3WT Air Circuit Breakers up to 4000 A

Catalog LV 35 · 2009

Low-Voltage Controls and Distribution

SIEMENS

Related catalogs

Contents

Low-Voltage Controls and Distribution
SIRIUS · SENTRON · SIVACON
Order No. German/English:
Catalog LV 1
E86060-K1002-A101-A8
E86060-K1002-A101-A7-7600
Incl. PDF CD-ROM
Technical Information LV 1 T
E86060-T1002-A101-A8
E86060-T1002-A101-A7-7600

Systems • Controlgear: Contactors and contactor assemblies, solid-state switching devices • Protection equipment • Motor starters, soft starters and load feeders • Monitoring and control devices • Detecting devices • Commanding and signaling devices • Transformers • Power supplies • Planning and configuration with SIRIUS • Power Management System • SIVACON Power, distribution boards, busway and cubicle systems • SENTRON switching and protection devices for power distribution • Air circuit breakers, molded case circuit breakers, switch disconnectors, busbar systems • Software for power distribution • BETA low-voltage circuit protection

Low-Voltage Controls and Distribution LV 16
Controls and Components for Applications according to UL
Order No. German/English:
E86060-K1816-A101-A2
E86060-K1816-A101-A1-7600

SIRIUS 3RV17 and 3RV18 circuit breakers according to UL 489/CSA C22.2 No. 5-02 • SIVACON Components for Feeder Circuit • SENTRON 3WL5 air circuit breakers/non-automatic air circuit breakers according to UL 489/IEC 60947-2 • SENTRON 3VL Molded Case Circuit Breakers according to UL 489/IEC 60947-2 • ALPHA Devices according to UL Standard • BETA Devices according to UL standard

SIMATIC NET IK PI
Industrial Communication
Order No.:
E86060-K6710-A101-B6-7600

PROFINET/Industrial Ethernet • Industrial Wireless Communication • PROFIBUS • SIMATIC ET 200 distributed I/Os • AS-Interface • Telecontrol • Routers • ECOFAST system

SIVACON LV 50
System Cubicles and Cubicle Air-Conditioning
Order No.:
E86060-K1920-A101-A3-7600

System cubicles • Cubicle modifications • Cubicle expansion components • Accessories • Special cubicles • Cubicle solutions in applications • Cubicle air-conditioning • Special colors

SIDAC LV 60
Reactors and Filters
Order No.:
E86060-K2803-A101-A4-7600

Commutating reactors for converters • Mains reactors for frequency converters • Iron-core output reactors • Ferrite output reactors • Iron-core smoothing reactors • Smoothing air-core reactors • Filter reactors • Application-specific reactors • Radio interference suppression filters • dv/dt filters • Sinewave filters

SIVACON 8PS LV 70
CD-L, BD01, BD2
Busbar Trunking Systems up to 1250 A
Order No.:
E86060-K1870-A101-A4-7600

Busbar trunking systems, overview • CD-L system (25 A to 40 A) • BD01 system (40 A to 160 A) • BD2 system (160 A to 1250 A)

The Offline Mall CA 01
DVD:
E86060-D4001-A500-C7-7600

All products of automation, drives and installation technology, including those in the catalogs listed above.

The Online Mall
Internet:
http://www.siemens.com/automation/mall

All products of automation, drives and installation technology, including those in the catalogs listed above.

Catalog-PDF
Internet:
http://www.automation.siemens.com/cd

All catalogs for low-voltage controls and distribution can be downloaded as PDF files.

Registered trademarks

Further information about low-voltage controls is available on the Internet at:
http://www.siemens.com/lowvoltage

Low-Voltage Controls and Distribution

3WT Air Circuit Breakers up to 4000 A

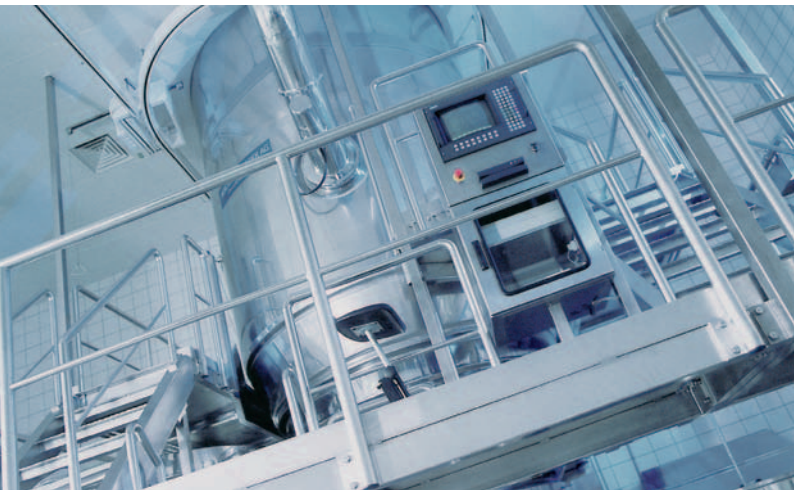
Catalog LV 35 · 2009

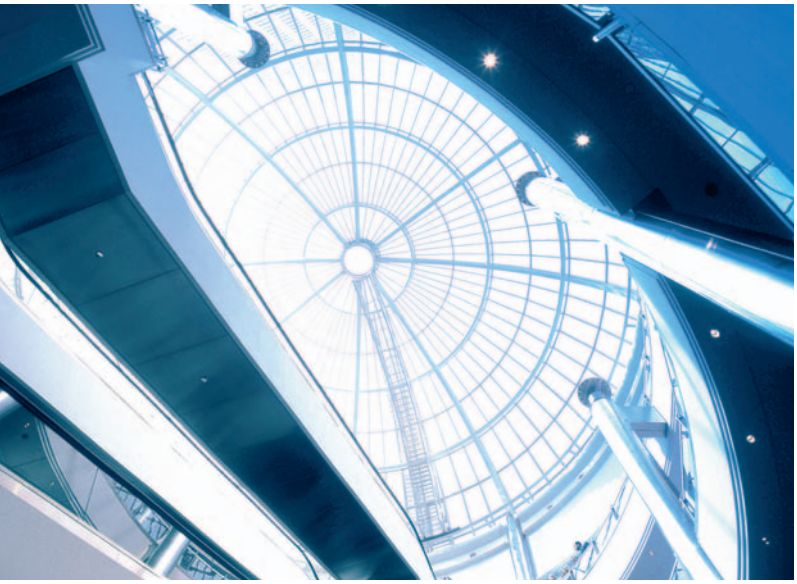
Invalid:
Catalog LV 35 · 2006

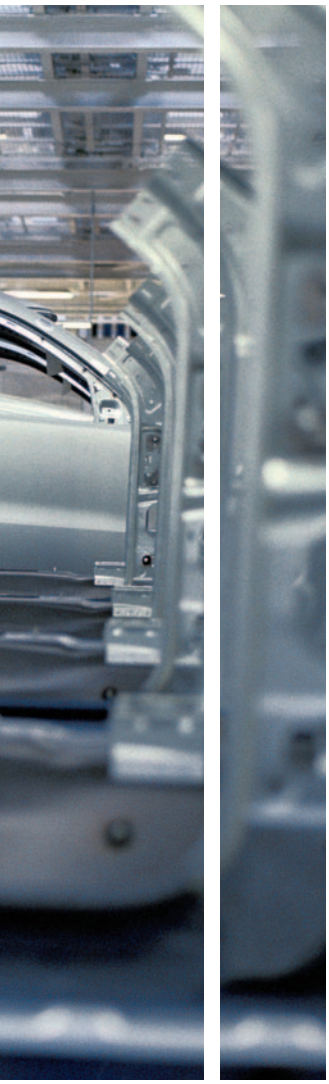
Contact your local Siemens representative for further information

Notes

Introduction







Answers for Industry.

Siemens Industry answers the challenges in the manufacturing and the process industry as well as in the building automation business. Our drive and automation solutions based on Totally Integrated Automation (TIA) and Totally Integrated Power (TIP) are employed in all kinds of industry. In the manufacturing and the process industry. In industrial as well as in functional buildings.

Siemens offers automation, drive, and low-voltage switching technology as well as industrial software from standard products up to entire industry solutions. The industry software enables our industry customers to optimize the entire value chain – from product design and development through manufacture and sales up to after-sales service. Our electrical and mechanical components offer integrated technologies for the entire drive train – from couplings to gear units, from motors to control and drive solutions for all engineering industries. Our technology platform TIP offers robust solutions for power distribution.

The high quality of our products sets industry-wide benchmarks. High environmental aims are part of our eco-management, and we implement these aims consistently. Right from product design, possible effects on the environment are examined. Hence many of our products and systems are RoHS compliant (Restriction of Hazardous Substances). As a matter of course, our production sites are certified according to DIN EN ISO 14001, but to us, environmental protection also means most efficient utilization of valuable resources. The best example are our energy-efficient drives with energy savings up to 60 %.

Check out the opportunities our automation and drive solutions provide. And discover how you can sustainably enhance your competitive edge with us.

3WT Air Circuit Breakers. The smart choice.

Flexibility

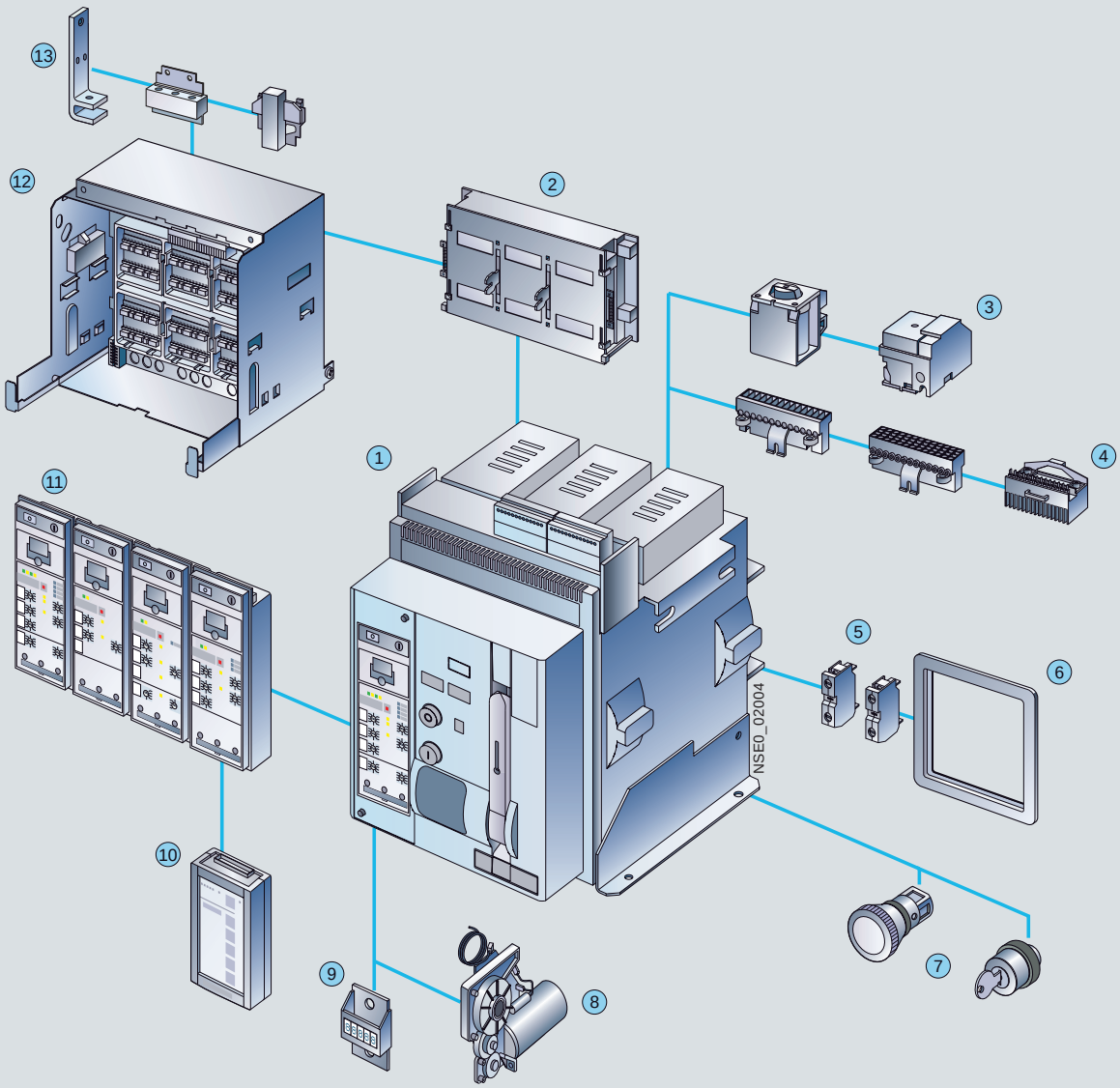
- New electronic trip units (ETU) with outstanding features.
- Only two frame sizes cover a broad range of applications from 400 A to 4000 A, up to 66 kA at 500 V, 3- or 4-pole version, fixed-mounted, withdrawable version.
- All components can be combined in a modular way.

Ease of use

- User friendliness in planning, configuration, installation and operation.
- Wide range of accessories for both frame sizes can be easily retrofitted.
- Displays for all electronic trip units (ETU).

Safety and reliability

- International and standardized processes ensure highest product quality.
- Conforms to international standards and approvals.

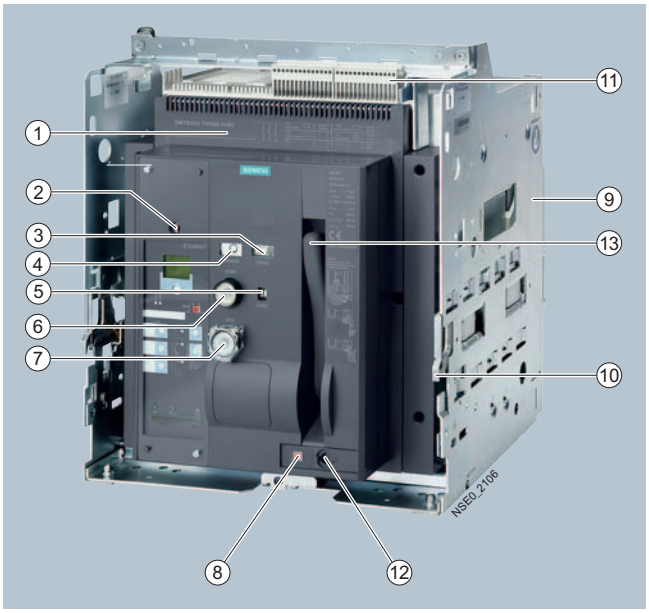


1 Circuit breaker
2 Shutter
3 Closing solenoid, auxiliary trip unit
4 Auxiliary conductor plug-in system
5 Auxiliary switch block
6 Door sealing frame
7 EMERGENCY-STOP pushbutton, key operated
8 Motorized operating mechanism
9 Operating cycles counter
10 Manual tester for electronic trip unit (ETU)
11 Protective device with device holders, electronic trip unit (ETU)
12 Guide frame
13 Main connection, front, horizontal, vertical

3WT
Air Circuit Breakers up to 4000 A (AC)

General data

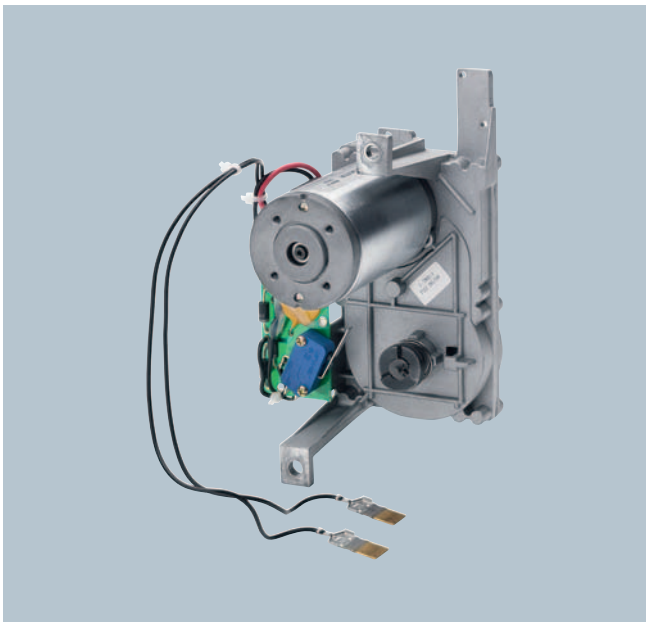
Overview



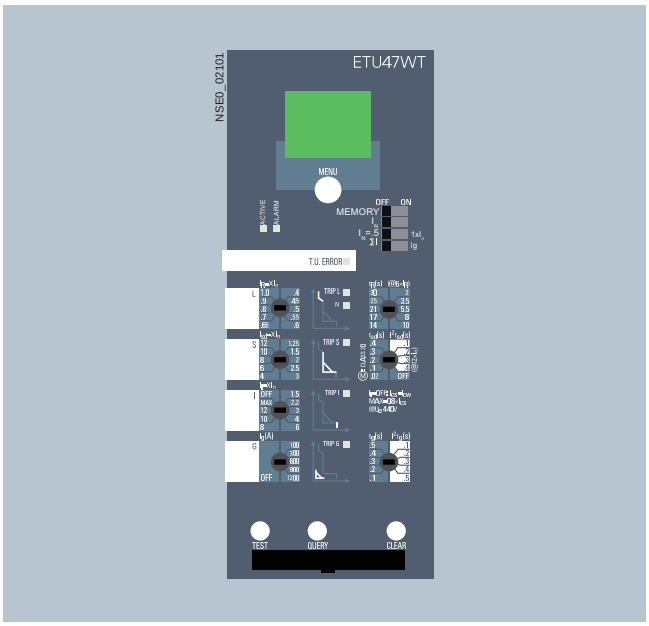
3WT circuit breaker, fixed-mounted version, size II, 3-pole

3WT circuit breaker, withdrawable version, size II, 3-pole

① Withdrawable circuit breaker
② Indication and reset button after tripping for
– tripped signaling switch and
– mechanical closing lockout
③ Spring charge indicator
④ Contact position indicator
⑤ Ready-to-close indicator
⑥ ON button, mechanical
⑦ OFF button, mechanical
⑧ Indication of circuit breaker position
⑨ Guide frame
⑩ Guide rails
⑪ Auxiliary circuit plug-in system
⑫ Crank hole
⑬ Hand lever



Motorized operating mechanism



Electronic trip unit

Benefits

Safety and reliability

- High degree of protection with door sealing frame in the case of exclusively local operation of the circuit breaker
- Infeed supply from above or below, as required
- Locking of the withdrawable circuit breaker against moving, as standard
- Locking of the guide frame with the circuit breaker removed, as standard
- Signaling switch for overload and short-circuit tripping with mechanical closing lockout
- High degree of protection with cover IP55
- Mechanical closing lockout after overload or short-circuit tripping as standard
- The circuit breaker is always equipped with the required number of auxiliary supply connectors

Easy to operate

- Unambiguous ON-OFF indicator with auxiliary switch for signal
- Ready-to-close indicator with signaling switch as safety standard.

Modular

Many components, such as auxiliary releases, motorized operating mechanisms, electronic trip units and current transformers can be replaced or retrofitted to adapt the circuit breaker to changing requirements.

Minimal power loss and therefore low energy consumption

The low power consumption of the electrical components also saves money when it comes to purchasing the control-power transformers. Where space is at a premium or ventilation is limited.

Application

Specifications

IEC 60947-2,
GB 14048.2,
CCC Approval,
climate-proof to IEC 60068-2-30,
Approval according to maritime classification
on request.

Operating conditions

The 3WT circuit breakers are climate-proof in accordance with IEC 60068-2-30.

They are intended for use in enclosed areas where no severe operating conditions (e.g. dust, corrosive vapors, damaging gases) are present.

When installed in dusty or damp areas, suitable enclosures must be provided. If damaging gases (e.g. hydrogen sulfide) are present in the surrounding air, sufficient incoming fresh air must be supplied.

The permissible ambient temperatures and the associated rated currents are listed in the technical specifications.

Design

Versions

Breaking capacity: 55/66 kA at 500 V
Rated current: from 400 A to 4000 A
Rated operating voltage: AC 500 V

The 3WT circuit breakers are supplied complete with an operating mechanism, electronic trip unit and auxiliary switches and are fitted with auxiliary releases.

The non-automatic circuit breakers are supplied without electronic trip unit

Standard version

- Electronic trip unit with LSI protection, LCD display with backlight, LEDs for the cause of tripping, LED status indicator, query and test button
- Auxiliary supply connector: The circuit breaker is equipped with the required number of connectors
- Mechanical ON and OFF pushbutton
- Door sealing frame IP40
- Tripped signaling switch (1 NO)
- Ready-to-close indicator with signaling switch
- Spring charge indicator
- Auxiliary switches (2 NO + 2 NC)
- Rear horizontal main circuit connections for fixed mounted and withdrawable versions
- For 4-pole circuit breakers, the fourth pole (N) is installed on the left and is 100 % loadable
- Indication and reset button after tripping for
  - tripped signaling switch and
  - mechanical closing lockout
- User manual in English/Chinese/Spanish/Russian/Portuguese/German/Turkish

Additional features of the withdrawable version:

- Main contacts:
  Laminated receptacles in the guide frame, penetration blades on the withdrawable circuit breaker
- Position indicator in the control panel of the withdrawable circuit breaker
- Guide frame with guide rails for easy moving of the withdrawable circuit breaker
- The withdrawable circuit breaker can be locked to prevent it being pushed out of position

Standard version for non-automatic circuit breaker

- Same features as the circuit breaker, see "Standard version" but
- No electronic trip unit

General data

Function

Operating mechanisms (see illustration "Motorized operating mechanism")

The circuit breakers are available with various optional operating mechanisms:

- Manual operating mechanism with memory, with mechanical closing
- Manual operating mechanism with mechanical and electrical closing
- Motorized operating mechanism that can also be operated manually, with mechanical and electrical closing.

The operating mechanisms with electrical closing can be used for synchronization tasks.

EMERGENCY-STOP facility

The 3WT circuit breakers can be used as an EMERGENCY-STOP facility to DIN VDE 0113 if the circuit breaker is equipped with an undervoltage release and is used in conjunction with an EMERGENCY-STOP control device.

Auxiliary and signaling switches

- Ready-to-close
  If all the conditions are fulfilled, so that the circuit breaker is ready to close, this is indicated visually on the operator panel as well as by means of an indicator switch (S7).
- Contact position-independent auxiliary switches
  The circuit breakers are supplied with 2 NO and 2 NC contacts or with 2 NO and 2 NC and 2 CO contacts according to order.
- "Tripped" signaling switch and mechanical closing lockout
  As standard, the circuit breaker is equipped with an S11 signaling switch and a mechanical closing lockout for the common overload and short-circuit signal and, depending on the setting and version of the electronic trip unit, the ground-fault signal.
  The tripped signal and the standard mechanical mechanism to prevent closing remain active until the reset button is operated on the circuit breaker. When the circuit breaker has tripped, this is indicated by the protruding reset button.
  If the circuit breaker has to be ready to close immediately after tripping, an automatic mechanical reset mechanism is available, but this does not reset the electrical signal from the "tripped" switch S11. The "tripped" signal then has to be reset by operating the Reset button.

Auxiliary supply connections

The type of connection for the auxiliary switches depends on the type of installation:

- Withdrawable version:
  The internal auxiliary switches are connected to the male connector on the circuit breaker side. When fully inserted, the connector makes a connection with the sliding module in the guide frame.
- Fixed mounting:
  In this case the auxiliary supply connectors are engaged directly onto the circuit breaker.

Fixed-mounted and withdrawable version

Fixed-mounted and withdrawable circuit breakers

- Protective measures against arcing gases
  For 3WT circuit breakers with voltages up to AC 500 V, screening from vertical busbars is not necessary.
  Electrical add-on devices on the side of the circuit breaker must be separately covered. Also see notes under "Project planning aids", "Dimensional drawings".
- Operator panel
  The operator panel is designed to protrude from a cutout in the door providing access to all operator controls and displays with the door closed.
  The operator panels for all circuit breakers (fixed-mounted/withdrawable versions, 3-pole, 4-pole) are identical.
  The operator panel ensures degree of protection IP41.
- Door sealing frame
  The door sealing frame seals the cabinet door with the operator panel. With the cabinet door closed, the IP degree of protection is achieved for the circuit breaker.

