>1)</sup>	--	--	8 x	8 x	--
Direct connection, rotated 90°, with bridging bar 3 x 100 x 10 mm (necessary for 3200 A)	3	✓ <sup>1)</sup>	6 x	--	--	--	3 x
	4	✓ <sup>1)</sup>	8 x	--	--	--	4 x

1) 3KC9811-0 is included for all 3KC transfer switches for 3200 A. The following must be ordered for the connection of 3KC transfer switches for 2000 ... 2500 A to 3 x 100 x 10 mm busbars:

- 3KC9811-0, 6 units for 3-pole switches
- 3KC9811-0, 8 units for 4-pole switches

2) Vertical connection is approved up to 2900 A; horizontal connection is approved up to 3200 A.

### 3.2.2.3 Integrated controllers of the ATSE

#### ATS settings

		3KC6 (40 to 160 A)	3KC8 (250 to 3200 A)
Network variants		3.3 + N	1+N, 3, 3+N
Transfer delay	s	0 ... 30	0 ... 60
Return transfer delay	min	0 ... 30	0 ... 60
Frequency deviation	%	10 or 20	±3 ... 10
Voltage	%	10 or 20	±5 ... 20

#### Measuring inputs

		3KC6 (40 to 160 A)	3KC8 (250 to 3200 A)
<b>Maximum rated voltage (U<sub>n</sub>):</b>			
Phase-phase	V AC	415	480
Phase-neutral	V AC	230	277
Metering range (L-N)	V	166 ... 288	30 ... 332
Metering range (L-L)	V	288 ... 498	30 ... 600
Measuring frequency	Hz	30 ... 70	30 ... 70
Input impedance (L-L)	MΩ	5.5	12
Number of monitored phases		3	1 or 3
Measuring method		Three-phase, true RMS	True RMS
Relative error of measurement method	%	1	0.5

#### Auxiliary supply

		3KC6 (40 to 160 A)	3KC8 (250 to 3200 A)
Connection type		Integrated dual power supply with internal wiring	Integrated dual power supply
Rated voltage (AC)	V	230	230
Supply voltage range (AC)	V	176 ... 288	166 ... 332
Frequency	Hz	45 ... 65	45 ... 65
Power loss (230 V AC) <sup>1)</sup>	W	2	2.5
Impulse withstand voltage (U <sub>imp</sub> ) of the control circuit	kV	2.5	4
Overvoltage category of the control circuit		III	III

1) In addition to power loss of motorized operating mechanism

## Digital inputs

		3KC6 (40 to 160 A)	3KC8 (250 to 3200 A)
Number of inputs		3	Motorized operating mechanism: 5 Electronic module: 6
Digital input <sup>1)</sup>		Position 0: Inhibition of automatic mode Selection of system priority	Motorized operating mechanism: 0 position, I position, II position, 0 position with priority Release for remote control modules Electronic module: Inhibition of automatic mode Inhibition of automatic return transfer Priority and selection of system Test off load, test on load, priority for test on load Deactivation of stabilization delay
Input delay	ms	30	46
Number of relay outputs		1 NO: 2 A/250 V AC / 2 A/30 V DC	Motor unit: 4 NO Electronic module: 1 NO + 1 CO: 2 A/250 V AC / 2 A/24 V DC
Supplementary notes on relay outputs <sup>1)</sup>		System availability	Motorized operating mechanism: Availability of the motorized operating mechanism Switch positions I, 0, II Electronic module: Availability of the device, generator start/stop signal

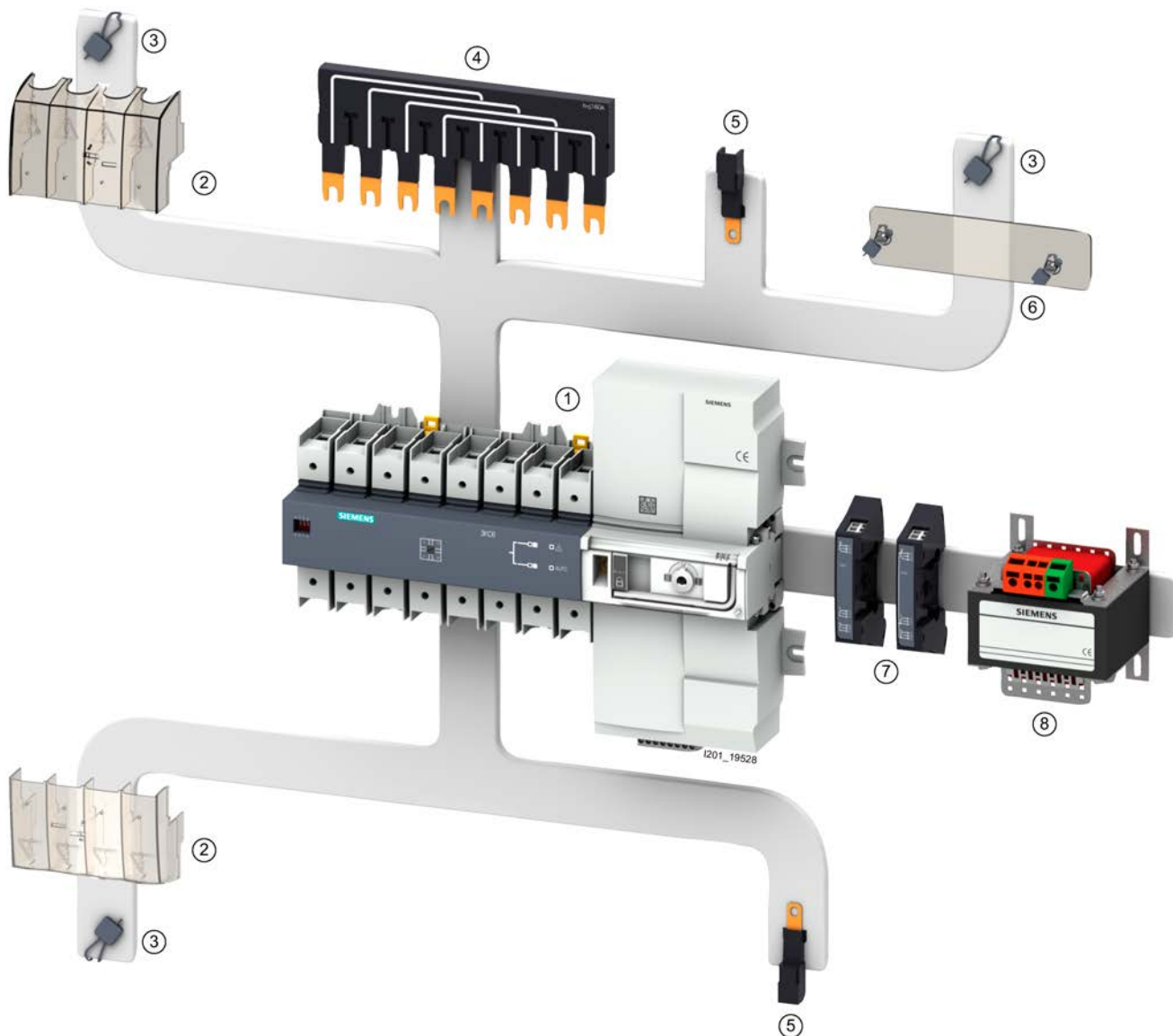
1) For more information, see 3KC manual

## Connections

		3KC6 (40 to 160 A)	3KC8 (250 to 3200 A)
Terminals		Removable/plug-in	Removable/plug-in
Connectable conductor cross-section / stranded, solid	mm <sup>2</sup>	0.5 ... 1.5	1.5 ... 2.5
Connectable conductor cross-section / solid	AWG	20 ... 14	16 ... 14
Connectable conductor cross-section / stranded	AWG	20 ... 16	16 ... 14
Tightening torque	Nm	0.5	0.5 ... 0.6

