Overview

3KC ATC transfer control devices:
Top: 3KC ATC6300, middle: 3KC ATC6500, bottom: 3KC ATC3100

Automatic transfer control with the 3KC ATC transfer control device

Equipped with two motorized circuit breakers or with remote transfer switching equipment, 3KC ATC transfer control devices constitute 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.

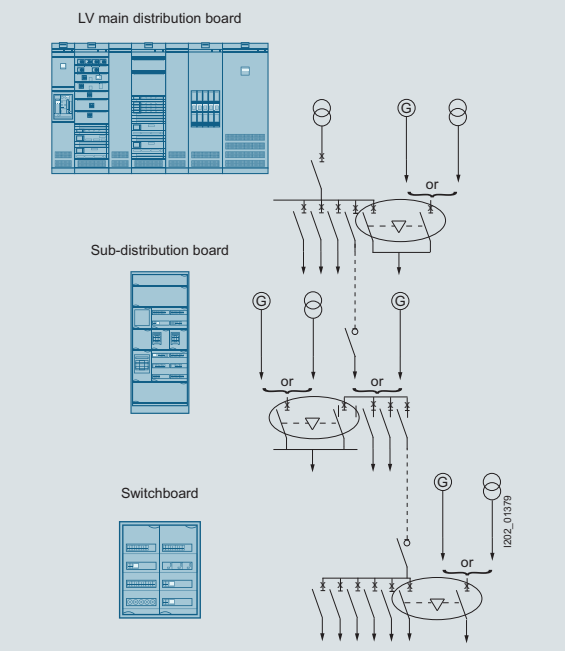
Src1 and Src2, configured with Siemens switching devices

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

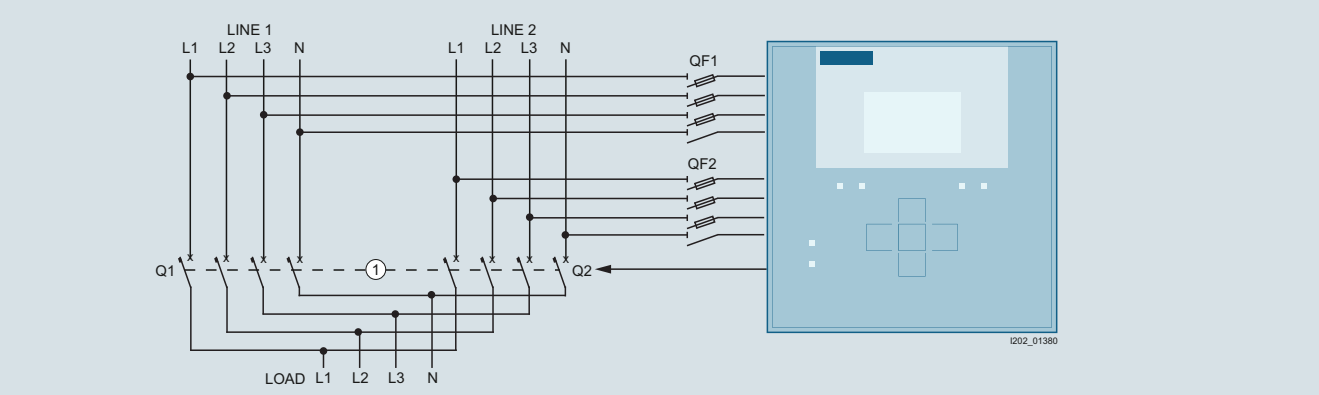
- 3VA molded case circuit breakers
- 3VL molded case circuit breakers (3KC ATC6300/3100 only)
- 3VT molded case circuit breakers (3KC ATC3100 only)
- 3WL10 air circuit breakers (3KC ATC6500 only)
- 3WL air circuit breakers FSI-III
- 3WT air circuit breakers
- 3KC3/4 remote transfer switching equipment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

The circuit breakers must be equipped with the following accessories (please see the corresponding manual at www.siemens.com/lowvoltage/manuals 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)