Withdrawable circuit breaker

The withdrawable version comprises a withdrawable circuit breaker, a guide frame and a hand crank for moving the withdrawable circuit breaker. The guide frames are fitted with guide rails as standard for easy handling of the withdrawable circuit breaker.

- Auxiliary supply connections
  The auxiliary supply connections make contact automatically when the circuit breaker slides into the guide frame (test position, connected position).
- Switch positions in the guide frame
  The withdrawable version has three switch positions in the switchgear cabinet behind the cabinet door:
  - Connected position
    (main circuit and auxiliary circuit ready)
  - Test position
    (main circuit disconnected, auxiliary circuit ready)
  - Disconnected position
    (main circuit and auxiliary circuit disconnected)

In the disconnected position, the withdrawable circuit breaker complies with the "isolation condition" with a visible isolating distance in the main circuit and auxiliary circuit.
The circuit breaker must always be switched off before it is moved. The "OFF" button must be held down when the slide in the crank hole is opened.

Guide frames

Closing of the crank hole is only possible in the circuit breaker positions (connected, test or disconnected position). The circuit breaker position is shown on a display on the circuit breaker.

The circuit breaker is moved with the help of a hand crank. The connected position as well as the disconnected position is achieved by moving the circuit breaker to the end stop.

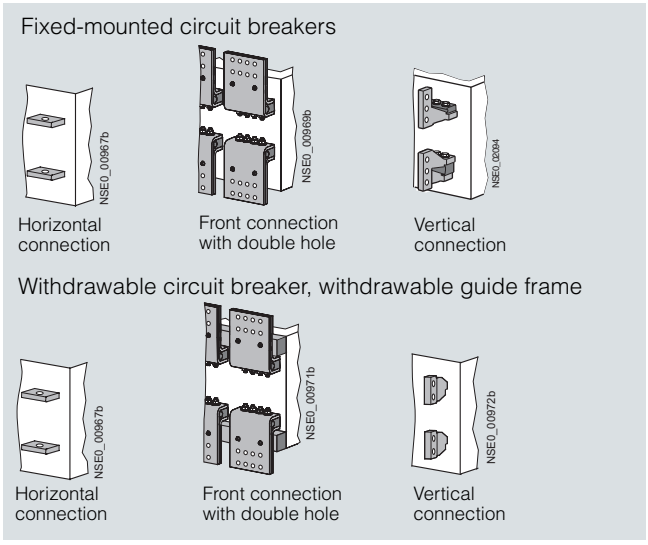
- Shutters
  Inadvertent touching of live main contacts or busbars is prevented by covering with a shutter. The shutter is constructed in two parts and allows the upper or lower connection areas to be opened separately for the purpose of checking that they are not live. The divided shutter can be interlocked in the open or closed position and two padlocks can be fitted.

Main circuit connections

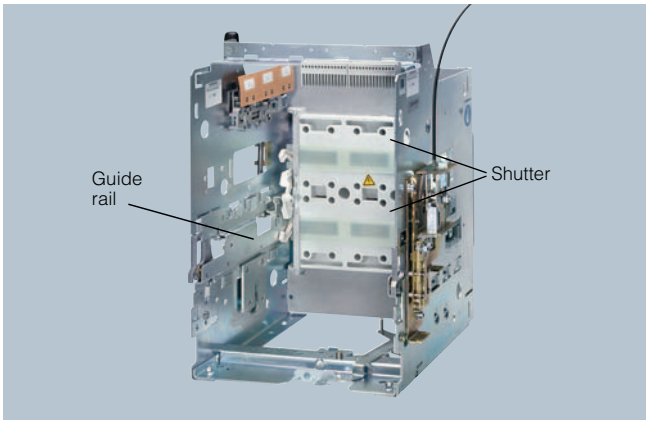
All circuit breakers are equipped with horizontal main circuit connections on the rear for up to 3200 A as standard (horizontal connection to busbars). Exception: Circuit breakers of size II with max. rated current 4000 A. They are equipped with vertical main connections (for upright busbars).

The following options are available, with combinations of top and bottom connections possible:

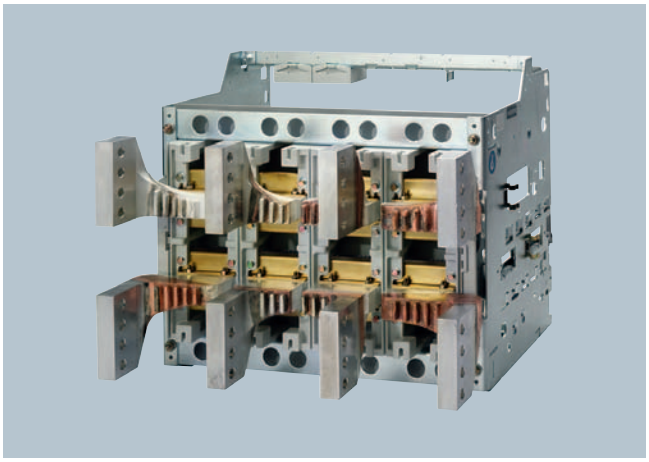
- Accessible from the front, double hole (holes according to DIN 43673) (for vertically installed busbars)
- At the rear, vertical (for vertically installed busbars)



Main circuit connections



Guide frame



Vertical busbars, up to 3800 A

General data

Opening, closing and locking devices

- ON and OFF buttons
  - Mechanical ON button
    In the standard version, the mechanical ON button is a pushbutton. As an alternative to a pushbutton, a safety lock (CES) can also be supplied.
    If the key is removed in the "0" position, it is no longer possible to close the circuit breaker mechanically.
  - Mechanical OFF button
    In the standard version, the mechanical OFF button is a pushbutton.
- Locking device against moving the withdrawable circuit breaker
  Access to the crank hole and application of the crank is prevented by means of one or more padlocks. This also prevents movement of the withdrawable circuit breaker in the guide frame.

Auxiliary trip units

Up to two auxiliary trip units can be installed at the same time. The following are available:

1 shunt trip unit or
1 undervoltage trip unit or
2 shunt trip unit or
1 shunt trip unit +
1 undervoltage trip unit.

Undervoltage trip unit

The undervoltage trip unit causes the circuit breaker to be opened if the operational voltage falls below a certain value or is not applied. The circuit breaker cannot be closed manually or by means of an electrical ON command if the undervoltage trip unit is not connected to the operational voltage. The undervoltage trip unit has no delay as standard. A delay can be set by the customer in the range between t_d < 80 ms and t_d < 200 ms.

In addition, an undervoltage trip unit with a delay in the range from 0.2 to 3.2 s is available.

Closing solenoid

The closing solenoid is used to close the circuit breaker electrically by means of a local electrical ON command or by a remote unit.

Motorized operating mechanisms

The operating mechanism is used to load the storage spring automatically.

The operating mechanism is activated if the storage spring has been unloaded and the control voltage is available.

It is switched off automatically after loading. This does not affect manual operation of the storage spring.

Indicators, signals and control elements

Operating cycles counter

The motorized operating mechanism can be supplied with a 5-digit operating cycles counter. The display is incremented by "1" as soon as the storage spring is fully loaded.

Electronic trip units - ETU

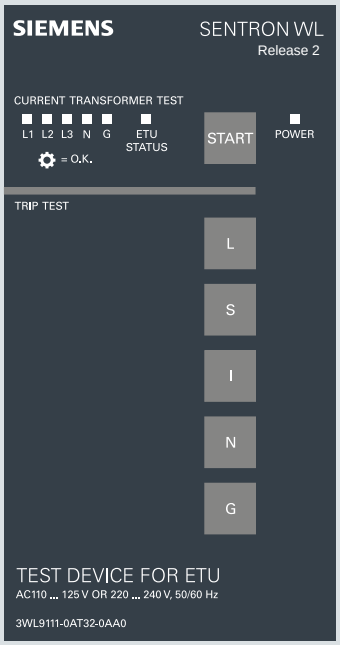
Electronic trip units – ETU35WT, ETU37WT, ETU45WT, ETU47WT

The electronic trip unit is controlled by a microprocessor and operates independently of an auxiliary voltage. It enables systems to be adapted to the different protection required of distribution systems, motors, transformers and generators.

In all electronic trip units, the following high-grade features are always included as standard:

- Display with back light
- LSI protection as minimum configuration
- Integrated function test
  The test button can be used to test the electronic trip unit using an integrated test function with or without tripping of the circuit breaker (the solid-state trip unit, trip solenoid and breaker mechanism are tested).
- Active LED
  Correct operation of the electronic trip unit is indicated by the "heartbeat" of a green flashing LED.
  When the operating current exceeds the response threshold of the overload protection, this is indicated by rapid flashing.
- Cause of tripping
  The cause of tripping can be queried locally and displayed (by pressing the "Query" button).
- T. U. Error
  A microprocessor fault or overtemperature inside of the electronic trip unit is signaled by a warning indicator LED.

Test device for Electronic trip unit ETU



Test device

The handheld test device is used to verify the proper operation of the electronic trip unit, the energy transformers and current transformers as well as the tripping solenoid F5 and the data display.

Ground-fault protection

Description

Ground-fault releases "G" sense fault currents that flow to ground and that can cause fire in the plant. Multiple circuit breakers connected in series can have their delay times adjusted so as to provide time-graded discrimination.
The reason for tripping is indicated by means of an LED when the query button is activated.

Measurement method

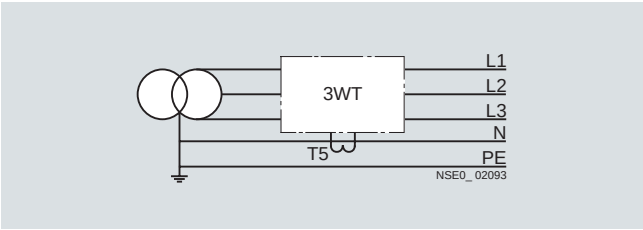
Vectorial summation current formation (measurement method 1)

The three phase currents and the N-conductor current are measured directly.

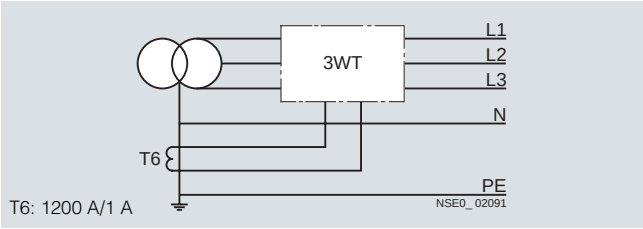
The electronic trip unit determines the ground-fault current by means of vectorial summation current formation for the three phase currents and the N-conductor current.

Direct measurement of the ground-fault current (measurement method 2)

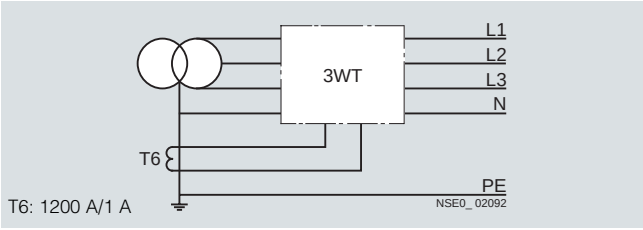
A standard transformer with the following data is used for measurement of the ground-fault current:
1200 A/1 A, Class 1 (the internal load of 3WT is 0.11 Ω). The transformer can be installed directly in the grounded neutral point of a transformer.



3-pole circuit breakers, current transformers in the neutral conductor



3-pole circuit breakers, current transformers in the grounded neutral point of the transformer



4-pole circuit breakers, current transformers in the grounded neutral point of the transformer

Setting

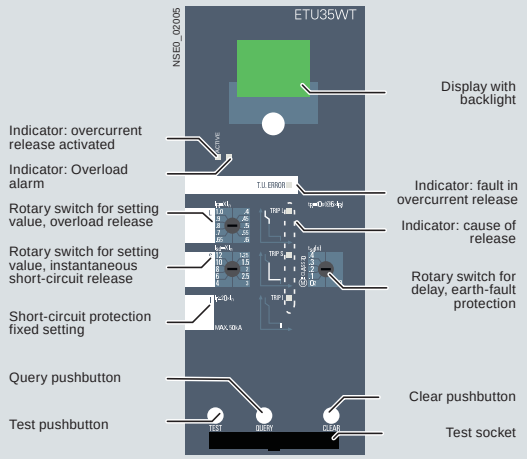
How the ground fault protection is set depends on the measurements method used (see above):

Measurement method 1: in position ΣI.

Measurement method 2: in position $\sqsubset_g$.

General data

ETU35WT electronic trip unit



Application:

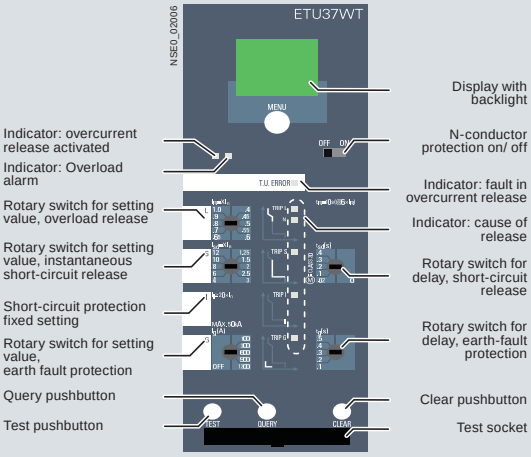
Classical building, motor and system protection with time-selective coordination for up to 4000 A

Features:

- Adjustable overload protection with I^2t characteristic curve Delay time t_R = 10 seconds at 6 × I_R
- Short-time delayed short-circuit protection adjustable in the range 1.25 ... 12 × I_n and
- Instantaneous short-circuit protection preset to 20 × I_n, max. 50 kA
- Overload display
- Indicates the reason for tripping by means of an LED
- Test facility for the release
- Protection functions are set by means of the rotary coding switch
- Display with back light

For technical details see the table “Functional Overview of the Electronic Trip Unit System“ under “Technical Specifications“.

ETU37WT electronic trip unit



Application:

Classical building, motor and system protection with time-selective coordination for up to 4000 A

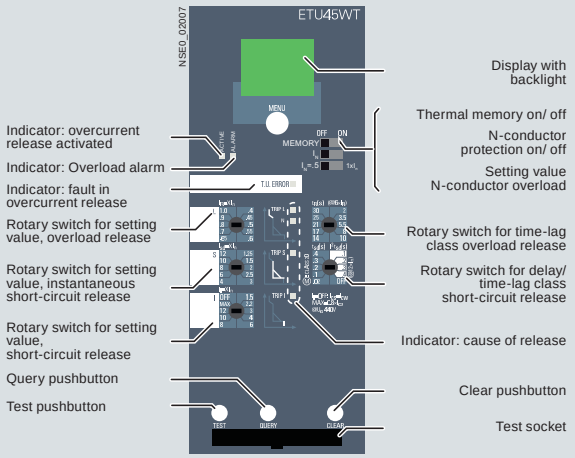
Features:

The same as ETU35WT but also

- Reversible neutral conductor protection
- Permanently integrated ground-fault protection. Calculation of the ground-fault current through vectorial summation current formation

For technical details see the table “Functional Overview of the Electronic Trip Unit System“ under “Technical Specifications“.

ETU45WT electronic trip unit



Application:

Economical all-round system for intelligent buildings and all types of industrial applications

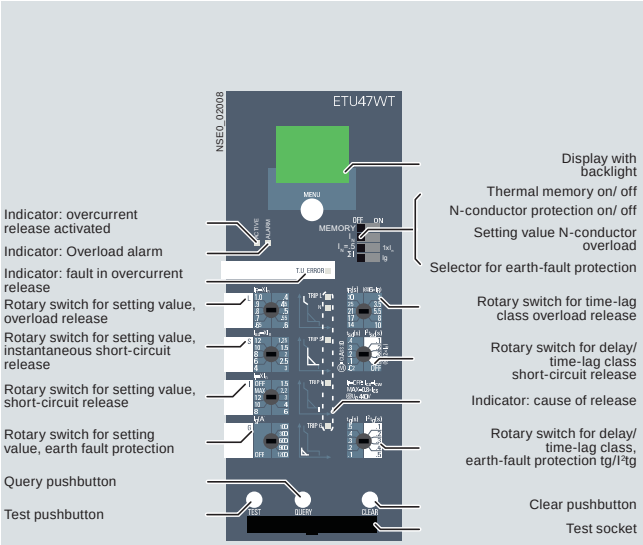
Features:

The same as ETU35WT but also

- Adjustable time-lag class for overload protection
- Selectable characteristic for overlaod and short-delayed short-circuit range (current discrimination) for more accurate discrimination adaptation to upstream fuses and protective devices
- Thermal image as restart protection for tripped motor outgoing feeders
- Reversible and adjustable (incl. turn off) neutral conductor protection
- The protection functions can be set by means of a rotary coding switch or slide switch

For technical details see the table “Functional Overview of the Electronic Trip Unit System“ under “Technical Specifications“.

ETU47WT electronic trip unit



Application:

Economical all-round system for intelligent buildings and all types of industrial applications

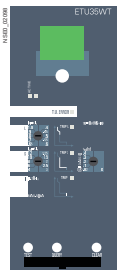
Features:

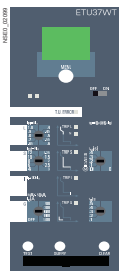
The same as ETU45WT but also

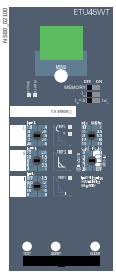
- Ground-fault protection with tripping functions which can be adjusted separately

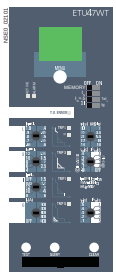
For technical details see the table “Functional Overview of the Electronic Trip Unit System“ under “Technical Specifications“.

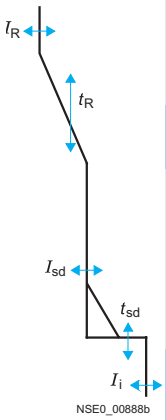
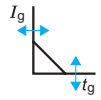
General data









Protection functions Parameterization by			ETU35WT D	ETU37WT D & S	ETU45WT/ETU47WT D & S
Functional overview of the electronic trip unit system					
 NSE0_00888b	L	**Overload protection**	✓	✓	✓
		Function can be switched on/off	--	--	--
		Setting range $I_R = I_n \times ...$	0.4-0.45-0.5-0.55-0.6-0.65-0.7-0.8-0.9-1	0.4-0.45-0.5-0.55-0.6-0.65-0.7-0.8-0.9-1	0.4-0.45-0.5-0.55-0.6-0.65-0.7-0.8-0.9-1
		Setting range for time-lag class t_R at I^2t	10 s fixed	10 s fixed	2-3.5-5.5-8-10-14-17-21-25-30 s
		Thermal image can be switched on/off	--	--	✓
		Phase failure sensivity	at t_{sd} = 20 ms (M)	at t_{sd} = 20 ms (M)	at t_{sd} = 20 ms (M)
	N	**Neutral conductor protection**	--	✓	✓
		Function can be switched on/off	--	✓	✓
		N conductor setting range $I_N = I_n \times ...$	--	1	0.5-1
	S	**Short-time delayed short-circuit protection**	✓	✓	✓
		Function can be switched on/off	--	--	✓
		Setting range $I_{sd} = I_n \times ...$	1.25-1.5-2-2.5-3-4-6-8-10-12	1.25-1.5-2-2.5-3-4-6-8-10-12	1.25-1.5-2-2.5-3-4-6-8-10-12
		Setting range for delay time t_{sd}	0-M-100-200-300-400 ms	0-M-100-200-300-400 ms	M-100-200-300-400 ms
		Switchable short-time delayed short-circuit protection (I^2t-dependent function)	--	--	✓
		Setting range for delay time t_{sd} at I^2t	--	--	100-200-300-400 ms
	I	**Instantaneous short-circuit protection**	✓	✓	✓
		Function can be switched on/off	--	--	✓
		Setting range $I_i = I_n \times ...$	fixed for $I_i \geq 20 \times I_n$, max. 50 kA	fixed for $I_i \geq 20 \times I_n$, max. 50 kA	1.5-2.2-3-4-6-8-10-12-0.8 x I_{cs}
 NSE0_00889a	G	**Ground-fault protection**	--	✓ fixed mounted	✓ (only ETU47WT)
		Tripping function can be switched on/off	--	✓	✓ (only ETU47WT)
		Detection of the ground-fault current through summation current formation with internal or external neutral conductor transformer	--	✓	✓ (only ETU47WT)
		Detection of ground-fault current through external transformer	--	--	✓ (only ETU47WT)
		Setting range of the operating current I_g for release	--	OFF-100-300-600-900-1200	OFF-100-300-600-900-1200 (only ETU47WT)
		Setting range of the delay time t_g	--	100-200-300-400-500 ms	100-200-300-400-500 ms (only ETU47WT)
		Switchable ground-fault protection characteristic curve (I^2t-dependent function)	--	--	✓ (only ETU47WT)
		Setting range for delay time t_g at I^2t	--	--	100-200-300-400-500 ms (only ETU47WT)
LCD					
		LCD, with backlight	✓	✓	✓
LED display					
 NSE00890		Electronic trip unit active	✓	✓	✓
		Alarm	✓	✓	✓
		ETU fault	✓	✓	✓
		L-release	✓	✓	✓
		S-release	✓	✓	✓
		I-release	✓	✓	✓
		N-release	--	✓	✓
		G-release	--	✓	✓

Delay time figures given in ms.
M = Motor protection, corresponds to 20 ms.
D = Rotary coding switch.
D & S = Rotary coding and slide switch.

✓ Available.
-- Not available.

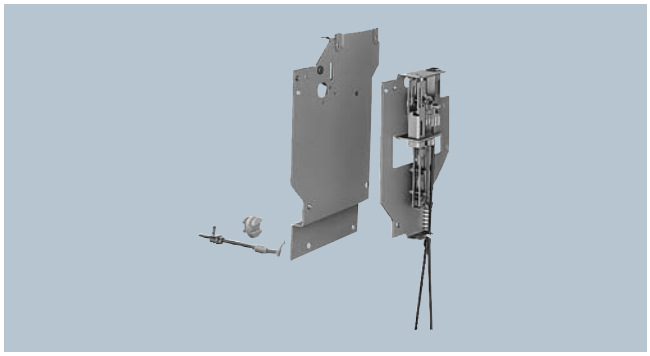
Module for mutual mechanical interlocking

The module for mutual mechanical interlocking can be used for one or two 3WT circuit breakers and can be adapted easily to the corresponding versions.
The fixed-mounted and withdrawable circuit breaker versions are fully compatible and can therefore be used in a mixed configuration in an installation.
The circuit breakers can be mounted alongside each other or one above the other, whereby the spacing of the circuit breakers is determined solely by the length of the Bowden cable. The Bowden cables are supplied in standard lengths of 2 m (length: 2 m/3 m/4.5 m). Interlock signals are looped through via the Bowden cables. Interlocking is only effective in the connected position in the case of withdrawable circuit breakers.
The mechanical endurance of the Bowden cables is 10000 operating cycles.
The interlocking module is mounted on the right-hand side of the fixed-mounted circuit breaker (see illustration) or the guide frame.

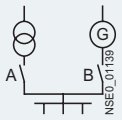
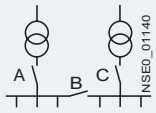
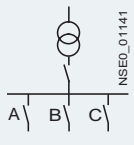
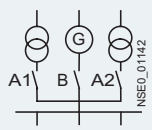
Minimum requirements must be fulfilled in the switchgear for the interlocking to function:

- Bowden cables must be installed as far as possible in a straight line with minimum bending.
- The bending radii of the Bowden wire must be greater than 500 mm.
- The sum of all bending angles along the Bowden cable must not exceed 640°.
- In a vertical arrangement of circuit breakers to be interlocked, the interlocking mechanisms must be in line.
- Circuit breakers to be interlocked must be arranged so that Bowden cables can be optimally installed in compliance with the conditions mentioned in the above points.
- The installed Bowden cable must be fixed (with cable ties or the like) before the interlock is adjusted.
- Select the width of switchgear cubicle to allow enough freedom of movement for adjusting the interlock!
- Openings and cut-outs in system elements must be designed so that Bowden cables are not changed in direction or obstructed when they are passed through.