### 3.2.3 Automatic transfer switching equipment

#### 3.2.3.1 3KC6 (ATSE) for 40 to 160 A, 4-pole

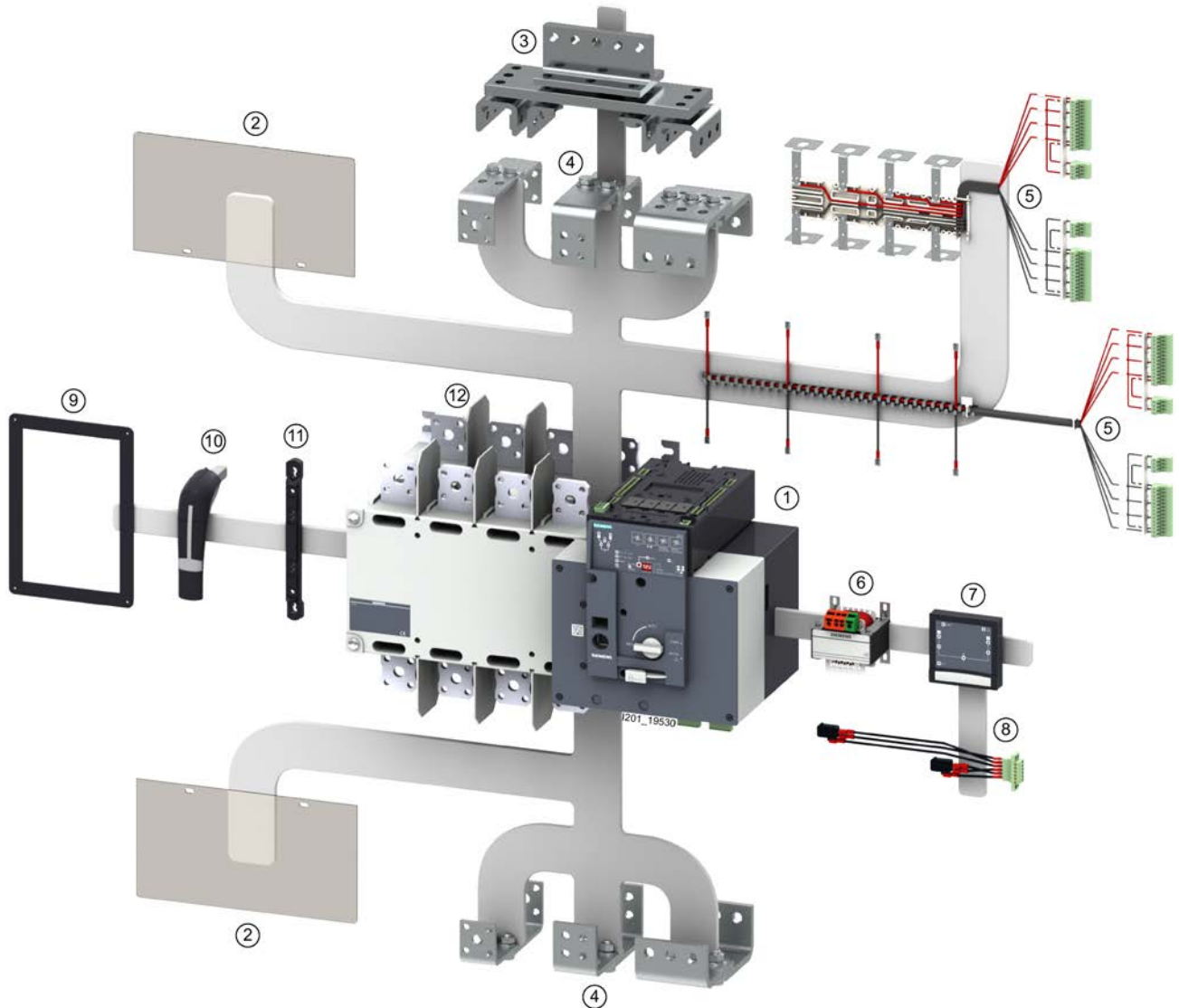


- ① 3KC automatic transfer switching equipment
- ② Terminal covers
- ③ Sealing ribbon
- ④ Bridging bar

- ⑤ Auxiliary conductor terminal
- ⑥ Sealable cover
- ⑦ Auxiliary switches
- ⑧ Autotransformer



3.2.3.2 3KC8 (ATSE) for 250 to 3200 A, 3-/4-pole



- |  |                      |                  |
|--|----------------------|------------------|
| ① 3KC automatic transfer switching equipment | ⑤ Power supply kit   | ⑨ Cover frame    |
| ② Terminal plates                            | ⑥ Autotransformer    | ⑩ Handle         |
| ③ Copper bar connection kit                  | ⑦ External display   | ⑪ Spacer         |
| ④ Bridging bars                              | ⑧ Auxiliary switches | ⑫ Phase barriers |

### 3.3 Technical specifications

#### 3.3.1 Manual transfer switching equipment (MTSE)

##### 3.3.1.1 3KC0 from 16 to 160 A

###### General technical details

Size		3KC0.1 61	3KC0.2 2	3KC0.2 6	3KC0.2 82	3KC0.3 0	3KC0.3 2	3KC0.3 4
<b>Uninterrupted current</b>	<b>A</b>	<b>16</b>	<b>32</b>	<b>63</b>	<b>80</b>	<b>100</b>	<b>125</b>	<b>160</b>
Operational voltage at 50/60 Hz AC according to IEC 60947-6-1	V	415						
Operational voltage at 50/60 Hz AC according to IEC 60947-3	V	690						
Insulation voltage (U <sub>i</sub> )	V	1000 AC						
Impulse withstand voltage (U <sub>imp</sub> )	kV	8						
Overvoltage category with pollution degree 3		III						
<b>Operational current according to IEC 60947-6-1:</b>								
AC-31 B, at 415 V	A	16	32	63	80	100	125	160
AC-32 B, at 415 V	A	16	32	63	80	100	125	160
AC-33 B, at 415 V	A	16	32	63	80	100	125	160
AC-35 B, at 400 V	A	16	32	63	80	100	125	160
<b>Operational current according to IEC 60947-3:</b>								
AC-21 A, at AC-22 A, at 415 ... 690 V	A	16	32	63	80	100	125	160
AC-23 A, at 415 V	A	16	32	63	80	100	125	160
AC-23 A, at 500 V	A	16	32	63	80	100	125	160
AC-23 A, at 690 V	A	16	32	63	80	100	125	160
<b>Operational power according to IEC 60947-3:</b>								
AC-23 A, at 415 V	kW	7.5	15	30	37	55	55	90
AC-23 A, at 500 V	kW	7.5	18.5	37	55	55	75	110
AC-23 A, at 690 V	kW	11	30	55	75	90	110	110

## Short-circuit behavior

Size		3KC0.1 61	3KC0.2 2	3KC0.2 6	3KC0.2 82	3KC0.3 0	3KC0.3 2	3KC0.3 4
<b>Uninterrupted current</b>	<b>A</b>	<b>16</b>	<b>32</b>	<b>63</b>	<b>80</b>	<b>100</b>	<b>125</b>	<b>160</b>
<b>Short circuit current ratings according to IEC 60947-6-1:</b>								
Short-time withstand current ( $I_{cw}$ , 100 ms, 415 V)	kA	5			10			
Short-circuit current making capacity ( $I_{cm}$ , 415 V)	kA	7.7			17			
<b>Short circuit current ratings according to IEC 60947-3:</b>								
Short-time withstand current ( $I_{cw}$ , 1 s, 415 V / 690 V)	kA	3			4			
Short-circuit current making capacity ( $I_{cm}$ , 690 V)	kA	7			12			
<b>Conditional short-circuit current with fuse:</b>								
Uninterrupted current of upstream gG fuse, 500 V / 690 V	A	63			160			
Conditional short-circuit current with gG fuse (415 V), IEC 60947-6-1	kA	100			100			
Conditional short-circuit current with gG fuse (415 V), IEC 60947-3	kA	100			100			
Conditional short-circuit current with gG fuse (690 V), IEC 60947-3	kA	100			65			
Let-through current of gG fuse, 500 V; max. permissible	kA	8.1			18			
Let-through current of gG fuse, 690 V; max. permissible	kA	8.8			16			
$I^2t$ value of gG fuse, 500 V; max. permissible	kA <sup>2</sup> s	13.3			135.6			
$I^2t$ value of gG fuse, 690 V; max. permissible	kA <sup>2</sup> s	13.7			178.3			

Main conductor connections <sup>1)</sup>

Size		3KC0.1 61	3KC0.2 2	3KC0.2 6	3KC0.2 82	3KC0.3 0	3KC0.3 2	3KC0.3 4
<b>Uninterrupted current</b>	<b>A</b>	<b>16</b>	<b>32</b>	<b>63</b>	<b>80</b>	<b>100</b>	<b>125</b>	<b>160</b>
Cu conductor, solid	mm <sup>2</sup>	1 x (1 ... 16)			1 x (2.5 ... 16)			
Cu conductor, stranded	mm <sup>2</sup>	1 x (6 ... 35)			1 x (10 ... 70)			
With cable lug (DIN 46234)	mm <sup>2</sup>	--			--			
Cu busbar	mm	1 x 2 x 9			1 x 3 x 14			
Tightening torque for main contacts	Nm	5 ... 6.5			6.5 ... 8			

1) Values for connection of aluminum cables can be found in the product data sheet, see Siemens Industry Online Support

**Other properties**

Size		3KC0.1 61	3KC0.2 2	3KC0.2 6	3KC0.2 82	3KC0.3 0	3KC0.3 2	3KC0.3 4
<b>Uninterrupted current</b>	<b>A</b>	<b>16</b>	<b>32</b>	<b>63</b>	<b>80</b>	<b>100</b>	<b>125</b>	<b>160</b>
Power loss per pole with thermal current $I_{th}$	W	0.1	0.4	1	1.1	1.8	3.2	4.6
Mechanical endurance		15000			15000			
Electrical endurance (AC-23 A at 415 V / 690 V)		6000			1500			
Degree of protection at the front/with cover		IP20			IP20			
<b>Ambient temperature</b>								
Operation	°C	-20 ... +70						
Storage	°C	-50 ... +80						
Width x height x depth (3-pole transfer switching equipment)	mm	201.6 x 119 x 84.5			255.6 x 126 x 84.5			
Width x height x depth (4-pole transfer switching equipment)	mm	237.6 x 119 x 84.5			309.6 x 126 x 84.5			