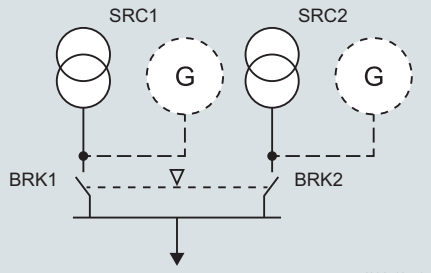
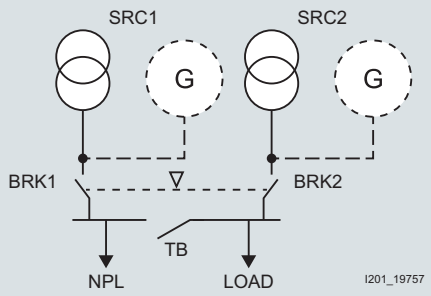
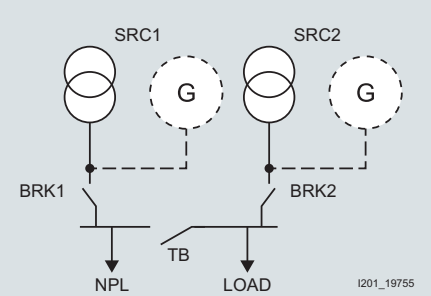
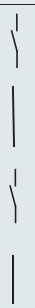
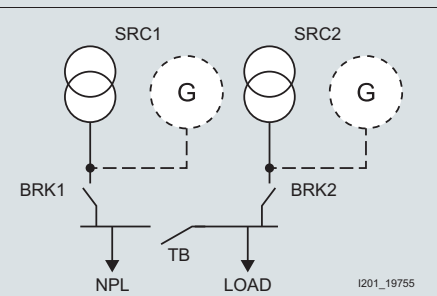
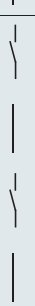
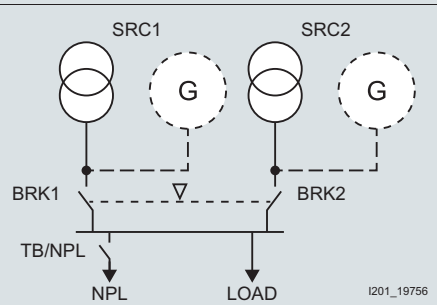
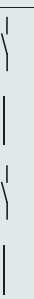
Applications in low-voltage power distribution



Implementation of an automatic transfer; ① interlocking

General data

Configuration

Scenario	Description	Circuit diagram	Source1 (SRC1)	Source2 (SRC2)	Breaker1 (BRK1)	Breaker2 (BRK2)	Breaker3 (TB, TB/NPL)
Automatic transfer control with 1 or 2 switching devices (3KC ATC 3100, 6300, 6500)							
Connection of one of the two sources according to setting	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		Off On Off On	Off Off On On			-- -- -- --
Automatic transfer control with 3 switching devices (only possible with 3KC ATC 6500)							
Source 1 (SRC1) supplies all loads, source 2 (SRC2) only the priority load (LOAD)	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.		Off On Off On	Off Off On On			
The source which is still available supplies all loads (NPL and LOAD)	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.		Off On Off On	Off Off On On			
Source 1 (SRC1) supplies all loads, source 2 (SRC2) only the priority load (LOAD)	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.		Off On Off On	Off Off On On			
Source 1 (SRC1) supplies all loads, source 2 (SRC2) only the priority load; the TB/NPL switches off the non-priority load	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.		Off On Off On	Off Off On On			

Explanations

SRC 1/2: Source 1/2
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

| Breaker closed

Minimum order quantity (PS) or a multiple thereof can be ordered.