3WT circuit breaker, 3-pole, with interlocking module and Bowden wire

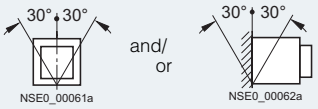


Interlocking module with Bowden wire

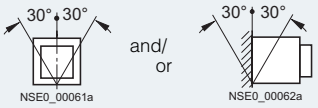
Example	Version	Switch status	Description
	1	A B 0 0 1 0 0 1	2 circuit breakers alongside each other: One circuit breaker can only be closed when the other has been switched off. Each circuit breaker has an interlocking module and a Bowden wire.
	2	A B C 0 0 0 1 0 0 0 1 0 0 0 1 1 1 0 0 1 1 1 0 1	3 circuit breakers one above the other: Any two circuit breakers can always be closed, with the third one being interlocked. Each circuit breaker has an interlocking module and a Bowden wire. An additional Bowden wire must be ordered separately for each circuit breaker.
	3	A B C 0 0 0 1 0 0 0 1 0 0 0 1	3 circuit breakers one above the other: When one circuit breaker is closed the other two circuit breakers cannot be closed. The interlocking mechanism of each circuit breaker consists of an interlocking module and a Bowden wire. An additional Bowden wire must be ordered separately for each circuit breaker.
	4	A1 B A2 0 0 0 1 0 0 0 0 1 1 0 1 0 1 0	3 circuit breakers alongside each other: Two circuit breakers can be closed and opened independently of each other, while the third is only ready to close when the two others are open. If the third circuit breaker is closed, the other two circuit breakers cannot be closed. All three circuit breakers each have an interlocking module and a Bowden wire. A Bowden wire must be ordered separately.

General data

Technical specifications

Size				I					
Type				**3WT80 4**	**3WT80 6**	**3WT80 8**	**3WT81 0**	**3WT81 2**	**3WT81 6**
Rated current I_n at 50 °C, at 50/60 Hz	Main conductor		A	400	630	800	1000	1250	1600
	Neutral conductor (only on 4-pole version)		A	400	630	800	1000	1250	1600
Rated operating voltage U_e at 50/60 Hz			AC V	up to 500					
Rated impulse withstand voltage U_{imp}	Main circuits[6]		kV	8					
	Auxiliary circuits		kV	4					
Utilization category				B					
Rated short-circuit making capacity I_{cm} (peak value)	up to 500 V AC								
	ecoline		kA	121					--
	standard		kA	145					
Rated service short-circuit breaking capacity I_{cs} (rms value)	up to 500 V AC								
	ecoline		kA	55					--
	standard		kA	66					
Rated ultimate short-circuit breaking capacity I_{cu} (rms value)	up to 500 V AC								
	ecoline		kA	55					--
	standard		kA	66					
Permissible ambient temperatures	Operation		°C	–20 ... +70					
	Storage		°C	–40 ... +80					
Rated short-time withstand current I_{cw} at 50/60 Hz	0.5 s		kA	50					
	1 s		kA	35[1]/50					
	2 s		kA	25[1]/30					
	3 s		kA	20[1]/25					
	4 s		kA	17[1]/20					
Permissible load for fixed-mounted and withdrawable circuit breakers at cabinet interior temperature[2][3]	up to 50 °C		A	400	630	800	1000	1250	1600
	at 60 °C		A	400	630	800	950	1120	1500
	at 70 °C		A	400	600	700	800	1000	1350
Rated rotor operating voltage U_{er}			V	2000					
Power loss at I_n with 3-phase symmetr. load (without line-side busbars and metal components[3])	Fixed-mounted circuit breaker		W	25	40	60	90	120	140
	Withdrawable circuit breaker including guide frame		W	50	80	130	205	255	310
Service life									
without maintenance	mechanical	Operating cycles		8000					
	electrical[5]	Operating cycles		5000					
with maintenance[4]	mechanical	Operating cycles		16000					
	electrical[5]	Operating cycles		10000					
Operating frequency			1/min	1					
Minimum interval between tripping operation by electronic trip unit and next making operation of the circuit breaker (only with automatic mechanical resetting of the lockout device)			ms	80					
Service position									
Degree of protection				Circuit breaker IP20, when fitted in cabinet or frame Operator panel with door sealing frame IP40					
Main conductor minimum cross-sections	Copper bars, bare		Qty, mm^2	1 × 50 × 10	1 × 50 × 10	1 × 60 × 10	2 × 40 × 10	2 × 60 × 10	2 × 60 × 10
	Copper bars, painted black		Qty, mm^2	1 × 40 × 10	1 × 40 × 10	1 × 50 × 10	1 × 60 × 10	2 × 40 × 10	2 × 50 × 10
Auxiliary conductors (Cu)	Max. no. of aux. conductors × cross-section	solid and finely stranded with end sleeves		1 × 0.5 ... 2.5 mm^2; 1 × AWG 14 2 ×1.0 mm^2					
Weights	3-pole circuit-breakers	Fixed-mounted circuit breaker approx. kg		34	34	34	34	34	36
		Withdrawable circuit breaker approx. kg		36	36	36	36	36	38
		Guide frame approx. kg		22	22	22	22	22	23
	4-pole circuit-breakers	Fixed-mounted circuit breaker approx. kg		47	47	47	47	47	49
		Withdrawable circuit breaker approx. kg		49	49	49	49	49	51
		Guide frame approx. kg		27	27	27	27	27	28

1) Ecoline.
2) The temperatures apply to the air surrounding the upper third of the circuit breaker.
3) These values apply in the case of sinusoidal current (50/60 Hz). The heating/losses increase in the event of harmonics and higher frequencies.
4) Maintenance: replacement of the contact set and arc chute.
5) Per contact set. Disconnect. of the rated current I_n and power factor = 0.8.
6) Rated insulation voltage U_i = 1000 V AC.

Size				II				
Type				**3WT82 0**	**3WT82 5**	**3WT83 2**	**3WT84 0**	
Rated current I_n at 50 °C, at 50/60 Hz[6]	Main conductor		A	2000	2500	3200	3800 (withdrawable)	4000 (fixed-mounted)
	Neutral conductor (only on 4-pole version)		A	2000	2500	3200	3800 (withdrawable)	4000 (fixed-mounted)
Rated operating voltage U_e at 50/60 Hz			AC V	up to 500				
Rated impulse withstand voltage U_{imp}	Main circuits[5]		kV	8				
	Auxiliary circuits		kV	4				
Utilization category				B				
Rated short-circuit making capacity I_{cm} (peak value)	up to 500 V AC							
	ecoline		kA	--				
	standard		kA	145				
Rated service short-circuit breaking capacity I_{cs} (rms value)	up to 500 V AC							
	ecoline		kA	--				
	standard		kA	66				
Rated ultimate short-circuit breaking capacity I_{cu} (rms value)	up to 500 V AC							
	ecoline		kA	--				
	standard		kA	66				
Permissible ambient temperatures	Operation		°C	–20 ... +70				
	Storage		°C	–40 ... +80				
Rated short-time withstand current I_{cw} at 50/60 Hz	0.5 s		kA	66				
	1 s		kA	66				
	2 s		kA	55				
	3 s		kA	45				
	4 s		kA	35				
Permissible load for fixed-mounted and withdrawable circuit breakers at cabinet interior temperature[1][2]	up to 50 °C[6]		A	2000	2500	3200	3800[7]	4000[8]
	at 60 °C		A	1950	2150	2900		
	at 70 °C		A	1800	1950	2700		
Rated rotor operating voltage U_{er}			V	2000				
Power loss at I_n with 3-phase symmetr. load (without line-side busbars and metal components[2])	Fixed-mounted circuit breaker		W	170	325	420	--	902
	Withdrawable circuit breaker including guide frame		W	310	535	760	1050	--
Service life								
without maintenance	mechanical	Operating cycles		6000				
	electrical[4]			2000				
with maintenance[3]	mechanical	Operating cycles		12000				
	electrical[4]			4000				
Operating frequency			1/min	1				
Minimum interval between tripping operation by electronic trip unit and next making operation of the circuit breaker (only with automatic mechanical resetting of the lockout device)			ms	80				
Service position				 NSE0_00061a NSE0_00062a				
Degree of protection				Circuit breaker IP20, when fitted in cabinet or frame Operator panel with door sealing frame IP40				
Main conductor minimum cross-sections	Copper bars, bare		Qty. mm^2	2 × 100 × 10	3 × 100 × 10	3 × 100 × 10	4 × 120 × 10	4 × 120 × 10
	Copper bars, painted black		Qty. mm^2	2 × 80 × 10	2 × 100 × 10	3 × 100 × 10	4 × 100 × 10	4 × 100 × 10
Auxiliary conductors (Cu)	Max. no. of aux. conductors × cross-section	solid and finely stranded with end sleeves		1 × 0.5 ... 2.5 mm^2; 1 × AWG 14 2 ×1.0 mm^2				
Weights	3-pole circuit-breakers	Fixed-mounted circuit breaker approx. kg		57	57	61	--	92[9]
		Withdrawable circuit breaker approx. kg		59	59	63	64	--
		Guide frame approx. kg		35	35	37	54[9]	--
	4-pole circuit-breakers	Fixed-mounted circuit breaker approx. kg		70	70	74	--	106[9]
		Withdrawable circuit breaker approx. kg		72	72	76	77	--
		Guide frame approx. kg		46	46	48	64[9]	--

1) The temperatures apply to the air surrounding the upper third of the circuit breaker.
2) These values apply in the case of sinusoidal current (50/60 Hz). The heating/losses increase in the event of harmonics and higher frequencies.
3) Maintenance: replacement of the contact set and arc chute.
4) Per contact set. Disconnect. of the rated current I_n and power factor = 0.8.
5) Rated insulation voltage U_i = 1000 V AC.
6) At 3WT84 0: 40 °C.
7) Withdrawable circuit breakers.
8) Fixed-mounted circuit breakers.
9) Including vertical busbars.

General data

				3WT
Operating mechanisms				
Manual operating mechanism with mechanical closing				
Closing	Max. force required to operate the hand lever		N	210
Charging stored-energy feature	Required number of strokes on the hand lever			5
Manual operating mechanism with mechanical and electrical closing				
Charging stored-energy feature				see "Manual operating mechanism with mechanical closing"
Closing solenoid (Y1)	Operating range			0.7 ... 1.1 × U_s
	Extended operating range for battery operation[1]	for 24 V DC, 110 V DC, 220 V DC		0.7 ... 1.26 × U_s
	Power input	AC/DC	VA/W	15
	Minimum command duration at U_s for the activation solenoid		ms	60
	Total closing time at U_s after start of closing command for the activation solenoid, suitable for synchronizing tasks		ms	80
	Short-circuit protection Smallest permissible DIAZED fuse (operational class gL)/miniature circuit breaker with C-characteristic			1 A TDz (time-lag)/1 A
Manual/motor operating mechanism with mechanical and electrical closing				
Manual operating mechanism				see "Manual operating mechanism with mechanical closing"
Motor	Operating range			0.7 ... 1.1 × U_s
	Extended operating range for battery operation[1]	for 24 V DC, 110 V DC, 220 V DC		0.7 ... 1.26 × U_s
	Power input to motor	AC/DC	VA/W	40
	Time required to charge the stored-energy mechanism	1 × U_s	s	20
Closing solenoid				see "Manual operating mechanism with mechanical and electrical closing"
	Short-circuit protection			
	Motor and activation solenoid for the same rated control supply voltages:			
For motor and closing solenoid	Smallest permissible DIAZED fuse (operational class gL)/miniature circuit breaker with C-characteristic	at U_s = 24 V		2 A TDz (time-lag)/2 A
		at U_s = 110 ...127 V		1 A TDz (time-lag)/1 A
		at U_s = 220 ... 250 V		1 A TDz (time-lag)/1 A
Auxiliary releases				
Shunt release "f" (F1, F2)	Operating value	pickup		≥ 0.7 × U_s (circuit breaker is tripped)
	Operating range			0.7 ... 1.1 × U_s
	For continuous command (100 % duty ratio), locks out on momentary-contact commands			
	Extended operating range for battery operation[1]	for 24 V DC, 110 V DC, 220 V DC		0.7 ... 1.26 × U_s
	Rated control supply voltage U_s	AC 50/60 Hz DC	V V	110 ... 127, 220 ... 240 24, 110 ... 125, 220 ... 250
	Power input	AC/DC	VA/W	15
	Minimum command duration at U_s		ms	60
	Opening time of circuit breaker at U_s = 100 %	AC/DC	ms	≤ 80

[1] The operating range is only permissible for the specified rated voltages and corresponds to the battery charging voltage.

					3WT			
Auxiliary releases								
Undervoltage release "r" (F3) and "rc" (F8)	Operating values	pickup dropout			≥ 0.85 × U_s (circuit breaker can be closed) (0.35 ... 0.7) × U_s (circuit breaker is tripped)			
	Operating range				0.85 ... 1.1 × U_s			
	Extended operating range in battery operation[1]	for 24 V DC, 110 V DC, 220 V DC			0.7 ... 1.26 × U_s			
	Rated control supply voltage U_s	AC 50/60 Hz DC	V V		110 ... 127, 220 ... 240, 380 ... 415 24, 110 ... 125, 220 ... 250			
	Power input	AC DC	VA W		15 15			
	Opening time of circuit breaker at U_s = 0							
	Version "r" (F3) Instantaneous With 100 ms delay		 ms ms		 ≤ 100 ≤ 300			
	Version "rc" (F8) With delay, t_d = 0.2 ... 3.2 s		s		0.2 ... 3.2			
	Reset via additional NC contact – direct switching-off		ms		≤ 100			
	Short-circuit protection							
	Smallest permissible DIAZED fuse (operational class gL) /miniature circuit breaker with C-characteristic				1 A TDz (time-lag)1 A			
Contact position-driven auxiliary switches (S1, S2, S3, S4)								
Rated insulation voltage U_i			AC/DC V		400 V			
Rated operating voltage U_e					400 V			
Switching capacity	AC, 50/60 Hz	Rated operating voltage U_e Rated operating current I_e/AC-12 Rated operating current I_e/AC-15	V A A		up to 24 10 6	110 10 6	220/230 10 6	380/400 10 4
	DC	Rated operating voltage U_e Rated operating current I_e/DC-12 Rated operating current I_e/DC-13	V A A		24 10 10	110 3.5 1.2	220 1 0.4	
Short-circuit protection[2]		Largest permissible DIAZED fuse (operational class gL/gG) Largest permissible miniature circuit breaker with C-characteristic			10 A TDz, 16 A Dz 10 A			
Ready-to-close signaling switch (S7) and "tripped" signaling switch (S11), to DIN VDE 0630								
Switching capacity	AC, 50/60 Hz	Rated operating voltage U_e Rated operating current I_e	V A		110 0.14	220 0.1		
	DC	Rated operating voltage U_e Rated operating current I_e	V A		24 0.2	220 0.1		
Short-circuit protection[2]		Largest permissible DIAZED fuse (operational class gL)			2 A Dz (quick)			
"Tripped" signaling switch (S11)		Signal duration after tripping			continuous, until reset			

[1] The operating range is only permissible for the specified rated voltages and corresponds to the battery charging voltage.

[2] Without any welding of the contacts only at I_k ≤ 1 kA in accordance with DIN VDE 0660 Part 200.

3- and 4-pole, withdrawable version inclusive standard accessories

Selection and ordering data – quick selection

Size	Rated current I_n	Short-circuit breaking capacity I_{cu} /500 V	Short-time withstand current, I_{cw}/500 V 1 s [1]	3-pole Order No.	3-pole Basic price	3-pole Weight approx.	4-pole Order No.	4-pole Basic price	4-pole Weight approx.
	A	kA	kA			kg			kg
ETU35WT, horizontal main circuit connection (ecoline)									
I	400	55	50	**3WT80 40-5UA34-5AB2**		58.000	**3WT80 44-5UA34-5AB2**		76.000
I	630	55	50	**3WT80 60-5UA34-5AB2**		58.000	**3WT80 64-5UA34-5AB2**		76.000
I	800	55	50	**3WT80 80-5UA34-5AB2**		58.000	**3WT80 84-5UA34-5AB2**		76.000
I	1000	55	50	**3WT81 00-5UA34-5AB2**		58.000	**3WT81 04-5UA34-5AB2**		76.000
I	1250	55	50	**3WT81 20-5UA34-5AB2**		58.000	**3WT81 24-5UA34-5AB2**		76.000
ETU35WT, horizontal main circuit connection									
I	400	66	50	**3WT80 41-5UA34-5AB2**		58.000	**3WT80 45-5UA34-5AB2**		76.000
I	630	66	50	**3WT80 61-5UA34-5AB2**		58.000	**3WT80 65-5UA34-5AB2**		76.000
I	800	66	50	**3WT80 81-5UA34-5AB2**		58.000	**3WT80 85-5UA34-5AB2**		76.000
I	1000	66	50	**3WT81 01-5UA34-5AB2**		58.000	**3WT81 05-5UA34-5AB2**		76.000
I	1250	66	50	**3WT81 21-5UA34-5AB2**		58.000	**3WT81 25-5UA34-5AB2**		76.000
I	1600	66	50	**3WT81 61-5UA34-5AB2**		61.000	**3WT81 65-5UA34-5AB2**		79.000
II	2000	66	66	**3WT82 02-5UA34-5AB2**		94.000	**3WT82 06-5UA34-5AB2**		118.000
II	2500	66	66	**3WT82 52-5UA34-5AB2**		94.000	**3WT82 56-5UA34-5AB2**		118.000
II	3200	66	66	**3WT83 22-5UA34-5AB2**		100.000	**3WT83 26-5UA34-5AB2**		124.000
ETU35WT, vertical main circuit connection									
II	3800	66	66	**3WT84 02-5UA36-5AB2**		118.000	**3WT84 06-5UA36-5AB2**		141.000
ETU37WT, horizontal main circuit connection (ecoline)									
I	400	55	50	**3WT80 40-6UA34-5AB2**		58.000	**3WT80 44-6UA34-5AB2**		76.000
I	630	55	50	**3WT80 60-6UA34-5AB2**		58.000	**3WT80 64-6UA34-5AB2**		76.000
I	800	55	50	**3WT80 80-6UA34-5AB2**		58.000	**3WT80 84-6UA34-5AB2**		76.000
I	1000	55	50	**3WT81 00-6UA34-5AB2**		58.000	**3WT81 04-6UA34-5AB2**		76.000
I	1250	55	50	**3WT81 20-6UA34-5AB2**		58.000	**3WT81 24-6UA34-5AB2**		76.000
ETU37WT, horizontal main circuit connection									
I	400	66	50	**3WT80 41-6UA34-5AB2**		58.000	**3WT80 45-6UA34-5AB2**		76.000
I	630	66	50	**3WT80 61-6UA34-5AB2**		58.000	**3WT80 65-6UA34-5AB2**		76.000
I	800	66	50	**3WT80 81-6UA34-5AB2**		58.000	**3WT80 85-6UA34-5AB2**		76.000
I	1000	66	50	**3WT81 01-6UA34-5AB2**		58.000	**3WT81 05-6UA34-5AB2**		76.000
I	1250	66	50	**3WT81 21-6UA34-5AB2**		58.000	**3WT81 25-6UA34-5AB2**		76.000
I	1600	66	50	**3WT81 61-6UA34-5AB2**		61.000	**3WT81 65-6UA34-5AB2**		79.000
II	2000	66	66	**3WT82 02-6UA34-5AB2**		94.000	**3WT82 06-6UA34-5AB2**		118.000
II	2500	66	66	**3WT82 52-6UA34-5AB2**		94.000	**3WT82 56-6UA34-5AB2**		118.000
II	3200	66	66	**3WT83 22-6UA34-5AB2**		100.000	**3WT83 26-6UA34-5AB2**		124.000
ETU37WT, vertical main circuit connection									
II	3800	66	66	**3WT84 02-6UA36-5AB2**		118.000	**3WT84 06-6UA36-5AB2**		141.000

Electronic trip unit (ETU)

ETU35WT: protection functions LSI with LCD display
ETU37WT: protection functions LSING[2] with LCD display

Accessories included

Motor operated mechanism,
with mechanical and electrical closing,
motor and closing solenoid 220-240 V AC 50/60 Hz,
220-250 V DC,
Shunt release "F" 220-240 V AC 50/60 Hz,
220-250 V DC
with door sealing frame IP40, sealing cap over OFF button,
and shutter
without 2nd auxiliary release,
with auxiliary switch 2 NO + 2 NC,
with shutter

1) I_{cw}/500 V 0.5 s for ecoline.

2) Current transformer for overload protection in the neutral conductor and for ground-fault protection must be ordered separately, see page 2/29.

Selection and ordering data – quick selection

Size	Rated current I_n	Short-circuit breaking capacity I_{cu} /500 V	Short-time withstand current, I_{cw} /500 V 1 s [1]	3-pole Order No.	3-pole Basic price	3-pole Weight approx.	4-pole Order No.	4-pole Basic price	4-pole Weight approx.
	A	kA	kA			kg			kg
ETU35WT, horizontal main circuit connection (ecoline)									
I	400	55	50	**3WT80 40-5UA30-0AA2**		34.000	**3WT80 44-5UA30-0AA2**		47.000
I	630	55	50	**3WT80 60-5UA30-0AA2**		34.000	**3WT80 64-5UA30-0AA2**		47.000
I	800	55	50	**3WT80 80-5UA30-0AA2**		34.000	**3WT80 84-5UA30-0AA2**		47.000
I	1000	55	50	**3WT81 00-5UA30-0AA2**		34.000	**3WT81 04-5UA30-0AA2**		47.000
I	1250	55	50	**3WT81 20-5UA30-0AA2**		34.000	**3WT81 24-5UA30-0AA2**		47.000
ETU35WT, horizontal main circuit connection									
I	400	66	66	**3WT80 41-5UA30-0AA2**		34.000	**3WT80 45-5UA30-0AA2**		47.000
I	630	66	66	**3WT80 61-5UA30-0AA2**		34.000	**3WT80 65-5UA30-0AA2**		47.000
I	800	66	66	**3WT80 81-5UA30-0AA2**		34.000	**3WT80 85-5UA30-0AA2**		47.000
I	1000	66	66	**3WT81 01-5UA30-0AA2**		34.000	**3WT81 05-5UA30-0AA2**		47.000
I	1250	66	66	**3WT81 21-5UA30-0AA2**		34.000	**3WT81 25-5UA30-0AA2**		47.000
I	1600	66	66	**3WT81 61-5UA30-0AA2**		36.000	**3WT81 65-5UA30-0AA2**		49.000
II	2000	66	66	**3WT82 02-5UA30-0AA2**		57.000	**3WT82 06-5UA30-0AA2**		70.000
II	2500	66	66	**3WT82 52-5UA30-0AA2**		57.000	**3WT82 56-5UA30-0AA2**		70.000
II	3200	66	66	**3WT83 22-5UA30-0AA2**		61.000	**3WT83 26-5UA30-0AA2**		74.000
ETU35WT, vertical main circuit connection									
II	4000	66	66	**3WT84 02-5UA32-0AA2**		92.000	**3WT84 06-5UA32-0AA2**		106.000
ETU37WT, horizontal main circuit connection (ecoline)									
I	400	55	50	**3WT80 40-6UA30-0AA2**		34.000	**3WT80 44-6UA30-0AA2**		47.000
I	630	55	50	**3WT80 60-6UA30-0AA2**		34.000	**3WT80 64-6UA30-0AA2**		47.000
I	800	55	50	**3WT80 80-6UA30-0AA2**		34.000	**3WT80 84-6UA30-0AA2**		47.000
I	1000	55	50	**3WT81 00-6UA30-0AA2**		34.000	**3WT81 04-6UA30-0AA2**		47.000
I	1250	55	50	**3WT81 20-6UA30-0AA2**		34.000	**3WT81 24-6UA30-0AA2**		47.000
ETU37WT, horizontal main circuit connection									
I	400	66	66	**3WT80 41-6UA30-0AA2**		34.000	**3WT80 45-6UA30-0AA2**		47.000
I	630	66	66	**3WT80 61-6UA30-0AA2**		34.000	**3WT80 65-6UA30-0AA2**		47.000
I	800	66	66	**3WT80 81-6UA30-0AA2**		34.000	**3WT80 85-6UA30-0AA2**		47.000
I	1000	66	66	**3WT81 01-6UA30-0AA2**		34.000	**3WT81 05-6UA30-0AA2**		47.000
I	1250	66	66	**3WT81 21-6UA30-0AA2**		34.000	**3WT81 25-6UA30-0AA2**		47.000
I	1600	66	66	**3WT81 61-6UA30-0AA2**		36.000	**3WT81 65-6UA30-0AA2**		49.000
II	2000	66	66	**3WT82 02-6UA30-0AA2**		57.000	**3WT82 06-6UA30-0AA2**		70.000
II	2500	66	66	**3WT82 52-6UA30-0AA2**		57.000	**3WT82 56-6UA30-0AA2**		70.000
II	3200	66	66	**3WT83 22-6UA30-0AA2**		61.000	**3WT83 26-6UA30-0AA2**		74.000
ETU37WT, vertical main circuit connection									
II	4000	66	66	**3WT84 02-6UA32-0AA2**		92.000	**3WT84 06-6UA32-0AA2**		106.000

Electronic trip unit (ETU)

ETU35WT: protection functions LSI with LCD display
ETU37WT: protection functions LSING[2] with LCD display

Accessories included

Motor operated mechanism,
with mechanical and electrical closing,
motor and closing solenoid 220-240 V AC 50/60 Hz,
220-250 V DC,
Shunt release "F" 220-240 V AC 50/60 Hz,
220-250 V DC
with door sealing frame IP40,
without 2nd auxiliary release,
with auxiliary switch 2 NO + 2 NC

1) I_{cw}/500 V 0.5 s for ecoline.