**3.3.1.2 3KC0 from 200 to 500 A**

General technical details

Size		3KC0.363	3KC0.38	3KC0.40	3KC0.42	3KC0.444
<b>Uninterrupted current</b>	<b>A</b>	<b>200</b>	<b>250</b>	<b>315</b>	<b>400</b>	<b>500</b>
Operational voltage at 50/60 Hz AC according to IEC 60947-6-1	V	415				
Operational voltage at 50/60 Hz AC according to IEC 60947-3	V	690				
Insulation voltage ( $U_i$ )	V	1000 AC				
Impulse withstand voltage ( $U_{imp}$ )	kV	12				
Overvoltage category with pollution degree 3		IV				
<b>Operational current according to IEC 60947-6-1:</b>						
AC-31 B, at 415 V	A	200	250	315	400	500
AC-32 B, at 415 V	A	200	250	315	400	500
AC-33 B, at 415 V	A	200	250	315	400	500
AC-35 B, at 400 V	A	200	250	315	400	500
<b>Operational current according to IEC 60947-3:</b>						
AC-21 A, at AC-22 A, at 415 ... 690 V	A	200	250	315	400	500
AC-23 A, at 415 V	A	200	250	315	400	500
AC-23 A, at 500 V	A	200	250	315	400	500
AC-23 A, at 690 V	A	200	250	315	400	500
<b>Operational power according to IEC 60947-3:</b>						
AC-23 A, at 415 V	kW	110	132	160	220	280

Size		3KC0.363	3KC0.38	3KC0.40	3KC0.42	3KC0.444
<b>Uninterrupted current</b>	<b>A</b>	<b>200</b>	<b>250</b>	<b>315</b>	<b>400</b>	<b>500</b>
AC-23 A, at 500 V	kW	132	160	220	250	355
AC-23 A, at 690 V	kW	185	220	280	355	500

### Short-circuit behavior

Size		3KC0.363	3KC0.38	3KC0.40	3KC0.42	3KC0.444
<b>Uninterrupted current</b>	<b>A</b>	<b>200</b>	<b>250</b>	<b>315</b>	<b>400</b>	<b>500</b>
<b>Short circuit current ratings according to IEC 60947-6-1:</b>						
Short-time withstand current ( $I_{cw}$ , 100 ms, 415 V)	kA	18				30
Short-circuit current making capacity ( $I_{cm}$ , 415 V)	kA	36				63
<b>Short circuit current ratings according to IEC 60947-3:</b>						
Short-time withstand current ( $I_{cw}$ , 1 s, 415 V / 690 V)	kA	13				30
Short-circuit current making capacity ( $I_{cm}$ , 690 V)	kA	26				63
<b>Conditional short-circuit current with fuse:</b>						
Uninterrupted current of upstream gG fuse, 500 V / 690 V	A	250		400		630
Conditional short-circuit current with gG fuse (415 V), IEC 60947-6-1	kA	100		65		100
Conditional short-circuit current with gG fuse (415 V), IEC 60947-3	kA	100		65		100
Conditional short-circuit current with gG fuse (690 V), IEC 60947-3	kA	65		35		65
Let-through current of gG fuse, 500 V; max. permissible	kA	24.8		34.3		65.5
Let-through current of gG fuse, 690 V; max. permissible	kA	25		33		54
$I^2t$ value of gG fuse, 500 V; max. permissible	kA <sup>2</sup> s	426.5	426.5	1165	1165	3687.5
$I^2t$ value of gG fuse, 690 V; max. permissible	kA <sup>2</sup> s	348	348	1157.5	1157.5	4450

## 3.3 Technical specifications

Main conductor connections <sup>1)</sup>

Size		3KC0.363	3KC0.38	3KC0.40	3KC0.42	3KC0.444
Uninterrupted current	A	200	250	315	400	500
Cu conductor, solid	mm <sup>2</sup>	--				--
Cu conductor, stranded	mm <sup>2</sup>	--				--
With cable lug (DIN 46234)	mm <sup>2</sup>	1 x (6 ... 240), 2 x (6 ... 150)				1 x (25 ... 240), 2 x (25 ... 240)
Cu busbar	mm	1 x 30 x 10				1 x 40 x 10, 2 x 40 x 5
Tightening torque for main contacts	Nm	30 ... 44				50 ... 75

1) Values for connection of aluminum cables can be found in the product data sheet, see Siemens Industry Online Support

## Other properties

Size		3KC0.363	3KC0.38	3KC0.40	3KC0.42	3KC0.444
Uninterrupted current	A	200	250	315	400	500
Power loss per pole with thermal current I <sub>th</sub>	W	4	6	10	14	12
Mechanical endurance		10000				8000
Electrical endurance (AC-23 A at 415 V / 690 V)		1000				1000
Degree of protection at the front/with cover		IP00 / IP20				IP00 / IP20
<b>Ambient temperature</b>						
Operation	°C	-20 ... +70				
Storage	°C	-50 ... +80				
Width x height x depth (3-pole transfer switching equipment)	mm	235 x 164 x 197.2				319 x 235 x 232.5
Width x height x depth (4-pole transfer switching equipment)	mm	279 x 164 x 197.2				379 x 235 x 232.5

## 3.3.1.3 3KC0 from 630 to 1600 A

## General technical details

Size		3KC0.464	3KC0.48	3KC0.505	3KC0.52	3KC0.54
<b>Uninterrupted current</b>	<b>A</b>	<b>630</b>	<b>800</b>	<b>1000</b>	<b>1250</b>	<b>1600</b>
Operational voltage at 50/60 Hz AC according to IEC 60947-6-1	V	415				
Operational voltage at 50/60 Hz AC according to IEC 60947-3	V	690				
Insulation voltage (U <sub>i</sub> )	V	1000 AC				
Impulse withstand voltage (U <sub>imp</sub> )	kV	12				
Overvoltage category with pollution degree 3		IV				
<b>Operational current according to IEC 60947-6-1:</b>						
AC-31 B, at 415 V	A	630	800	1000	1250	1600
AC-32 B, at 415 V	A	630	800	1000	1250	1250
AC-33 B, at 415 V	A	500	500	800	800	800
AC-35 B, at 400 V	A	630	800	1000	1250	1250
<b>Operational current according to IEC 60947-3:</b>						
AC-21 A, at AC-22 A, at 415 ... 690 V	A	630	800	1000	1250	1600
AC-23 A, at 415 V	A	630	670	800	800	800
AC-23 A, at 500 V	A	630	630	800	800	800
AC-23 A, at 690 V	A	500	500	800	800	800
<b>Operational power according to IEC 60947-3:</b>						
AC-23 A, at 415 V	kW	355	355	400	400	400
AC-23 A, at 500 V	kW	400	400	560	560	560
AC-23 A, at 690 V	kW	500	500	800	800	800

## Short-circuit behavior

Size		3KC0.464	3KC0.48	3KC0.505	3KC0.52	3KC0.54
<b>Uninterrupted current</b>	<b>A</b>	<b>630</b>	<b>800</b>	<b>1000</b>	<b>1250</b>	<b>1600</b>
<b>Short circuit current ratings according to IEC 60947-6-1:</b>						
Short-time withstand current (I <sub>cw</sub> , 100 ms, 415 V)	kA	30		50		
Short-circuit current making capacity (I <sub>cm</sub> , 415 V)	kA	63		105		
<b>Short circuit current ratings according to IEC 60947-3:</b>						
Short-time withstand current (I <sub>cw</sub> , 1 s, 415 V / 690 V)	kA	30		50		
Short-circuit current making capacity (I <sub>cm</sub> , 690 V)	kA	63		105		

3.3 Technical specifications

Size		3KC0.464	3KC0.48	3KC0.505	3KC0.52	3KC0.54
<b>Uninterrupted current</b>	<b>A</b>	<b>630</b>	<b>800</b>	<b>1000</b>	<b>1250</b>	<b>1600</b>
<b>Conditional short-circuit current with fuse:</b>						
Uninterrupted current of upstream gG fuse, 500 V / 690 V	A	630	800	1000 / -	1250 / -	1600 / -
Conditional short-circuit current with gG fuse (415 V), IEC 60947-6-1	kA	100	65	100	80	80
Conditional short-circuit current with gG fuse (415 V), IEC 60947-3	kA	100	65	100	80	80
Conditional short-circuit current with gG fuse (690 V), IEC 60947-3	kA	65	50	--	--	--
Let-through current of gG fuse, 500 V; max. permissible	kA	65.5	70.8	95.2	112.6	112.6
Let-through current of gG fuse, 690 V; max. permissible	kA	54	65	--	--	--
I <sup>2t</sup> value of gG fuse, 500 V; max. permissible	kA <sup>2s</sup>	3687.5	7471.7	15400	25960	30900
I <sup>2t</sup> value of gG fuse, 690 V; max. permissible	kA <sup>2s</sup>	4450	103000	--	--	--

Main conductor connections <sup>1)</sup>

Size		3KC0.464	3KC0.48	3KC0.505	3KC0.52	3KC0.54
<b>Uninterrupted current</b>	<b>A</b>	<b>630</b>	<b>800</b>	<b>1000</b>	<b>1250</b>	<b>1600</b>
Cu conductor, solid	mm <sup>2</sup>	--		--		
Cu conductor, stranded	mm <sup>2</sup>	--		--		
With cable lug (DIN 46234)	mm <sup>2</sup>	1 x (25 ... 240), 2 x (25 ... 240)		1 x (120 ... 240), 2 x (95 ... 240)		
Cu busbar	mm	1 x 40 x 10, 2 x 40 x 5		2 x 60 x 10		
Tightening torque for main contacts	Nm	50 ... 75		50 x 75		