Technical specifications

		ATC6300	ATC6500	ATC3100
Measuring inputs				
Max. rated voltage U_n	V AC			
• Phase-phase	V AC	480	600	400
• Phase-neutral conductor	V AC	277	346	230
Phase-phase measuring range	V AC	50 … 576	50 … 720	--
Phase-neutral conductor measuring range	Hz	50 … 333	30 … 415	161 … 264
Frequency range		45…65	45…65	50…60
Measuring method		RMS value (true RMS)		
Measuring input impedance				
• Phase-phase	M	> 1.0	> 1.1	> 1.1
• Phase-neutral conductor	M	> 0.5	> 0.55	> 1.1
Connection method				
Relative error of measurement method	%	± 0.25	± 0.25	± 5
Power supply				
Auxiliary power supply				
• Rated voltage U_n				
- AC	V AC	100 ... 240	100 ... 240	220 … 240
- DC	V DC	110 … 250	110 … 250	--
• Operating range				
- AC	V AC	90 ... 264	90 .. 264	161 … 264.5
- DC	V DC	93.5 … 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	--
Max. power consumption				
• At 12 V DC	mA	230	400	--
• At 24 V DC	mA	120	220	120
• At 48 V DC	mA	--	100	--
Digital inputs				
Number of inputs		6, programmable	8, programmable	5
Design of the switching input		Negative	Negative	--
Input current	mA	8	8	8
Input signal				
• Logic state "0"	V DC	2	2	--
• Logic state "I"	V DC	3.4	3.4	--
Input signal delay	ms	50	50	40
Relay outputs				
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				
Can be expanded using expansion modules		Yes, max. 2	Yes, max. 3	--
Can be expanded with		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	--

8

Minimum order quantity (PS) or a multiple thereof can be ordered.

General data NEW

		ATC6300	ATC6500	ATC3100
Application				
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
Communication				
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				
ATC component		✓	✓	--
Operating time without voltage		300 s	14 days	
Insulation voltage				
	V AC	480 (at the measuring inputs) 250 (at the auxiliary power supply and relay outputs)	600 (at the measuring inputs) 250 (at the auxiliary power supply and relay outputs)	400
Ambient conditions				
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				
Terminal type		Removable/plug-in	Removable/plug-in	Removable/plug-in
Cable cross-section	mm2	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	mm2	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				
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

✓ Available
-- Not available

8

More information

Manual

For the manuals for the transfer control devices, see

https://support.industry.siemens.com/cs/ww/en/view/109755149

Internet

More information on the Internet at:

www.siemens.com/controls

Minimum order quantity (PS) or a multiple thereof can be ordered.

NEW 3KC ATC6300 transfer control device

Overview

3KC ATC6300 transfer control device

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 transfers between two energy sources in combination with two motorized 3VA molded case circuit breakers.

Simple parameterization using powerconfig or 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

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 (from powerconfig version 3.10)
- 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 to network, network to generator or generator to 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)

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 that system faults occur, the 3KC ATC6300 transfer control device controls the switching operations 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

Selection and ordering data

	Version	SD d	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			Screw connection				
	**3KC ATC6300 transfer control device** Control panel instrument 144 x 144 x 43.3 mm with the following features: • Screw terminal connection • AC/DC power supply unit: - 100 … 240 V AC, 45 ... 65 Hz - 7.5 ... 33 V DC - Rated setting range: 100 … 480 V AC		**3KC9000-8TL40**		1	1 unit	1CL

For accessories, see page 8/65.

Minimum order quantity (PS) or a multiple thereof can be ordered.

3KC ATC6500 transfer control device NEW

Overview

3KC ATC6500 transfer control device

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

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

Integration

Implementation of an automatic transfer

The 3KC ATC6500 transfer control device is used to automatically or manually transfer from a priority power supply to a standby power supply and vice versa. In the event that system faults occur, the 3KC ATC6300 transfer control device controls the switching operations fully automatically. This ensures a very high level of operational continuity.