2) Current transformer for overload protection in the neutral conductor and for ground-fault protection must be ordered separately, see page 2/29.

3- and 4-pole, withdrawable version

Selection and ordering data

Size	Rated current I_n	Short-circuit breaking capacity I_{cu} /500 V	Short-time withstand current, I_{cw}/500 V 1 s [1]	3-pole Order No. (Order No. supplement (8th to 11th and 13th to 16th position of Order No.) must be added. For quick selection see below. Further options see pages 2/22 to 2/28.)	Basic price	Weight approx.	4-pole Order No. (Order No. supplement (8th to 11th and 13th to 16th position of Order No.) must be added. For quick selection see below. Further options see pages 2/22 to 2/28.)	Basic price	Weight approx.
	A	kA	kA			kg			kg
Horizontal main circuit connection (ecoline)									
I	400	55	50	**3WT80 40-□□□□4-□□□□**		58.000	**3WT80 44-□□□□4-□□□□**		76.000
I	630	55	50	**3WT80 60-□□□□4-□□□□**		58.000	**3WT80 64-□□□□4-□□□□**		76.000
I	800	55	50	**3WT80 80-□□□□4-□□□□**		58.000	**3WT80 84-□□□□4-□□□□**		76.000
I	1000	55	50	**3WT81 00-□□□□4-□□□□**		58.000	**3WT81 04-□□□□4-□□□□**		76.000
I	1250	55	50	**3WT81 20-□□□□4-□□□□**		58.000	**3WT81 24-□□□□4-□□□□**		76.000
Horizontal main circuit connection									
I	400	66	50	**3WT80 41-□□□□4-□□□□**		58.000	**3WT80 45-□□□□4-□□□□**		76.000
I	630	66	50	**3WT80 61-□□□□4-□□□□**		58.000	**3WT80 65-□□□□4-□□□□**		76.000
I	800	66	50	**3WT80 81-□□□□4-□□□□**		58.000	**3WT80 85-□□□□4-□□□□**		76.000
I	1000	66	50	**3WT81 01-□□□□4-□□□□**		58.000	**3WT81 05-□□□□4-□□□□**		76.000
I	1250	66	50	**3WT81 21-□□□□4-□□□□**		58.000	**3WT81 25-□□□□4-□□□□**		76.000
I	1600	66	50	**3WT81 61-□□□□4-□□□□**		61.000	**3WT81 65-□□□□4-□□□□**		79.000
II	2000	66	66	**3WT82 02-□□□□4-□□□□**		94.000	**3WT82 06-□□□□4-□□□□**		118.000
II	2500	66	66	**3WT82 52-□□□□4-□□□□**		94.000	**3WT82 56-□□□□4-□□□□**		118.000
II	3200	66	66	**3WT83 22-□□□□4-□□□□**		100.000	**3WT83 26-□□□□4-□□□□**		124.000
Horizontal main circuit connection at top, vertical connection at bottom (ecoline)[5]									
I	400	55	50	**3WT80 40-□□□□8-□□□□**		58.000	**3WT80 44-□□□□8-□□□□**		76.000
I	630	55	50	**3WT80 60-□□□□8-□□□□**		58.000	**3WT80 64-□□□□8-□□□□**		76.000
I	800	55	50	**3WT80 80-□□□□8-□□□□**		58.000	**3WT80 84-□□□□8-□□□□**		76.000
I	1000	55	50	**3WT81 00-□□□□8-□□□□**		58.000	**3WT81 04-□□□□8-□□□□**		76.000
I	1250	55	50	**3WT81 20-□□□□8-□□□□**		58.000	**3WT81 24-□□□□8-□□□□**		76.000
Horizontal main circuit connection at top, vertical connection at bottom[5]									
I	400	66	50	**3WT80 41-□□□□8-□□□□**		58.000	**3WT80 45-□□□□8-□□□□**		76.000
I	630	66	50	**3WT80 61-□□□□8-□□□□**		58.000	**3WT80 65-□□□□8-□□□□**		76.000
I	800	66	50	**3WT80 81-□□□□8-□□□□**		58.000	**3WT80 85-□□□□8-□□□□**		76.000
I	1000	66	50	**3WT81 01-□□□□8-□□□□**		58.000	**3WT81 05-□□□□8-□□□□**		76.000
I	1250	66	50	**3WT81 21-□□□□8-□□□□**		58.000	**3WT81 25-□□□□8-□□□□**		76.000
I	1600	66	50	**3WT81 61-□□□□8-□□□□**		61.000	**3WT81 65-□□□□8-□□□□**		79.000
II	2000	66	66	**3WT82 02-□□□□8-□□□□**		94.000	**3WT82 06-□□□□8-□□□□**		118.000
II	2500	66	66	**3WT82 52-□□□□8-□□□□**		94.000	**3WT82 56-□□□□8-□□□□**		118.000
II	3200	66	66	**3WT83 22-□□□□8-□□□□**		100.000	**3WT83 26-□□□□8-□□□□**		124.000

	Order No. supplements			Additional price	Order No. supplements			Additional price
Electronic trip unit (ETU; 8th position of Order No.)								
ETU35WT: LSI with LCD display	**5**			**X**	**5**			**X**
ETU37WT: LSING[2] with LCD display	**6**			**X**	**6**			**X**
ETU45WT: LSIN[2] with LCD display and additional features	**7**			**X**	**7**			**X**
ETU47WT: LSING[2] with LCD display and additional features	**8**			**X**	**8**			**X**
Operating mechanism, auxiliary release, auxiliary switch (9th to 11th position of Order No., further options see page 2/22)								
Manual operating mechanism, with mechanical closing, without 1st and 2nd auxiliary releases, with auxiliary switch 2 NO + 2 NC		**AA0**		without		**AA0**		without
Accessories (13th to 16th position of Order No., further options see pages 2/23 to 2/28)								
with door sealing frame IP40,			**5AA2**	without			**5AA2**	without
with door sealing frame IP40, sealing cap over OFF button, and shutter size I, up to 1600 A		[4]	**5AB2**	**X**		[4]	**5AB2**	**X**
size II, 2000 ... 3800 A				**X**				**X**
with door sealing frame IP40, safety lock device CES instead of OFF button[3] (key removable in OFF position); and shutter size I, up to 1600 A		[4]	**5AF2**	**X**		[4]	**5AF2**	**X**
size II, 2000 ... 3800 A				**X**				**X**

X = additional price

[1] I_{cw}/500 V 0.5 s for ecoline.

[2] Current transformer for overload protection in the neutral conductor and for ground-fault protection must be ordered separately, see page 2/29.

[3] This disables mechanical or electrical ON commands.

[4] Not available for circuit breakers without guide frame, see also page 2/23.

[5] Can be converted to vertical at top and horizontal main connection at bottom.

3- and 4-pole, withdrawable version

Size	Rated current I_n	Short-circuit breaking capacity I_{cu} /500 V	Short-time withstand current, I_{cw}/500 V 1 s [1]	3-pole Order No. Order No. supplement (8th to 11th and 13th to 16th position of Order No.) must be added. For quick selection see below. Further options see pages 2/22 to 2/28.	Basic price	Weight approx.	4-pole Order No. Order No. supplement (8th to 11th and 13th to 16th position of Order No.) must be added. For quick selection see below. Further options see pages 2/22 to 2/28.	Basic price	Weight approx.
	A	kA	kA			kg			kg
Vertical main circuit connection, top and bottom (ecoline)									
I	400	55	50	**3WT80 40-□□□□6-□□□□**		58.000	**3WT80 44-□□□□6-□□□□**		76.000
I	630	55	50	**3WT80 60-□□□□6-□□□□**		58.000	**3WT80 64-□□□□6-□□□□**		76.000
I	800	55	50	**3WT80 80-□□□□6-□□□□**		58.000	**3WT80 84-□□□□6-□□□□**		76.000
I	1000	55	50	**3WT81 00-□□□□6-□□□□**		58.000	**3WT81 04-□□□□6-□□□□**		76.000
I	1250	55	50	**3WT81 20-□□□□6-□□□□**		58.000	**3WT81 24-□□□□6-□□□□**		76.000
Vertical main circuit connection, top and bottom									
I	400	66	50	**3WT80 41-□□□□6-□□□□**		58.000	**3WT80 45-□□□□6-□□□□**		76.000
I	630	66	50	**3WT80 61-□□□□6-□□□□**		58.000	**3WT80 65-□□□□6-□□□□**		76.000
I	800	66	50	**3WT80 81-□□□□6-□□□□**		58.000	**3WT80 85-□□□□6-□□□□**		76.000
I	1000	66	50	**3WT81 01-□□□□6-□□□□**		58.000	**3WT81 05-□□□□6-□□□□**		76.000
I	1250	66	50	**3WT81 21-□□□□6-□□□□**		58.000	**3WT81 25-□□□□6-□□□□**		76.000
I	1600	66	50	**3WT81 61-□□□□6-□□□□**		61.000	**3WT81 65-□□□□6-□□□□**		79.000
II	2000	66	66	**3WT82 02-□□□□6-□□□□**		94.000	**3WT82 06-□□□□6-□□□□**		118.000
II	2500	66	66	**3WT82 52-□□□□6-□□□□**		94.000	**3WT82 56-□□□□6-□□□□**		118.000
II	3200	66	66	**3WT83 22-□□□□6-□□□□**		100.000	**3WT83 26-□□□□6-□□□□**		124.000
II	3800	66	66	**3WT84 02-□□□□6-□□□□**		118.000	**3WT84 06-□□□□6-□□□□**		141.000
Without guide frame (ecoline; guide frame see page 2/29)									
I	400	55	50	**3WT80 40-□□□□3-□□□□**		36.000	**3WT80 44-□□□□3-□□□□**		49.000
I	630	55	50	**3WT80 60-□□□□3-□□□□**		36.000	**3WT80 64-□□□□3-□□□□**		49.000
I	800	55	50	**3WT80 80-□□□□3-□□□□**		36.000	**3WT80 84-□□□□3-□□□□**		49.000
I	1000	55	50	**3WT81 00-□□□□3-□□□□**		36.000	**3WT81 04-□□□□3-□□□□**		49.000
I	1250	55	50	**3WT81 20-□□□□3-□□□□**		36.000	**3WT81 24-□□□□3-□□□□**		49.000
Without guide frame (guide frame see page 2/29)									
I	400	66	50	**3WT80 41-□□□□3-□□□□**		36.000	**3WT80 45-□□□□3-□□□□**		49.000
I	630	66	50	**3WT80 61-□□□□3-□□□□**		36.000	**3WT80 65-□□□□3-□□□□**		49.000
I	800	66	50	**3WT80 81-□□□□3-□□□□**		36.000	**3WT80 85-□□□□3-□□□□**		49.000
I	1000	66	50	**3WT81 01-□□□□3-□□□□**		36.000	**3WT81 05-□□□□3-□□□□**		49.000
I	1250	66	50	**3WT81 21-□□□□3-□□□□**		36.000	**3WT81 25-□□□□3-□□□□**		49.000
I	1600	66	50	**3WT81 61-□□□□3-□□□□**		38.000	**3WT81 65-□□□□3-□□□□**		51.000
II	2000	66	66	**3WT82 02-□□□□3-□□□□**		59.000	**3WT82 06-□□□□3-□□□□**		72.000
II	2500	66	66	**3WT82 52-□□□□3-□□□□**		59.000	**3WT82 56-□□□□3-□□□□**		72.000
II	3200	66	66	**3WT83 22-□□□□3-□□□□**		63.000	**3WT83 26-□□□□3-□□□□**		76.000
II	3800	66	66	**3WT84 02-□□□□3-□□□□**		64.000	**3WT84 06-□□□□3-□□□□**		77.000

	Order No. supplements			Additional price	Order No. supplements			Additional price
Electronic trip unit (ETU; 8th position of Order No.)								
ETU35WT: LSI with LCD display	**5**			**X**	**5**			**X**
ETU37WT: LSING [2] with LCD display	**6**			**X**	**6**			**X**
ETU45WT: LSIN [2] with LCD display and additional features	**7**			**X**	**7**			**X**
ETU47WT: LSING [2] with LCD display and additional features	**8**			**X**	**8**			**X**
Operating mechanism, auxiliary release, auxiliary switch (9th to 11th position of Order No., further options see page 2/22)								
Manual operating mechanism, with mechanical closing, without 1st and 2nd auxiliary releases, with auxiliary switch 2 NO + 2 NC		**AA0**		without		**AA0**		without
Accessories (13th to 16th position of Order No., further options see pages 2/23 to 2/28)								
with door sealing frame IP40,			**5AA2**	without			**5AA2**	without
with door sealing frame IP40, sealing cap over OFF button and shutter size I, up to 1600 A	[4]		**5AB2**	**X**	[4]		**5AB2**	**X**
size II, 2000 ... 3800 A				**X**				**X**
with door sealing frame IP40, safety lock device CES instead of OFF button [3] (key removable in OFF position); and shutter size I, up to 1600 A	[4]		**5AF2**	**X**	[4]		**5AF2**	**X**
size II, 2000 ... 3800 A				**X**				**X**

X = additional price

[1] I_{cw}/500 V 0.5 s for ecoline.

[2] Current transformer for overload protection in the neutral conductor and for ground-fault protection must be ordered separately, see page 2/29.

[3] This disables mechanical or electrical ON commands.

[4] Not available for circuit breakers without guide frame, see also page 2/23.

3- and 4-pole, fixed-mounted version

Selection and ordering data

Size	Rated current I_n	Short-circuit breaking capacity I_{cu} /500 V	Short-time withstand current, I_{cw}/500 V 1 s [1]	3-pole Order No. (Order No. supplement (8th to 11th and 13th to 16th position of Order No.) must be added. For quick selection see below. Further options see pages 2/22 to 2/28.)	Basic price	Weight approx.	4-pole Order No. (Order No. supplement (8th to 11th and 13th to 16th position of Order No.) must be added. For quick selection see below. Further options see pages 2/22 to 2/28.)	Basic price	Weight approx.
	A	kA	kA			kg			kg
Horizontal main circuit connection (ecoline)									
I	400	55	50	**3WT80 40-□□□□0-□□□□**		34.000	**3WT80 44-□□□□0-□□□□**		47.000
I	630	55	50	**3WT80 60-□□□□0-□□□□**		34.000	**3WT80 64-□□□□0-□□□□**		47.000
I	800	55	50	**3WT80 80-□□□□0-□□□□**		34.000	**3WT80 84-□□□□0-□□□□**		47.000
I	1000	55	50	**3WT81 00-□□□□0-□□□□**		34.000	**3WT81 04-□□□□0-□□□□**		47.000
I	1250	55	50	**3WT81 20-□□□□0-□□□□**		34.000	**3WT81 24-□□□□0-□□□□**		47.000
Horizontal main circuit connection									
I	400	66	50	**3WT80 41-□□□□0-□□□□**		34.000	**3WT80 45-□□□□0-□□□□**		47.000
I	630	66	50	**3WT80 61-□□□□0-□□□□**		34.000	**3WT80 65-□□□□0-□□□□**		47.000
I	800	66	50	**3WT80 81-□□□□0-□□□□**		34.000	**3WT80 85-□□□□0-□□□□**		47.000
I	1000	66	50	**3WT81 01-□□□□0-□□□□**		34.000	**3WT81 05-□□□□0-□□□□**		47.000
I	1250	66	50	**3WT81 21-□□□□0-□□□□**		34.000	**3WT81 25-□□□□0-□□□□**		47.000
I	1600	66	50	**3WT81 61-□□□□0-□□□□**		36.000	**3WT81 65-□□□□0-□□□□**		49.000
II	2000	66	66	**3WT82 02-□□□□0-□□□□**		57.000	**3WT82 06-□□□□0-□□□□**		70.000
II	2500	66	66	**3WT82 52-□□□□0-□□□□**		57.000	**3WT82 56-□□□□0-□□□□**		70.000
II	3200	66	66	**3WT83 22-□□□□0-□□□□**		61.000	**3WT83 26-□□□□0-□□□□**		74.000
Vertical main circuit connection									
II	4000	66	66	**3WT84 02-□□□□2-□□□□**		92.000	**3WT84 06-□□□□2-□□□□**		106.000

	Order No. supplements			Additional price	Order No. supplements			Additional price
Electronic trip unit (ETU; 8th position of Order No.)								
ETU35WT: LSI with LCD display	**5**			**X**	**5**			**X**
ETU37WT: LSING [2] with LCD display	**6**			**X**	**6**			**X**
ETU45WT: LSIN [2] with LCD display and additional features	**7**			**X**	**7**			**X**
ETU47WT: LSING [2] with LCD display and additional features	**8**			**X**	**8**			**X**
Operating mechanism, auxiliary release, auxiliary switch (9th to 11th position of Order No., further options see page 2/22)								
Manual operating mechanism, with mechanical closing, without 1st and 2nd auxiliary releases, with auxiliary switch 2 NO + 2 NC		**AA0**		without		**AA0**		without
Motor operated mechanism, with mechanical and electrical closing, motor and closing solenoid 220-240 V AC 50/60 Hz, 220-250 V DC, Shunt release "F" 220-240 V AC 50/60 Hz, 220-250 V DC, without 2nd auxiliary release, with auxiliary switch 2 NO + 2 NC		**UA3**		**X**		**UA3**		**X**
Motor operated mechanism, with mechanical and electrical closing, motor and closing solenoid 220-240 V AC 50/60 Hz, 220-250 V DC, Undervoltage release "r", "F3" 220-240 V AC 50/60 Hz, 220-250 V DC, Shunt release "F" 220-240 V AC 50/60 Hz, 220-250 V DC, with auxiliary switch 2 NO + 2 NC		**UN3**		**X**		**UN3**		**X**
Accessories (13th to 16th position of Order No., further options see pages 2/23 to 2/28)								
with door sealing frame IP40			**0AA2**	without			**0AA2**	without
with door sealing frame IP40, safety lock device CES instead of OFF button [3] (key removable in OFF position)			**0AB2**	**X**			**0AB2**	**X**
with door sealing frame IP40, sealing cap over OFF button and mutual mechanical interlock for 3WT circuit breaker			**0AC2**	**X**			**0AC2**	**X**

X = additional price

[1] I_{cw}/500 V 0.5 s for ecoline.

[2] Current transformer for overload protection in the neutral conductor and for ground-fault protection must be ordered separately, see page 2/29.

[3] This disables mechanical or electrical ON commands.

Non-automatic air circuit breakers, 3- and 4-pole, fixed-mounted and withdrawable version

Selection and ordering data

Size	Rated current I_n	Short-circuit breaking capacity I_{cc} /500 V	3-pole: Order No. / Order No. supplement (8th to 11th and 13th to 16th position of Order No.) must be added. For quick selection see below. Further options see pages 2/22 to 2/28.	Basic price	Weight approx.	4-pole: Order No. / Order No. supplement (8th to 11th and 13th to 16th position of Order No.) must be added. For quick selection see below. Further options see pages 2/22 to 2/28.	Basic price	Weight approx.
	A	kW			kg			kg
Withdrawable version, horizontal main circuit connection								
I	1250	50	**3WT81 20-4□□□4-□□□□**		58.000	**3WT81 24-4□□□4-□□□□**		76.000
I	1600	50	**3WT81 61-4□□□4-□□□□**		61.000	**3WT81 65-4□□□4-□□□□**		79.000
II	2500	66	**3WT82 52-4□□□4-□□□□**		94.000	**3WT82 56-4□□□4-□□□□**		118.000
II	3200	66	**3WT83 22-4□□□4-□□□□**		100.000	**3WT83 26-4□□□4-□□□□**		124.000
Withdrawable version, horizontal main circuit connection at top, vertical connection at bottom[1]								
I	1250	50	**3WT81 20-4□□□8-□□□□**		58.000	**3WT81 24-4□□□8-□□□□**		76.000
I	1600	50	**3WT81 61-4□□□8-□□□□**		61.000	**3WT81 65-4□□□8-□□□□**		79.000
II	2500	66	**3WT82 52-4□□□8-□□□□**		94.000	**3WT82 56-4□□□8-□□□□**		118.000
II	3200	66	**3WT83 22-4□□□8-□□□□**		100.000	**3WT83 26-4□□□8-□□□□**		124.000
Withdrawable version, vertical connection at top and bottom								
I	1250	50	**3WT81 20-4□□□6-□□□□**		58.000	**3WT81 24-4□□□6-□□□□**		76.000
I	1600	50	**3WT81 61-4□□□6-□□□□**		61.000	**3WT81 65-4□□□6-□□□□**		79.000
II	2500	66	**3WT82 52-4□□□6-□□□□**		94.000	**3WT82 56-4□□□6-□□□□**		118.000
II	3200	66	**3WT83 22-4□□□6-□□□□**		100.000	**3WT83 26-4□□□6-□□□□**		124.000
II	3800	66	**3WT84 02-4□□□6-□□□□**		118.000	**3WT84 06-4□□□6-□□□□**		141.000
Withdrawable version without guide frame (guide frame see page 2/29)								
I	1250	50	**3WT81 20-4□□□3-□□□□**		36.000	**3WT81 24-4□□□3-□□□□**		49.000
I	1600	50	**3WT81 61-4□□□3-□□□□**		38.000	**3WT81 65-4□□□3-□□□□**		51.000
II	2500	66	**3WT82 52-4□□□3-□□□□**		59.000	**3WT82 56-4□□□3-□□□□**		72.000
II	3200	66	**3WT83 22-4□□□3-□□□□**		63.000	**3WT83 26-4□□□3-□□□□**		76.000
II	3800	66	**3WT84 02-4□□□3-□□□□**		64.000	**3WT84 06-4□□□3-□□□□**		77.000
Fixed-mounted version, horizontal main circuit connection								
I	1250	50	**3WT81 20-4□□□0-□□□□**		34.000	**3WT81 24-4□□□0-□□□□**		47.000
I	1600	50	**3WT81 61-4□□□0-□□□□**		36.000	**3WT81 65-4□□□0-□□□□**		49.000
II	2500	66	**3WT82 52-4□□□0-□□□□**		57.000	**3WT82 56-4□□□0-□□□□**		70.000
II	3200	66	**3WT83 22-4□□□0-□□□□**		61.000	**3WT83 26-4□□□0-□□□□**		74.000
Fixed-mounted version, vertical main circuit connection								
II	4000	66	**3WT84 02-4□□□2-□□□□**		92.000	**3WT84 06-4□□□2-□□□□**		106.000

Operating mechanism, auxiliary release, auxiliary switch (9th to 11th position of Order No., further options see page 2/22)	Order No. supplements		Additional price	Order No. supplements		Additional price
Manual operating mechanism, with mechanical closing, without 1st and 2nd auxiliary releases, with auxiliary switch 2 NO + 2 NC	**AA0**		without	**AA0**		without
Motor operated mechanism, with mechanical and electrical closing, motor and closing solenoid 220-240 V AC 50/60 Hz, 220-250 V DC, Shunt release "F" 220-240 V AC 50/60 Hz, 220-250 V DC, without 2nd auxiliary release, with auxiliary switch 2 NO + 2 NC	**UA3**		**X**	**UA3**		**X**
Fixed-mounted version Accessories (13th to 16th position of Order No., further options see pages 2/23 to 2/28)						
with door sealing frame IP40		**0AA2**	without		**0AA2**	without
Withdrawable version Accessories (13th to 16th position of Order No., further options see pages 2/23 to 2/28)						
with door sealing frame IP40		**5AA2**	without		**5AA2**	without
with door sealing frame IP40, sealing cap over OFF button, and shutter		**5AB2**	**X**		**5AB2**	**X**

"Options" and "Accessories" see "Options" and "Accessories" for "Air-Circuit Breakers", pages 2/22 to 2/33.