1) Values for connection of aluminum cables can be found in the product data sheet, see Siemens Industry Online Support

Other properties

Size		3KC0.464	3KC0.48	3KC0.505	3KC0.52	3KC0.54
<b>Uninterrupted current</b>	<b>A</b>	<b>630</b>	<b>800</b>	<b>1000</b>	<b>1250</b>	<b>1600</b>
Power loss per pole with thermal current I <sub>th</sub>	W	17	25	20	32	57
Mechanical endurance		8000		6000		
Electrical endurance (AC-23 A at 415 V / 690 V)		1000		500		
Degree of protection at the front/with cover		IP00 / IP20		IP00 / IP20		



Size		3KC0.464	3KC0.48	3KC0.505	3KC0.52	3KC0.54
Uninterrupted current	A	630	800	1000	1250	1600
<b>Ambient temperature</b>						
Operation	°C	-20 ... +70				
Storage	°C	-50 ... +80				
Width x height x depth (3-pole transfer switching equipment)	mm	319 x 235 x 232.5		475 x 310 x 311.5		
Width x height x depth (4-pole transfer switching equipment)	mm	379 x 235 x 232.5		565 x 310 x 311.5		

### 3.3.2 Remote transfer switching equipment (RTSE) and automatic transfer switching equipment (ATSE)

#### 3.3.2.1 3KC3/3KC6 from 40 to 160 A

#### General technical details

Size		3KC3424 3KC6424	3KC3426 3KC6426	3KC3428 3KC6428	3KC3430 3KC6430	3KC3432 3KC6432	3KC3434 3KC6434
Uninterrupted current	A	40	63	80	100	125	160
Operational voltage at 50/60 Hz AC	V	415					
Insulation voltage	V	800 AC					
Impulse withstand voltage ( $U_{imp}$ ) of the main circuit	kV	8					
Impulse withstand voltage ( $U_{imp}$ ) of the control circuit	kV	RTSE: 4 / ATSE: 2.5					
Overvoltage category with pollution degree 3		RTSE: III / ATSE: II					
<b>Operational current according to IEC 60947-6-1:</b>							
AC-31 A/B, at 415 V	A	40	63	80	100	100/125	100/160
AC-32 A/B, at 415 V	A	40	63	80	100	100/125	100/160
AC-33 B, at 415 V	A	40	63	80	100	125	125
<b>Operational current according to IEC 60947-3:</b>							
AC-21 A/B, at 415 V	A	40	63	80	100	125	125/160
AC-21 A/B, at 690 V	A	40	63	80	100	125	125
AC-22 A/B, at 415 V	A	40	63	80	100	125	125/160
AC-22 A/B, at 690 V	A	40	63	80	80	100/125	100/125
AC-23 A/B, at 415 V	A	40	63	80	100	125	125/160
AC-23 A/B, at 690 V	A	40	63	63	80	80	80
<b>Operational power according to IEC 60947-3:</b>							
AC-23 A/B, at 415 V	kW	22	37	45	55	60	75
AC-23 A/B, at 690 V	kW	37	55	55	75	75	75

3.3 Technical specifications

Short-circuit behavior

Size		3KC3424 3KC6424	3KC3426 3KC6426	3KC3428 3KC6428	3KC3430 3KC6430	3KC3432 3KC6432	3KC3434 3KC6434
<b>Uninterrupted current</b>	<b>A</b>	<b>40</b>	<b>63</b>	<b>80</b>	<b>100</b>	<b>125</b>	<b>160</b>
<b>Short circuit current ratings according to IEC 60947-3:</b>							
Short-time withstand current (I <sub>cw</sub> , 1 s, 415 V)	kA	4					
Short-time withstand current (I <sub>cw</sub> , 50 ms, 415 V)	kA	10					
Short-circuit current making capacity (I <sub>cm</sub> , 415 V)	kA	5.88					
<b>Conditional short-circuit current with fuse:</b>							
Uninterrupted current of upstream fuse	A	40	63	80	100	125	160
Conditional short-circuit current with fuse (415 V), IEC 60947-6-1	kA	50	50	50	50	50	40
Conditional short-circuit current with fuse (415 V), IEC 60947-3	kA	50	50	50	50	50	40
Let-through current of gG fuse at 415 V; max. permissible	kA	14	14	14	14	14	17
I <sup>2</sup> t value of the gG fuse, 400/500 V; max. permissible	kA <sup>2</sup> s	61.3	61.3	61.3	61.3	64.3	109

Transfer switching properties

Size		3KC3424 3KC6424	3KC3426 3KC6426	3KC3428 3KC6428	3KC3430 3KC6430	3KC3432 3KC6432	3KC3434 3KC6434
<b>Uninterrupted current</b>	<b>A</b>	<b>40</b>	<b>63</b>	<b>80</b>	<b>100</b>	<b>125</b>	<b>160</b>
Switching time I-0 & II-0	ms	45					
Switch-off time I-0-II & II-0-I, IEC 60947-6-1	ms	150					
Transfer time I-0-II & II-0-I, IEC 60947-6-1	ms	180					
Transfer time I-0-II & II-0-I, IEC 60947-6-1 with line monitoring	s	1.4					
Motorized operating mechanism rated appar- ent power at 230 V AC	VA	6					
Motorized operating mechanism peak inrush current at 230 V AC	A	30					

**Main conductor connections <sup>1)</sup>**

Size		3KC3424 3KC6424	3KC3426 3KC6426	3KC3428 3KC6428	3KC3430 3KC6430	3KC3432 3KC6432	3KC3434 3KC6434
<b>Uninterrupted current</b>	<b>A</b>	<b>40</b>	<b>63</b>	<b>80</b>	<b>100</b>	<b>125</b>	<b>160</b>
Cu conductor, solid	mm <sup>2</sup>	1 x (10 ... 70)					
Cu conductor, stranded	mm <sup>2</sup>	1 x (10 ... 70)					
With cable lug (DIN 46234)	mm <sup>2</sup>	--					
Cu busbar	mm	--					
Tightening torque for main contacts	Nm	5					

<sup>1)</sup> Values for connection of aluminum cables can be found in the product data sheet, see Siemens Industry Online Support

**Other properties**

Size		3KC3424 3KC6424	3KC3426 3KC6426	3KC3428 3KC6428	3KC3430 3KC6430	3KC3432 3KC6432	3KC3434 3KC6434
<b>Uninterrupted current</b>	<b>A</b>	<b>40</b>	<b>63</b>	<b>80</b>	<b>100</b>	<b>125</b>	<b>160</b>
Power loss per pole	W	0.5	1.2	2.2	4	5.2	8.7
Mechanical endurance		8500				7000	
Electrical endurance (AC-23 A at 415 V)		1500				1000	
Degree of protection at the front/with cover		IP00 / IP20					
<b>Ambient temperature</b>							
Operation	°C	-20 ... +70					
Storage	°C	-40 ... +70					
Width x height x depth (4-pole breaker)	mm	340 x 245 x 73.5					

3.3.2.2 3KC4/3KC8 from 250 to 1000 A

General technical details

Size		3KC4.38 3KC8.38	3KC4.42 3KC8.42	3KC4.46 3KC8.46	3KC4.48 3KC8.48	3KC4.50 3KC8.50
<b>Uninterrupted current</b>	<b>A</b>	<b>250</b>	<b>400</b>	<b>630</b>	<b>800</b>	<b>1000</b>
Operational voltage at 50/60 Hz AC according to IEC 60947-6-1	V	415				
Operational voltage at 50/60 Hz AC according to IEC 60947-3	V	690				
Insulation voltage	V	1000 AC / 1000 DC				
Impulse withstand voltage (U <sub>imp</sub> ) of the main circuit	kV	12	12	12	12	12
Impulse withstand voltage (U <sub>imp</sub> ) of the control circuit	kV	4	4	4	4	4
Overvoltage category with pollution degree 3		RTSE: IV / ATSE: III				
<b>Operational current according to IEC 60947-6-1:</b>						
AC-31 B, at 415 V	A	250	400	630	800	1000
AC-32 B, at 415 V	A	250	400	500	800	1000
AC-33 B, at 415 V	A	250	200	400	800	800
<b>Operational current according to IEC 60947-3:</b>						
AC-21 A/B, at 415 V	A	250	400	630	800	1000
AC-21 A/B, at 690 V	A	200	200	500	800	1000
AC-22 A/B, at 415 V	A	250	400	630	800	1000
AC-22 A/B, at 690 V	A	160	160	400	630	800
AC-23 A/B, at 415 V	A	200	400	500/630	800	1000
AC-23 A/B, at 690 V	A	125	125	400	630	630
DC-21/-22 A, at 220 V	A	250	250	630	800	1000
DC-21/-22/-23 A 440 V; DC-23 220 V	A	200	200	630	800	1000
<b>Operational power according to IEC 60947-3:</b>						
AC-23 A/B, at 415 V	kW	110	220	335	450	700
AC-23 A/B, at 690 V	kW	110	110	400	400	630