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

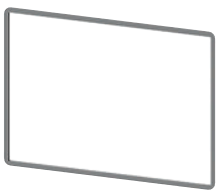
- 3WL10, 3WL FSI-III, 3WT air circuit breakers
- 3VA, 3VA27 molded case circuit breakers

Selection and ordering data

	Version	SD d	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			Screw connection				
	**3KC ATC6500 transfer control device** Control panel instrument 180 x 240 x 32.6 mm with the following features: • Screw terminal connection • AC/DC power supply unit: - 100 … 240 V AC, 45 ... 65 Hz - 7.5 ... 57.6 V DC - Rated setting range: 100 … 600 V AC		**3KC9000-8TL50**		1	1 unit	1CL

Minimum order quantity (PS) or a multiple thereof can be ordered.

Selection and ordering data

	Version	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		d					
Expansion modules with digital inputs and outputs							
 3KC9000-8TL61	**ATC6 expansion module 4DI** Features 4 digital inputs: • Including insulated 24 V DC/1 W power supply for digital inputs and sensors		**3KC9000-8TL60**		1	1 unit	1CL
	ATC6 expansion module 4DO, SSR Features 4 solid-state-compatible digital outputs: • 4 NO contacts • Max. 55 mA at 30 V AC or 40 V DC		**3KC9000-8TL61**		1	1 unit	1CL
	ATC6 expansion module 2DI/2DO, SSR Features 2 digital inputs and 2 solid-state-compatible digital outputs: • Including insulated 24 V DC/1 W power supply for digital inputs and sensors • 2 NO contacts • At solid-state-compatible output max. 55 mA at 30 V AC or 40 V DC		**3KC9000-8TL62**		1	1 unit	1CL
	ATC6 expansion module 2DO, relay Features 2 relay outputs: • 2 CO contacts, 5 A, 250 V AC (AC-1)		**3KC9000-8TL63**		1	1 unit	1CL
	ATC6 expansion module 2DI/2DO, relay Features 2 digital inputs and 2 relay outputs: • 2 NO contacts, 5 A, 250 V AC (AC-1)		**3KC9000-8TL64**		1	1 unit	1CL
Expansion modules with communication interfaces							
 3KC9000-8TL74	**ATC6 RS 485 expansion module** Features RS 485 interface		**3KC9000-8TL74**		1	1 unit	1CL
	ATC6 Ethernet expansion module Features Ethernet interface		**3KC9000-8TL75**		1	1 unit	1CL
USB front interface							
 3KC9000-8TL73	**ATC6 USB front interface** For parameterization on the front using software: • Including mini-USB cable, 1.8 m		**3KC9000-8TL73**		1	1 unit	1CL
Protective seal							
 3KC9000-8TL67	**ATC6300 protective seal, 144 x 144 mm** for IP65 protection on the front for 3KC ATC6300		**3KC9000-8TL67**		1	1 unit	1CL
 3KC9000-8TL68	**ATC6500 protective seal, 171.1 x 131.1 mm** for IP65 protection on the front for 3KC ATC6500		**3KC9000-8TL68**		1	1 unit	1CL

8

3KC ATC3100 transfer control device

Overview

3KC ATC3100 transfer control device

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. By default, the transfer control device is supplied with a lockable safety cover (IP41). The connecting cable is pre-assembled to assist fast cabling.
The 3KC ATC3100 can be configured without software.
Thanks to the well-thought-out concept, automatic changeover applications can be implemented with ease.

3KC ATC3100 connecting cable for MCCB/ACB

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.

Benefits

- Costs of installing the transformer are dispensed with
- Integrated DPS (double power supply) powers the motorized operating mechanisms of the connected circuit breakers for reliable switching
- Good readability of the system status by means of 10 LEDs
- 3 mounting options without additional accessories: door installation, 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

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 that system faults occur, the 3KC ATC3100 transfer control device controls the switching operations fully automatically. This ensures a very high level of operational continuity.

The 3KC ATC3100 transfer control device allows implementation of an automatic transfer 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

Selection and ordering data

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

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

Minimum order quantity (PS) or a multiple thereof can be ordered.

For further technical product information:

Configuration Manual

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

Siemens Industry Online Support:

www.siemens.com/lowvoltage/product-support

Entry type:
Application example
Certificate
Characteristic
Download
FAQ
Manual
Product note
Software archive
Technical data