[1] Can be converted to vertical at top and horizontal main connection at bottom. **X** = additional price

Options

Selection and ordering data

Design				Order No. supplement 9th to 11th position of Order No. of circuit breaker (see pages 2/18 to 2/21) must be added as listed below **3WT8. . .-.** ☐☐☐ **.-**. . . .	Additional price
Operating mechanism					
Manual operating mechanism, with mechanical closing				**A**	without
Manual operating mechanism, with mechanical and electrical closing					
Closing solenoid					
AC 50/60 Hz V	DC V				
--	24			**B**	**X**
110 ... 127	110 ... 125			**E**	**X**
220 ... 240	220 ... 250			**F**	**X**
Manual/motorized operating mechanism, with mechanical and electrical closing					
Motor		Closing solenoid			
AC 50/60 Hz V	DC V	AC 50/60 Hz V	DC V		
--	24	24	24	**G**	**X**
110 ... 127	110 ... 125	110 ... 127	110 ... 125	**K**	**X**
220 ... 240	220 ... 250	220 ... 240	220 ... 250	**U**	**X**
110 ... 127	110 ... 125	--	24	**L**	**X**
220 ... 240	220 ... 250	--	24	**Q**	**X**
220 ... 240	220 ... 250	110 ... 127	110 ... 125	**T**	**X**
1st auxiliary release					
Without 1st auxiliary release				**A**	without
Shunt release "f" F1					
AC 50/60 Hz V	DC V				
--	24			**B**	**X**
110 ... 127	110 ... 125			**F**	**X**
220 ... 240	220 ... 250			**G**	**X**
Undervoltage release "r" F3					
AC 50/60 Hz V	DC V				
--	24			**H**	**X**
110 ... 127	110 ... 125			**M**	**X**
220 ... 240	220 ... 250			**N**	**X**
380 ... 415	--			**P**	**X**
Undervoltage release "rc" F8, can be delayed between 0.2 and 3.2 s					
AC 50/60 Hz V	DC V				
110 ... 127	110 ... 125			**U**	**X**
220 ... 240	220 ... 250			**V**	**X**
380 ... 415	--			**W**	**X**
2nd auxiliary release and auxiliary switch					
Without 2nd auxiliary release		**with 1st auxiliary contact block (standard)** 2 NO + 2 NC		**0**	without
Shunt release "f" F2		**with 1st auxiliary contact block (standard)**			
AC 50/60 Hz V	DC V				
--	24	2 NO + 2 NC		**1**	**X**
110 ... 127	110 ... 125	2 NO + 2 NC		**2**	**X**
220 ... 240	220 ... 250	2 NO + 2 NC		**3**	**X**
Without 2nd auxiliary release		**with 1st and 2nd auxiliary contact block** 2 NO + 2 NC + 2 CO		**4**	**X**
Shunt release "f" F2		**with 1st and 2nd auxiliary contact block**			
AC 50/60 Hz V	DC V				
--	24	2 NO + 2 NC + 2 CO		**5**	**X**
110 ... 127	110 ... 125	2 NO + 2 NC + 2 CO		**6**	**X**
220 ... 240	220 ... 250	2 NO + 2 NC + 2 CO		**7**	**X**

X = additional price

Design	Order No. supplement 13th to 16th position of Order No. of circuit breaker (see pages 2/18 to 2/21) must be added as listed below 3WT8...-.....-□□□□	Additional price 3-pole	4-pole
For withdrawable circuit breakers without guide frame			
 **With door sealing frame IP40**	**5 A A 2**	without	without
With door sealing frame IP40 and locking device With safety lock device CES instead of OFF button[1] (key removable in OFF position)	**5 A E 2**	**X**	**X**
For withdrawable circuit breakers with guide frame			
 **With door sealing frame IP40**	**5 A A 2**	without	without
With door sealing frame IP40, sealing cap over OFF button, and shutter Sealing cap to prevent unauthorized opening, cannot be combined with safety lock	**5 A B 2**		
 With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A		**X** **X**	**X** **X**
With door sealing frame IP40, sealing cap over OFF button, and mutual mechanical interlock for 3WT circuit breaker Sealing cap to prevent unauthorized opening, cannot be combined with safety lock Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**5 A C 2**	**X**	**X**
With door sealing frame IP40, sealing cap over OFF button, mutual mechanical interlock for 3WT circuit breaker and shutter Sealing cap to prevent unauthorized opening, cannot be combined with safety lock Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**5 A D 2**		
With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A		**X** **X**	**X** **X**
With door sealing frame IP40 and locking device With safety lock device CES instead of OFF button[1] (key removable in OFF position)	**5 A E 2**	**X**	**X**
With door sealing frame IP40, locking device, and shutter With safety lock device CES instead of OFF button[1] (key removable in OFF position)	**5 A F 2**		
With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A		**X** **X**	**X** **X**
With door sealing frame IP40 locking device, blocking device and mutual mechanical interlock for 3WT circuit breaker With safety lock device CES instead of OFF button[1] (key removable in OFF position) Blocking device to prevent opening of the cabinet door when the circuit breaker is in connected position Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**5 A G 2**	**X**	**X**
With door sealing frame IP40 locking device, blocking device, mutual mechanical interlock for 3WT circuit breaker and shutter With safety lock device CES instead of OFF button[1] (key removable in OFF position) Blocking device to prevent opening of the cabinet door when the circuit breaker is in connected position Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**5 A H 2**		
With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A		**X** **X**	**X** **X**

[1] This disables mechanical or electrical ON commands.

X = additional price

Options

Design	Order No. supplement 13th to 16th position of Order No. of circuit breaker (see pages 2/18 to 2/21) must be added as listed below 3WT8...-.....-□□□□	Additional price 3-pole	4-pole
For withdrawable circuit breakers with guide frame			
 **With door sealing frame IP40 locking device and sealing cap over OFF button** Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2)	**5 A J 2**	**X**	**X**
 Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
 **With door sealing frame IP40 locking device, sealing cap over OFF button, and shutter** Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2)	**5 A K 2**		
Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A		**X** **X**	**X** **X**
With door sealing frame IP40 locking device, blocking device, sealing cap over OFF button and mutual mechanical interlock for 3WT circuit breaker Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2)	**5 A L 2**	**X**	**X**
Blocking device to prevent opening of the cabinet door when the circuit breaker is in connected position			
Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.			
With door sealing frame IP40 locking device, blocking device, sealing cap over OFF button, mutual mechanical interlock for 3WT circuit breaker and shutter Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2)	**5 A M 2**		
Blocking device to prevent opening of the cabinet door when the circuit breaker is in connected position			
Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.			
With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A		**X** **X**	**X** **X**
With door sealing frame IP40, sealing cap over OFF button, 5-digit operating cycles counter and shutter	**5 A P 2**		
Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A		**X** **X**	**X** **X**
With door sealing frame IP40 blocking device, sealing cap over OFF button, 5-digit operating cycles counter and mutual mechanical interlock for 3WT circuit breaker Blocking device to prevent opening of the cabinet door when the circuit breaker is in connected position	**5 A Q 2**	**X**	**X**
Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.			

[1] Locks are available at the manufacturer of the locks.

X = additional price

Design	Order No. supplement 13th to 16th position of Order No. of circuit breaker (see pages 2/18 to 2/21) must be added as listed below 3WT8...-.....-□□□□	Additional price 3-pole	 4-pole
For withdrawable circuit breakers with guide frame			
 **With door sealing frame IP40** **blocking device,** **sealing cap over OFF button,** **5-digit operating cycles counter** **mutual mechanical interlock for 3WT circuit breaker,** **and shutter** Blocking device to prevent opening of the cabinet door when the circuit breaker is in connected position Sealing cap to prevent unauthorized opening, cannot be combined with safety lock Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30. With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A	**5 A R 2**	 **X** **X**	 **X** **X**
 **With door sealing frame IP40** **locking device,** **sealing cap over OFF button** **and 5-digit operating cycles counter** Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2) Sealing cap to prevent unauthorized opening, cannot be combined with safety lock	**5 A S 2**	**X**	**X**
 **With door sealing frame IP40** **locking device,** **sealing cap over OFF button,** **5-digit operating cycles counter** **and shutter** Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2) Sealing cap to prevent unauthorized opening, cannot be combined with safety lock With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A	**5 A T 2**	 **X** **X**	 **X** **X**
With door sealing frame IP40 **locking device,** **blocking device,** **sealing cap over OFF button,** **5-digit operating cycles counter** **and mutual mechanical interlock for 3WT circuit breaker** Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2) Blocking device to prevent opening of the cabinet door when the circuit breaker is in connected position Sealing cap to prevent unauthorized opening, cannot be combined with safety lock Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**5 A U 2**	**X**	**X**
With door sealing frame IP40 **locking device,** **blocking device,** **sealing cap over OFF button,** **5-digit operating cycles counter** **mutual mechanical interlock for 3WT circuit breaker** **and shutter** Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2) Blocking device to prevent opening of the cabinet door when the circuit breaker is in connected position Sealing cap to prevent unauthorized opening, cannot be combined with safety lock Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30. With shutter Size I, up to 1600 A Size II, 2000 ... 3800 A	**5 A V 2**	 **X** **X**	 **X** **X**

[1] Locks are available at the manufacturer of the locks.

X = additional price

Options

Design	Order No. supplement 13th to 16th position of Order No. of circuit breaker (see pages 2/18 to 2/21) must be added as listed below 3WT8...-.....-□□□□	Additional price 3-pole	4-pole
For withdrawable circuit breakers with guide frame			
 **With door interlock**	**5 A W 2**	**X**	**X**
With door interlock and shutter	**5 A X 2**		
With shutter			
Size I, up to 1600 A		**X**	**X**
Size II, 2000 ... 3800 A		**X**	**X**
 **With door interlock, locking device, sealing cap over OFF button, position indicator switch and shutter**	**5 A Y 2**		
Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2)			
Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
With shutter			
Size I, up to 1600 A		**X**	**X**
Size II, 2000 ... 3800 A		**X**	**X**
 **With door interlock, sealing cap over OFF button, position indicator switch, 5-digit operating cycles counter and shutter**	**5 B A 2**		
Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
With shutter			
Size I, up to 1600 A		**X**	**X**
Size II, 2000 ... 3800 A		**X**	**X**
With door interlock, locking device, sealing cap over OFF button, position indicator switch, 5-digit operating cycles counter and shutter	**5 B B 2**		
Locking device: mounting set for CASTELL lock[1], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2)			
Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
With shutter			
Size I, up to 1600 A		**X**	**X**
Size II, 2000 ... 3800 A		**X**	**X**
With door interlock, sealing cap over OFF button, position indicator switch and shutter	**5 B C 2**		
Sealing cap to prevent unauthorized opening, cannot be combined with safety lock			
With shutter			
Size I, up to 1600 A		**X**	**X**
Size II, 2000 ... 3800 A		**X**	**X**

[1] Locks are available at the manufacturer of the locks.

X = additional price

Design	Order No. supplement 13th to 16th position of Order No. of circuit breaker (see pages 2/18 to 2/21) must be added as listed below 3WT8...-.....-□□□□	Additional price 3-pole	 4-pole
For fixed-mounted circuit breakers			
 **With door sealing frame IP40**	**0 A A 2**	without	without
With door sealing frame IP40 **and locking device** With safety lock device CES instead of OFF button[1] (key removable in OFF position)	**0 A B 2**	**X**	**X**
 **With door sealing frame IP40,** **sealing cap over OFF button** **and mutual mechanical interlock for 3WT circuit breaker,** sealing cap to prevent unautorized opening, cannot be combined with safety lock Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**0 A C 2**	**X**	**X**
 **With door sealing frame IP40,** **locking device,** **and mutual mechanical interlock for 3WT circuit breaker** With safety lock device CES instead of OFF button[1] (key removable in OFF position) Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**0 A D 2**	**X**	**X**
With door sealing frame IP40, **sealing cap over OFF button,** **blocking device,** **and mutual mechanical interlock for 3WT circuit breaker** Sealing cap to prevent unauthorized opening, cannot be combined with safety lock Blocking device to prevent opening of the cabinet door with the circuit breaker closed Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**0 A E 2**	**X**	**X**
With door sealing frame IP40, **locking device,** **blocking device,** **and mutual mechanical interlock for 3WT circuit breaker** With safety lock device CES instead of OFF button[1] (key removable in OFF position) Blocking device to prevent opening of the cabinet door with the circuit breaker closed Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**0 A F 2**	**X**	**X**
With door sealing frame IP40, **locking device,** **and sealing cap over OFF button** Locking device: mounting set for CASTELL lock[2], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2) Sealing cap to prevent unauthorized opening, cannot be combined with safety lock	**0 A G 2**	**X**	**X**
With door sealing frame IP40, **5-digit operating cycles counter,** **locking device,** **sealing cap over OFF button,** **blocking device,** **and mutual mechanical interlock for 3WT circuit breaker** Locking device: mounting set for CASTELL lock[2], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2) Sealing cap to prevent unauthorized opening, cannot be combined with safety lock Blocking device to prevent opening of the cabinet door with the circuit breaker closed Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**0 A H 2**	**X**	**X**
With door sealing frame IP40, **5-digit operating cycles counter,** **sealing cap over OFF button,** **and mutual mechanical interlock for 3WT circuit breaker** Sealing cap to prevent unauthorized opening, cannot be combined with safety lock Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**0 A J 2**	**X**	**X**

[1] This disables mechanical or electrical ON commands.

[2] Locks are available at the manufacturer of the locks.

X = additional price

Options

Design	Order No. supplement 13th to 16th position of Order No. of circuit breaker (see pages 2/18 to 2/21) must be added as listed below 3WT8...-.....-□□□□	Additional price 3-pole	 4-pole
For fixed-mounted circuit breakers			
  	**With door sealing frame IP40, 5-digit operating cycles counter, sealing cap over OFF button, blocking device, and mutual mechanical interlock for 3WT circuit breaker** Sealing cap to prevent unauthorized opening, cannot be combined with safety lock Blocking device to prevent opening of the cabinet door with the circuit breaker closed Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**0 A K 2**	**X**	**X**
	With door sealing frame IP40, 5-digit operating cycles counter, locking device, and sealing cap over OFF button Locking device: mounting set for CASTELL lock[2], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2) Sealing cap to prevent unauthorized opening, cannot be combined with safety lock	**0 A L 2**	**X**	**X**
	With door sealing frame IP40, 5-digit operating cycles counter, locking device, sealing cap over OFF button, blocking device, and mutual mechanical interlock for 3WT circuit breaker With safety lock device CES instead of OFF button[1] (key removable in OFF position) Locking device: mounting set for CASTELL lock[2], Interlock to be obtained from the manufacturer of the locks CASTELL lock (FS 2) Blocking device to prevent opening of the cabinet door with the circuit breaker closed Interlock module with a Bowden wire (2 m); when interlocking three circuit breakers an additional Bowden wire is required, see page 2/30.	**0 A M 2**	**X**	**X**
	With 5-digit operating cycles counter	**0 A N 2**	**X**	**X**
	With door interlock	**0 A P 2**	**X**	**X**

[1] This disables mechanical or electrical ON commands.

[2] Locks are available at the manufacturer of the locks.

X = additional price

Selection and ordering data

Size	Rated current I_n	3-pole Order No.	Price	Weight approx.	4-pole Order No.	Price	Weight approx.
	A			kg			kg
Guide frame for withdrawable version, horizontal main circuit connection, 2 auxiliary supply connectors							
I	400 … 1250	**3WT98 83-2AC10**		22	**3WT98 83-2AC30**		27
I	1600	**3WT98 83-4AC10**		23	**3WT98 83-4AC30**		28
II	2000 ... 2500	**3WT98 83-6AC10**		35	**3WT98 83-6AC30**		46
II	3200	**3WT98 83-7AC10**		37	**3WT98 83-7AC30**		48
Guide frame for withdrawable version, horizontal main circuit connection at top, vertical connection at bottom, 2 auxiliary supply connectors							
I	400 … 1250	**3WT98 83-2BC10**		22	**3WT98 83-2BC30**		27
I	1600	**3WT98 83-4BC10**		23	**3WT98 83-4BC30**		28
II	2000 ... 2500	**3WT98 83-6BC10**		35	**3WT98 83-6BC30**		46
II	3200	**3WT98 83-7BC10**		37	**3WT98 83-7BC30**		48
Guide frame for withdrawable version, vertical main circuit connection at top and bottom, 2 auxiliary supply connectors							
I	400 … 1250	**3WT98 83-2BC20**		22	**3WT98 83-2BC40**		27
I	1600	**3WT98 83-4BC20**		23	**3WT98 83-4BC40**		28
II	2000 ... 2500	**3WT98 83-6BC20**		35	**3WT98 83-6BC40**		46
II	3200	**3WT98 83-7BC20**		37	**3WT98 83-7BC40**		48
II	3800	**3WT98 83-8BC20**		64	**3WT98 83-8BC40**		64

For fixed-mounted and withdrawable circuit breakers

Current transformers for neutral conductor overload protection and ground-fault protection
Only one of the two measuring methods is permissible in conjunction with the electronic trip unit. The overload protection for the neutral conductor takes effect when the current transformer is fitted in the neutral conductor. The ground-fault current is calculated by means of summation current formation of the phases and the neutral conductor.

Type of detection (see page 2/7) Designation	Electronic trip unit version	Frame size of the circuit breaker	Required order quantity per circuit breaker	For 1 set or 1 unit Order No.	Price	Weight approx.
						kg
Vectorial summation with current transformer in the neutral conductor						
Current transformers for 3- and 4-pole circuit breakers, internal neutral conductor	ETU37WT, ETU47WT	I	1 unit	**3WT98 43-1RE00**		0.200
		II	1 unit	**3WT98 43-2RE00**		0.280
Current transformers for 3- and 4-pole circuit breakers, external neutral conductor with copper busbars		I	1 unit	**3WL9 111-0AA31-0AA0**		1.600
		II	1 unit	**3WL9 111-0AA32-0AA0**		4.260
Current transformers for 3- and 4-pole circuit breakers, external neutral conductor without copper busbars		I	1 unit	**3WL9 111-0AA21-0AA0**		0.300
		II	1 unit	**3WL9 111-0AA22-0AA0**		0.380
Designation	Rated control supply voltage/ rated operational voltage		Order quantity	For 1 set or 1 unit		
	AC 50/60 Hz					
Manual function tester for electronic trip unit for versions ETU35WT ... ETU47WT	110 ... 127/220 ... 240 V		1 unit	**3WL9 111-0AT32-0AA0**		1.300
Door sealing frame IP40			1 unit	**3WT98 86-0JA00**		1.000
Protective covers, IP55 Cannot be used in conjunction with door sealing frames, cover removable and can be opened on both sides			1 unit	**3WL9 111-0AP02-0AA0**		1.600

Accessories/spare parts

When retrofitting, the circuit breaker Order No. must be added to the name plate on the operator panel and to the side wall of the circuit breaker in accordance with the installation instructions.

Designation				Required order quantity per circuit breaker	For 1 set or 1 unit Order No.	Price	Weight approx. kg
For fixed-mounted and withdrawable circuit breakers							
00035 **5-digit operating cycles counter**				1 unit	**3WT98 64-0CA00**		0.250
Auxiliary release	Rated control supply voltage						
	AC 50/60 Hz V	DC V					
Shunt release "f" for 1st and 2nd auxiliary release (F1 and F2) and closing solenoid (Y1)	--	24		1 unit	**3WT98 51-1JB00**		0.800
	110 ... 127	110 ... 125			**3WT98 51-1JH00**		0.800
	220 ... 240	220 ... 250			**3WT98 51-1JK00**		0.800
Undervoltage release "r" (F3) instantaneous 0 ms, short-delay 200 ms	--	24		1 unit	**3WT98 53-1JB00**		0.800
	220 ... 240	220 ... 250			**3WT98 53-1JK00**		0.800
	380 ... 415	--			**3WT98 53-1JM00**		0.800
Undervoltage release "rc" (F8) can be delayed 0.2 ... 3.2 s	220 ... 240	--		1 unit	**3WT98 54-1JK00**		0.850
	380 ... 415	--			**3WT98 54-1JM00**		0.850
Auxiliary switches 2 CO				1 unit	**3WT98 16-1CE00**		0.070
Motorized operating mechanism and electrical closing (possible if 9th position of Order No. for circuit breaker is "A")	consisting of motor and closing solenoid (Y1)						
	Rated control supply voltage						
	Motor		Closing solenoid				
	AC 50/60 Hz V	DC V	AC 50/60 Hz V	DC V			
	110 ... 127 220 ... 240	110 ... 125 220 ... 250	110 ... 127 220 ... 240	110 ... 125 220 ... 250	1 set	**3WT98 31-1JH00** **3WT98 31-1JK00**	2.400 2.400
Motorized operating mechanism	consisting of motor and wiring; rated control supply voltage of motor						
	AC 50/60 Hz V		DC V				
	--		24		1 set	**3WT98 32-1JB00**	1.600
	110 ... 127		110 ... 125		1 set	**3WT98 32-1JH00**	1.600
	220 ... 240		220 ... 250		1 set	**3WT98 32-1JK00**	1.600
Electrical closing (possible if 9th position of Order No. for circuit breaker is "A")	consisting of closing solenoid (Y1), electrical ON button and wiring; rated control supply voltage of closing solenoid (Y1)						
	AC 50/60 Hz V		DC V				
	--		24		1 set	**3WT98 33-1JB00**	0.800
	110 ... 127		110 ... 125		1 set	**3WT98 33-1JH00**	0.800
	220 ... 240		220 ... 250		1 set	**3WT98 33-1JK00**	0.800
 **Mutual mechanical interlock** for 3WT circuit breaker	An interlock module with a Bowden wire (2 m) for one fixed-mounted circuit breaker			1 unit	**3WT98 66-3JA00**		3.000
	for one withdrawable circuit breaker			1 unit	**3WT98 66-4JA00**		1.000
	Interlocking of three circuit breakers additional Bowden wire required for each circuit breaker Bowden wire (2 m)			1 unit	**3WT98 66-8JA00**		0.200
	Bowden wire (3 m)			1 unit	**3WT98 66-8JA01**		0.500
	Bowden wire (4.5 m)				**3WT98 66-8JA02**		0.700
 **Locking device consisting of safety locks or padlocks** to prevent unauthorized closing of the circuit-breaker	Safety lock (3SB1) instead of the OFF button	Made by CES Normal lock no. SSG 10		1 unit	**3WT98 63-1JA00**		0.120
	Mounting set[1] for CASTELL or FORTRESS lock[2]			1 set	**3WT98 63-6JE00**		0.100
	Interlock to be obtained from the lock manufacturer CASTELL lock (FS 2) or FORTRESS lock (H31LH/65°/standard)						

[1] The 3WT98 63–6JE locking system meets the isolation conditions to IEC 60947-1 and IEC 60947-1/A1.

[2] Locks are available at the manufacturer of the locks.

When retrofitting, the circuit breaker Order No. must be added to the name plate on the operator panel and to the side wall of the circuit breaker in accordance with the installation instructions.