## Short-circuit behavior

Size		3KC4.38 3KC8.38	3KC4.42 3KC8.42	3KC4.46 3KC8.46	3KC4.48 3KC8.48	3KC4.50 3KC8.50
<b>Uninterrupted current</b>	<b>A</b>	<b>250</b>	<b>400</b>	<b>630</b>	<b>800</b>	<b>1000</b>
<b>Short circuit current ratings according to IEC 60947-6-1:</b>						
Short-time withstand current ( $I_{cw}$ , 60 ms, 415 V)	kA	10 at 30 ms	10 at 30 ms	12.6	20	20
Short-circuit current making capacity ( $I_{cm}$ , 415 V)	kA	17	17	25.2	40	40
<b>Short circuit current ratings according to IEC 60947-3:</b>						
Short-time withstand current ( $I_{cw}$ , 60 ms, 415 V)	kA	8 at 690 V	8 at 690 V	10 at 690 V	35	35
Short-circuit current making capacity ( $I_{cm}$ , 415 V)	kA	22 at 690 V	30 at 690 V	17 at 690 V	73.5	73.5
<b>Conditional short-circuit current with fuse:</b>						
Uninterrupted current of upstream fuse	A	250	400	630	800	1000
Conditional short-circuit current with fuse (690 V), IEC 60947-3	kA	50	50	50	50	50
Conditional short-circuit current with fuse (415 V), IEC 60947-6-1	kA	50	50	50	50	50
Let-through current of gG fuse at 415 V; max. permissible	kA	22	30	42	51	60
$I^2t$ value of the gG fuse, 400/500 V; max. permissible	kA <sup>2</sup> s	200	600	3000	6000	6300

## Transfer switching properties

Size		3KC4.38 3KC8.38	3KC4.42 3KC8.42	3KC4.46 3KC8.46	3KC4.48 3KC8.48	3KC4.50 3KC8.50
<b>Uninterrupted current</b>	<b>A</b>	<b>250</b>	<b>400</b>	<b>630</b>	<b>800</b>	<b>1000</b>
Switching time I-0 & II-0	s	0.5	0.5	0.6	1.4	1.4
Switch-off time I-0-II & II-0-I, IEC 60947-6-1	s	0.4	0.4	0.4	1.4	1.4
Transfer time I-0-II & II-0-I, IEC 60947-6-1	s	0.9	0.9	1	2.8	2.8
Transfer time I-0-II & II-0-I, IEC 60947-6-1 with line monitoring	s	1	1	1.1	3.1	3.1
Motorized operating mechanism rated ap- parent power at 230 V AC	VA	115	115	150	184	184
Motorized operating mechanism peak inrush current at 230 V AC	A	1.2	1.2	1.2	2	2

3.3 Technical specifications

Main conductor connections

Size		3KC4.38 3KC8.38	3KC4.42 3KC8.42	3KC4.46 3KC8.46	3KC4.48 3KC8.48	3KC4.50 3KC8.50
<b>Uninterrupted current</b>	<b>A</b>	<b>250</b>	<b>400</b>	<b>630</b>	<b>800</b>	<b>1000</b>
Cu conductor, solid	mm <sup>2</sup>	1 x (95 ... 150)	1 x (185 ... 240)	2 x (150 ... 300)	2 x (185 ... 300)	2 x 240 ... 4 x 185
Cu conductor, stranded	mm <sup>2</sup>	1 x (95 ... 150)	1 x (185 ... 240)	2 x (150 ... 300)	2 x (185 ... 300)	2 x 240 ... 4 x 185
With cable lug (DIN 46234)	mm <sup>2</sup>	1 x 150	1 x 240	2 x 300	2 x 300	4 x 185
Cu busbar	mm	1 x 32 x 5	1 x 32 x 8	2 x 40 x 5	2 x 50 x 5	2 x 60 x 5
Tightening torque for main contacts	Nm	20 ... 26	20 ... 26	40 ... 45	8.3 ... 13	8.3 ... 13

Other properties

Size		3KC4.38 3KC8.38	3KC4.42 3KC8.42	3KC4.46 3KC8.46	3KC4.48 3KC8.48	3KC4.50 3KC8.50
<b>Uninterrupted current</b>	<b>A</b>	<b>250</b>	<b>400</b>	<b>630</b>	<b>800</b>	<b>1000</b>
Power loss per pole	W	5.9	15.1	32.4	41.7	46.9
Mechanical endurance		7000	4000	4000	2500	2500
Electrical endurance (AC-23 B at 415 V)		1000	1000	1000	500	500
Degree of protection at the front/with cover		IP00 / IP20				
<b>Ambient temperature</b>						
Operation	°C	-20 ... +70				
Storage	°C	-40 ... +70				
Width x height x depth (3-pole switch)	mm	328 x 160 x 292	328 x 170 x 292	377 x 260 x 369	504 x 370 x 440	504 x 370 x 440
Width x height x depth (4-pole breaker)	mm	378 x 160 x 292	378 x 170 x 292	437 x 260 x 369	584 x 370 x 440	584 x 370 x 440

## 3.3.2.3 3KC4/3KC8 from 1250 to 3200 A

## General technical details

Size		3KC4.52 3KC8.52	3KC4.54 3KC8.54	3KC4.56 3KC8.56	3KC4.58 3KC8.58	3KC4.60 3KC8.60
<b>Uninterrupted current</b>	<b>A</b>	<b>1250</b>	<b>1600</b>	<b>2000</b>	<b>2500</b>	<b>3200</b>
Operational voltage at 50/60 Hz AC according to IEC 60947-6-1	V	415				
Operational voltage at 50/60 Hz AC according to IEC 60947-3	V	690				
Insulation voltage	V	1000 AC / 1000 DC				
Impulse withstand voltage ( $U_{imp}$ ) of the main circuit	kV	12	12	12	12	12
Impulse withstand voltage ( $U_{imp}$ ) of the control circuit	kV	4	4	4	4	4
Overvoltage category with pollution degree 3		RTSE: IV / ATSE: III				
<b>Operational current according to IEC 60947-6-1:</b>						
AC-31 B, at 415 V	A	1250	1600	2000	2500	3200
AC-32 B, at 415 V	A	1250	1600	2000	2000	2000
AC-33 B, at 415 V	A	1000	1000	1250	1250	1250
<b>Operational current according to IEC 60947-3:</b>						
AC-21 A/B, at 415 V	A	1250	1600	-/2000	-/2500	-/3200
AC-21 A/B, at 690 V	A	1250	1600	-/2000	-/2000	-/2000
AC-22 A/B, at 415 V	A	1250	1600	-/2000	-/2500	-/3200
AC-22 A/B, at 690 V	A	1000	1000	--	--	--
AC-23 A/B, at 415 V	A	1250	1250	-/1600	-/1600	-/1600
AC-23 A/B, at 690 V	A	800	800	--	--	--
DC-21/-22 A, at 220 V	A	1250	1250	--	--	--
DC-21/-22/-23 A 440 V; DC-23 220 V	A	1250	1250	--	--	--
<b>Operational power according to IEC 60947-3:</b>						
AC-23 A/B, at 415 V	kW	800	900	--	--	--
AC-23 A/B, at 690 V	kW	800	800	--	--	--

3.3 Technical specifications

Short-circuit behavior

Size		3KC4.52 3KC8.52	3KC4.54 3KC8.54	3KC4.56 3KC8.56	3KC4.58 3KC8.58	3KC4.60 3KC8.60
<b>Uninterrupted current</b>	<b>A</b>	<b>1250</b>	<b>1600</b>	<b>2000</b>	<b>2500</b>	<b>3200</b>
<b>Short circuit current ratings according to IEC 60947-6-1:</b>						
Short-time withstand current (I <sub>cw</sub> , 60 ms, 415 V)	kA	25	32	50	50	50
Short-circuit current making capacity (I <sub>cm</sub> , 415 V)	kA	52.5	67.2	105	105	105
<b>Short circuit current ratings according to IEC 60947-3:</b>						
Short-time withstand current (I <sub>cw</sub> , 60 ms, 415 V)	kA	35	50	50	50	50
Short-circuit current making capacity (I <sub>cm</sub> , 415 V)	kA	73.5	105	105	105	105
<b>Conditional short-circuit current with fuse:</b>						
Uninterrupted current of upstream fuse	A	1250	2 x 800	--	--	--
Conditional short-circuit current with fuse (690 V), IEC 60947-3	kA	100	100	--	--	--
Conditional short-circuit current with fuse (415 V), IEC 60947-6-1	kA	100	100	--	--	--
Let-through current of gG fuse at 415 V; max. permissible	kA	100	100	--	--	--
I <sup>2</sup> t value of the gG fuse, 400/500 V; max. permissible	kA <sup>2</sup> s	--	--	--	--	--