Designation/ for circuit breaker Type	Rated current I_n	Size	Number of poles	Required order quantity per circuit breaker	For 1 set or 1 unit Order No.	Price	Weight approx. kg
For fixed-mounted and withdrawable circuit breakers							
Crank handle							
For withdrawable circuit breaker				1 set	**3WT98 84-0JA00**		0.500
Electronic trip unit							
ETU35WT, LSI with display				1 unit	**3WT98 41-4AA00**		1.200
ETU37WT, LSING with display				1 unit	**3WT98 41-5AB00**		1.200
ETU45WT, LSIN with display				1 unit	**3WT98 41-6AC00**		1.200
ETU47WT, LSING with display				1 unit	**3WT98 41-7AD00**		1.200
For fixed-mounted circuit breakers							
Connecting bars for vertical connection	up to 1250 A	I	3-pole and 4-pole	1 unit[3]	**3WT98 21-7AC00**		2.000
	1600 A	I	3-pole and 4-pole	1 unit[3]	**3WT98 21-7BC00**		4.100
	2000 A and 2500 A	II	3-pole	1 set[1]	**3WT98 21-7DA00**		5.500
			4-pole	1 set[2]	**3WT98 21-7DB00**		7.400
	3200 A	II	3-pole	1 set[1]	**3WT98 21-7FA00**		4.800
			4-pole	1 set[2]	**3WT98 21-7FB00**		6.500
Connecting bars for front-accessible connection Vertical double-hole bar (holes to DIN 43673)	up to 1250 A	I	3- and 4-pole	1 unit[3]	**3WT98 21-1AA01**		on req.
	1600 A	I	3- and 4-pole	1 unit[3]	**3WT98 21-1BA01**		on req.
	2000 A and 2500 A	II	3- and 4-pole	1 unit[3]	**3WT98 21-1DA01**		on req.
	3200 A	II	3- and 4-pole	1 unit[3]	**3WT98 21-1FA01**		on req.
Auxiliary supply connectors				1 unit	**3WT98 25-1JC00**		0.080
Blocking device	to prevent opening of the cabinet door with the fixed-mounted circuit breaker closed			1 unit	**3WT98 67-2JA00**		0.700
Conversion set from fixed-mounted to withdrawable version = single operating mechanism	up to 1600 A	I	3-pole	1 unit	**3WT98 88-0GA00**		on req.
	up to 1600 A	I	4-pole	1 unit	**3WT98 88-0HA00**		on req.
	up to 3200 A	II	3-pole	1 unit	**3WT98 88-0KA00**		on req.
	up to 3200 A	II	4-pole	1 unit	**3WT98 88-0LA00**		on req.
For guide frames							
Connecting bar for additional terminal accessible from the front Vertical double-hole bar (holes to DIN 43673)	up to 1250 A	I	3- and 4-pole	1 unit[3]	**3WT98 23-1AA01**		on req.
	1600 A	I	3- and 4-pole	1 unit[3]	**3WT98 23-1BA01**		on req.
	2000 A and 2500 A	II	3- and 4-pole	1 unit[3]	**3WT98 23-1DA01**		on req.
	3200 A	II	3- and 4-pole	1 unit[3]	**3WT98 23-1EA01**		on req.
Connecting bar for rear vertical connection	up to 1250 A	I	3- and 4-pole	1 unit[3]	**3WT98 23-3AA00**		on req.
	1600 A	I	3- and 4-pole	1 unit[3]	**3WT98 23-3BA00**		on req.
	2000 A and 2500 A	II	3-pole	1 set[1]	**3WT98 23-4AB00**		2.600
			4-pole	1 set[2]	**3WT98 23-4AC00**		3.500
	3200 A	II	3-pole	1 set[1]	**3WT98 23-4BB00**		5.400
			4-pole	1 set[2]	**3WT98 23-4BC00**		7.100

Position indicator switch (actuated by withdrawable circuit breaker)	Connected position	Test position	Disconnected position	Precondition			
	3 NO + 3 NC	2 NO + 2 NC	1 NO + 1 NC	possible if no pos. switch mounted yet	1 set = 1 unit	**3WT98 84-1JC10**	0.300

1) 1 set = 3 units.

2) 1 set = 4 units.

3) Please order the number of connecting bars as required for the application.

Accessories/spare parts

When retrofitting, the circuit breaker Order No. must be added to the name plate on the operator panel and to the side wall of the circuit breaker in accordance with the installation instructions.

Designation/ for circuit breaker Type	Rated current I_n	Size	Num-bers of poles	Required order quantity per circuit breaker	For 1 set or 1 unit Order No.	Price	Weight approx.
							kg
For guide frames (continued)							
Shutters Protection against touching the main contacts	1600 A	size I	3-pole	1 unit	**3WT98 84-3CA00**		0.500
	2000 A ... 3800 A	size II		1 unit	**3WT98 84-3DA00**		0.700
	1600 A	size I	4-pole	1 unit	**3WT98 84-3CB00**		0.600
	2000 A ... 3800 A	size II		1 unit	**3WT98 84-3DB00**		0.800
Auxiliary supply connectors For guide frames – for spare parts and retrofitting	up to 4000 A	size I, II	3- and 4-pole	1 unit	**3WT98 27-1JA00**		0.160
For withdrawable circuit breakers							
Blocking device to prevent opening of the cabinet door, when circuit breaker is in connected position	up to 4000 A	size I, II	3- and 4-pole	1 unit	**3WT98 67-1JC00**		0.100
For fixed-mounted and withdrawable circuit breakers							
Main contact set	up to 1250 A, Ecoline	size I	3-pole	3 units	**3WT98 21-0AA00**		on req.
			4-pole	4 units	**3WT98 21-0AA00**		on req.
	up to 1250 A, I_{cw} = 50 kA	size I	3-pole	3 units	**3WT98 21-0AA10**		on req.
			4-pole	4 units	**3WT98 21-0AA10**		on req.
	up to 1600 A	size I	3-pole	3 units	**3WT98 21-0BA00**		on req.
			4-pole	4 units	**3WT98 21-0BA00**		on req.
	up to 2500 A	size II	3-pole	3 units	**3WT98 21-0DA00**		on req.
			4-pole	4 units	**3WT98 21-0DA00**		on req.
for fixed-mounted circuit breakers only	up to 4000 A	size II	3-pole	3 units	**3WT98 21-0FA00**		on req.
			4-pole	4 units	**3WT98 21-0FA00**		on req.
for withdrawable circuit breakers only	up to 3800 A	size II	3-pole	3 units	**3WT98 21-0GA00**		on req.
			4-pole	4 units	**3WT98 21-0GA00**		on req.
Arc chute	up to 1600 A	size I	3-pole	3 units	**3WT98 11-0CA00**		on req.
			4-pole	4 units	**3WT98 11-0CA00**		on req.
	2000 A ... 4000 A	size II	3-pole	3 units	**3WT98 11-0FA00**		on req.
			4-pole	4 units	**3WT98 11-0FA00**		on req.
Installation manual for 3WT8							
Chinese language					**3ZX18 12-0WT81-0AN0**		
English language					**3ZX18 12-0WT82-0AN0**		
Spanish language					**3ZX18 12-0WT83-0AN0**		
Portuguese language					**3ZX18 12-0WT84-0AN0**		
German language					**3ZX18 12-0WT85-0AN0**		
Russian language					**3ZX18 12-0WT86-0AN0**		
Turkish language					**3ZX18 12-0WT87-0AN0**		

Characteristic curves[2)]

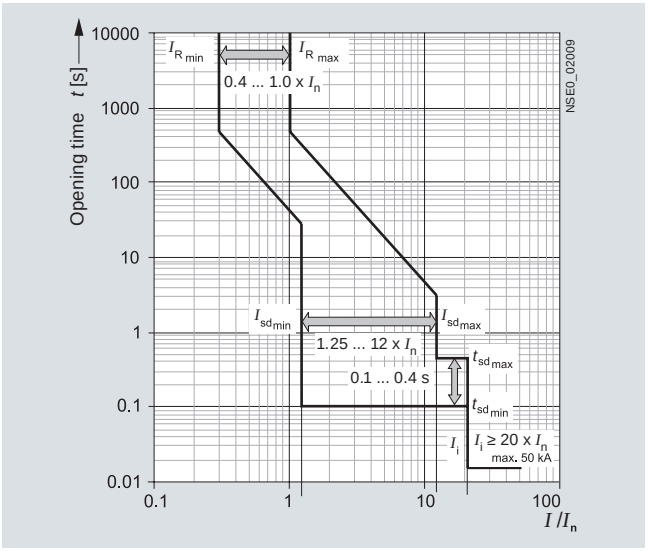
Every electronic trip unit type and every setting has its own characteristic. Only a selection is shown in the following. The characteristic curves each show the largest and smallest setting range of 3WT8 circuit breakers with 1000 A rated current at 500 V rated voltage with various trip units.

In order to obtain a complete tripping characteristic, the relevant parts of the characteristic have to be combined.

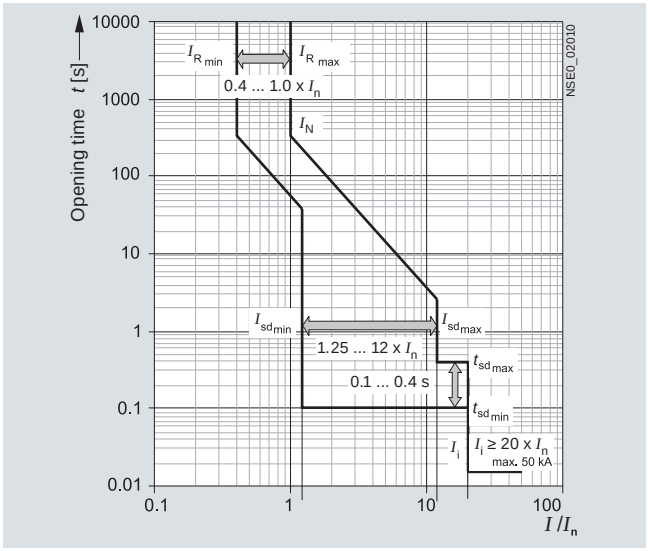
The characteristic curves show the behavior of the electronic trip unit when it is activated by a current that is already flowing before the tripping operation. If the overcurrent tripping occurs immediately after switch on and the electronic trip unit is therefore not yet enabled, the opening time is extended, depending on the level of the overcurrent by up to 15 ms. In order to determine the break-times of the circuit breakers, approximately 15 ms must be added to the opening times shown for the arcing time.

Refer to the following legend for tolerances.

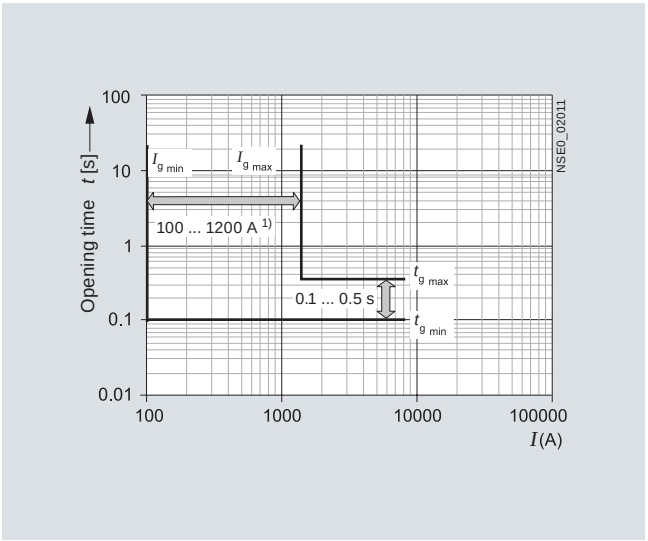
The characteristic curves shown apply to ambient temperatures at the circuit breaker between -5 and +55 °C. The trip unit can be operated at ambient temperatures of -20 to + 70 °C. An extended tolerance band can apply at these temperatures.



3WT8 circuit breaker with ETU35WT electronic trip unit,
LSI characteristic curve



3WT8 circuit breaker with ETU37WT electronic trip unit,
LSIN characteristic curve



3WT8 circuit breaker with ETU37WT electronic trip unit,
G characteristic curve[3)]

Tolerances for the set currents
L: Tripping operations between 1.05 and 1.2 x I_R
S: –0 %, +20 %
I: –0 %, +20 %
G: –0 %, +20 %

Tolerances for the tripping times
L: –20 %, +0 % for I^2t characteristic curve
S: –0 %, +60 ms or -0 %, 10 % for characteristic curve with fixed delay time
I: <50 ms
G: –0 %, +60 ms or -0 %, 10 % for characteristic curve with fixed delay time

1) Sizes I and II: 100 ... 1200 A.

2) With single-pole loading in the lowest rated current range, the response times of the short-circuit release can be extended by approx. 10 % and the tripping times by approx. 15 % compared to the characteristic curve.

3) As a result of the activation level of 150 A (frame size I) and 200 A (frame size II) in case of a single-pole loading the minimum pick-up value of ground fault will be I_g = 300 A.

Project planning aids

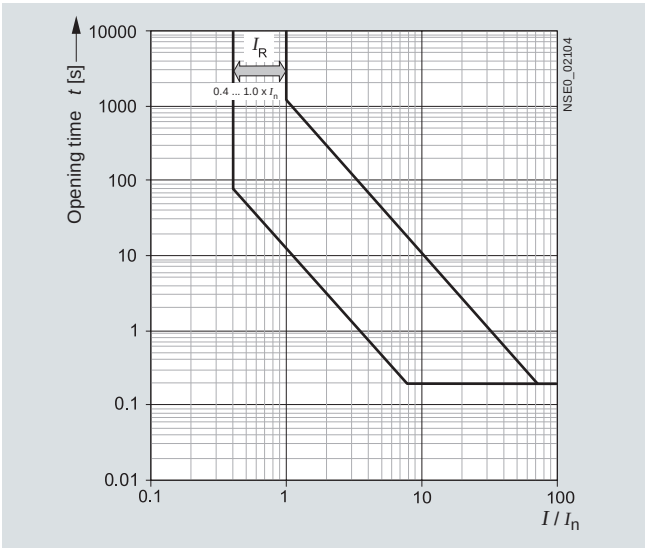
Every electronic trip unit type and every setting has its own characteristic. Only a selection is shown in the following. The characteristic curves each show the largest and smallest setting range of 3WT8 circuit breakers with 1000 A rated current at 500 V rated voltage with various trip units.

In order to obtain a complete tripping characteristic, the relevant parts of the characteristic have to be combined.

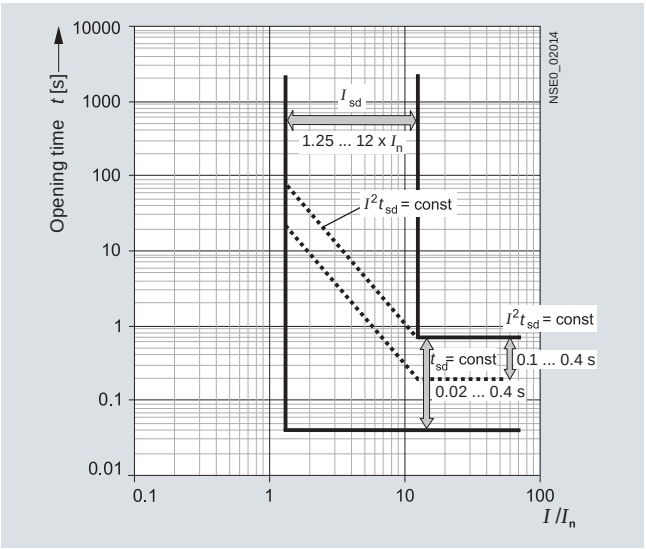
The characteristic curves show the behavior of the electronic trip unit when it is activated by a current that is already flowing before the tripping operation. If the overcurrent tripping occurs immediately after switch on and the electronic trip unit is therefore not yet enabled, the opening time is extended, depending on the level of the overcurrent by up to 15 ms. In order to determine the break-times of the circuit breakers, approximately 15 ms must be added to the opening times shown for the arcing time.

Refer to the following legend for tolerances.

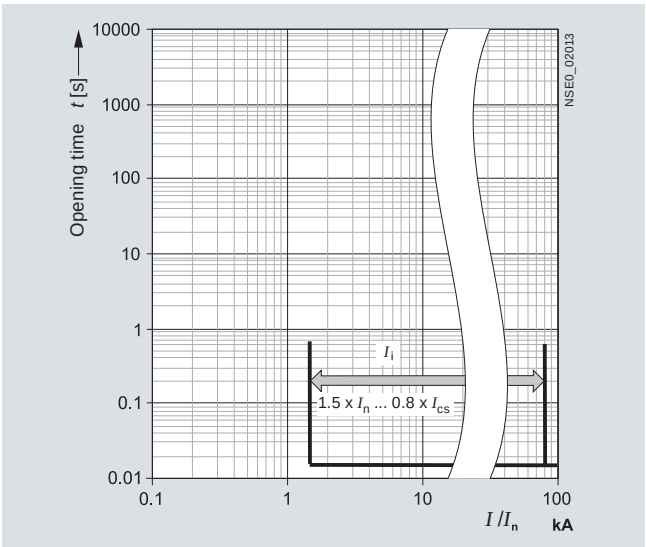
The characteristic curves shown apply to ambient temperatures at the circuit breaker between -5 and +55 °C. The trip unit can be operated at ambient temperatures of -20 to + 70 °C. An extended tolerance band can apply at these temperatures.



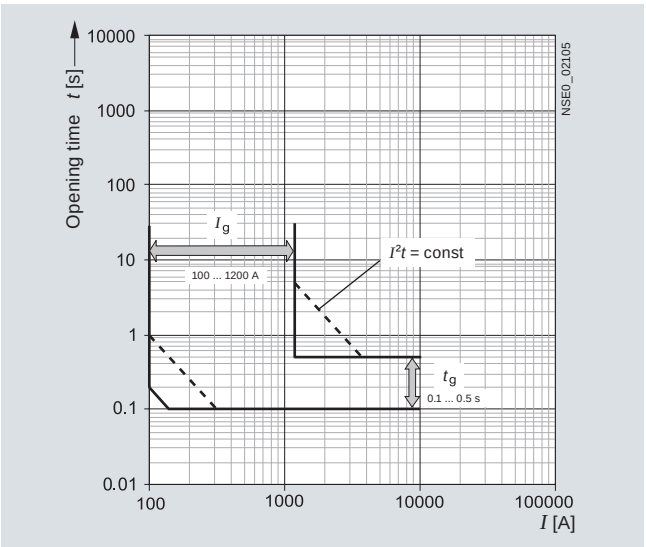
3WT8 circuit breaker with ETU45WT and ETU47WT electronic trip unit, L characteristic curve



3WT8 circuit breaker with ETU45WT and ETU47WT electronic trip unit, S characteristic curve



3WT8 circuit breaker with ETU45WT and ETU47WT electronic trip unit, I characteristic curve



3WT8 circuit breaker with ETU47WT electronic trip unit, G characteristic curve[2)]

Tolerances for the set currents
L: Tripping operations between 1.05 and 1.2 x I_R
S: –0 %, +20 %
I: –0 %, +20 %
G: –0 %, +20 %

Tolerances for the tripping times
L: –20 %, +0 % for I^2t characteristic curve
S: –0 %, +60 ms or -0 %, 10 % for characteristic curve with fixed delay time
I: <50 ms
G: –0 %, +60 ms or -0 %, 10 % for characteristic curve with fixed delay time

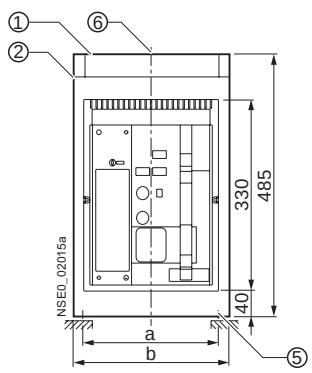
1) Sizes I and II: 100 ... 1200 A.

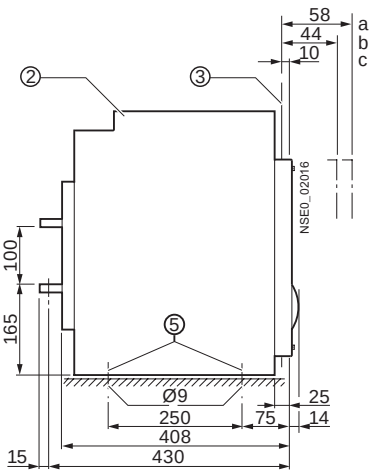
2) As a result of the activation level of 150 A (frame size I) and 200 A (frame size II) in case of a single-pole loading the minimum pick-up value of ground fault will be I_g = 300 A.

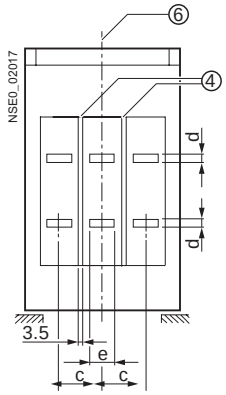
Dimensional drawings

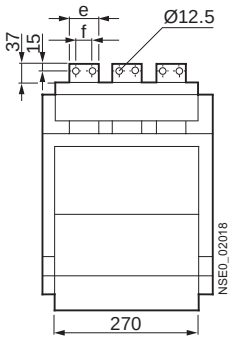
3WT circuit breakers, withdrawable version, 3-pole

Horizontal connection









a Disconnected position

b Test position

c Connected position

① Auxiliary conductor plug-in system

② Guide frame

③ Switchboard door

④ Slots (6 mm deep) for line-side interphase barriers

⑤ Holes for attaching the guide frame

⑥ Center line of circuit breaker

Safety clearances

No additional safety clearance is required to adjacent grounded parts above the circuit breaker
(on fixed-mounted circuit breakers identified with 3).

The clearance between the connection point and the support for the busbars must not exceed 250 mm.

All dimensions in mm.

Rated current A	a	b	c	d	e	f
630 up to 1250	280	320	90	8	60	30
1600	280	320	90	15	60	30
2000 up to 2500	380	420	120	15	80	40
3200	380	420	120	30	100	50

Main conductor connection

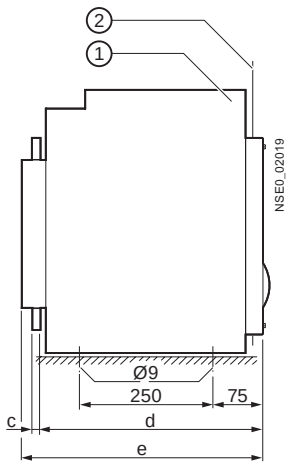
Terminal screws with strain washers (inside diameter = 12 mm to DIN 6769-Fst)		M12
Recommended tightening torque	Nm	70
Required strength of screws		8.8 to DIN 267

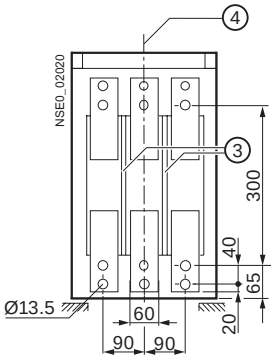
Up to a rated operating voltage of AC 500 V the busbars running vertically (such as in the case of front-accessible connection) do not have to be screened if the busbar system is not arranged above the circuit breaker.
In contrast, live bare conductors and busbars at voltages above AC 500 V that are arranged above the circuit breaker and when power is supplied from above must be insulated against flashover by interphase barriers or by a busbar cover or by an arc chute cover (use accessory for horizontal or vertical connection only).
Optional electrical equipment directly above (if no arc chute cover is used) or to the side of the circuit breaker should be protected by a cover. Also after the attachment of additional barriers or covers it must be ensured that the dissipation of heat from the circuit breaker is not impeded.

Project planning aids

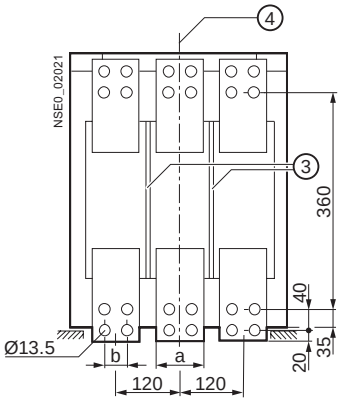
3WT circuit breakers, withdrawable version, 3-pole

Front connection





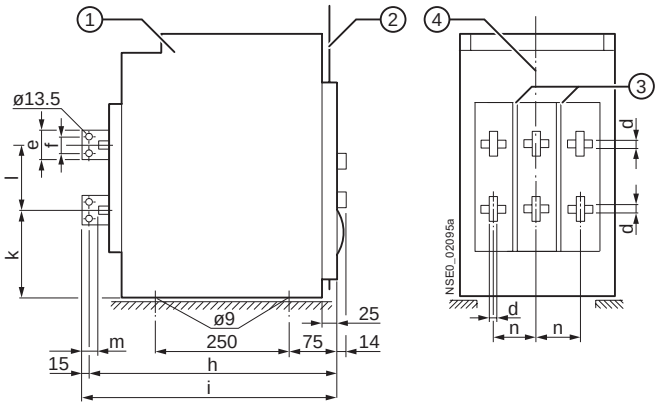
Double hole, 630 to 1600 A
Holes in bars to DIN 43673



Double hole, 2000 to 3200 A
Holes in bars to DIN 43673

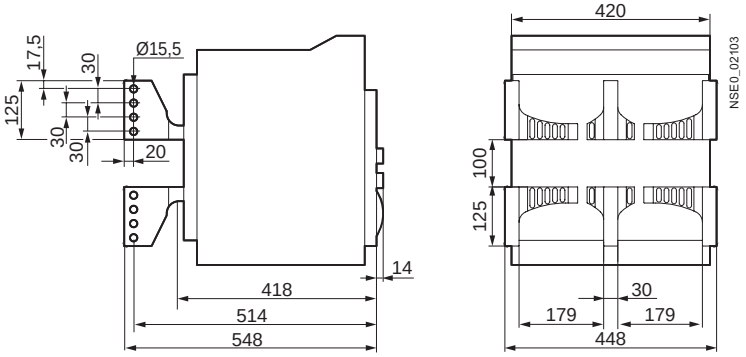
Rated current A	a	b	c	d	e
630 up to 1250	60	--	8	390	408
1600	60	--	15	390	408
2000 up to 2500	80	40	20	420	445
3200	100	50	20	420	445

Vertical connection up to 3200 A



Rated current A	d	e	f	h	i	k	l	m	n
630 to 1000	8	60	30	455	470	157.5	115	37	90
1250 to 1600	15	60	30	455	470	157.5	115	37	90
2000	15	80	40	465	480	157.5	115	37	140
2500 to 3200	30	100	50	465	480	150	130	37	140

Vertical connection 3800 A only

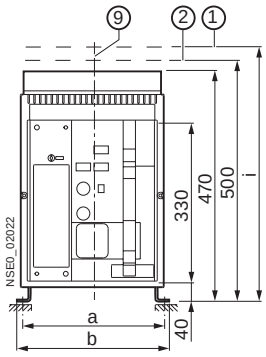


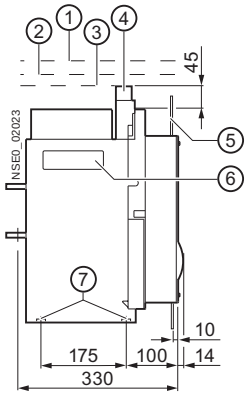
① Guide frame
② Switchboard door
③ Slots (6 mm deep, 3.5 mm wide) for line-side phase barriers
④ Center line of circuit breaker

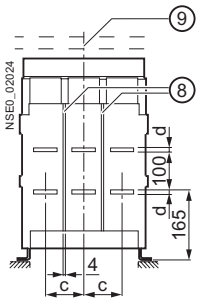
For safety clearances see page 2/35.
All dimensions in mm.

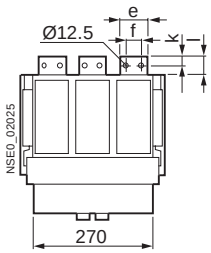
3WT fixed-mounted circuit breakers, 3-pole

Horizontal connection







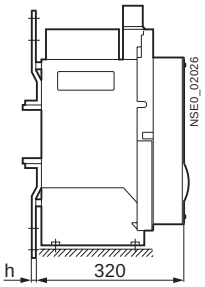


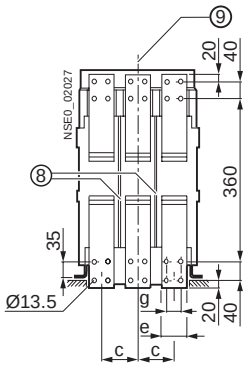
① Clearance for lifting out the arc chute
② Space for auxiliary supply connectors
③ Space above arc chute
④ Auxiliary supply connectors
⑤ Switchboard door
⑥ Recessed grip
⑦ M8 nut
⑧ Slots (4 mm deep) for line-side phase barriers
⑨ Center line of circuit breaker

For safety clearances see page 2/35.

All dimensions in mm.

Front connection





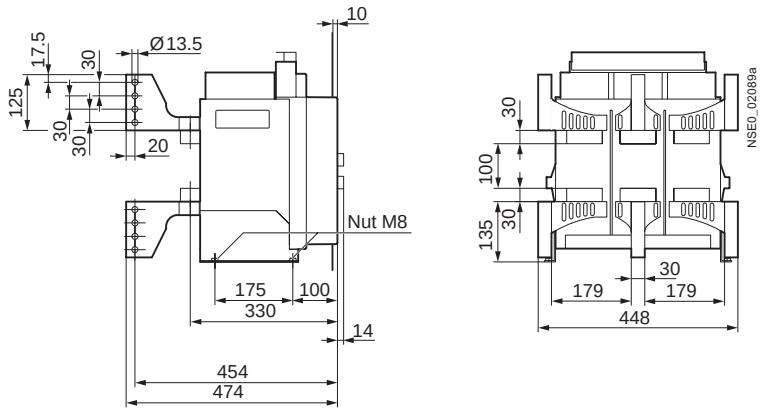
Double hole
Holes in bars to DIN 43673

Rated current A	a	b	c	d	e	f	g	h	i	k	l
630 up to 1250	300	320	90	8	60	30	--	8	530	18	40
1600	300	320	90	15	60	30	--	20	530	18	40
2000 up to 2500	400	420	120	15	80	40	40	20	560	22	44
3200	400	420	120	30	80	40	40	20	560	22	44

Project planning aids

3WT fixed-mounted circuit breakers, 3-pole

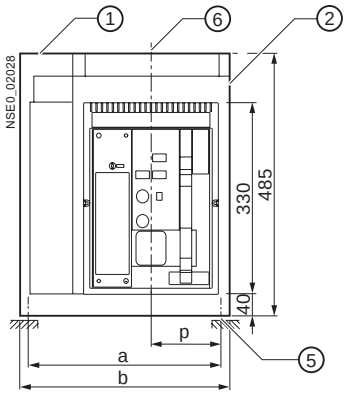
Vertical connection 4000 A only

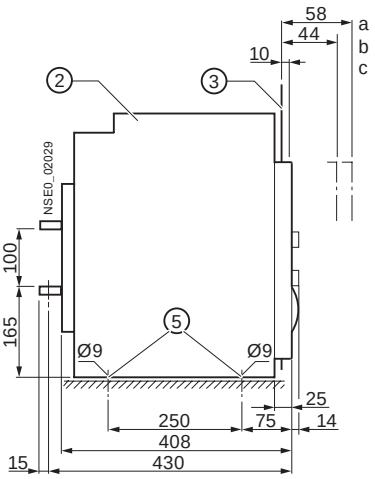


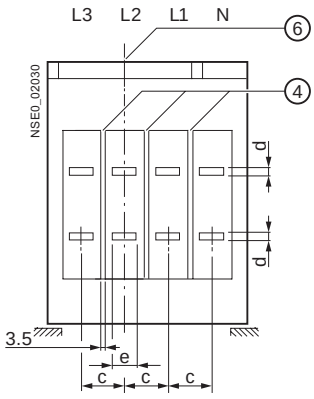
All dimensions in mm.

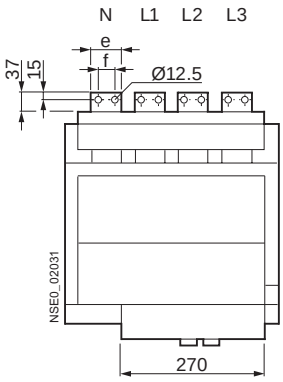
3WT circuit breakers, withdrawable version, 4-pole

Horizontal connection









a Disconnected position
b Test position
c Connected position

① Auxiliary conductor plug-in system
② Guide frame
③ Switchboard door
④ Slots (6 mm deep) for line-side phase barriers
⑤ Holes for attaching the guide frame
⑥ Center line of operator panel

For safety clearances see page 2/35.

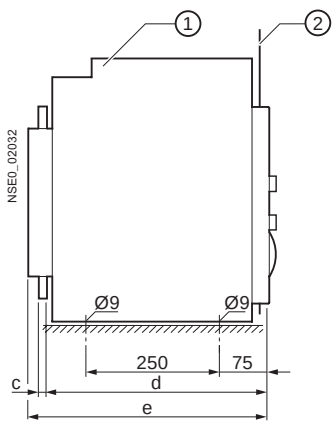
All dimensions in mm.

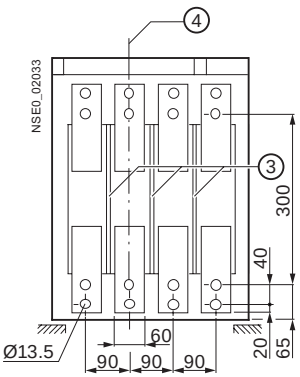
Rated current A	a	b	c	d	e	f	p
630 up to 1250	370	410	90	8	60	30	140
1600	370	410	90	15	60	30	140
2000 up to 2500	500	540	120	15	80	40	190
3200	500	540	120	30	100	50	190

Project planning aids

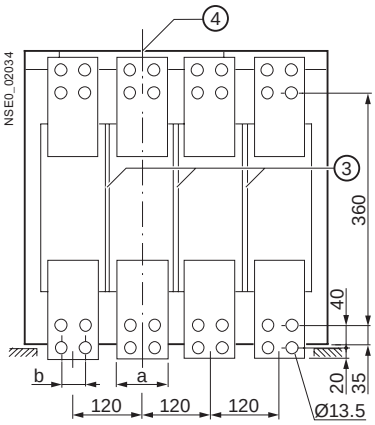
3WT circuit breakers, withdrawable version, 4-pole

Front connection





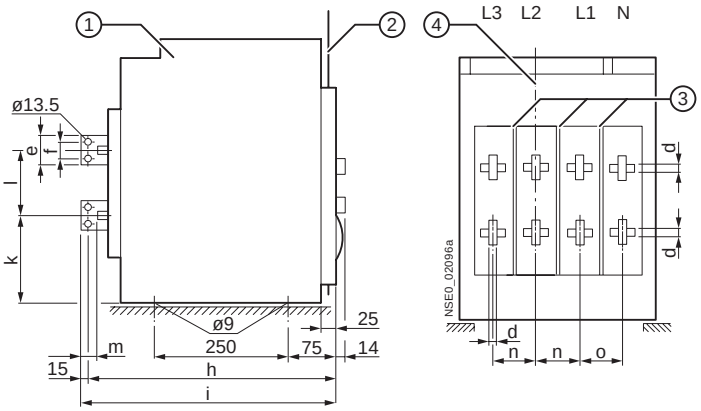
Double hole, 630 to 1600 A
Holes in bars to DIN 43673



Double hole, 2000 to 3200 A
Holes in bars to DIN 43673

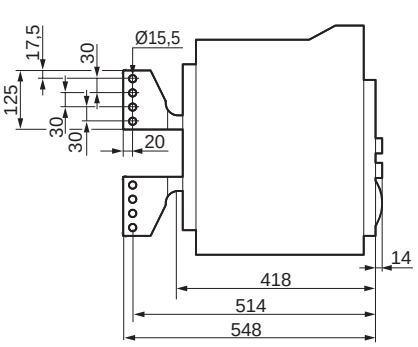
Rated current A	a	b	c	d	e
630 up to 1250	60	--	8	390	408
1600	60	--	15	390	408
2000 up to 2500	80	40	20	420	445
3200	100	50	20	420	445

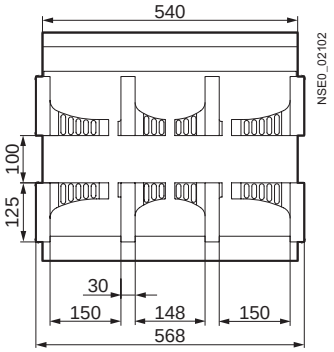
Vertical connection up to 3200 A



Rated current A	d	e	f	h	i	k	l	m	n	o
630 to 1000	8	60	30	455	470	157.5	115	37	90	90
1250 to 1600	15	60	30	455	470	157.5	115	37	90	90
2000	15	80	40	465	480	157.5	115	37	140	120
2500 to 3200	30	100	50	465	480	150	130	37	140	120

Vertical connection 3800 A only



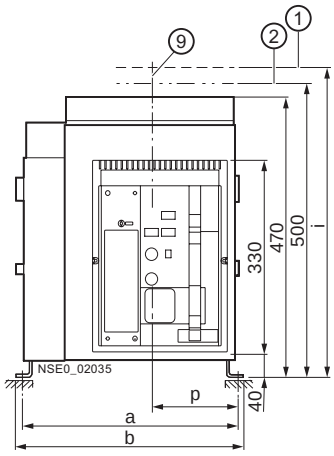


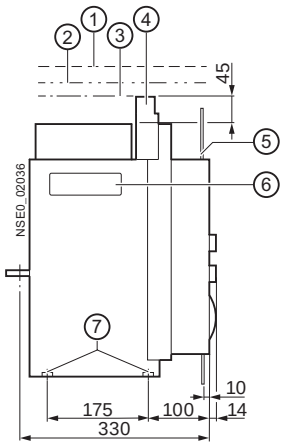
① Guide frame
② Switchboard door
③ Slots (6 mm deep, 3.5 mm wide) for line-side phase barriers
④ Center line of operator panel

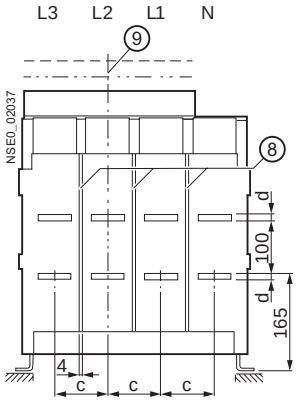
For safety clearances see page 2/35.
All dimensions in mm.

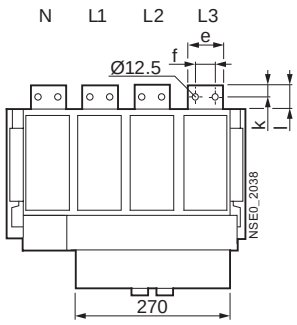
3WT fixed-mounted circuit breakers, 4-pole

Horizontal connection







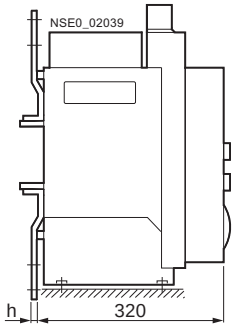


① Clearance for lifting out the arc chute
② Space for auxiliary supply connectors
③ Space above arc chute
④ Auxiliary supply connectors
⑤ Switchboard door
⑥ Recessed grip
⑦ Nut M 8
⑧ Slots (4 mm deep) for line-side phase barriers
⑨ Center line of operator panel

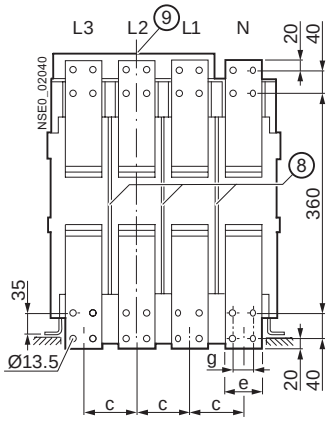
For safety clearances see page 2/35.

All dimensions in mm.

Front connection



Double hole
Holes in bars to DIN 43673

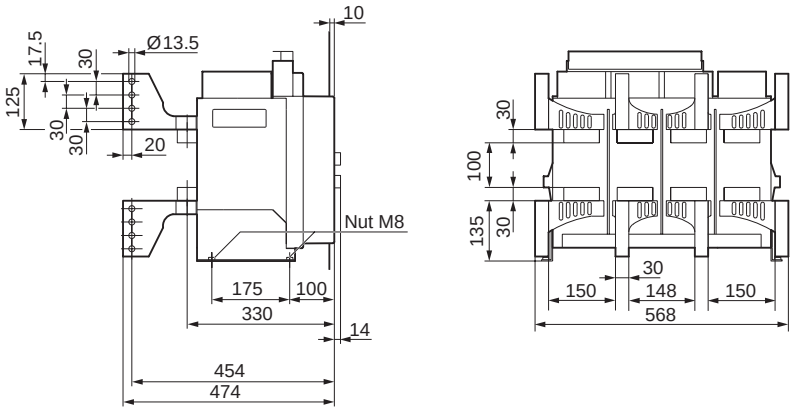


Rated current A	a	b	c	d	e	f	g	h	i	k	l	p
630 up to 1250	390	410	90	8	60	30	--	8	530	18	40	150
1600	390	410	90	15	60	30	--	15	530	18	40	150
2000 up to 2500	520	540	120	15	80	40	40	20	560	22	44	200
3200	520	540	120	30	80	40	40	20	560	22	44	200

Project planning aids

3WT fixed-mounted circuit breakers, 4-pole

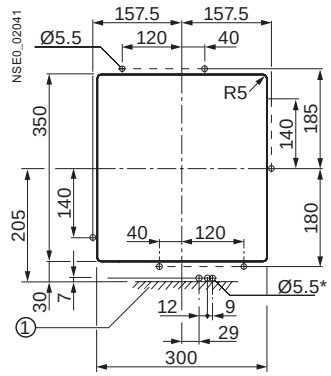
Vertical connection 4000 A only



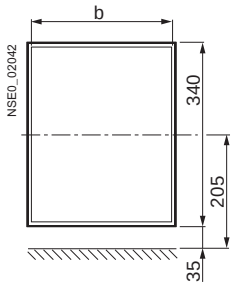
All dimensions in mm.

3WT circuit breakers, 3- and 4-pole

Door cut-out for operator panel using the door sealing frame



Door cut-out with edge protector
Cut-out after mounting
the edge protector



Cut-out when the circuit breaker is installed in a switchgear cabinet and with the door arranged centrally.

Section width	Fixed-mounted b	Withdrawable b
400	275	292
500	275	290
600	275	288

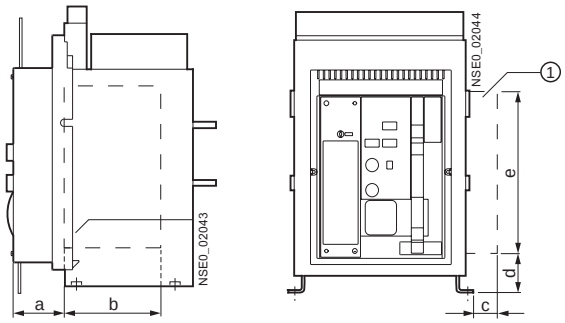
① Mounting surface

* 3 holes, dia. Ø 5.5 mm; only drill when using door interlocking.

Accessories for 3WT circuit breakers, 3- and 4-pole

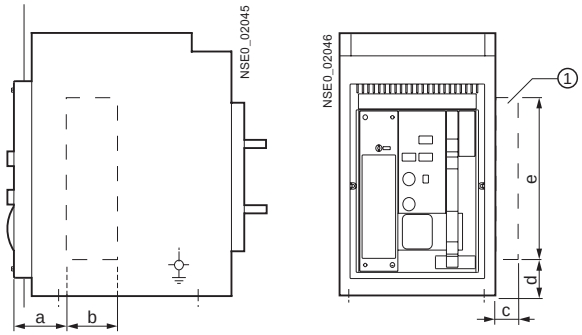
Mutual mechanical interlocking (1)/locking device to prevent closing (2), consisting of lock in the control cabinet door and interlock module with Bowden wire

For fixed-mounted circuit breakers



① Clearance for interlock module (without Bowden wire)

For withdrawable circuit breakers



Clearance for	a	b	c	d	e
(1)	90	90	50	65	270
(2)	58	215	10	250	115

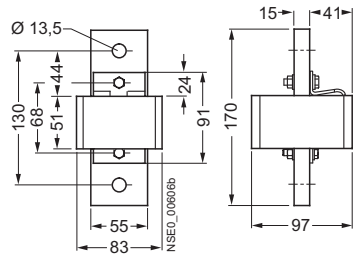
All dimensions in mm.

Project planning aids

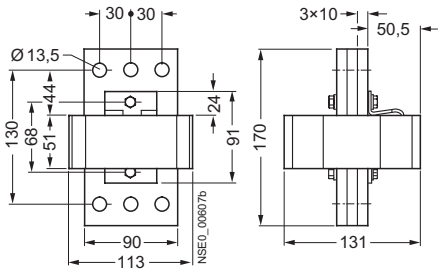
Current transformers for overload protection in the neutral conductor

External transformers for neutral conductor with copper busbars

Size I, 3WL9 111-0AA31-0AA0

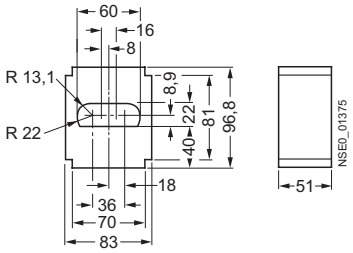


Size II, 3WL9 111-0AA32-0AA0

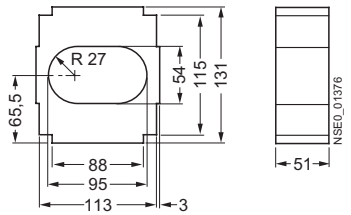


External transformers for neutral conductor without copper busbars

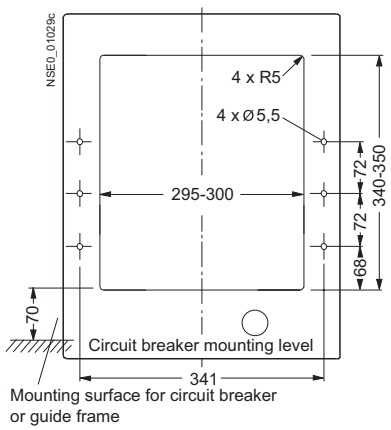
Size I, 3WL9 111-0AA21-0AA0



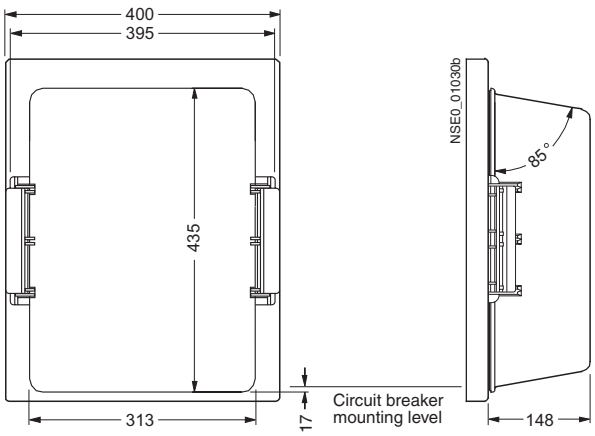
Size II, 3WL9 111-0AA22-0AA0



Door cut-out for operator panel using protective cover IP55



Protective cover, IP55

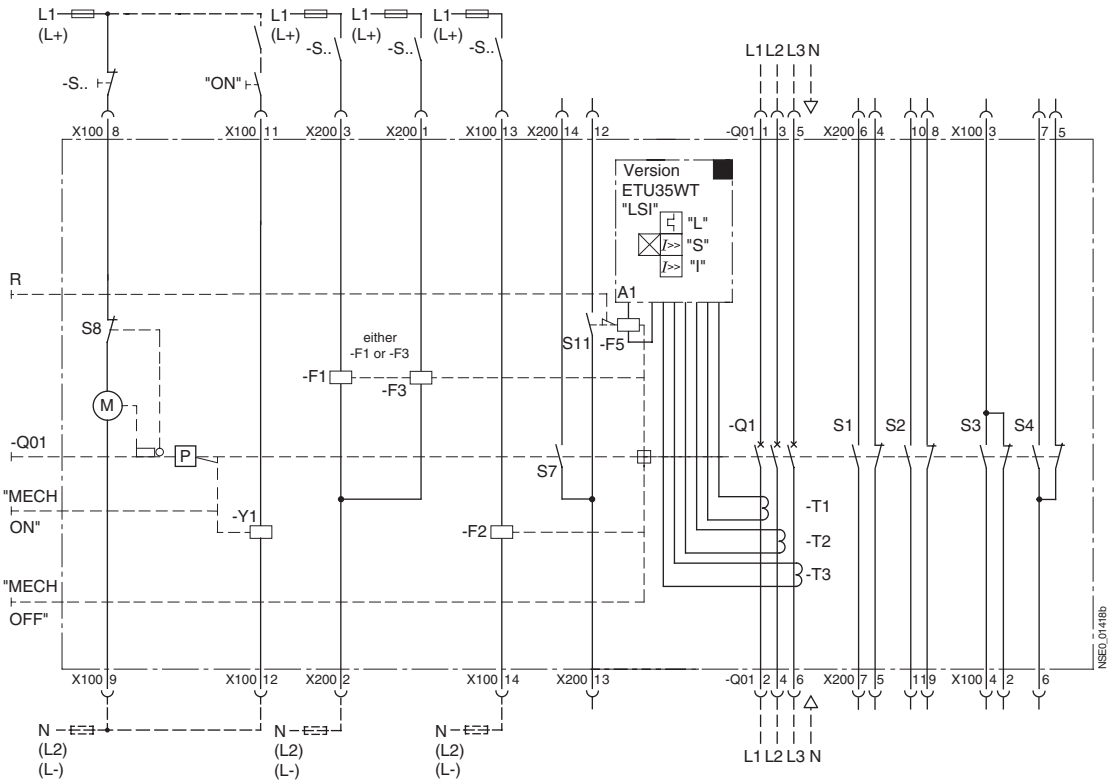


All dimensions in mm.