Transfer switching properties

Size		3KC4.52 3KC8.52	3KC4.54 3KC8.54	3KC4.56 3KC8.56	3KC4.58 3KC8.58	3KC4.60 3KC8.60
<b>Uninterrupted current</b>	<b>A</b>	<b>1250</b>	<b>1600</b>	<b>2000</b>	<b>2500</b>	<b>3200</b>
Switching time I-0 & II-0 RTSE/ATSE	s	1.4	1.4	1.6	1.6	1.6
Switch-off time I-0-II & II-0-I, IEC 60947-6-1	s	1.4	1.5	1.2	1.2	1.2
Transfer time I-0-II & II-0-I, IEC 60947-6-1	s	2.8	2.9	2.8	2.8	2.8
Transfer time I-0-II & II-0-I, IEC 60947-6-1 with line monitoring	s	3.1	3.3	2.8	2.8	2.8
Motorized operating mechanism rated apparent power at 230 V AC	VA	184	230	322	322	322
Motorized operating mechanism peak inrush current at 230 V AC	A	2	2	3.5	3.5	3.5



**Main conductor connections**

Size		3KC4.52 3KC8.52	3KC4.54 3KC8.54	3KC4.56 3KC8.56	3KC4.58 3KC8.58	3KC4.60 3KC8.60
<b>Uninterrupted current</b>	<b>A</b>	<b>1250</b>	<b>1600</b>	<b>2000</b>	<b>2500</b>	<b>3200</b>
Cu conductor, solid	mm <sup>2</sup>	4 x 185	6 x 185	--	--	--
Cu conductor, stranded	mm <sup>2</sup>	4 x 185	6 x 185	--	--	--
With cable lug (DIN 46234)	mm <sup>2</sup>	4 x 185	6 x 185	--	--	--
Cu busbar	mm	2 x 60 x 7	2 x 100 x 5	3 x 100 x 5	2 x 100 x 10	3 x 100 x 10
Tightening torque for main contacts	Nm	20 ... 26	20 ... 45	40 ... 45	40 ... 45	40 ... 45

**Other properties**




Size		3KC4.52 3KC8.52	3KC4.54 3KC8.54	3KC4.56 3KC8.56	3KC4.58 3KC8.58	3KC4.60 3KC8.60
<b>Uninterrupted current</b>	<b>A</b>	<b>1250</b>	<b>1600</b>	<b>2000</b>	<b>2500</b>	<b>3200</b>
Power loss per pole	W	93.3	122	178	255	330
Mechanical endurance		2500	2500	1500	1500	1500
Electrical endurance (AC-23 B at 415 V)		500	500	500	500	500
Degree of protection at the front/with cover		IP00 / IP20				
<b>Ambient temperature</b>						
Operation	°C	-20 ... +70				
Storage	°C	-40 ... +70				
Width x height x depth (3-pole switch)	mm	504 x 370 x 440	596 x 380 x 440	596 x 380 x 569	596 x 380 x 569	596 x 380 x 569
Width x height x depth (4-pole breaker)	mm	584 x 370 x 440	716 x 380 x 440	716 x 380 x 569	716 x 380 x 569	716 x 380 x 569



## Transfer control devices

### 4.1 Product description

#### 4.1.1 Overview

Devices	Applications	Used in	
		Non-residential buildings	Industry
<p><b>3KC ATC6300 transfer control device</b></p> 	<p>When combined with two circuit breakers with motorized operating mechanism or with remote transfer switching equipment (RTSE), the 3KC ATC6300 transfer control device forms a transfer control system that automatically or manually switches between two power supply systems in low-voltage power distribution applications.</p> <p>The 3KC ATC6300 transfer control device offers</p> <ul style="list-style-type: none"> <li>• Several programmable inputs and outputs</li> <li>• Optional communication link</li> <li>• LCD</li> </ul> <p>Settings are defined via user-friendly software.</p>	✓	✓
<p><b>3KC ATC6500 transfer control device</b></p> 	<p>The 3KC ATC6500 transfer control device can do everything the 3KC ATC6300 can.</p> <p>The 3KC ATC6500 also offers the option of controlling an additional tie breaker. It can be used to implement a wide range of applications with critical load management. Load shedding of non-critical loads can therefore be implemented.</p> <p>The ATC6500 also features a permanently integrated RS 485 interface.</p>	✓	✓
<p><b>3KC ATC3100 transfer control device</b></p> 	<p>When combined with two circuit breakers with motorized operating mechanism, the 3KC ATC3100 transfer control device forms a transfer control system.</p> <p>It is a simplified version of the 3KC ATC6300 and enables fast parameterization without software.</p>	✓	✓

### 4.1.2 Automatic transfer control with the transfer control device

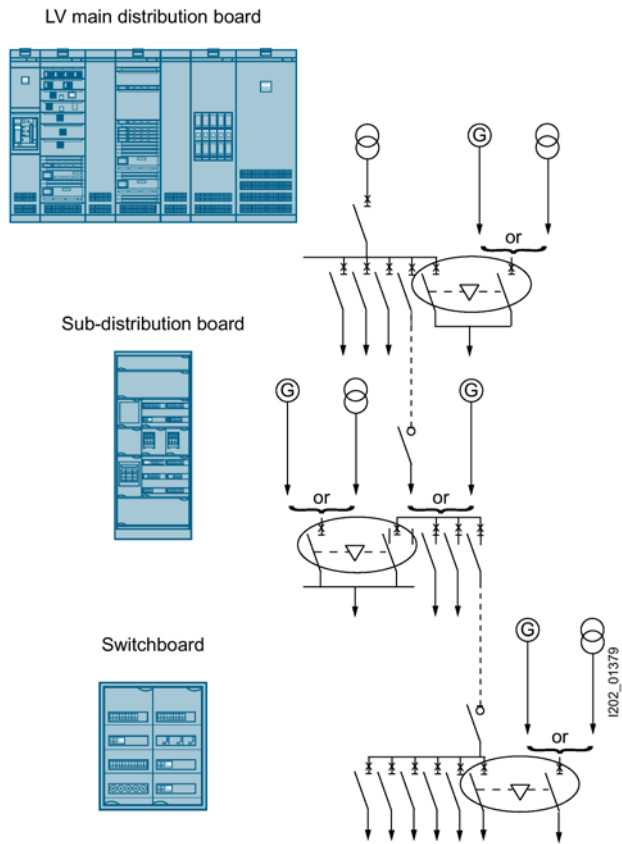


- ① 3KC ATC6300
- ② 3KC ATC6500
- ③ 3KC ATC3100

When combined with two circuit breakers with motorized operating mechanism or with remote transfer switching equipment, the 3KC ATC transfer control devices form an open transfer control system. The 3KC ATC transfer control devices control the transfer automatically, while incorporating set limit values and delay times. They immediately detect fluctuations in the priority power supply and transfer to the standby power supply if the standby power supply can provide the required power supply quality. When the required power supply quality is restored in the priority power supply, the control device automatically initiates a return transfer.

If a generator is feeding the standby and/or the priority power supply, the control device also offers suitable setting options, such as the generator lead time.

As well as the ability to control two circuit breakers, the ATC6500 offers the additional option of controlling a third breaker, the tie breaker. Load shedding of non-priority loads can therefore be implemented.



### 4.1.3 Implementation of an automatic transfer

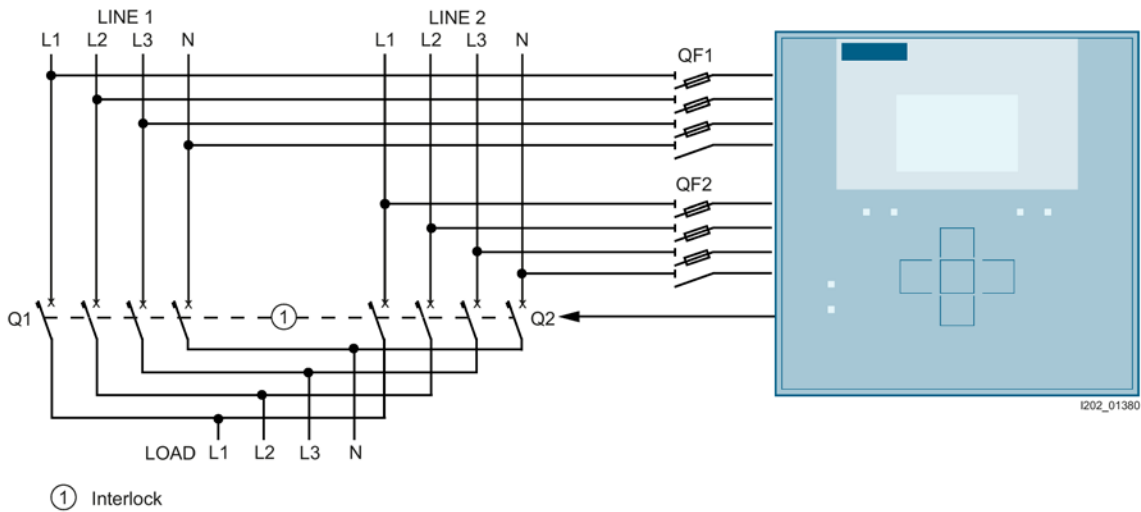
The following switching devices have been tested in conjunction with 3KC ATC6300/6500/3100 transfer control devices:

- 3VA molded case circuit breakers
- 3VL molded case circuit breakers (3KC ATC6300/3100 only)
- 3VT molded case circuit breakers (3KC ATC3100 only)
- 3WL10 air circuit breakers (3KC ATC6500 only)
- 3WL air circuit breakers FSI-III
- 3WT air circuit breakers
- 3KC3/4 remote transfer switching equipment (3KC ATC6300 only)