Schematics

Example of an overall circuit diagram

Motor/manual operating mechanism, with ready-to-close signaling switch, with electronic trip unit version ETU35WT "LSI", with overvoltage release "r" (F3) or shunt release "f" (F1), with shunt release "f" (F2), with "tripped" signaling switch, with auxiliary switch 2 NO + 2 NC + 2 CO, with motor switch



A1	Electronic trip unit
S1/S2	1st auxiliary switch block
S3/S4	2nd auxiliary switch block
S7	Ready-to-close signaling switch
S8	Storage spring contact
S11	"Tripped" switch
F1	1st shunt release "f"
F2	2nd shunt release "f"
F3	Undervoltage release "r"
F5	Trip solenoid
M1	Motor for "charging store"
P	Storage spring
Q01	Hand-operated lever for "charging store"
Q1	Main contacts
T1/T2/T3	Current transformer
X100/X200	Terminals
Y1	Closing solenoid
R	Indication and reset button for overcurrent tripping

Further information

For planning guides with further descriptions relating to design, operating principle, installation and retrofitting see manual "3WT circuit breakers for low voltage" Order No. on request.

Notes

Appendix

3

Glossary

Rated operating voltage, (U_e)
EN 60947-1; 4.3.1.1

Voltage fixed by the manufacturer. Several pertinent tests relate to its determination, as may also the utilization category. Along with the rated (operating) current, it determines the device's utilization. The highest value of rated operating voltage may in no case be greater than the value of the rate insulation voltage U_i.

Rated insulation voltage, (U_i)
EN 60947-1; 4.3.1.2

Voltage measure to which are related tests of dielectric strength and creepage distance.

Rated current, (I_n)
EN 60947-2; 4.3.2.3

Current value of particular circuit breaker that can be handled uninterruptedly. The highest current valued tripping the circuit breaker in conformity with a specifically stated tripping characteristic.

Reduced rated current, (I_r)

Specifically established, reduced value of I_n current for a regulated time-dependent (thermal) release and that the circuit breaker can handle continuously. Maximum setting is at value equal to I_n. Changing I_r shifts the release's tripping characteristic along the current axis. ($I_r = k \times I_n$ holds where $k \leq 1$)

Tripping time at a given I_r multiple, (t_r)

Time after which circuit breaker will trip, if a current flows through it that is equal to the given multiple of I_r. Changing t_r shifts the tripping characteristic along the time axis.

Actuating current of (selective) release's time-independent delay, (I_{ds})

Minimum current value causing the release's time-independent delay to actuate.

Delay of time-independent delayed release, (t_v)

If a current flows through the circuit breaker equal to at least I_{sd} but not reaching I_{rm} the circuit breaker will trip with time delay t_v. Total shut-off time is influenced by the tripping of the circuit breaker itself and is about 10 ÷ 20 ms longer.

Actuating current of time-independent instantaneous, (I_{rm})

Minimum current value causing the time-independent instantaneous release to actuate.

Rated operating current, (I_e)
EN 60947-1; 4.3.2.3

Rated operating current of device (switch-disconnector) is fixed by the manufacturer with consideration for the rated operating voltage, rated frequency, rated operation, utilization category and type of protective cover, if that comes into consideration.

Rated normal current, (I_u)
EN 60947-1; 4.3.2.4

Current value set by the manufacturer and which the device can handle in continuous operation, i.e. during a period longer than 8 hours (weeks, months, or longer).

Rated ultimate short-circuit breaking capacity, (I_{cu})
EN 60947-2; 2.15.1; 4.3.5.2.1

Ultimate short-circuit breaking capacity value expressed as the rms value of the alternating component of the assumed short-circuit current that the circuit breaker must be able to manage in the mode: 1x switching off of the short circuit and a following 1x make-break sequence. After testing, the circuit breaker need not be able to conduct the rated current uninterruptedly. I_{cu} is set for the rated operating voltage at the rated frequency and at the established power factor for alternating current or at the time constant for direct current. Must fulfil the condition: $I_{cu} \geq I_k$"

Rated short-circuit service breaking capacity, (I_{cs})
EN 60947-2; 2.15.2; 4.3.5.2.2

Value of the operating short-circuit breaking capacity expressed as the rms value of the alternating component of the assumed short-circuit current that the circuit breaker must be able to manage in the mode: 1x switching off of the short circuit and a following 2x make-break sequence. May also be expressed as a percentage of I_{cu}. After testing, the circuit breaker must be able uninterruptedly to conduct the rated current and to switch off the overcurrent. Temperature increase of the main terminals may be greater. I_{cs} is set for the rated operating voltage at the rated frequency and at the established power factor for alternating current or at the time constant for direct current. Permitted: $I_{cs} \geq I_k$"

Rated short-time withstand current, (I_{cw})
EN 60947-1; 4.3.6.1
EN 60947-2; 4.3.5.4
EN 60947-3; 4.3.6.1

Value of short-time withstand current specified by the manufacturer that the device is able to handle without damage during a designated time period (short-time delay). In case of alternating current, it is the rms value of the alternating component of the assumed short-circuit current I_p.

Logistics

With regard to delivery service, communications and environmental protection, our logistics service ensures "quality from the moment of ordering right through to delivery". By designing our infrastructure according to customer requirements and implementing electronic order processing, we have successfully optimized our logistics processes.

We are proud of our personal consulting service, on-time deliveries.

Electronic order processing is fast, cost-efficient and error-free. Please contact us if you want to benefit from these advantages.

Orders for special designs

For ordering products that differ from the versions listed in the catalog, the order number specified in the catalog must be supplemented with **"–Z"**; the required features must be specified by means of the alphanumeric order codes or in plain text.

Small orders

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

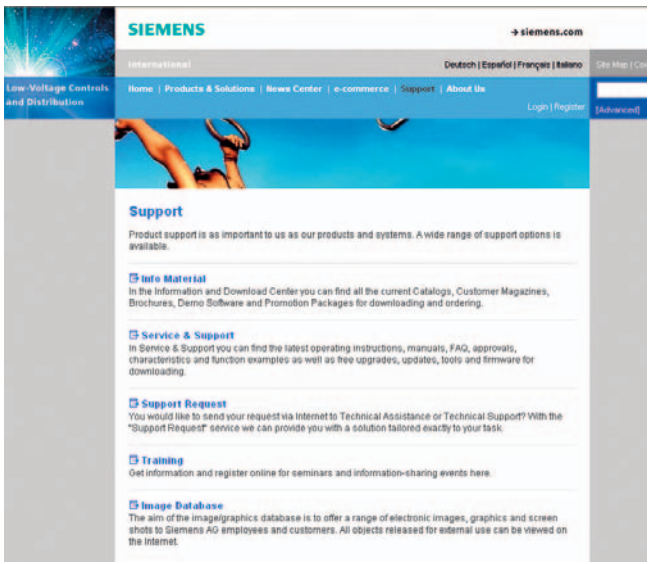
Further documentation

Overview

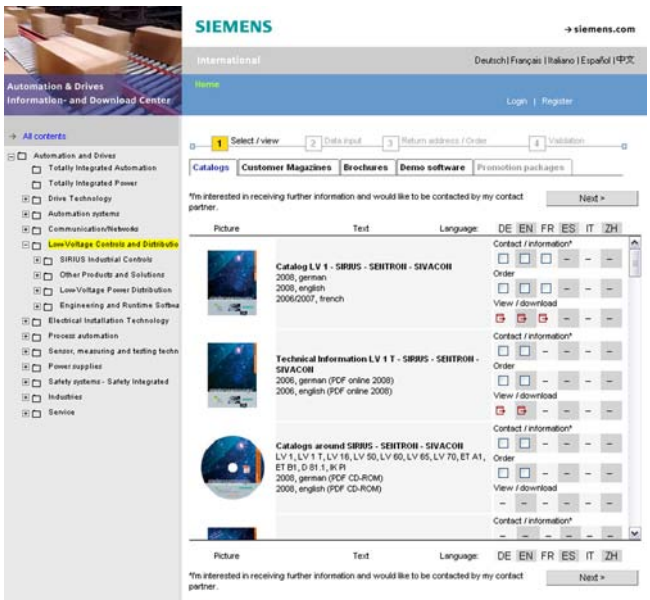
You will find all the latest information material, such as brochures, catalogs, manuals and operating instructions on low-voltage, controls and distribution on the Internet at:

http://www.siemens.com/lowvoltage/info

Here you can order your copy of the available documentation or download it in common file formats (PDF, ZIP).



We also provide further support for SIRIUS - SENTRON - SIVACON



Brochures, catalogs and CDs offer fast and more in-depth information

We regard product support as just as important as the products and systems themselves. Visit our Support site on the Internet for a comprehensive range of material on SIRIUS, SENTRON and SIVACON, such as

- Catalogs available to order free of charge
- Operating instructions and manuals for direct download
- Online registration for seminars and events
- Up-to-date answers to your queries and problems
- Software upgrades and updates for fast download
- Telephone assistance in more than 190 countries
- Photos and graphics for external use

and much, much more - all conveniently and easily accessible.

Overview

Verification certificates and characteristic curves

To find the latest overview of the certificates available for our low-voltage controls and distribution products, as well as other technical documentation, please visit our Internet site at:

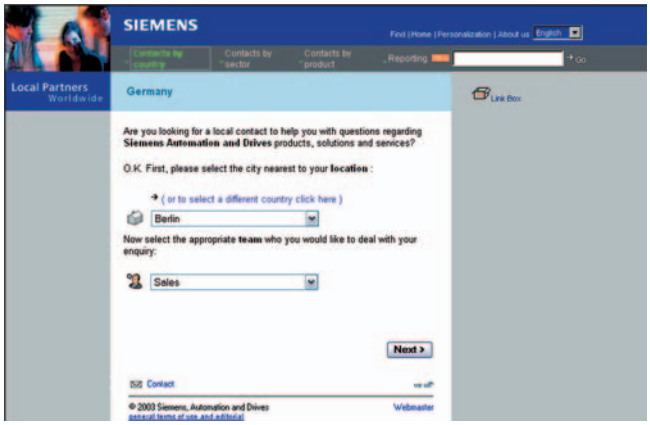
http://www.siemens.com/lowvoltage/support

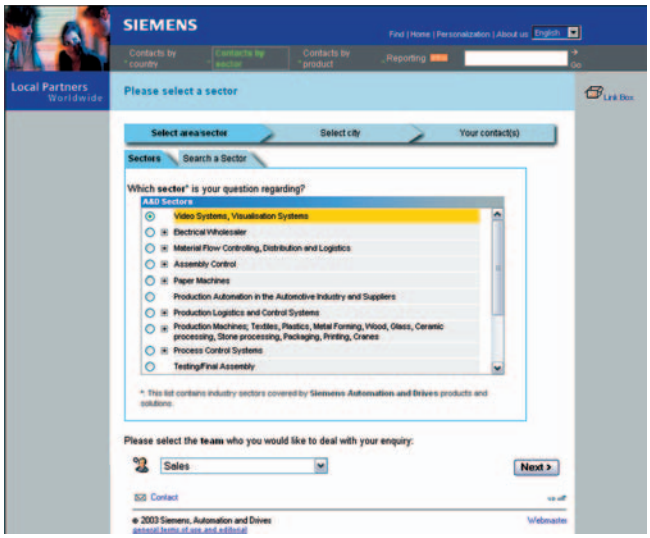
Product support: Approvals / Certificates

Product support: Characteristic curves

Siemens contacts

Siemens contacts worldwide





At

http://www.siemens.com/automation/partner

you can find details of Siemens contact partners worldwide responsible for particular technologies.

You can obtain in most cases a contact partner for

- Technical Support,
- Spare parts/repairs,
- Service,
- Training,
- Sales or
- Consultation/engineering.

You start by selecting a

- Country,
- Product or
- Sector.

By further specifying the remaining criteria you will find exactly the right contact partner with his/her respective expertise.

Siemens Industry Automation and Drive Technologies in the WWW

A detailed knowledge of the range of products and services available is essential when planning and configuring automation systems. It goes without saying that this information must always be fully up-to-date.

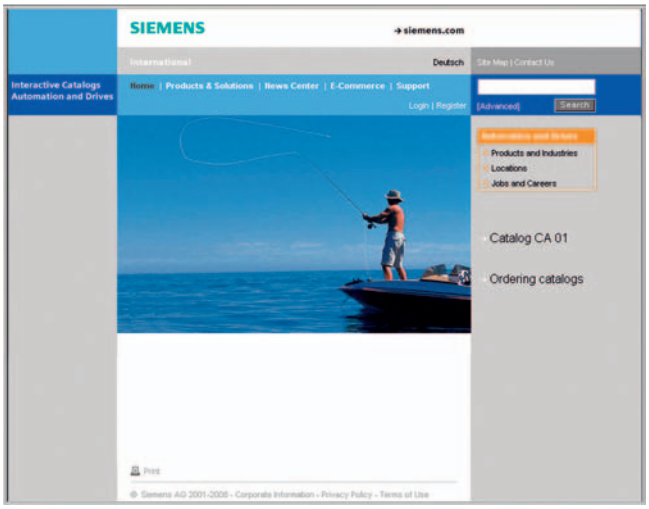
Siemens Industry Automation and Drive Technologies has therefore built up a comprehensive range of information in the World Wide Web, which offers quick and easy access to all data required.

Under the address

http://www.siemens.com/automation

you will find everything you need to know about products, systems and services.

Product selection using the Offline Mall



Detailed information together with convenient interactive functions:
The Offline Mall CA 01 covers more than 80 000 products and thus provides a full summary of the Siemens Automation and Drives product base.

Here you will find everything that you need to solve tasks in the fields of automation, switchgear, installation and drives.
All information is linked into a user interface which is easy to work with and intuitive.

After selecting the product of your choice you can order at the press of a button, by fax or by online link.

Information on the Offline Mall CA 01 can be found in the Internet under

http://www.siemens.com/automation/ca01

or on CD-ROM or DVD.

Easy shopping with the A&D Mall

The A&D Mall is the virtual department store of Siemens AG in the Internet. Here you have access to a huge range of products presented in electronic catalogs in an informative and attractive way.

Data transfer via EDIFACT allows the whole procedure from selection through ordering to tracking of the order to be carried out online via the Internet.

Numerous functions are available to support you.

For example, powerful search functions make it easy to find the required products, which can be immediately checked for availability. Customer-specific discounts and preparation of quotes can be carried out online as well as order tracking and tracing.

Please visit the A&D Mall on the Internet under:

http://www.siemens.com/automation/mall

Customer support

In the face of harsh competition you need optimum conditions to keep ahead all the time:
A strong starting position. A sophisticated strategy and team for the necessary support - in every phase.
Service & Support from Siemens provides this support with a complete range of different services for automation and drives.

In every phase: from planning and startup to maintenance and upgrading.

Our specialists know when and where to act to keep the productivity and cost-effectiveness of your system running in top form.

Online support

The comprehensive information system available round the clock via Internet ranging from Product Support and Service & Support services to Support Tools in the Shop.

http://www.siemens.com/automation/service&support

Technical support

Competent consulting in technical questions covering a wide range of customer-oriented services for all our products and systems.

Tel.: +49 (0)180 50 50 222
Fax: +49 (0)180 50 50 223
(0.14 €/min from a German landline network, mobile telephone prices may vary)
http://www.siemens.com/automation/support-request

Technical consulting

Support in the planning and designing of your project from detailed actual-state analysis, target definition and consulting on product and system questions right to the creation of the automation solution.[1)]

Configuration and software engineering

Support in configuring and developing with customer-oriented services from actual configuration to implementation of the automation project.[1)]

Service on site

With Service On Site we offer services for startup and maintenance, essential for ensuring system availability.

In Germany
0180 50 50 444[1)]
(0.14 €/min from a German landline network, mobile telephone prices may vary)

Repairs and spare parts

In the operating phase of a machine or automation system we provide a comprehensive repair and spare parts service ensuring the highest degree of operating safety and reliability.
In Germany
0180 50 50 446[1)]
(0.14 €/m infrom a German landline network, mobile telephone prices may vary)

Optimization and upgrading

To enhance productivity and save costs in your project we offer high-quality services in optimization and upgrading.[1)]

1) For country-specific telephone numbers go to our Internet site at: http://www.siemens.com/automation/service&support.

Subject index

Order number index

Order number index

Conditions of sale and delivery
Export regulations

Terms and conditions of sale and delivery

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to the following terms. Please note! The scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside of Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following terms apply exclusively for orders placed with Siemens AG.

For customers with a seat or registered office in Germany

The "General Terms of Payment" as well as the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry" shall apply.

For software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany" shall apply.

For customers with a seat or registered office outside of Germany

The "General Terms of Payment" as well as the "General Conditions for Supplies of Siemens, Automation and Drives for Customers with a Seat or registered Office outside of Germany" shall apply.

For software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office outside of Germany" shall apply.

General

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

Illustrations are not binding.

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

The prices are ex works, exclusive packaging.

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

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

Surcharges will be added to the prices of products that contain silver, copper, aluminum, lead and/or gold if the respective basic official prices for these metals are exceeded. These surcharges will be determined based on the official price and the metal factor of the respective product.

The surcharge will be calculated on the basis of the official price on the day prior to receipt of the order or prior to the release order.
The metal factor determines the official price as of which the metal surcharges are charged and the calculation method used. The metal factor, provided it is relevant, is included with the price information of the respective products.

An exact explanation of the metal factor and the text of the Comprehensive Terms and Conditions of Sale and Delivery are available free of charge from your local Siemens business office under the following Order Nos.:

- 6ZB5310-0KR30-0BA1
  (for customers based in Germany)
- 6ZB5310-0KS53-0BA1
  (for customers based outside Germany)

or download them from the Internet
http://www.siemens.com/automation/mall
(Germany: A&D Mall Online-Help System)

Export regulations

The products listed in this catalog / price list may be subject to European / German and/or US export regulations.

Therefore, any export requiring a license is subject to approval by the competent authorities.

According to current provisions, the following export regulations must be observed with respect to the products featured in this catalog / price list:

AL	Number of the German Export List Products marked other than "N" require an export license. In the case of software products, the export designations of the relevant data medium must also be generally adhered to. Goods labeled with an "AL" not equal to "N" are subject to a European or German export authorization when being exported out of the EU.
ECCN	Export Control Classification Number Products marked other than "N" are subject to a reexport license to specific countries. In the case of software products, the export designations of the relevant data medium must also be generally adhered to. Goods labeled with an "ECCN" not equal to "N" are subject to a US re-export authorization.

Even without a label or with an "AL: N" or "ECCN: N", authorization may be required due to the final destination and purpose for which the goods are to be used.

The deciding factors are the AL or ECCN export authorization indicated on order confirmations, delivery notes and invoices.

Errors excepted and subject to change without prior notice.

A&D/VuL_ohne MZ/En 05.09.06

Catalogs

Industry Automation, Drive Technologies and Electrical Installation Technology

Further information can be obtained from our branch offices listed in the appendix or at www.siemens.com/automation/partner

Automation and Drives	*Catalog*
Interactive catalog on DVD	CA 01

Drive Systems	
Variable-Speed Drives	
SINAMICS G110/SINAMICS G120 Inverter Chassis Units SINAMICS G120D Distributed Frequency Inverters	D 11.1
SINAMICS G130 Drive Converter Chassis Units, SINAMICS G150 Drive Converter Cabinet Units	D 11
SINAMICS GM150/SINAMICS SM150 Medium-Voltage Converters	D 12
SINAMICS S150 Drive Converter Cabinet Units	D 21.3
Asynchronous Motors Standardline	D 86.1
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2
DC Motors	DA 12
SIMOREG DC MASTER 6RA70 Digital Chassis Converters	DA 21.1
SIMOREG K 6RA22 Analog Chassis Converters	DA 21.2
PDF: SIMOREG DC MASTER 6RM70 Digital Converter Cabinet Units	*DA 22*
SIMOVERT PM Modular Converter Systems	DA 45
SIEMOSYN Motors	DA 48
MICROMASTER 420/430/440 Inverters	DA 51.2
MICROMASTER 411/COMBIMASTER 411	DA 51.3
SIMOVERT MASTERDRIVES Vector Control	DA 65.10
SIMOVERT MASTERDRIVES Motion Control	DA 65.11
Synchronous and asynchronous servomotors for SIMOVERT MASTERDRIVES	DA 65.3
SIMODRIVE 611 universal and POSMO	DA 65.4
Low-Voltage Three-Phase-Motors	
IEC Squirrel-Cage Motors	D 81.1
IEC Squirrel-Cage Motors · New Generation 1LE1	D 81.1 N
MOTOX Geared Motors	D 87.1
Automation Systems for Machine Tools SIMODRIVE	NC 60
• Motors	
• Converter Systems SIMODRIVE 611/POSMO	
Automation Systems for Machine Tools SINAMICS	NC 61
• Motors	
• Drive System SINAMICS S120	
SIMOTION, SINAMICS S120 and Motors for Production Machines	PM 21
Drive and Control Components for Hoisting Equipment	HE 1
Mechanical Driving Machines	
Flender Standard Couplings	MD 10.1

Electrical Installation Technology	
PDF: ALPHA Small Distribution Boards and Distribution Boards, Terminal Blocks	*ET A1*
PDF: ALPHA 8HP Molded-Plastic Distribution System	*ET A3*
PDF: BETA Low-Voltage Circuit Protection	*ET B1*
PDF: DELTA Switches and Socket Outlets	*ET D1*
GAMMA Building Controls	ET G1

Human Machine Interface Systems SIMATIC HMI	ST 80

Low-Voltage	*Catalog*
Controls and Distribution – SIRIUS, SENTRON, SIVACON	LV 1
Controls and Distribution – Technical Information SIRIUS, SENTRON, SIVACON	LV 1 T
SIDAC Reactors and Filters	LV 60
SIVENT Fans	LV 65
SIVACON 8PS Busbar Trunking Systems	LV 70

Motion Control	
SINUMERIK & SIMODRIVE Automation Systems for Machine Tools	NC 60
SINUMERIK & SINAMICS Automation Systems for Machine Tools	NC 61
SIMOTION, SINAMICS S120 and Motors for Production Machines	PM 21

Process Instrumentation and Analytics	
Field Instruments for Process Automation Measuring Instruments for Pressure, Differential Pressure, Flow, Level and Temperature, Positioners and Liquid Meters	FI 01
PDF: Indicators for panel mounting	*MP 12*
SIREC Recorders and Accessories	MP 20
SIPART, Controllers and Software	MP 31
SIWAREX Weighing Systems	WT 01
Continuous Weighing and Process Protection	WT 02
Process Analytical Instruments	PA 01
PDF: Process Analytics, Components for the System Integration	*PA 11*

SIMATIC Industrial Automation Systems	
Products for Totally Integrated Automation and Micro Automation	ST 70
SIMATIC PCS 7 Process Control System	ST PCS 7
Add-ons for the SIMATIC PCS 7 Process Control System	ST PCS 7.1
Migration solutions with the SIMATIC PCS 7 Process Control System	ST PCS 7.2
pc-based Automation	ST PC
SIMATIC Control Systems	ST DA

SIMATIC NET	
Industrial Communication	IK PI

SIMATIC Sensors	
Sensors for Factory Automation	FS 10

Systems Engineering	
Power supplies SITOP power and LOGO! Power	KT 10.1
System cabling SIMATIC TOP connect	KT 10.2

System Solutions
Applications and Products for Industry are part of the interactive catalog CA 01

TELEPERM M Process Control System	
PDF: AS 488/TM automation systems	*PLT 112*

PDF: These catalogs are only available as pdf files.

Get more information

Low-Voltage Controls and Distribution
www.siemens.com/lowvoltage

Siemens AG
Industry Sector
Low-Voltage Controls and Distribution
Postfach 48 48
90026 NÜRNBERG
GERMANY

Subject to change without prior notice
Order No. E86060-K1835-A101-A2-7600
3P.8103.50.39 / Dispo 68201
KG 1008 3. E 64 En
Printed in Germany

www.siemens.com/automation

Token fee: 2.00 €