4.1 Product description

The circuit breakers must be equipped with the following accessories (please see the corresponding manual for exact circuit diagrams)

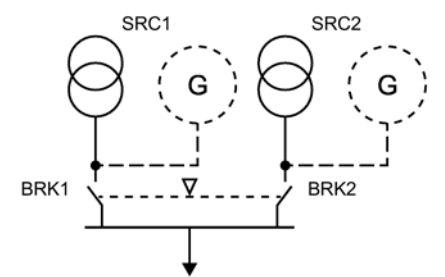
- 3VL/3VA/3VT molded case circuit breakers:
  - One motorized operating mechanism
  - One alarm switch
  - Two auxiliary switches 1 NO/1 NC
- 3WL/3WT air circuit breakers:
  - One motorized operating mechanism
  - One closing solenoid
  - One auxiliary release (shunt release)
  - One tripped signal switch
  - One auxiliary switch block 2 NO / 2 NC (standard equipment)



#### 4.1.4 Configuration

##### Automatic transfer control with 1 or 2 switching devices (3KC ATC3100, 6300, 6500)

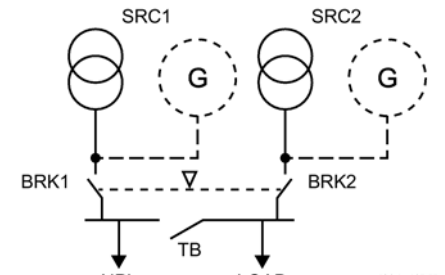
Table 4- 1 Connection of one of the two sources according to setting

	Source 1 (SRC1)	Source 2 (SRC2)	Breaker 1 (BRK1)	Breaker 2 (BRK2)	Breaker 3 (TB, TB/NPL)
 <p>I201_19753</p>	Off	Off			--
	On	Off			--
	Off	On			--
	On	On			--

In this application, 2 motorized circuit breakers or one RTSE (remote transfer switching equipment) can be used. The 3KC ATC connects one of the two sources according to the setting. Note: The 3KC ATC3100 is only suitable for one network/network or network/generator application.

##### Automatic transfer control with 3 switching devices (only possible with 3KC ATC6500)

Table 4- 2 Source 1 (SRC1) supplies all loads, source 2 (SRC2) only the priority load (LOAD)

	Source 1 (SRC1)	Source 2 (SRC2)	Breaker 1 (BRK1)	Breaker 2 (BRK2)	Breaker 3 (TB, TB/NPL)
 <p>I201_19757</p>	Off	Off			
	On	Off			
	Off	On			
	On	On			

In this application, only the priority load is supplied by the secondary source (source 2 here) when the priority source fails (source 1 here). In the normal case (source 1 available), both sources are supplied by the priority network.

4.1 Product description

Table 4- 3 The source which is still available supplies all loads (NPL and LOAD)

	Source 1 (SRC1)	Source 2 (SRC2)	Breaker 1 (BRK1)	Breaker 2 (BRK2)	Breaker 3 (TB, TB/NPL)
	Off	Off	}	}	}
	On	Off		}	
	Off	On	}		
	On	On			}

In this application, the two loads are supplied by one source each in the normal case (both sources available). If one source fails, the priority load (LOAD) and the non-priority load (NPL) are supplied by the source that is still available.

Table 4- 4 Source 1 (SRC1) supplies all loads, source 2 (SRC2) only the priority load (LOAD)

	Source 1 (SRC1)	Source 2 (SRC2)	Breaker 1 (BRK1)	Breaker 2 (BRK2)	Breaker 3 (TB, TB/NPL)
	Off	Off	}	}	}
	On	Off		}	
	Off	On	}		}
	On	On			}

In this application, the two loads are supplied by one source each in the normal case (both sources available). If source 2 fails, both the priority load and the non-priority load are supplied by source 1. Source 2 only supplies the priority load however.



Table 4- 5 Source 1 (SRC1) supplies all loads, source 2 (SRC2) only the priority load; the TB/NPL switches off the non-priority load

	Source 1 (SRC1)	Source 2 (SRC2)	Breaker 1 (BRK1)	Breaker 2 (BRK2)	Breaker 3 (TB, TB/NPL)
	Off	Off	\}	\}	\}
	On	Off		\}	
	Off	On	\}		\}
	On	On			

In this application, only the priority load is supplied by the secondary source (source 2 here) when the priority source fails (source 1 here). In the normal case (source 1 available), both sources are supplied by the priority network.

### Explanations

\} Breaker open

| Breaker closed

BRK 1/2: Switching device 1/2

Load: Priority load in this case

NPL: Non-priority load

TB: Tie breaker (switching device 3)

TB/NPL: Tie breaker/non-priority load = Breaker for non-priority load (switching device 3)

On: Source is fully functional

Off: Source has failed completely or is not providing the required power supply quality

## 4.1.5 3KC ATC6300 transfer control device

### 4.1.5.1 Overview



#### Expandability thanks to communication interfaces

The 3KC ATC6300 can be integrated into a communication environment using expansion modules. For communication, the 3KC ATC6300 supports the optional interfaces Ethernet with Modbus TCP, RS 485 with Modbus RTU and USB. The 3KC ATC6300 provides all available transfer control system and supply data via these interfaces. The 3KC ATC6300 can also be controlled via these interfaces. These functions make it possible to integrate the ATC6300 into an additional monitoring software (e.g. SCADA) or other intelligent devices that support Modbus (e.g. Siemens PLCs) and to control it.

#### Compatibility with 3VA

The 3KC ATC6300 enables transfer between two energy sources in combination with two motorized 3VA molded case circuit breakers.

#### Simple parameterization using powerconfig or via the front LCD

In addition to operation and parameterization via the front LCD, you can also monitor and set the parameters of the controller using powerconfig. Thanks to the optionally available USB front interface, the device can also be parameterized without opening the control cabinet door. The 3KC ATC6300 thus offers a high level of convenience and quick access to all device settings, such as complex settings that arise when connecting generators.

#### Metering functions

The 3KC ATC6300 offers the following metering functions:

- Phase sequence
- Phase failure
- Minimum/maximum voltage
- Minimum/maximum frequency
- Voltage unbalance

#### **4.1.5.2 Benefits**

- Backlit graphic LCD, 128 x 80 pixels, for displaying measurements, events and alarms in five languages (English, German, French, Italian, Spanish)
- Easy parameterization via the user interface of the device or via powerconfig (powerconfig version 3.10 and higher)
- Control of functions with microprocessor with virtual real-time clock
- Auxiliary voltage supply is possible by means of taps from the supply sources (110-240 V AC 50/60 Hz) or by means of a separate DC source (12-24 V DC)
- Measurement of three-phase networks with or without neutral conductor, of two-phase networks, and of single-phase networks
- Control of circuit breakers with motorized operating mechanism, remote transfer switching equipment or contactors
- Suitable for network/network, network/generator or generator/generator applications
- 6 freely programmable digital inputs and 7 programmable relay outputs fitted to the device
- Expandable using up to 2 expansion modules with digital inputs and outputs, and by means of communications interfaces (RS 485, Ethernet)

#### **4.1.5.3 Integration**

##### **Implementation of an automatic transfer**

The 3KC ATC6300 transfer control device is used to automatically and manually switch from a main power supply to a standby power supply and vice versa. In the event of system faults, the 3KC ATC6300 transfer control device controls the transfer sequence fully automatically. This ensures a very high level of operational continuity.

The following devices are ideally matched to the 3KC ATC6300 transfer control device:

- 3WL, 3WT air circuit breakers
- 3VA, 3VL molded case circuit breakers
- 3KC3, 3KC4 remote transfer switching equipment

## 4.1.6 3KC ATC6500 transfer control device

### 4.1.6.1 Overview



#### Load management with the ATC6500

As well as transferring between 2 sources and 2 switching devices, the 3KC ATC6500 can control an additional tie breaker.

It can therefore be used to implement a wide range of applications that distinguish between priority and non-priority loads. The ATC automatically assumes control of the tie breaker according to the configured application.

#### In-phase transition

The ATC6500 is capable of in-phase transition. In this application, the ATC measures the deviation between the voltage, the frequency and the phase displacement angle  $\cos \phi$  of both sources. If the requirements for synchronism are attained on a return to the priority source, transfer is initiated. During the transfer, one breaker is opened before the other can be closed. In other words, parallel network operation is not present.

In-phase transition offers the advantage that transfer times can be reduced to a minimum during the return, as transfer only takes place when synchronism is present. A stable load transfer is also achieved. If the state of synchronism is not attained within a defined time, transfer takes place with standard conditions.

#### Compatibility with 3VA

The 3KC ATC6500 enables transfer between two energy sources in combination with two motorized 3VA molded case circuit breakers.

#### Simple parameterization using powerconfig or via the front LCD

The transfer control device offers the same convenience as the 3KC ATC6300 in this respect.

### Integrated RS 485 interface and expandability

The 3KC ATC6500 features an integrated RS 485 interface. It can also be expanded with the optional communication interfaces Ethernet with Modbus TCP and USB. The 3KC ATC6500 provides all available transfer control system and line data via these interfaces. The 3KC ATC6500 can also be controlled via these interfaces. The ATC6500 can therefore be integrated into additional monitoring software (e.g. SCADA) or other intelligent devices that support Modbus (e.g. Siemens PLCs) for control purposes.

### Metering functions

In addition to the metering functions of the 3KC ATC6300, the 3KC ATC6500 offers the following:

- Difference in phase displacement angle  $\cos$
- Voltage difference of the two sources
- Frequency difference of the two sources

#### 4.1.6.2 Benefits

The 3KC ATC6500 transfer control device offers all the advantages and functions of the 3KC ATC6300.

In addition, it offers

- 8 freely programmable digital inputs and 7 programmable relay outputs fitted to the device
- Integrated RS 485 interface
- Expandable with additional expansion modules (max. 3) with digital inputs and outputs, and with communications interfaces (Ethernet with Modbus TCP) and USB interface

#### 4.1.6.3 Integration

##### Implementation of an automatic transfer

The 3KC ATC6500 transfer control device is used to automatically and manually switch from a main power supply to a standby power supply and vice versa.

In the event of system faults, the 3KC ATC6300 transfer control device controls the transfer sequence fully automatically. This ensures a very high level of operational continuity.

The following devices are ideally matched to the 3KC ATC6500 transfer control device:

- 3WL10, 3WL FSI-III, 3WT air circuit breakers
- 3VA, 3VA27 molded case circuit breakers

## 4.1.7 3KC ATC3100 transfer control device

### 4.1.7.1 Overview



#### Convenient handling

The 3KC ATC3100 transfer control device offers customers flexible and fast commissioning for implementing simple applications. The 3KC ATC3100 can be mounted in a control cabinet door, on a DIN rail or on a rear panel without additional accessories. The transfer control device is supplied with a lockable safety cover (IP41) as standard.

The connecting cable is pre-assembled to assist fast cabling. The 3KC ATC3100 can be configured without software. Automatic transfer applications can be implemented with ease thanks to the well thought-out concept.

#### 3KC ATC3100 connecting cable for MCCB/ACB

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

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

### 4.1.7.2 Benefits

Costs of installing the transformer are dispensed with

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

### **4.1.7.3 Integration**

#### **Implementation of an automatic transfer**

The 3KC ATC3100 transfer control device is used to automatically and manually switch from a main power supply to a standby power supply and vice versa.

In the event of system faults, the 3KC ATC3100 transfer control device controls the transfer sequence fully automatically. This ensures a very high level of operational continuity.

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

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

- 3VA, 3VL, 3VT molded case circuit breakers
- 3WL, 3WT air circuit breakers

## 4.2 Technical specifications

### Measuring inputs

		ATC6300	ATC6500	ATC3100
Max. rated voltage $U_n$	V AC			
• Phase-phase	V AC	480	600	400
• Phase-neutral conductor	V AC	277	346	230
Phase-phase metering range	V AC	50 ... 576	50 ... 720	--
Phase-neutral conductor metering range		50 ... 333	30 ... 415	161 ... 264
Frequency range	Hz	46 ... 65	45 ... 65	50 ... 60
Measuring method		RMS value (true RMS)		
Measuring input impedance				
• Phase-phase	M $\Omega$	> 1.0	> 1.1	> 1.1
• Phase-neutral conductor	M $\Omega$	> 0.5	> 0.55	> 1.1
Connection method				
Relative error of measurement method	%	$\pm 0.25$	$\pm 0.25$	$\pm 5$

### Power supply

		ATC6300	ATC6500	ATC3100
Auxiliary power supply				
Rated voltage $U_n$ (AC)	V AC	100 ... 240	100 ... 240	220 ... 240
Rated voltage $U_n$ (DC)	V DC	110 ... 250	110 ... 250	--
Operating range (AC)	V AC	90 ... 264	90 ... 264	161 ... 264.5
Operating range (DC)	V DC	93.4 ... 300	93.5 ... 300	--
Frequency	Hz	45 ... 66	45 ... 66	50 ... 60
Battery power supply				
• Rated voltage $U_n$ (DC)	V DC	12/24	12/24/48	24
• Operating range (DC)	V DC	7.5 ... 33	7.5 ... 57.6	18 ... 36
Max. power consumption at $U_n = 240$ V AC	VA	9.5	12.5	6
Max. power loss				
• At 240 V AC	W	3.8	5.5	4.5
• At 250 V DC	W	3.6	4.7	--
• At 24 V DC	W	2.9	4.5	4
• At 48 V DC	W	--	4.2	--



		ATC6300	ATC6500	ATC3100
<b>Max. power consumption</b>				
• At 12 V DC	mA	230	400	--
• At 24 V DC	mA	120	220	120
• At 48 V DC	mA	--	100	--

✓ Available

-- Not available

### Digital inputs/input signal

		ATC6300	ATC6500	ATC3100
<b>Digital inputs</b>				
Number of inputs		6, programmable	8, programmable	5
Design of the switching input		Negative	Negative	--
Input current	mA	≤ 8	≤ 8	≤ 8
<b>Input signal</b>				
• Logic state "0"	V DC	≤ 2	≤ 2	--
• Logic state "1"	V DC	≥ 3.4	≥ 3.4	--
Input signal delay	ms	≤ 50	≤ 50	≤ 40

### Relay outputs

	ATC6300	ATC6500	ATC3100
Number of outputs	7, programmable	7, programmable	9
Contact configuration	6 x 1 NO: 8 A, 250 V AC (AC-1) 1 x 1 CO: 8 A, 250 V AC (AC-1)	2 x 1 NO: 12 A, 250 V AC (AC-1) 2 x 1 NO: 8 A, 250 V AC (AC-1) 3 x 1 CO: 8 A, 250 V AC (AC-1)	6 x 1 NO, 8 A, 250 V AC 3 x 1 NO, 16 A, 250 V AC

### Expandability

	ATC6300	ATC6500	ATC3100
Can be expanded using expansion modules	Yes, max. 2	Yes, max. 3	--
Can be expanded by	4DI 4DO, SSR 2DI/2DO, SSR 2DI/2DO, relay 2DO, relay RS 485 Ethernet	4DI 4DO, SSR 2DI/2DO, SSR 2DI/2DO, relay 2DO, relay RS 485 Ethernet	--

### Application

	ATC6300	ATC6500	ATC3100
Transfer possible between	Network/network, network/generator, generator/generator	Network/network, network/generator, generator/generator	Network/network, network/generator
Controllable switching devices with motorized operating mechanism	2	3	2
In-phase transition	--	✓	--
Implementation of a transfer in combination with:	3WL FSI-III, 3WT, 3KC3, 3KC4, 3VA, 3VL	3WL FSI-III, 3WL10, 3WT, 3VA	3VA, 3VL, 3VT, 3WL, 3WT

✓ Available

-- Not available

### Communication

		ATC6300	ATC6500	ATC3100
Integrated RS 485 interface		--	✓	--
Optional RS 485 interface		✓	✓	--
• Settable transmission rate	bit/s	1200 ... 11500	1200 ... 11500	--
Optional Ethernet interface		✓	✓	--
• Settable transmission rate		1200 ... 11500	1200 ... 11500	--

### Real-time clock

	ATC6300	ATC6500	ATC3100
ATC component	✓	✓	--
Operating time without voltage	300 s	14 days	

### Insulation voltage

		ATC6300	ATC6500	ATC3100
	V AC	480 (at the measuring inputs)	600 (at the measuring inputs)	400
		250 (at the auxiliary power supply and relay outputs)	250 (at the auxiliary power supply and relay outputs)	

### Ambient conditions

		ATC6300	ATC6500	ATC3100
Operating temperature	°C	-30 ... 70	-30 ... 70	-25 ... 70
Storage temperature	°C	-30 ... 80	-30 ... 80	-40 ... 80
Relative humidity	%	80	80	95
Max. pollution degree		2	2	3
Overvoltage category		3	3	4

### Connections

		ATC6300	ATC6500	ATC3100
Terminal type		Removable/plug-in	Removable/plug-in	Removable/plug-in
Cable cross-section	mm <sup>2</sup>	0.2 ... 2.5 (24 ... 12 AWG)	0.2 ... 2.5 (24 ... 12 AWG)	0.5 ... 2.5 (20 ... 12 AWG)
Cable cross-section acc. to UL 508	mm <sup>2</sup>	0.75 ... 2.5 (18 ... 12 AWG)	0.75 ... 2.5 (18 ... 12 AWG)	--
Max. tightening torque	Nm	0.56	0.56	0.4

### Enclosure

		ATC6300	ATC6500	ATC3100
Enclosure material		Polycarbonate	Polycarbonate	Thermoplastic Bayblend FR3010
Version		Door installation	Door installation	Door installation DIN rail mounting Floor mounting
Degree of protection		IP40 front, IP20 rear	IP40 front, IP20 rear	IP41 front, IP20 rear
Weight	g	600	680	1050
Dimensions (H x W x D)	mm	144 x 144 x 43.3	180 x 240 x 32.6	171.2 x 131.2 x 99

### **More information**

You can find more information in the manual for the transfer control devices (<https://support.industry.siemens.com/cs/ww/en/view/109755149>) or on the web pages devoted to the switching devices.

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## Further Information

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